Product Guide 2012

Logic Control Products

EATON

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Meeting demands from packaging to processing

Electrical solutions that streamline control

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Dimensions, Weights and Ratings

Dimensions, weights and ratings given in this catalogue **are approximate and should not be used for construction purposes**. Drawings containing exact dimensions are available upon request. All listed product specifications and ratings are subject to change without notice. Photographs are representative of production units.

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Technical and Descriptive Publications

This catalogue contains brief technical data for proper selection of products. Further information is available in the form of technical information publications and illustrated brochures. If additional product information is required, contact your local Eaton Products Distributor, call **1-800-268-3578** or visit our Web site at **www.eatoncanada.ca**.

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The installation and use of Eaton products should be in accordance with the provisions of the Canadian Electrical Code and/or other local codes or industry standards that are pertinent to the particular end use. Installation or use not in accordance with these codes and standards could be hazardous to personnel and/or equipment.

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Pushbuttons and Indicating Lights

10250T Pushbuttons

M22 Modular Pushbuttons

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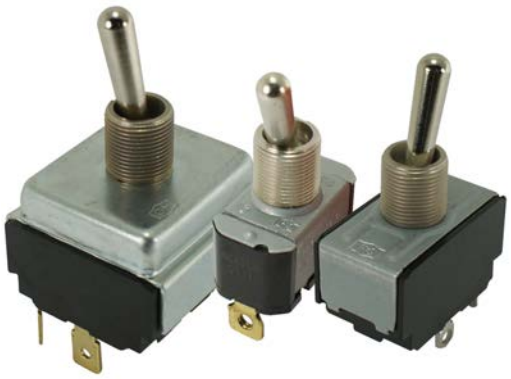
Toggle Switches—E10



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Product Description

The E10 switches from Eaton's electrical sector are intended for general purpose light industrial use. Designed for retrofit and OEM applications.

Features

General Purpose Toggles

- Various circuit functions include maintained and momentary
- Poles include from single-pole single-throw to four-pole double-throw
- Spade, screw, and solder terminations available
- Numerous ratings
- Short 11/32 in and tall 15/32 in bat lever available
- Standard 15/32–32 thd.
- Hardware furnished assembled

Heavy-Duty Hesitation Switches

- One-hole panel mount
- Three position switch offers unique positive centre stop feature to assure lever cannot be thrown from one side through the centre OFF position without stopping
  - Design feature is a major acceptance for motor reversing and speed control applications
  - Prevents motor damage resulting from high current generation by counter EMF of the armature at the time of reversing
  - Known as anti-plugging, hesitation, positive stop or positive off switch

Non-Illuminated AC Rated Pushbuttons

- One-hole panel mount
- Medium-duty
- Spade and screw terminations available
- Various bushing lengths and button extensions
- Numerous ampere ratings with horsepower ratings

Standards and Certifications

- UL Recognized
- CSA—File No. LR40068

Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Toggle Switches—E10 Series

Not to be used for ordering purposes

E10 T 1 06 A S = E10T106AS

Series

Lever Length
T = 0.563 in (14.3 mm) lever
E = 0.688 in (17.5 mm) lever

Poles
1 = Single-pole
2 = Two-pole
3 = Three-pole
4 = Four-pole

Ratings—125V
06 = 6 Amperes
15 = 15 Amperes
20 = 20 Amperes

Function
A = ON—None—OFF
B = OFF—None—(ON)
D = ON—OFF—ON
E = ON—None—ON
F = ON—OFF—(ON)
G = (ON)—OFF—(ON)
H = ON—None—(ON)

Termination
S = Screw
L = Solder lug
P = Spade

Complete Cat. No.
0.563 in (14.3 mm)
Single-pole
6 Amperes
ON—None—OFF
Screw terminal

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Product Selection

Toggle Switches

E10 Series—AC Rated—Minimum Order Quantity 10 Pieces

	Nominal AC Ratings Amperes 125V	250V	hp 50V	Poles and Throw ①	Function—Circuit with Lever In UP Position	CENTRE Position	DOWN Position—Keyway	Screw Terminal Catalogue Number	0.250 in (6.4 mm) Spade Terminal Catalogue Number	Solder Lug Catalogue Number
Single-Pole	**Single-Pole**									
	6	3	—	1 P.S.T.	ON	None	OFF	**E10T106AS**	**E10T106AP**	**E10T106AL**
	15	10	3/4					**E10T115AS**	**E10T115AP**	**E10T115AL**
	20	10	3/4					**E10E120AS**	**E10E120AP**	**E10E120AL**
	6	3	—	1 P.D.T.	ON	OFF	ON	**E10T106DS**	**E10T106DP**	—
	15	10	3/4					**E10T115DS**	**E10T115DP**	**E10T115DL**
	20	10	3/4					**E10E120DS**	—	—
	6	3	—	1 P.D.T.	ON	None	ON	**E10T106ES**	—	—
	15	10	3/4					**E10T115ES**	**E10T115EP**	**E10T115EL**
	20	10	3/4					**E10E120ES**	—	—
	—	10	1/2	1 P.S.T.	OFF	None	(ON)	**E10T115BS**	**E10T115BP**	—
				1 P.D.T.	ON	OFF	(ON)	**E10T115FS**	**E10T115FP**	—
				1 P.D.T.	ON	None	(ON)	**E10T115HS**	**E10T115HP**	—
				1 P.D.T.	(ON)	OFF	(ON)	**E10T115GS**	**E10T115GP**	—
Two-Pole	**Two-Pole**									
	6	3	—	2 P.S.T.	ON	None	OFF	**E10T206AS**	**E10T206AP**	—
	15	10	3/4					**E10T215AS**	**E10T215AP**	**E10T215AL**
	20	10	3/4					**E10E220AS**	**E10E220AP**	**E10E220AL**
	6	3	—	2. P.D.T.	ON	OFF	ON	**E10T206DS**	**E10T206DP**	—
	15	10	3/4					**E10T215DS**	**E10T215DP**	**E10T215DL**
	20	10	3/4					**E10E220DS**	**E10E220DP**	—
	6	3	—	2 P.D.T.	ON	None	ON	**E10T206ES**	—	—
	15	10	3/4					**E10T215ES**	**E10T215EP**	**E10T215EL**
	20	10	3/4					**E10E220ES**	—	—
	15	10	1/2	2 P.S.T.	OFF	None	(ON)	**E10T215BS**	—	—
				2 P.D.T.	ON	None	(ON)	**E10T215HS**	**E10T215HP**	—
				2 P.D.T.	(ON)	OFF	(ON)	**E10T215GS**	**E10T215GP**	—
Three-Pole	**Three-Pole**									
	15	10	3/4	3 P.S.T.	ON	None	OFF	**E10E315AS**	**E10E315AP**	—
				3 P.D.T.	ON	OFF	ON	**E10E315DS**	**E10E315DP**	**E10E315DL**
				3 P.D.T.	ON	None	ON	**E10E315ES**	**E10E315EP**	**E10E315EL**
Four-Pole	**Four-Pole**									
	15	10	3/4	4 P.S.T.	ON	None	OFF	**E10E415AS**	—	**E10E415AL**
				4 P.D.T.	ON	OFF	ON	**E10E415DS**	—	**E10E415DL**
				4 P.D.T.	ON	None	ON	**E10E415ES**	—	**E10E415EL**

Note

① See Circuit Diagrams on **Page T37-6**.

Hesitation Switches

Heavy-Duty Hesitation Switch

E10 Series—Special Purpose—Minimum Order Quantity 10 Pieces

Nominal Ratings Amperes 28 Vdc	125 Vac	250 Vac	hp 250 Vac	Operation	Function—Circuit with Lever In… UP Position	CENTRE Position	DOWN Position—Keyway	Poles and Throw ①	Screw Terminal Catalogue Number
15	15	10	3/4	Maintained	ON	OFF	ON	2 P.D.T.	**E10E215SS**
								3 P.D.T.	**E10E315SS**
								4 P.D.T.	**E10E415SS**

Pushbuttons

One-Hole Mounted Medium-Duty, Mom. Contact

E10 Series—Minimum Order Quantity 10 Pieces

Nominal Ratings Amperes 125 Vac NO	125 Vac NC	250 Vac NO	250 Vac NC	hp 125–250V	Poles and Throw ①	Contacts	Bushing Length in (mm) Dim. "A"	Button Extension in (mm) Dim. "B"	Typical Maximum Operating Force	Screw Terminal Catalogue Number	Spade Terminal 0.250 in (6.4 mm) Catalogue Number
6	—	3	—	—	1 P.S.T.	NO	0.69 (17.5)	0.53 (13.5)	0.9 lbs	**E10P106RS**	**E10P106RP**
							0.34 (8.6)	0.25 (6.4)		**E10P106JS**	—
15	—	10	—	1/3	1 P.S.T.	NO	0.69 (17.5)	0.53 (13.5)	0.9 lbs	**E10P115RS**	**E10P115RP**
							0.34 (8.6)	0.25 (6.4)		**E10P115JS**	—
15	10	10	5	1/4 ②	1 P.D.T.	NO, NC	0.69 (17.5)	0.53 (13.5)	1.0 lbs	**E10P115LS**	—

Accessories

Toggle Switches Accessories—Minimum Order Quantity 100 Pieces

Description	Material/Notes	Catalogue Number
Hexagon locknut	Zinc-chromate treated steel	**E10TA101**
Knurled face nut	Zinc-chromate treated steel	**E10TA102**
Internal tooth lockwasher	Cadmium plated steel	**E10TA103**
Terminal screws	#6-32 x 3/16 in binding head	**E10TA201**
Spade terminal adapter—0.250 in (6.4 mm)	Assembles to screw terminals	**E10TA202**
ON-OFF indicating plate—vertical orientation	Burnished nickel finish steel	**E10TA301**
OFF-ON indicating plate—horizontal orientation	Burnished nickel finish steel	**E10TA302**

E10TA104

Flip-up guard for toggle switches — **E10TA104**

E10TA105

Fixed shroud for toggle switches — **E10TA105**

Notes

Interlock mechanism prevents operation of lever through the centre position until pressure is momentarily relieved. Designed for control and protection of reversing motors.

① See Circuit Diagrams on **Page T37-6**.

② Rated 1/4 hp at 125V, 1/2 hp at 250V.

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Technical Data and Specifications

Toggle Switches

Description	Specification
AC ratings	6–20A, 125 Vac 3–10A, 250 Vac Max. 3/4 hp at 250 Vac
DC ratings	6–20A, 28 Vdc
Electrical life	6,000 cycles make/break at switch ampere rating
Operation	Slow make/slow break mechanism with butt action for AC and low voltage DC applications Maintained and momentary contacts
Poles/throws	1 through 4, single and double throw
Mounting	One hole with threaded 0.468 in-32 bushing and 0.068 x 0.035 in (1.7 x 0.9 mm) deep keyway that serves as anti-rotational feature
Lever lengths	0.563 in (14.3 mm) or 0.688 in (17.5 mm), bright nickel plated
Terminals	Screw, 0.250 in (6.4 mm) spade and solder lug

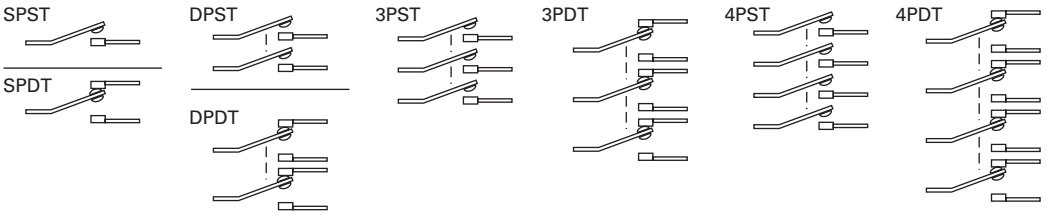
Hesitation Switches

Description	Specification
Operation	Slow make/slow break mechanism with butt action for AC and low voltage DC applications; maintained contacts; ideal for reversing motor applications; interlock mechanism prevents operation of lever through centre position until manual pressure is momentarily relieved
AC ratings	15A, 125 Vac 10A, 250 Vac Max. 3/4 hp at 250 Vac
DC ratings	15A, 28 Vdc
Poles/throws	2, 3 and 4, double throw only
Mounting	Single-pole with threaded 0.468 in-32 bushing and 0.068 x 0.049 in (1.7 x 1.2 mm) deep keyway
Lever length	0.687 in (17.4 mm), stainless steel
Terminals	Screw

Pushbutton Actuators

Description	Specification
AC ratings	6–15A, 125 Vac (NO) 3–10A, 250 Vac (NO) Max. 1/3 hp at 125/250 Vac
Operation	Slow make/slow break mechanism Normally open contacts
Poles/throws	Single, single and double throw
Mounting	One hole with 0.468 in-32 threaded bushing and 0.068 x 0.035 in (1.7 x 0.9 mm) deep keyway Two bushing heights: 11/16 in (17.5 mm) and 11/32 in (8.7 mm)
Button extensions	17/32 in (13.5 mm) and 1/4 in (6.4 mm), bright nickel plated
Terminals	Screw

Circuit Diagrams



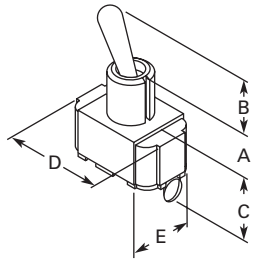
Dimensions

Approximate Dimensions in Inches (mm)

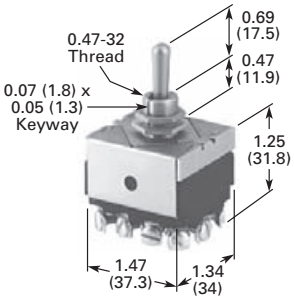
Toggle Switch Dimensions

No. of Poles	Operation	Bushing Length A	Lever Length B	Screw Terminals C	Screw Terminals D	Screw Terminals E	Spade Terminals C ①	Spade Terminals D	Spade Terminals E	Solder Lug C	Solder Lug D	Solder Lug E
1	Momentary and maintained	0.47 (11.9)	0.56 (14.2)	1.00 (25.4)	1.17 (29.7)	0.63 (16.0)	1.13 (28.7)	1.13 (28.7)	0.63 (16.0)	1.00 (25.4)	1.13 (28.7)	0.63 (16.0)
2	Maintained	0.47 (11.9)	0.56 (14.2)	1.06 (26.9)	1.31 (33.3)	0.75 (19.1)	1.19 (30.2)	1.31 (33.3)	0.75 (19.1)	1.06 (26.9)	1.31 (33.3)	0.75 (19.1)
	Momentary	0.47 (11.9)	0.56 (14.2)	1.25 (31.8)	1.31 (33.3)	0.75 (19.1)	1.31 (33.3)	1.31 (33.3)	0.75 (19.1)	1.25 (31.8)	1.31 (33.3)	0.75 (19.1)
3	Maintained	0.47 (11.9)	0.69 (17.5)	1.27 (32.3)	1.34 (34.0)	1.44 (36.6)	1.37 (34.8)	1.34 (34.0)	1.44 (36.6)	1.23 (31.2)	1.34 (34.0)	1.44 (36.6)
4	Maintained	0.47 (11.9)	0.69 (17.5)	1.20 (30.5)	1.30 (33.0)	1.40 (35.6)	1.30 (33.0)	1.34 (34.0)	1.40 (35.6)	1.23 (31.2)	1.34 (34.0)	1.44 (36.6)

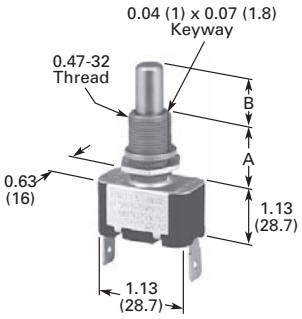
Toggle Switch



Hesitation Switch

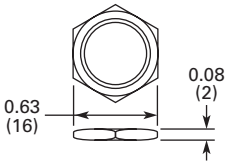


Pushbutton Actuator

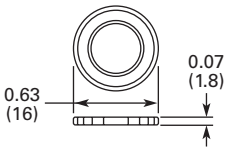


Accessories

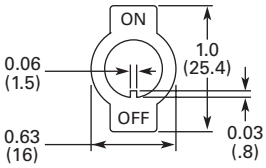
E10TA101 Hexagon Locknut



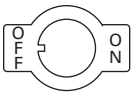
E10TA102 Knurled Face Nut



E10TA301 ON-OFF Indicating Plate—Vertical Orientation



E10TA302 ON-OFF Indicating Plate—Horizontal Orientation



Note

① Spade terminal adapters are used on 6 ampere and momentary screw terminal switches, adding 0.42 in (10.7 mm) to dimension C.

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Product Description

Designed for general purpose and OEM applications, this line of toggle switches provides a high IP68 rating for demanding environments.

Features

Molded-In Screw Terminal

- Completely sealed against dust, moisture and other contaminants
- One-hole mounted bushing for easy installation
- Multi-circuits offered
- Two- and three-position with maintained and momentary action
- Molded-in terminal inserts and terminals numbers
- Single- and two-pole circuitry

Econoswitch

- Environmentally sealed
- Single- and two-pole circuitry
- One-hole mounting for easy installation
- Multi-circuits
- Two- and three-position with maintained and momentary action
- Three types of termination offered as standard

Switch Guard

- For use with two-position switch
- Cover closure transfers switch toggle lever to OFF position
- One-hole mounted mounting style
- Cover is molded out of red thermoset molding material
- Guard cover is spring-loaded to either close or lock in open position
- Prevents accidental operation at switches

Options

Note: Contact your local Eaton Sales Representative for more information.

- Non-UL Recognized devices
  - Alternate toggle levers
  - Locking toggle levers
  - Rocker buttons
- Special mounting hardware
- Mounting hardware furnished assembled
- Terminal screws furnished assembled
- Special circuits
- Panel seal, part number 32-341
- Spade terminal adapters available

Standards and Certifications

- UL—File number E15346; Guide card number is WOYR2
- CSA—LR40068, class number 6241

UL and CSA Nominal Ratings

Catalogue Number	125 Vac	250 Vac
Amperes		
E10E118xx	18	9
E10E218xx	18	9
Single-Phase hp		
E10E118xx	1/4	1/2
E10E218xx	1/2	1
Three-Phase hp		
E10E118xx	—	—
E10E218xx	—	—

Product Selection

Molded-In Screw Terminal

E10E Series—Molded-In Screw Terminal

Single-Pole

Nominal AC Ratings Amperes 125V	250V	Single-Phase hp 125V	250V	Three-Phase hp 125/250V	Circuit with Lever Position Up	Centre	Down (Keyway)	Catalogue Number
Single-Pole								
18	9	1/4	1/2	—	ON	OFF	ON	**E10E118DM**
					ON	NONE	OFF	**E10E118AM**
					ON	NONE	ON	**E10E118EM**

Two-Pole

Two-Pole								
18	9	1/2	1	—	ON	OFF	ON	**E10E218DM**
					ON	NONE	OFF	**E10E218AM**
					ON	NONE	ON	**E10E218EM**

Econoswitch

E10E Series—Econoswitch

Single-Pole

Type of Operation	Current Ratings—Amperes 28 Vdc Lamp Load	Resistive Load	Inductive Load	115 Vac, 60 or 400 Hz Lamp Load	Resistive Load	Inductive Load	Circuit with Lever Position Up	Centre	Down (Keyway)	Screw Terminal Catalogue Number	Solder Lug Terminal Catalogue Number	Spade Terminal Catalogue Number
Single-Pole												
Maintained	5	20	15	3	15	10	ON	OFF	ON	**E10E118DS**	**E10E118DL**	**E10E118DP**
Maintained	5	20	15	3	15	10	ON	NONE	OFF	**E10E118AS**	**E10E118AL**	**E10E118AP**
Maintained	5	20	15	3	15	10	ON	NONE	ON	**E10E118ES**	**E10E118EL**	**E10E118EP**
Momentary	4	15	10	2	15	7	ON ①	OFF	ON ①	**E10E118GS**	**E10E118GL**	**E10E118GP**
Momentary	4	15	10	2	15	7	OFF	NONE	ON ①	**E10E118BS**	**E10E118BL**	**E10E118BP**

Two-Pole

Two-Pole												
Maintained	7	20	15	4	15	15	ON	OFF	ON	**E10E218DS**	**E10E218DL**	**E10E218DP**
Maintained	7	20	15	4	15	15	ON	NONE	OFF	**E10E218AS**	**E10E218AL**	**E10E218AP**
Maintained	7	20	15	4	15	15	ON	NONE	ON	**E10E218ES**	**E10E218EL**	**E10E218EP**
Momentary	5	18	10	2	11	8	ON ①	OFF	ON ①	**E10E218GS**	**E10E218GL**	**E10E218GP**
Momentary	5	18	10	2	11	8	OFF	NONE	ON ①	**E10E218BS**	**E10E218BL**	**E10E218BP**

Switch Guard

Switch Guard

E10E Series—Switch Guard

	Catalogue Number
Switch Guard	**E10TA104**

Note

① Momentary contact.

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Technical Data and Specifications

E10E Series—Molded-In Screw Terminal

Description	Specification
Watertight seal	Per MIL-STD-108E and designed to meet IP68
Thermoset molding materials	Meet flame retardant requirements
Temperature range	–50° to 150°F (–46° to 66°C)
Life	20,000 operations at rated load; 40,000 operations mechanical life; 6,000 operations at hp ratings per UL and CSA requirements
Bushings	15/32 in-32 thread

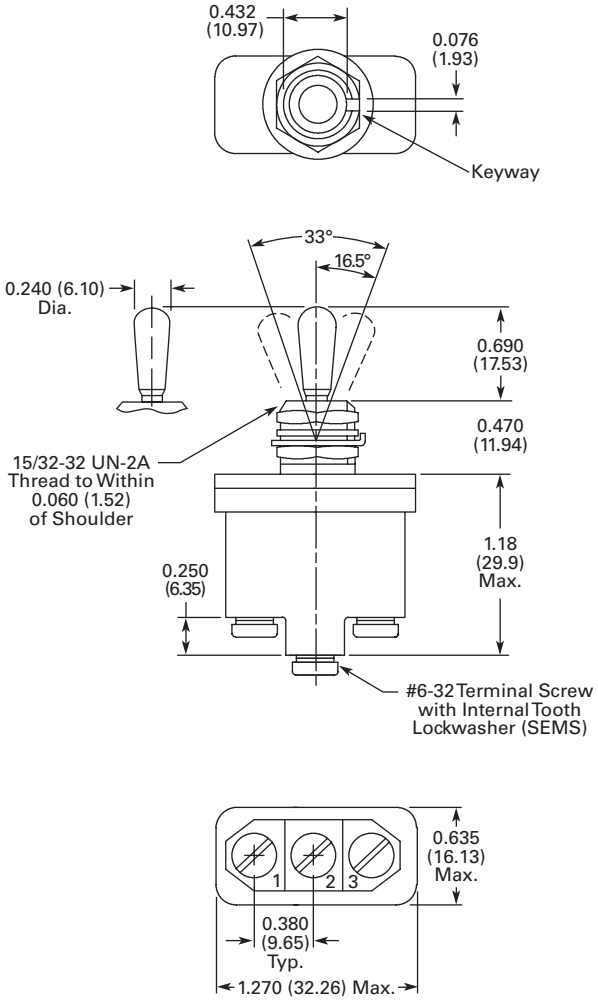
E10E Series—Econoswitch

Description	Specification
Watertight seal	Per MIL-STD-108E and designed to meet IP68
Type of terminal	Screws—6-32 UNC-22A Solder lug—0.125 in (3.17 mm) dia. hole Spade—0.250 in (6.35 mm) x 0.032 in (0.81 mm) thick
Life	50,000 operations at rated load; 100,000 operations mechanical life
Temperature range	–50° to 150°F (–46° to 66°C)

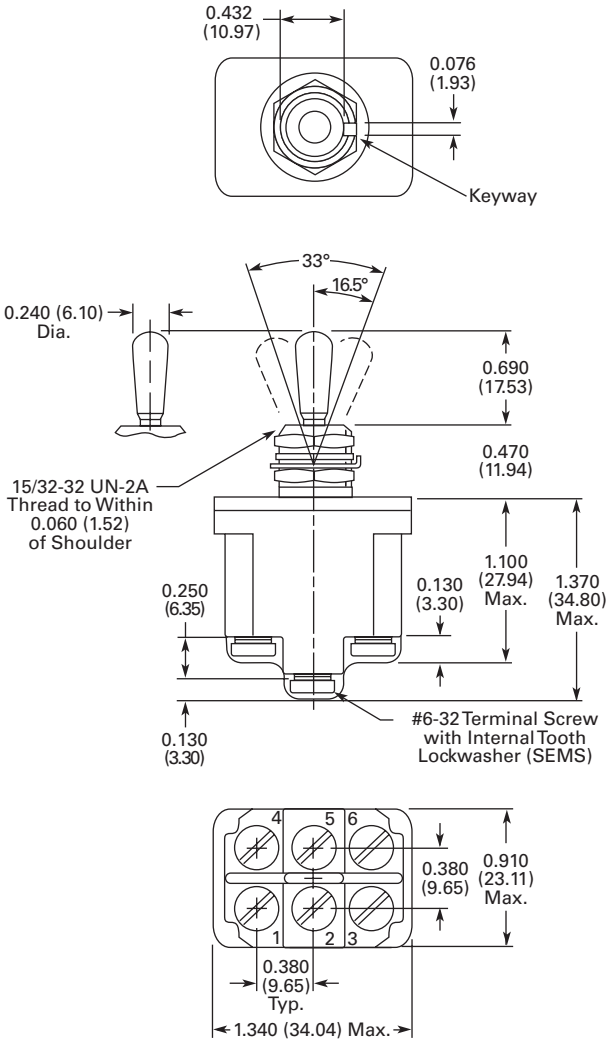
Dimensions

Approximate Dimensions in Inches (mm)

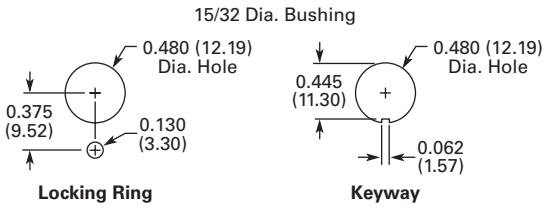
Single-Pole Molded-In Screw Terminal E10E Series



Two-Pole Molded-In Screw Terminal E10E Series

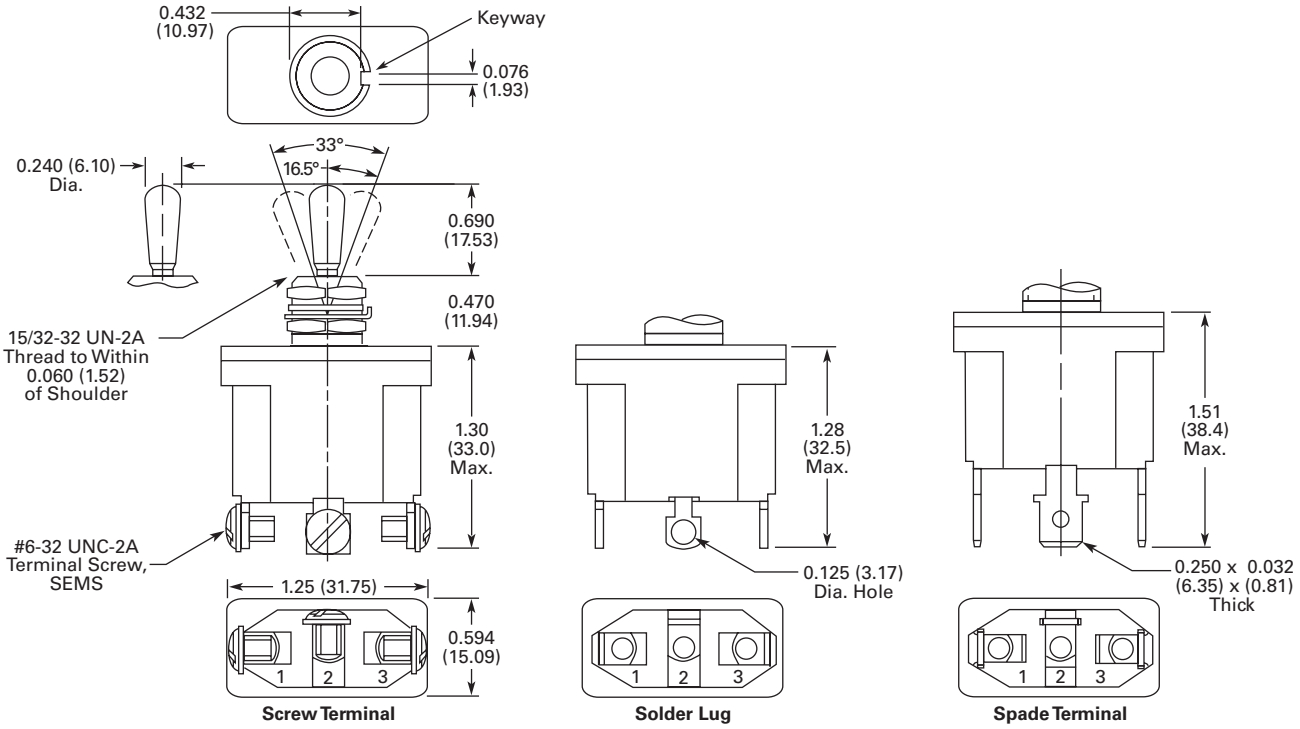


Toggle Switch Panel Cutout

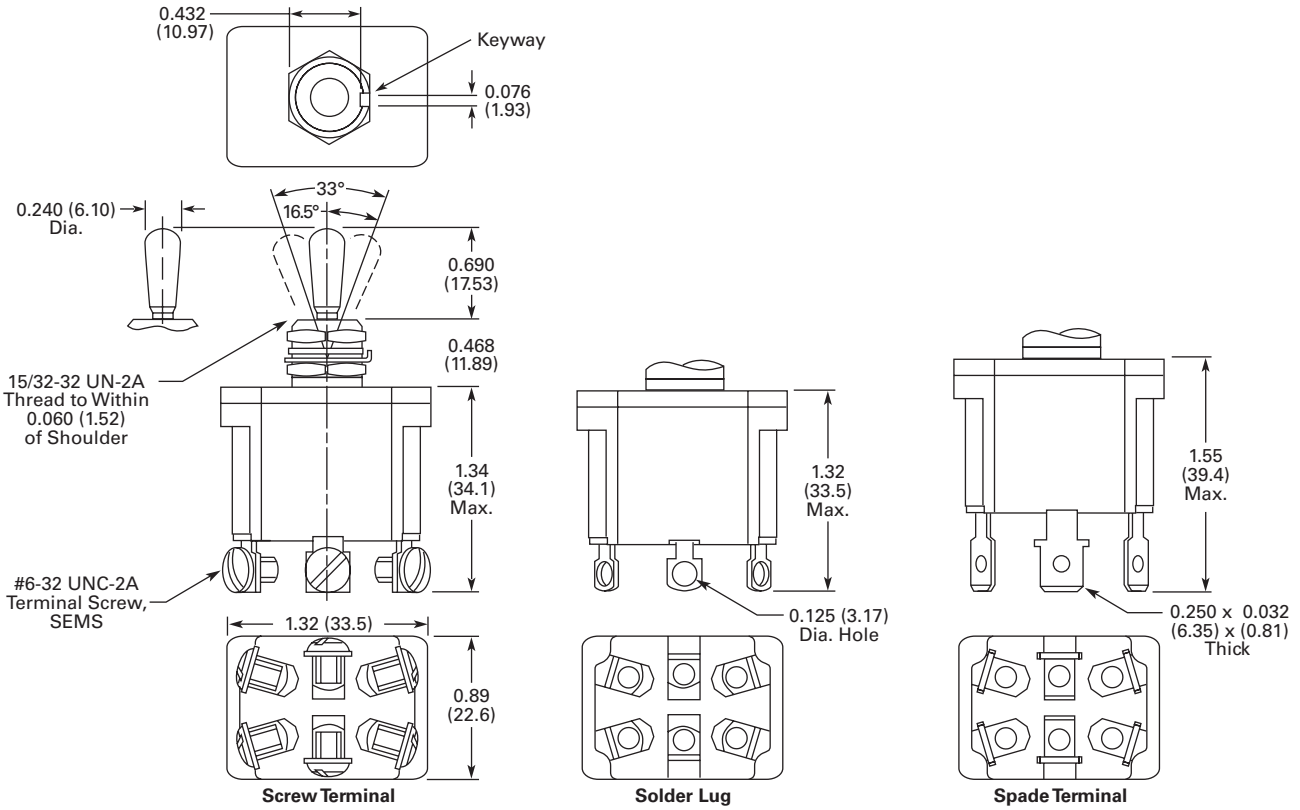


Approximate Dimensions in Inches (mm)

Single-Pole Econoswitch E10E Series

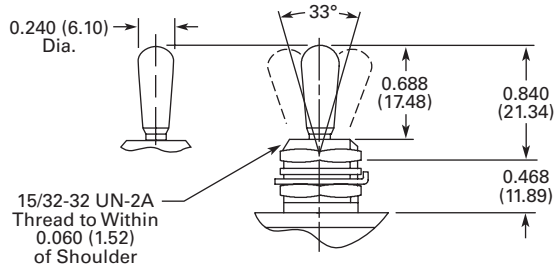


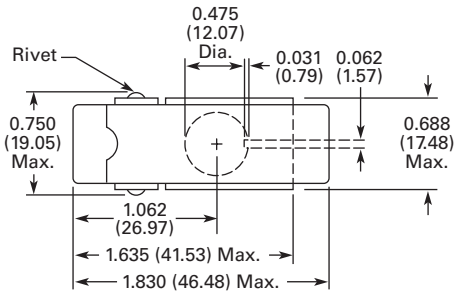
Two-Pole Econoswitch E10E Series

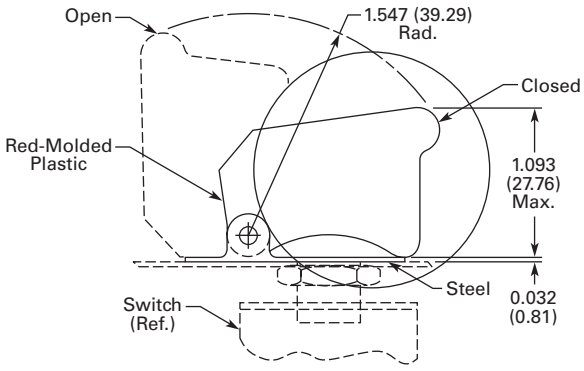


Approximate Dimensions in Inches (mm)

Switch Guard







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Pushbutton Control Stations

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Product Description

M22 Assembled Control Stations

- M22 series operators
- Available in horizontal and vertical configurations
- Impact resistant polycarbonate enclosures
- Optional yellow covers
- Base mounting contact blocks and light units for quick wiring and vibration resistance

Commercial Control Stations

- 10250T series operators
- Full front label
- Specific function labels on front of enclosure

General Purpose Control Stations

- Construction grade
- General purpose wall mount
- Popular with contractors
- UL (NEMA) Type 1

Special Purpose Control Stations

- Standard grade
- Polyester enclosure
- UL (NEMA) Type 3, 3R, 4, 4X, 13

10250H Series Heavy-Duty Control Stations

- 10250H Series operators
- Dark brown polyester enclosure
- Protective rubber gaskets provide NEMA 3S rating on pushbuttons
- Top and bottom 3/4 in NPT conduit entrances
- Includes alternate legend plates and spare mounting screws

10250T Series Heavy-Duty 30.5 mm Control Stations

- 10250T Series operators
- ASA 61 gray die-cast zinc enclosures
- Surface or flush mounting
- Single 3/4 in NPT conduit entrance on one and two element stations
- Single 1 in NPT conduit entrance on three element stations

Class I Division 2 10250T Series Heavy-Duty 30.5 mm Control Stations

- 10250T Series operators
- Factory sealed contact blocks
- Die-cast, polyester or stainless steel enclosures
- Approved for NEC Class I Division 2, Groups B, C and D or Class I Zone 2 Group IIB plus Hydrogen type hazardous locations

Class I Division 2 E34 Series Corrosion Resistant 30.5 mm Control Stations

- E34 Series operators
- Factory sealed contact blocks
- Die-cast, polyester or stainless steel enclosures
- Approved for NEC Class I Division 2 Groups B, C and D or Class I Zone 2 Group IIB plus Hydrogen type hazardous locations

Features

M22 Assembled Control Stations

- IP66, UL (NEMA) Type 4X, 13
- Impact resistant polycarbonate enclosures
- Optional yellow cover
- 25% smaller depth than most competitor enclosures
- Base mounting contact blocks and light units for faster wiring and vibration resistance

Commercial Control Stations

- ASA 61 gray die-cast zinc enclosures
- Pre-assembled and labeled for functions such as "Fuel Shut-Off"
- Great for commercial applications

General Purpose Control Stations

- Construction grade
- General purpose wall mount
- Popular with contractors
- UL (NEMA) Type 1

Special Purpose Control Stations

- Standard grade
- Polyester enclosure
- UL (NEMA) Type 3, 3R, 4, 4X, 13

10250H Series Heavy-Duty Control Stations

- Industrial grade
- Extra heavy-duty
- Polyester enclosure
- Booted buttons
- Outdoor installation
- UL (NEMA) Type 3, 3R, 3S, 4, 4X, 12, 13

10250T Series Heavy-Duty 30.5 mm Control Stations

- 30.5 mm operators
- Industrial grade
- Zinc die cast enclosure
- Popular with industrial end users
- UL (NEMA) Type 4, 4X, 12, 13

Class I Division 2 Control Stations

- Available with 10250T or E34 30.5 mm operators
- Zinc die cast, polyester or stainless steel enclosures
- Factory-sealed contact blocks
- Popular with industrial end users
- UL (NEMA) Type 4, 4X, 12, 13
- NEC Class I Division 2 Groups B, C and D

Product Selection

M22 Assembled Control Stations

One Element Control Stations

Orientation	Description	Colour	①	Inscription	Enclosure Cover Colour	Catalogue Number
Horizontal	40 mm mushroom head push-pull emergency stop operator	Red	NC	—	Yellow	**M22-C1-M1H**
Horizontal	40 mm illuminated mushroom head push-pull emergency stop operator, 85–264 Vac	Red	NO-NC	—	Yellow	**M22-C1-M2H**
Horizontal	40 mm mushroom head twist-to-release emergency stop operator	Red	NC	—	Yellow	**M22-C1-M3H**
Horizontal	40 mm mushroom head key-release emergency stop operator	Red	NC	—	Yellow	**M22-C1-M4H**
Horizontal	Flush pushbutton	Green	NO	⏽	Gray	**M22-C1-M5H**
Horizontal	Flush pushbutton	Green	NO	START	Gray	**M22-C1-M6H**
Horizontal	Extended pushbutton	Red	NC	◎	Gray	**M22-C1-M7H**
Horizontal	Extended pushbutton	Red	NC	STOP	Gray	**M22-C1-M8H**
Horizontal	Key-operated selector switch, two-position maintained	—	NO	OFF-ON	Gray	**M22-C1-M9H**
Horizontal	Knob type selector switch, three-position maintained	—	2NO	HAND 0 AUTO	Gray	**M22-C1-M10H**
Horizontal	Double pushbutton	Green	NO	START	Gray	**M22-C1-M11H**
		Red	NC	STOP		

Two Element Control Stations

Orientation	Element 1 Description	Colour	①	Inscription	Element 2 Description	Colour	①	Inscription	Enclosure Cover Colour	Catalogue Number
Horizontal	Extended pushbutton	Red	NC	◎	Flush pushbutton	Green	NO	⏽	Gray	**M22-C2-M1H**
Vertical	Flush pushbutton	Green	NO	START	Extended pushbutton	Red	NC	STOP	Gray	**M22-C2-M2V**
Vertical	Flush pushbutton	Black	NO	FORWARD	Flush pushbutton	Black	NO	REVERSE	Gray	**M22-C2-M3V**

Three Element Control Stations

Orientation	Element 1 Description	Colour	①	Inscription	Element 2 Description	Colour	①	Inscription	Element 3 Description	Colour	①	Inscription	Enclosure Cover Colour	Catalogue Number
Horizontal	Extended pushbutton	Red	NC	◎	Indicating light	White	85–264 Vac	—	Flush pushbutton	Green	NO	⏽	Gray	**M22-C3-M1H**
Vertical	Indicating light	White	85–264 Vac	—	Flush pushbutton	Green	NO	START	Extended pushbutton	Red	NC	STOP	Gray	**M22-C3-M2V**
Horizontal	Flush pushbutton	Green	NO	⏽	Extended pushbutton	Red	NC	◎	Flush pushbutton	Green	NO	⏾	Gray	**M22-C3-M3H**
Vertical	Flush pushbutton	Black	NO	OPEN	Extended pushbutton	Red	NC	STOP	Flush pushbutton	Black	NO	CLOSE	Gray	**M22-C3-M4V**
Vertical	Flush pushbutton	Black	NO	FORWARD	Flush pushbutton	Red	NC	STOP	Flush pushbutton	Black	NO	REVERSE	Gray	**M22-C3-M5V**
Vertical	Flush pushbutton	Black	NO	UP	Flush pushbutton	Red	NC	STOP	Flush pushbutton	Black	NO	DOWN	Gray	**M22-C3-M6V**

Notes

For assembled control stations not found in this selection, please contact the Eaton Customer Service Centre at 1-800-268-3578 or cscanada@eaton.com.

① Contact block configuration.

Commercial Control Stations

Key Specifications

- 30.5 mm (10250T series) operators
- ASA 61 gray die-cast zinc enclosures
- Industrial grade
- UL® Type 4, 4X, 12, 13
- Single 3/4 in NPT conduit entrance
- Dimensions—in (mm)
  - Enclosure: 3.88 W x 4.00 H x 3.00 D (98.6 x 101.6 x 76.3)
  - Operator: 1.63 D (to enclosure) x 1.50 diameter (41.4 x 38.1)

What is included?

Eaton's pre-assembled, enclosed emergency stop pushbutton stations include an operator, an enclosure, contact blocks and a variety of unique labels. Each label has white lettering on a red background indicating the function and red lettering on a white background indicating the operator type.

Available Catalogue Numbers

Catalogue Number ①	Operator	Enclosure Colour	Label
10250T5B62-S101	Pushbutton	Gray	EMERGENCY STOP
10250T5B62-S102	Pushbutton	Gray	EMERGENCY SHUT-OFF
10250T5B62-S103	Pushbutton	Gray	EMERGENCY GENERATOR STOP
10250T5B62-S104	Pushbutton	Gray	EMERGENCY HVAC SHUT-DOWN
10250T5B62-S105	Pushbutton	Gray	EMERGENCY ELECTRICAL DISCONNECT
10250T5B62-S106	Pushbutton	Gray	EMERGENCY BOILER SHUT-DOWN
10250T5B62-S107	Pushbutton	Gray	EMERGENCY CHILLER STOP
10250T5B62-S108	Pushbutton	Gray	EMERGENCY FUEL SHUT-OFF
10250T5B62-S109	Pushbutton	Gray	EMERGENCY REFRIGERATION STOP
10250T5B62-S110	Pushbutton	Gray	EMERGENCY POWER OFF
10250T5B62-S111	Pushbutton	Gray	EMERGENCY GAS SHUT-OFF
10250T5B62-S121	Pushbutton	Gray	EMERGENCY VENTILATION SHUT-DOWN
10250T5B62-S131	Pushbutton	Gray	GENERATOR

Additional Contact Blocks

(Sold Separately)

Catalogue Number	Circuit Configuration
10250T51	1NC
10250T53	1NO
10250T1	NO-NC
10250T3	2NC
10250T2	2NO

Note

① Includes 1NO-1NC contact block.

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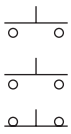
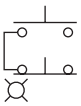
General Purpose Control Stations

Type N Control Stations—UL (NEMA) Type 1

	Contact Symbol	Button Type/Colour	Legends	Catalogue Number
Single Button Station with Padlock Attachment Accessory	**One Element Enclosure Type**			
		Flush/green	START	**10250H5100**
		Flush/red	STOP	**10250H5101**
		Extended/red	STOP	**10250H5104**
		Palm operated/black	None	**10250H89** ①
Selector Switch		Three-position selector switch/black knob	RUN/OFF/AUTO	**10250H289** ①
Two Button Station	**Two Element Enclosure Type**			
		Flush/red	START/STOP	**10250H5200**
		Flush/green extended/red	START/STOP	**10250H5207**
		Flush/black (all)	RAISE/LOWER	**10250H5201**
			FOR/REV	**10250H5202**
			OPEN/CLOSE	**10250H5203**
			UP/DOWN	**10250H5204**
			HIGH/LOW	**10250H5205**
			FAST/SLOW	**10250H5208**
Three Button Station	**Three Element Enclosure Type**			
		Flush/black (all)	FOR/REV/STOP	**10250H5300**
			UP/DOWN/STOP	**10250H5301**
			RAISE/LOWER/STOP	**10250H5302**
			OPEN/CLOSE/STOP	**10250H5303**
			FAST/SLOW/STOP	**10250H5304**
Three Button Station with Indicating Light		110/220V neon indicating light	START/STOP	
		Clear—flush/green; flush/red		**10250H5310**
		Red—flush/green; flush/red		**10250ED853**
		Amber—flush/green; flush/red		**10250ED853-2**

Note

① Round button.

Type N Control Stations—Open Type Construction (No Cover)

	Contact Symbol	Button Type/Colour	Legends	Catalogue Number
Selector Switch	**One Element Enclosure Type**			
		Three-position selector switch/black knob	RUN/OFF/AUTO	**10250H2538**
Two Button Station	**Two Element Enclosure Type**			
		Flush/green	START/STOP	**10250H2747**
Mechanically Interlocked Pushbuttons		Flush/black (all) mech. interlocked	None ①	**10250H2544**

Special Purpose Control Stations

Special Purpose Control Stations—UL (NEMA) Type 3, 3R, 4, 4X, 13

	Contact Symbol	Feature	Legends	Catalogue Number
10250H_	**One Element Pushbutton Type**			
		Flush	START	**10250H2738**
			STOP	**10250H658**
		With lock hasp	STOP	**10250H665**
10250H_	**Two Element Pushbutton Type**			
		Flush	START/STOP	**10250H364**
		With lock hasp	START/STOP	**10250H671**
		Buttons interlocked	FAST/SLOW	**10250ED664**
			FOR/REV	**10250H2740**
			UP/DOWN	**10250H2741**
			OPEN/CLOSE	**10250H2742**

Note

① No legend on buttons. Specify any standard legend.

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10250H Series Heavy-Duty Control Stations

Type H Control Stations—UL (NEMA) Type 3, 3S, 4, 4X, 12, 13

	Element Type		Feature	Circuit	Assembled Legend Plate	Unassembled Alternate Legend Plate		Catalogue Number
10250H_	**One Element**							
	Pushbuttons		Without padlock hasp	1NO-1NC	JOG	START		**10250H1881**
						STOP		
						RUN		
			With padlock hasp	1NC	STOP	—		**10250H4239**
	Knob selector switch		Two-position	1NO-1NC	OFF/ON	—		**10250H4526**
			Three-position	1NO-1NC	MAN/OFF/AUTO	—		**10250H4527**
10250H_	**Two Element**							
	Pushbuttons		Standard	1NO-2NC	START/STOP	—		**10250H1884**
				2NO-2NC	RAISE/LOWER	FORWARD		**10250H1885**
						REVERSE		
						OPEN		
						CLOSE		
			Standard and standard with padlock hasp	1NO-2NC	START/STOP	—		**10250H4240**
10250H_	**Three Element**							
	Pushbuttons		Standard	2NO-3NC	FOR/REV/STOP	START	OPEN	**10250H1890**
			Two standard and standard with padlock hasp			JOG	CLOSE	**10250H4241**
						RAISE	FAST	
						LOWER	SLOW	
	Indicating light and pushbuttons	120V	Light-red lens and two plain	1NO-2NC	MOTOR RUNNING START/STOP	—		**10250H1913**

10250T Series Heavy-Duty 30.5 mm Control Stations

Complete Assembled Stations—UL (NEMA) Type 4, 4X, 12, 13

Element Type ①	Features	Contact Block(s)	Legend	Surface Mounting Catalogue Number	Flush Mounting ② Catalogue Number
Break Glass Station					
Break glass station ③	Gray enclosure	NC (logic level)	EMERG. OFF	**10250TGS**	—
	Red enclosure			**10250TGR**	—
One Element					
Pushbutton	Standard	NO-NC	START	**10250T3516**	**10250T3573**
		NC	STOP	**10250T3518**	**10250T3575**
		NO-NC	None	**10250T3540**	**10250T3597**
	Mushroom head	NO-NC	START	**10250T3517**	**10250T3574**
		NC	STOP	**10250T3519**	**10250T3576**
	With lock hasp ④	NC	STOP	**10250T3520**	**10250T3577**
Selector switch	Two-position black knob	NO-NC	OFF/ON	**10250T3523**	**10250T3580**
	Three-position black knob	2NO	MAN/OFF/AUTO	**10250T3524**	**10250T3581**
Push-pull three-position	Momentary red button	2NC	START/STOP	**10250T3545**	**10250T3602**
Two Element					
Pushbuttons	Standard	1NO-2NC	START/STOP	**10250T3525**	**10250T3582**
		2NO-2NC	RAISE/LOWER	**10250T3672**	**10250T3673**
		2NO-2NC	None	**10250T3541**	**10250T3598**
	With lock hasp ④	1NO-2NC	START/STOP	**10250T3542**	**10250T3599**
	Standard and mushroom head	1NO-2NC	START/STOP	**10250T3526**	**10250T3583**
	Standard with maintained contact ⑤	NO-NC	START/STOP	**10250T3528**	**10250T3585**
		Plus NC			
Three Element					
Pushbuttons	Standard	2NO-3NC	FOR, REV, STOP	**10250T3532**	**10250T3589**
		2NO-3NC	UP, DOWN, STOP	**10250T3615**	—
		2NO-3NC	OPEN, CLOSE, STOP	**10250T3614**	—
		2NO-3NC	None, None, STOP	**10250T3543**	**10250T3600**
	Two standard and with lock hasp	2NO-3NC	None, None, STOP	**10250T3544**	**10250T3601**
Indicating light (transformer type) and pushbuttons	Red lens — 120V	1NO-2NC	MOTOR RUN, START/STOP	**10250T3536**	**10250T3593**
	Red lens — 240V			**10250T3537**	**10250T3594**
	Red lens — 480V			**10250T3538**	**10250T3595**
	Red lens — 600V			**10250T3539**	**10250T3596**

Break Glass Kit

Break Glass Operator ⑥

Description	Catalogue Number
Operator with hammer and five glass discs	**10250TBG**
Glass discs only (5)	**10250TGL**

Notes

① Stop buttons are red—all others are black.
② NEMA 4–13, if properly mounted on a flat surface. Consists of front plate, legend, operator and contact blocks.
③ Breaking glass closes contact.
④ Lock is 10250TA2.
⑤ Uses deep cover instead of shallow cover. Switch component is 10250TA67.
⑥ Shown assembled to contact block (contact block supplied separately).

Class I Division 2 10250T Series Heavy-Duty 30.5 mm Control Stations

Complete Assembled Stations—
UL (NEMA) Type 4, 4X, 12, 13; NEC Class I Division 2, Groups B, C and D

Contact Symbol	Button Type/Colour	Legend Marking	Die Cast Enclosure Catalogue Number	Polyester Molded Enclosure Catalogue Number	Stainless Steel Enclosure Catalogue Number
10250T7007	**Single Pushbutton**				
1NO 1NC	Flush/green	START	**10250T7003**	**10250T7003P**	**10250T7003S**
	Extended/red	STOP	**10250T7005**	**10250T7005P**	**10250T7005S**
	Alum. jumbo mushroom/red	EMER. STOP (engraved button)	**10250T7007**	**10250T7007P**	**10250T7007S**
	Flush/black	No legend	**10250T7009**	**10250T7009P**	**10250T7009S**
10250T7023P	**Two Pushbuttons**				
1NO 1NC Each Button	Flush/green	START	**10250T7023**	**10250T7023P**	**10250T7023S**
	Extended/red	STOP			
	Flush/black	No legend	**10250T7025**	**10250T7025P**	**10250T7025S**
	Flush/black	No legend			
10250T7033S	**Single Pilot Light—Two Pushbuttons**				
1NO 1NC Each Button	120 Vac red	No legend	**10250T7033**	**10250T7033P**	**10250T7033S**
	Flush/green	START			
	Extended/red	STOP			
	120 Vac red	No legend	**10250T7035**	**10250T7035P**	**10250T7035S**
	Flush/black				
	Flush/black				
	Three-Position Selector Switch				
2NO 2NC	Maintained knob/black	HAND/OFF/AUTO	**10250T7011**	**10250T7011P**	**10250T7011S**
	Maintained knob/black	No legend	**10250T7013**	**10250T7013P**	**10250T7013S**
	Single Pushbutton Maintained				
Pull Push O X 1NO X O 1NC	Push-pull with jumbo mushroom/red	EMER. STOP (engraved button)	**10250T7019**	**10250T7019P**	**10250T7019S**

Class I Division 2 E34 Series Corrosion Resistant 30.5 mm Control Stations

E34EX_

Complete Assembled Stations—
UL (NEMA) Type 4, 4X, 12, 13; NEC Class I Division 2, Groups B, C and D

Contact Symbol	Button Type/Colour	Legend Marking	Die Cast Enclosure Catalogue Number	Polyester Molded Enclosure Catalogue Number	Stainless Steel Enclosure Catalogue Number
Single Pushbutton					
1NO 1NC	Flush/green	START	**E34EX7003**	**E34EX7003P**	**E34EX7003S**
	Extended/red	STOP	**E34EX7005**	**E34EX7005P**	**E34EX7005S**
	Alum. jumbo mushroom/red	EMER. STOP (engraved button)	**E34EX7007**	**E34EX7007P**	**E34EX7007S**
	Flush/black	No legend	**E34EX7009**	**E34EX7009P**	**E34EX7009S**
Two Pushbuttons					
1NO 1NC Each Button	Flush/green	START	**E34EX7023**	**E34EX7023P**	**E34EX7023S**
	Extended/red	STOP			
	Flush/black	No legend	**E34EX7025**	**E34EX7025P**	**E34EX7025S**
	Flush/black	No legend			
Three-Position Selector Switch					
2NO 2NC	Maintained knob/black	HAND/OFF/AUTO	**E34EX7011**	**E34EX7011P**	**E34EX7011S**
	Maintained knob/black	No legend	**E34EX7013**	**E34EX7013P**	**E34EX7013S**
Single Pushbutton Maintained					
Pull Push O X 1NO X O 1NC	Push-pull with jumbo mushroom/red	EMER. STOP (engraved button)	**E34EX7019**	**E34EX7019P**	**E34EX7019S**

Accessories

Padlock Attachment

Type N Control Stations

Description	Catalogue Number
Padlock attachment—For field assembly on square button type (except extended button types)	**10250H5110**

Note

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Page T37-22**.

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Custom Assembled Stations Specification Form

Ordering Instructions

Step 1

Copy this ordering guide from catalogue.

Step 2

Specify 10250T or E34 pushbutton lines in the corresponding box on the following page.

10250T	**Pages T37-167–T37-239**
E34	**Pages T37-240–T37-282**
10250T and E34 Class I Div. 2	**Pages T37-283–T37-324**

Step 3

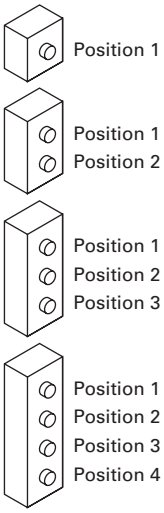
Check back of panel dimensions—specify single or double depth enclosure in the corresponding box on the following page.

Step 4

Specify enclosure catalogue number and price in the corresponding box on the following page. Enclosures can be found on **Pages T37-219**, **T37-269** and **T37-318**. For pricing, reference the most recent PAD or VISTA-line.

Step 5

Specify catalogue numbers for desired operator, legend plate, light unit, accessory and contact block(s) for each location in the enclosure in the corresponding box on the following page. (See position locations on this page.)



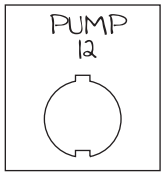
Position Locations

Step 6

For non-standard legends, specify legend desired, letter size and location on the layout sketches on the following page. For limitations see **Page T37-218**. For pricing, use the blank legend catalogue number and "STAMP" Suffix (Ex.: **10250TS36STAMP**) and reference the most recent PAD or VISTA-line.

Example: 10250TS36

Special
Legend
for Position #_____



LETTER SIZE

3/32 in	
1/8 in	✔
3/16 in	

Step 7

Fax Sheet 2 of this form to Eaton's TRC, Technical Resource Centre, at 828-651-0549 to the attention of—**Custom Stations Order** or email to TRC@eaton.com.

Within a few days you will receive a confirmation fax with the custom station part number and price.

Step 8

Place your order over the VISTA System.

For Selector and Roto-Push Operators

10250T or E34

For single contact blocks or 1NO-1NC contact blocks, the mounting position of contacts must be specified. For example: If a 1NO-1NC contact block is required, specify if NO is to be mounted in Top A position or Bottom B position.

To — **Eaton's Customer Support Centre,**
(905) 631-4284 FAX, or email to escanada@eaton.com

From — Customer Name _____
Customer Contact _____
Phone Number _____
Fax Number _____
Email Address _____

FACTORY USE ONLY	
Part Number	
Product Code	
Suffix	
Date	
Engineer	

Step 2)

10250T ❑ **STD** ❑ **Class I Division 2**
E34 ❑ **STD** ❑ **Class I Division 2**

Step 3)

	✔
Single Depth Enclosure	
Double Depth Enclosure	

Step 4)

Enclosure Catalogue Number	Price

Step 5)

Position	Operator	Price CDN $	Light Unit	Price CDN $	Contact Block	Price CDN $	A/L	B/R	Contact Block	Price CDN $	A/L	B/R	Total Price
1													
2													
3													
4													

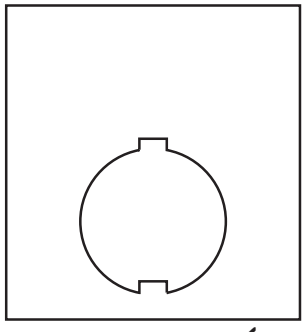
Position	Legend Plate	Price CDN $	Lens or Caps	Price CDN $	Accessory	Price CDN $	Total Price
1							
2							
3							
4							

Total:

10% Added for Assembled Stations

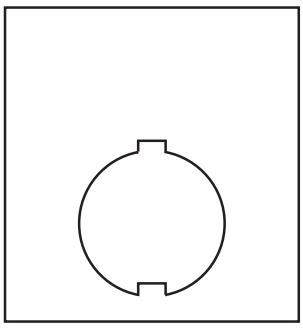
Step 6) Non-standard Legends

Special Legend for Position #_____



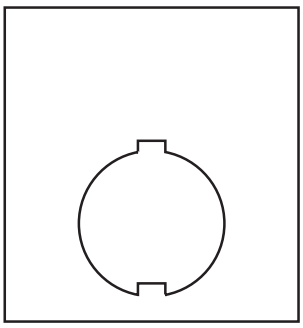
LETTER SIZE	✔
3/32 inch (2.4 mm)	
1/8 inch (3.2 mm)	
3/16 inch (4.8 mm)	

Special Legend for Position #_____



LETTER SIZE	✔
3/32 inch (2.4 mm)	
1/8 inch (3.2 mm)	
3/16 inch (4.8 mm)	

Special Legend for Position #_____



LETTER SIZE	✔
3/32 inch (2.4 mm)	
1/8 inch (3.2 mm)	
3/16 inch (4.8 mm)	

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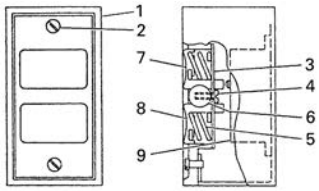
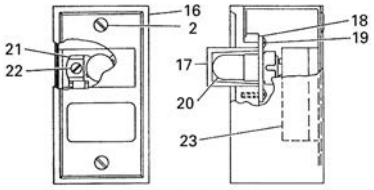
Renewal Parts

Type N Renewal Parts

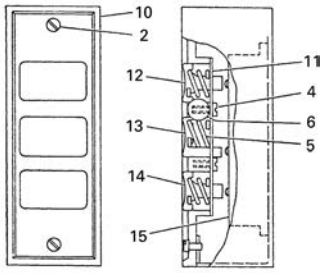


One and Two Element Station

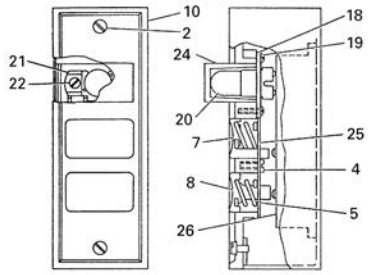


One Element Indicating Light

Open Type Two Element



Three Element Station



Two Element Station with Indicating Light

Assembled Stations—Type N

Item No.	Description	No. Req.	Part Number
Type N—Square Buttons			
1	Cover	1	
	Two element		**49-3524**
	One element—top button		**49-3524-2**
	One element—bottom button		**49-3524-3**
2	Cover screw	2	**11-2168**
3	Pushbutton support bracket	1	**79-6649**
4	Pushbutton support bracket screw	1	**11-2090**
5	Pushbutton spring	2	**69-2571**
6	Disc (when used—two element assembly)	2	**16-1960**
7	Pushbutton—top position	1	
	START/green		**53-1169-3**
	RAISE/black		**53-1169-66**
	FORWARD/black		**53-1169-7**
	OPEN/black		**53-1169-9**
	UP/blank		**53-1169-11**
	Blank/green		**53-1169**
8	Pushbutton—bottom position	1	
	STOP/red		**53-1202-2**
	Extended STOP/red		**53-1202-5**
	REVERSE/black		**53-1169-8**
	CLOSE/black		**53-1169-10**
	DOWN/black		**53-1169-12**
	LOWER/black		**53-1169-6**
	Blank/red		**53-1202**

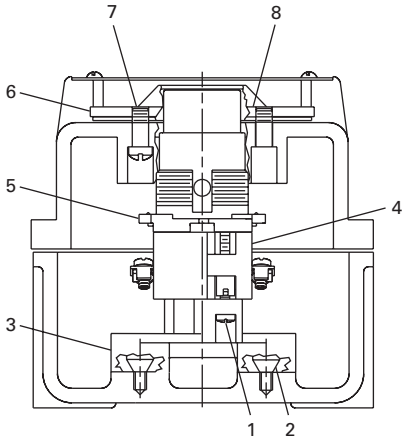
Item No.	Description	No. Req.	Part Number
Type N—Square Buttons, continued			
9	Pushbutton element	1	
	1NO-1NC		**86-2588**
	2NO		**86-2588-2**
	1NO		**86-2588-3**
	1NC		**86-2588-4**
10	Cover	1	**49-3464**
11	Pushbutton support bracket	1	**79-6650**
12	Pushbutton—top position	1	
	FORWARD/black		**53-1170-7**
	UP/black		**53-1170-4**
	RAISE/black		**53-1170-5**
	OPEN/black		**53-1170-9**
	FAST/black		**53-1170-6**
13	Pushbutton middle position	1	
	REVERSE/black		**53-1169-15**
	DOWN/black		**53-1169-18**
	LOWER/black		**53-1169-16**
	CLOSE/black		**53-1169-17**
	SLOW/black		**53-1169-13**
14	Pushbutton—bottom position	1	
	STOP/red		**53-1201-2**
15	Pushbutton element	1	
	2NO-3NC		**86-2593**
16	Cover	1	**49-3524-4**

Assembled Stations—Type N, continued

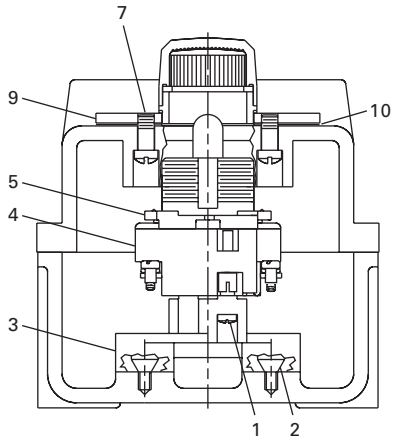
Item No.	Description	No. Req.	Part Number
Type N—Square Buttons, continued			
17	Lens	1	
	Clear		**28-494**
	Red		**28-887-2**
	Amber		**28-887-3**
18	Shield	1	**73-1337**
19	Shield screws	4	**11-2012**
20	Lamp (neon NE48)	1	**28-494**
21	Lamp receptacle	1	**28-902**
22	Lamp receptacle screw	1	**911-330F1**
23	Pilot light terminal base	1	**86-2586**
24	Lens	1	
	Clear		**28-887**
	Red		**28-887-2**
	Amber		**28-887-3**
25	Pushbutton support bracket	1	**79-6650-2**
26	Pushbutton element	1	
	1NO-1NC		**86-2594**

Item No.	Description	No. Req.	Part Number
Type N—Round Buttons			
Similar to 27	Pushbutton assembly and element for:		
	10250H289	1	**10250H2538**
	10250H364	1	**86-353**
	10250H685	1	**86-353-8**
	10250H665	1	**86-353-8**
	10250H671	1	**86-353**
	10250H2738	1	**86-353-3**
	10250H2740	1	**86-356**
	10250H2741	1	**86-356**
	10250H2742	1	**86-356**

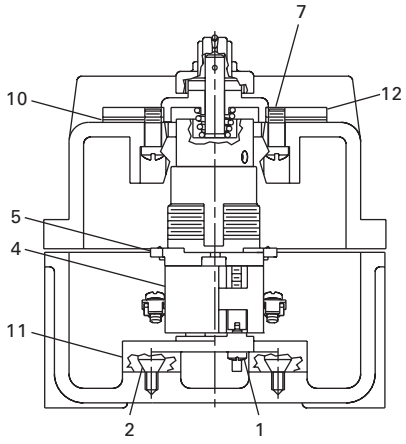
Type H Renewal Parts



Pushbutton



Indicating Light



Selector Switch

Assembled Stations—Type H

Item No.	Description	No. Req.	Part Number
Type H—Assembled Stations			
1	Screw	2	**11-4654**
2	Screw	2	**11-5719**
3	Base	1	**17-16560**
4	Contact blocks	See **Page T37-222**	
5	10250T operator	See **Pages T37-173 – T37-239**	
6	Mounting plate	1	**17-19524**

Item No.	Description	No. Req.	Part Number
Type H—Assembled Stations			
7	Screw	4	**11-953**
8	Diaphragm	1	**32-253-2**
9	Mounting plate	1	**17-19522**
10	Gasket	1	**32-254**
11	Base	1	**17-16561**
12	Mounting plate	1	**17-19523**

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Technical Data and Specifications

Ratings

Maximum Ampere Ratings for Type N Control Stations

	Volts AC				Volts DC		
Description	**110**	**220**	**440**	**550**	**120**	**240**	**600**
Make and emergency interrupt capacity	30	15	7.5	6	1.0	0.5	0.1
Normal load break	3	1.5	0.75	0.6	1.0	0.5	0.1
Continuous current	10	10	10	10	10	10	10

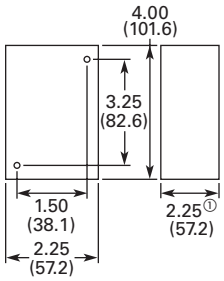
Maximum Ampere Ratings for Type H Control Stations

	Volts AC 50/60 Hz				Volts DC	
Description	**120**	**240**	**480**	**600**	**125**	**250**
Make and emergency interrupt capacity	60	30	15	12	1.1	0.55
Normal load break	6	3	1.5	1.2	1.1	0.55
Continuous amperes	10	10	10	10	10	10
Voltamperes —						
Make and emergency interrupt capacity	7200	7200	7200	7200	138	138
Normal load break	720	720	720	720	138	138

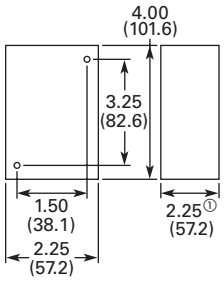
Dimensions

Approximate Dimensions in Inches (mm)

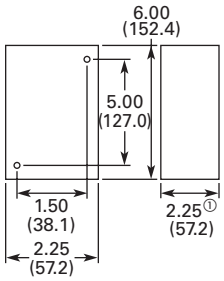
Type N Control Stations



Single Button Station

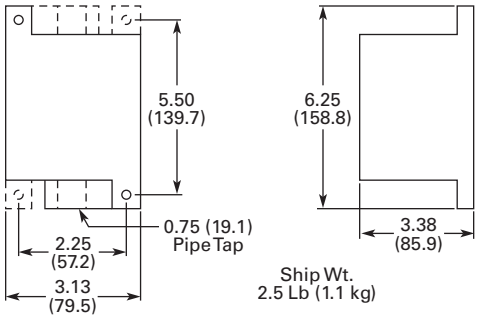


Two Button Station



Three Button Station

Special Purpose Control Stations



Note

① 2.38 (60.5) for neon indicating light.

Approximate Dimensions in Inches (mm)

Type H Control Stations

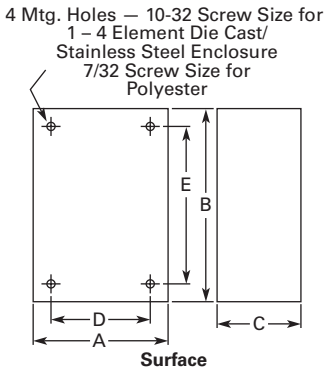
NEMA Type 3, 3R, 3S, 4, 4X, 13

No. of Elements	Dimensions Wide	High	Deep
1 and 2	4.50 (114.3)	8.25 (209.6)	4.50 (114.3)
3	4.50 (114.3)	10.75 (273.1)	4.25 (108.0)

10250T and E34

Approximate Enclosure Dimensions

Number of Elements	Surface Mounting Dimensions in In (mm) Wide A	High B	Deep C	Mounting D	E	Conduit Entrance
Cast						
1	3.88 (98.6)	4.0 (101.6)	3.0 (76.3)	2.69 (68.3)	3.25 (82.6)	3/4
2	3.88 (98.6)	5.88 (149.4)	3.0 (76.3)	2.69 (68.3)	5.13 (130.3)	3/4
3	3.88 (98.6)	7.75 (196.9)	3.0 (76.3)	2.69 (68.3)	7.0 (177.8)	1
4	33.88 (98.6)	9.63 (244.6)	3.0 (76.3)	2.69 (68.3)	8.88 (225.6)	1
Polyester						
1	3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	①
2	3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	①
3	3.81 (96.8)	8.88 (225.6)	3.38 (85.9)	2.94 (74.7)	7.13 (181.1)	①
4	3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	①
Stainless Steel						
1	3.00 (76.2)	3.50 (88.9)	3.00 (76.2)	1.50 (38.1)	4.25 (108.0)	①
2	3.50 (88.9)	6.75 (171.5)	3.00 (76.2)	1.50 (38.1)	7.50 (190.5)	①
3	3.50 (88.9)	9.00 (228.6)	3.00 (76.2)	1.50 (38.1)	9.00 (228.6)	①
4	3.50 (88.9)	11.25 (285.8)	3.00 (76.2)	1.50 (38.1)	12.00 (304.8)	①



Note

① No conduit entrance holes provided. Drill as required.

Pushbuttons—Non-Illuminated and Illuminated

Contents

Description	*Page*
Pushbuttons—Non-Illuminated and Illuminated	
Non-Illuminated, Flush, Momentary	**T37-36**
Non-Illuminated, Flush, Maintained	**T37-39**
Non-Illuminated, Extended, Momentary	**T37-41**
Non-Illuminated, Extended, Maintained	**T37-43**
Illuminated, Flush, Momentary	**T37-46**
Illuminated, Flush, Maintained	**T37-49**
Illuminated, Extended, Momentary	**T37-51**
Illuminated, Extended, Maintained	**T37-53**

Pushbuttons—Non-Illuminated and Illuminated

Product Description

Eaton's M22 pushbutton line is a complete, modular and versatile offering. From field-convertible maintained operators to customizable laser engraved buttons, the M22 pushbutton line provides endless opportunity for flexibility and reduced inventory. Each operator type provides options for ordering as complete or component parts allowing for a perfect fit for each application. All of this flexibility comes in a very rugged design.

Features

- Field convertible from maintained to momentary (available on maintained pushbuttons only)
- Customizable laser engraving on all buttons
- LED offering only for improved brightness quality and up to 100,000 hours of operation
- More than five million mechanical operations on momentary and 1 million on maintained pushbuttons
- Modular construction makes assembly fast and simplifies stocking of components and complete devices
- Capable of communicating via ASi protocol with ASi adapter modules

Protection Type

- IP67, IP69K
- NEMA 4X, 13

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Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Non-Illuminated Pushbuttons

M22 – D – S – X0 – K10

Bezel	
M22	= Silver
M22S	= Black

Operator Type	
D	= Flush momentary
DH	= Extended momentary
DG	= Flush with guard ①
DR	= Flush maintained
DGH	= Extended momentary with guard ①
DRH	= Extended maintained

Button Plate Colour			
G	= Green	**S**	= Black
Y	= Yellow	**R**	= Red
B	= Blue	**W**	= White

Inscription			
GB0	= STOP	**X0**	= ◎
GB1	= START	**X1**	= ①
GB2	= CLOSE	**X4**	= ⊕
GB3	= UP	**X5**	= ⊖
GB4	= DOWN	**X6**	= Ⓡ
GB5	= OFF	**X7**	= ①
GB6	= ON	**X8**	= ⊘
GB14	= RESET		
GB15	= FORWARD		
GB16	= REVERSE		

Contact Blocks			
K10	= 1NO	**K30**	= 3NO
K01	= 1NC	**K03**	= 3NC
K20	= 2NO	**K21**	= 2NO-1NC
K02	= 2NC	**K12**	= 1NO-2NC
K11	= 1NO-1NC		

① Silver bezel only.

Product Selection

Non-Illuminated Pushbuttons, Flush, Momentary

Complete Devices

	Bezel	Button Colour	Contact Block Configuration ①	Catalogue Number
M22-D-G-K10	Silver	Black	NO	**M22-D-S-K10**
			NC	**M22-D-S-K01**
			2NO	**M22-D-S-K20**
			2NC	**M22-D-S-K02**
			1NO-1NC	**M22-D-S-K11**
		Red	NO	**M22-D-R-K10**
			NC	**M22-D-R-K01**
			2NO	**M22-D-R-K20**
			2NC	**M22-D-R-K02**
			1NO-1NC	**M22-D-R-K11**
		Green	NO	**M22-D-G-K10**
			NC	**M22-D-G-K01**
			2NO	**M22-D-G-K20**
			2NC	**M22-D-G-K02**
			1NO-1NC	**M22-D-G-K11**
M22S-D-G-K10	Black	Black	NO	**M22S-D-S-K10**
			NC	**M22S-D-S-K01**
			2NO	**M22S-D-S-K20**
			2NC	**M22S-D-S-K02**
			1NO-1NC	**M22S-D-S-K11**
		Red	NO	**M22S-D-R-K10**
			NC	**M22S-D-R-K01**
			2NO	**M22S-D-R-K20**
			2NC	**M22S-D-R-K02**
			1NO-1NC	**M22S-D-R-K11**
		Green	NO	**M22S-D-G-K10**
			NC	**M22S-D-G-K01**
			2NO	**M22S-D-G-K20**
			2NC	**M22S-D-G-K02**
			1NO-1NC	**M22S-D-G-K11**

Note

① All NC contact blocks are positively driven contact. ⊖

Non-Illuminated Pushbuttons, Flush, Momentary

Operators Only ①

	Bezel	Button Colour	Inscription	Catalogue Number
M22-D-G	Silver	Black	—	**M22-D-S**
		Red	—	**M22-D-R**
			STOP	**M22-D-R-GB0**
			◎	**M22-D-R-X0**
		Green	—	**M22-D-G**
			START	**M22-D-G-GB1**
			①	**M22-D-G-X1**
		White	—	**M22-D-W**
		Blue	—	**M22-D-B**
		Yellow	—	**M22-D-Y**
		—	—	**M22-D-X-SRG** ②
			—	**M22-D-X-SWRGYB** ③
M22S-D-G	Black	Black	—	**M22S-D-S**
		Red	—	**M22S-D-R**
			STOP	**M22S-D-R-GB0**
			◎	**M22S-D-R-X0**
		Green	—	**M22S-D-G**
			START	**M22S-D-G-GB1**
			①	**M22S-D-G-X1**
		White	—	**M22S-D-W**
		Blue	—	**M22S-D-B**
		Yellow	—	**M22S-D-Y**
		—	—	**M22S-D-X-SRG** ②
			—	**M22S-D-X-SWRGYB** ③
M22-DG-G	Silver guarded	Black	—	**M22-DG-S**
		Red	—	**M22-DG-R**
		Green	—	**M22-DG-G**
		White	—	**M22-DG-W**
		Blue	—	**M22-DG-B**
		Yellow	—	**M22-DG-Y**
		—	—	**M22-DG-X-SRG** ②
			—	**M22-DG-X-SWRGYB** ③

Notes

① Includes contact block mounting adapter.
② Buttonless operator comes with three colour buttons (black, red, green).
③ Buttonless operator comes with all six colour buttons (black, white, red, green, yellow, blue).

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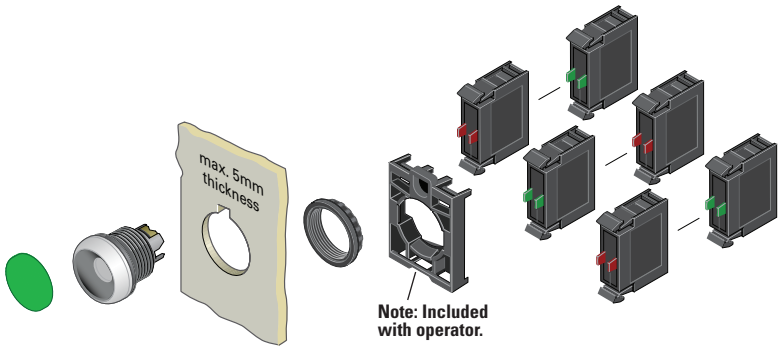
Non-Illuminated Pushbuttons, Flush, Momentary



Components

M22-XD-G

Button Plates ①

Colour	Inscription	Catalogue Number
Black	—	**M22-XD-S** ②
	Custom	**M22-XD-S-ETCH** ③
	STOP	**M22-XD-S-GB0**
	START	**M22-XD-S-GB1**
	CLOSE	**M22-XD-S-GB2**
	UP	**M22-XD-S-GB3**
	DOWN	**M22-XD-S-GB4**
	OFF	**M22-XD-S-GB5**
	ON	**M22-XD-S-GB6**
	TEST	**M22-XD-S-GB9**
	FORWARD	**M22-XD-S-GB15**
	REVERSE	**M22-XD-S-GB16**
	RAISE	**M22-XD-S-GB17**
	LOWER	**M22-XD-S-GB18**
	◎	**M22-XD-S-X0**
	⏽	**M22-XD-S-X1**
	⏾	**M22-XD-S-X2**
	⊕	**M22-XD-S-X4**
	⊖	**M22-XD-S-X5**
	⏿	**M22-XD-S-X7**
Red	—	**M22-XD-R** ②
	Custom	**M22-XD-R-ETCH** ③
	STOP	**M22-XD-R-GB0**
	OFF	**M22-XD-R-GB5**
	◎	**M22-XD-R-X0**
Green	—	**M22-XD-G** ②
	Custom	**M22-XD-G-ETCH** ③
	START	**M22-XD-G-GB1**
	ON	**M22-XD-G-GB6**
	⏽	**M22-XD-G-X1**
Blue	—	**M22-XD-B** ②
	Custom	**M22-XD-B-ETCH** ③
	RESET	**M22-XD-B-GB14**
	Ⓡ	**M22-XD-B-X6**
White	—	**M22-XD-W** ②
	Custom	**M22-XD-W-ETCH** ③
	START	**M22-XD-W-GB1**
	⏽	**M22-XD-W-X1**
Yellow	—	**M22-XD-Y** ②
	Custom	**M22-XD-Y-ETCH** ③
Black, red, green	—	**M22-XD-SRG**
Black, white, red, green, yellow, blue	—	**M22-XD-SWRGYB**

Buttonless Operator

	Bezel	Catalogue Number ④
M22-D-X	Silver	**M22-D-X**
M22S-D-X	Black	**M22S-D-X**
M22-DG-X	Silver guarded	**M22-DG-X**

Contact Blocks ①

M22-K10

Terminal Type	Contact Configuration ⑤	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Notes

① For complete listing of available button plates and contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.
② Minimum order quantity of (10).
③ When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes.
For example, M22-XD-S-ETCH; Order Notes: Mark with symbol X91, Line item #_.
④ Includes contact block mounting adapter.
⑤ All NC contact blocks are positively driven contact. ⊖

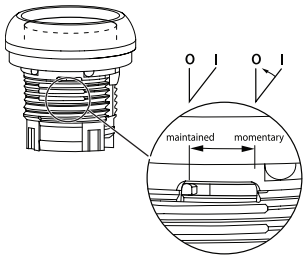
Non-Illuminated Pushbuttons, Flush, Maintained ①

Operators Only ②

	Bezel	Button Colour	Catalogue Number
M22-DR-S	Silver	Black	**M22-DR-S**
		Red	**M22-DR-R**
		Green	**M22-DR-G**
		White	**M22-DR-W**
		Blue	**M22-DR-B**
		Yellow	**M22-DR-Y**
		③	**M22-DR-X-SRG**
		④	**M22-DR-X-SWRGYB**
M22S-DR-S	Black	Black	**M22S-DR-S**
		Red	**M22S-DR-R**
		Green	**M22S-DR-G**
		White	**M22S-DR-W**
		Blue	**M22S-DR-B**
		Yellow	**M22S-DR-Y**
		③	**M22S-DR-X-SRG**
		④	**M22S-DR-X-SWRGYB**

Notes

① Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.
② Includes contact block mounting adapter.
③ Buttonless operator comes with three colour buttons (black, red, green).
④ Buttonless operator comes with all six colour buttons (black, white, red, green, yellow, blue).



Note: This pilot device features a selectable function switch that enables the device to be set to either maintained or momentary operation.

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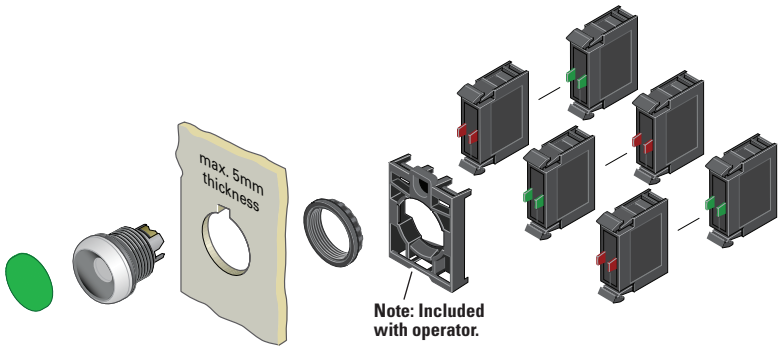
Non-Illuminated Pushbuttons, Flush, Maintained ①



Components

M22-XD-S

Button Plates ②

Colour	Inscription	Catalogue Number
Black	—	**M22-XD-S** ③
	Custom	**M22-XD-S-ETCH** ④
	STOP	**M22-XD-S-GB0**
	START	**M22-XD-S-GB1**
	CLOSE	**M22-XD-S-GB2**
	UP	**M22-XD-S-GB3**
	DOWN	**M22-XD-S-GB4**
	OFF	**M22-XD-S-GB5**
	ON	**M22-XD-S-GB6**
	TEST	**M22-XD-S-GB9**
	FORWARD	**M22-XD-S-GB15**
	REVERSE	**M22-XD-S-GB16**
	RAISE	**M22-XD-S-GB17**
	LOWER	**M22-XD-S-GB18**
	◎	**M22-XD-S-X0**
	①	**M22-XD-S-X1**
	⑪	**M22-XD-S-X2**
	⊕	**M22-XD-S-X4**
	⊖	**M22-XD-S-X5**
	⑦	**M22-XD-S-X7**
Red	—	**M22-XD-R** ③
	Custom	**M22-XD-R-ETCH** ④
	STOP	**M22-XD-R-GB0**
	OFF	**M22-XD-R-GB5**
	◎	**M22-XD-R-X0**
Green	—	**M22-XD-G** ③
	Custom	**M22-XD-G-ETCH** ④
	START	**M22-XD-G-GB1**
	ON	**M22-XD-G-GB6**
	①	**M22-XD-G-X1**
Blue	—	**M22-XD-B** ③
	Custom	**M22-XD-B-ETCH** ④
	RESET	**M22-XD-B-GB14**
	Ⓡ	**M22-XD-B-X6**
White	—	**M22-XD-W** ③
	Custom	**M22-XD-W-ETCH** ④
	START	**M22-XD-W-GB1**
	①	**M22-XD-W-X1**
Yellow	—	**M22-XD-Y** ③
	Custom	**M22-XD-Y-ETCH** ④
Black, red, green	—	**M22-XD-SRG**
Black, white, red, green, yellow, blue	—	**M22-XD-SWRGYB**

Buttonless Operator

M22-DR-X

M22S-DR-X

Bezel	Catalogue Number ⑤
Silver	**M22-DR-X**
Black	**M22S-DR-X**

M22-K10

Contact Blocks ②

Terminal Type	Contact Configuration ⑥	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Notes

① Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.

② For complete listing of available button plates and contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.

③ Minimum order quantity of (10).

④ When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes. For example, M22-XD-S-ETCH; Order Notes: Mark with symbol X91, Line item #_.

⑤ Includes contact block mounting adapter.

⑥ All NC contact blocks are positively driven contact. ⊖

Non-Illuminated Pushbuttons, Extended, Momentary

Complete Devices

	Bezel	Button Colour	Contact Block Configuration ①	Catalogue Number
M22-DH-R-K10	Silver	Red	NO	**M22-DH-R-K10**
			NC	**M22-DH-R-K01**
			2NO	**M22-DH-R-K20**
			2NC	**M22-DH-R-K02**
			1NO-1NC	**M22-DH-R-K11**
M22S-DH-R-K10	Black	Red	NO	**M22S-DH-R-K10**
			NC	**M22S-DH-R-K01**
			2NO	**M22S-DH-R-K20**
			2NC	**M22S-DH-R-K02**
			1NO-1NC	**M22S-DH-R-K11**
M22-DGH-R-K10	Silver guarded	Red	NO	**M22-DGH-R-K10**
			NC	**M22-DGH-R-K01**
			2NO	**M22-DGH-R-K20**
			2NC	**M22-DGH-R-K02**
			1NO-1NC	**M22-DGH-R-K11**

Operators Only ②

	Bezel	Button Colour	Inscription	Catalogue Number
M22-DH-R	Silver	Black	—	**M22-DH-S**
		Red	—	**M22-DH-R**
			STOP	**M22-DH-R-GB0**
			◎	**M22-DH-R-X0**
		Green	—	**M22-DH-G**
		White	—	**M22-DH-W**
		Blue	—	**M22-DH-B**
		Yellow	—	**M22-DH-Y**
		③	—	**M22-DH-X-SRG**
		④	—	**M22-DH-X-SWRGYB**
M22S-DH-R	Black	Black	—	**M22S-DH-S**
		Red	—	**M22S-DH-R**
			STOP	**M22S-DH-R-GB0**
			◎	**M22S-DH-R-X0**
		Green	—	**M22S-DH-G**
		White	—	**M22S-DH-W**
		Blue	—	**M22S-DH-B**
		Yellow	—	**M22S-DH-Y**
		③	—	**M22S-DH-X-SRG**
		④	—	**M22S-DH-X-SWRGYB**
M22-DGH-R	Silver guarded	Black	—	**M22-DGH-S**
		Red	—	**M22-DGH-R**
			STOP	**M22-DGH-R-GB0**
			◎	**M22-DGH-R-X0**
		Green	—	**M22-DGH-G**
		White	—	**M22-DGH-W**
		Blue	—	**M22-DGH-B**
		Yellow	—	**M22-DGH-Y**

Notes

① All NC contact blocks are positively driven contact. ⊖

② Includes contact block mounting adapter.

③ Buttonless operator comes with three colour buttons (black, red, green).

④ Buttonless operator comes with all six colour buttons (black, white, red, green, yellow, blue).

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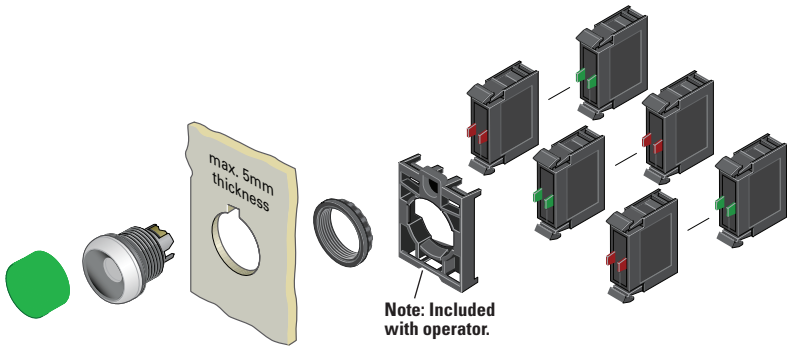
Non-Illuminated Pushbuttons, Extended, Momentary



Components

M22-XDH-R

Button Plates ①

Colour	Inscription	Catalogue Number
Black	—	**M22-XDH-S** ②
	Custom	**M22-XDH-S-ETCH** ③
	STOP	**M22-XDH-S-GB0**
	START	**M22-XDH-S-GB1**
	CLOSE	**M22-XDH-S-GB2**
	UP	**M22-XDH-S-GB3**
	DOWN	**M22-XDH-S-GB4**
	OFF	**M22-XDH-S-GB5**
	ON	**M22-XDH-S-GB6**
	TEST	**M22-XDH-S-GB9**
	FORWARD	**M22-XDH-S-GB15**
	REVERSE	**M22-XDH-S-GB16**
	RAISE	**M22-XDH-S-GB17**
	LOWER	**M22-XDH-S-GB18**
	◎	**M22-XDH-S-X0**
	①	**M22-XDH-S-X1**
	⑪	**M22-XDH-S-X2**
	⊕	**M22-XDH-S-X4**
	⊖	**M22-XDH-S-X5**
	↑	**M22-XDH-S-X7**
Red	—	**M22-XDH-R** ②
	Custom	**M22-XDH-R-ETCH** ③
	STOP	**M22-XDH-R-GB0**
	OFF	**M22-XDH-R-GB5**
	◎	**M22-XDH-R-X0**
Green	—	**M22-XDH-G** ②
	Custom	**M22-XDH-G-ETCH** ③
	START	**M22-XDH-G-GB1**
	ON	**M22-XDH-G-GB6**
	①	**M22-XDH-G-X1**
Blue	—	**M22-XDH-B** ②
	Custom	**M22-XDH-B-ETCH** ③
	RESET	**M22-XDH-B-GB14**
	Ⓡ	**M22-XDH-B-X6**
White	—	**M22-XDH-W** ②
	Custom	**M22-XDH-W-ETCH** ③
	START	**M22-XDH-W-GB1**
	①	**M22-XDH-W-X1**
Yellow	—	**M22-XDH-Y** ②
	Custom	**M22-XDH-Y-ETCH** ③
Black, red, green	—	**M22-XDH-SRG**
Black, white, red, green, yellow, blue	—	**M22-XDH-SWRGYB**

Buttonless Operator

	Bezel	Catalogue Number ④
M22-D-X	Silver	**M22-D-X**
M22S-D-X	Black	**M22S-D-X**
M22-DG-X	Silver guarded	**M22-DG-X**

Contact Blocks ①

M22-K10

Terminal Type	Contact Configuration ⑤	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Notes

① For complete listing of available button plates and contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.
② Minimum order quantity of (10).
③ When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes.
For example, M22-XDH-S-ETCH; Order Notes: Mark with symbol X91, Line item #_.
④ Includes contact block mounting adapter.
⑤ All NC contact blocks are positively driven contact. ⊖

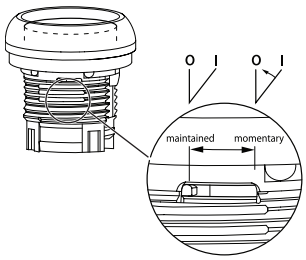
Non-Illuminated Pushbuttons, Extended, Maintained ①

Operators Only ②

	Bezel	Button Colour	Catalogue Number
M22-DRH-W	Silver	Black	**M22-DRH-S**
		Red	**M22-DRH-R**
		Green	**M22-DRH-G**
		White	**M22-DRH-W**
		Blue	**M22-DRH-B**
		Yellow	**M22-DRH-Y**
		③	**M22-DRH-X-SRG**
		④	**M22-DRH-X-SWRGYB**
M22S-DRH-W	Black	Black	**M22S-DRH-S**
		Red	**M22S-DRH-R**
		Green	**M22S-DRH-G**
		White	**M22S-DRH-W**
		Blue	**M22S-DRH-B**
		Yellow	**M22S-DRH-Y**
		③	**M22S-DRH-X-SRG**
		④	**M22S-DRH-X-SWRGYB**

Notes

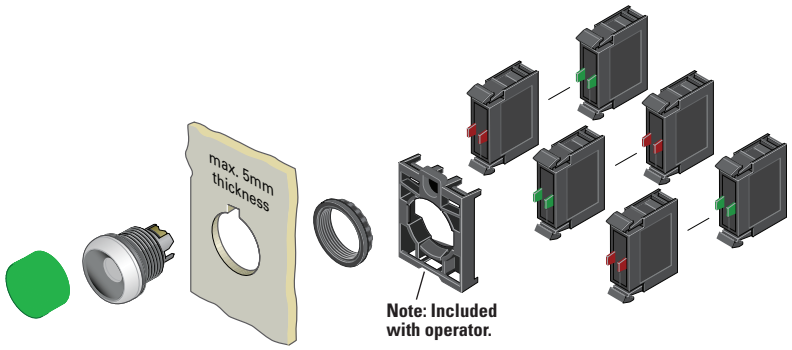
① Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.
② Includes contact block mounting adapter.
③ Buttonless operator comes with three colour buttons (black, red, green).
④ Buttonless operator comes with all six colour buttons (black, white, red, green, yellow, blue).



Note: This pilot device features a selectable function switch that enables the device to be set to either maintained or momentary operation.

37

Non-Illuminated Pushbuttons, Extended, Maintained ①



Note: Included with operator.

Components

M22-XDH-W

Button Plates ②

Colour	Inscription	Catalogue Number
Black	—	**M22-XDH-S** ③
	Custom	**M22-XDH-S-ETCH** ④
	STOP	**M22-XDH-S-GB0**
	START	**M22-XDH-S-GB1**
	CLOSE	**M22-XDH-S-GB2**
	UP	**M22-XDH-S-GB3**
	DOWN	**M22-XDH-S-GB4**
	OFF	**M22-XDH-S-GB5**
	ON	**M22-XDH-S-GB6**
	TEST	**M22-XDH-S-GB9**
	FORWARD	**M22-XDH-S-GB15**
	REVERSE	**M22-XDH-S-GB16**
	RAISE	**M22-XDH-S-GB17**
	LOWER	**M22-XDH-S-GB18**
	◎	**M22-XDH-S-X0**
	①	**M22-XDH-S-X1**
	⑪	**M22-XDH-S-X2**
	⊕	**M22-XDH-S-X4**
	⊖	**M22-XDH-S-X5**
	↑	**M22-XDH-S-X7**
Red	—	**M22-XDH-R** ③
	Custom	**M22-XDH-R-ETCH** ④
	STOP	**M22-XDH-R-GB0**
	OFF	**M22-XDH-R-GB5**
	◎	**M22-XDH-R-X0**
Green	—	**M22-XDH-G** ③
	Custom	**M22-XDH-G-ETCH** ④
	START	**M22-XDH-G-GB1**
	ON	**M22-XDH-G-GB6**
	①	**M22-XDH-G-X1**
Blue	—	**M22-XDH-B** ③
	Custom	**M22-XDH-B-ETCH** ④
	RESET	**M22-XDH-B-GB14**
	Ⓡ	**M22-XDH-B-X6**
White	—	**M22-XDH-W** ③
	Custom	**M22-XDH-W-ETCH** ④
	START	**M22-XDH-W-GB1**
	①	**M22-XDH-W-X1**
Yellow	—	**M22-XDH-Y** ③
	Custom	**M22-XDH-Y-ETCH** ④
Black, red, green	—	**M22-XDH-SRG**
Black, white, red, green, yellow, blue	—	**M22-XDH-SWRGYB**

Buttonless Operator

	Bezel	Catalogue Number ⑤
M22-DR-X	Silver	**M22-DR-X**
M22S-DR-X	Black	**M22S-DR-X**

Contact Blocks ②

M22-K10

Terminal Type	Contact Configuration ⑥	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Notes

① Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.

② For complete listing of available button plates and contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.

③ Minimum order quantity of (10).

④ When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes.
For example, M22-XDH-S-ETCH; Order Notes: Mark with symbol X91, Line item #_.

⑤ Includes contact block mounting adapter.

⑥ All NC contact blocks are positively driven contact. ⊖

Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Illuminated Pushbuttons

M22 – DRL – R – GB0 – K10 – 230R

Bezel

M22	= Silver
M22S	= Black

Operator Type

DL	= Illuminated flush momentary
DLH	= Illuminated extended momentary
DGL	= Illuminated flush momentary with guard ①
DRL	= Illuminated flush maintained
DGLH	= Illuminated extended momentary with guard ①
DRLH	= Illuminated extended maintained

① Silver bezel only.

Lens Colour

W	= White
R	= Red
G	= Green
Y	= Yellow
B	= Blue

Contact Blocks

K10	= 1NO	**K30**	= 3NO
K01	= 1NC	**K03**	= 3NC
K20	= 2NO	**K21**	= 2NO-1NC
K02	= 2NC	**K12**	= 1NO-2NC
K11	= 1NO-1NC		

Light Units

12–30 Vac/Vdc	
W	= White
R	= Red
G	= Green
B	= Blue
85–264 Vac	
230W	= White
230R	= Red
230G	= Green
230B	= Blue

Inscription

GB0	= STOP
GB1	= START
GB2	= CLOSE
GB3	= UP
GB4	= DOWN
GB5	= OFF
GB6	= ON
GB14	= RESET
GB15	= FORWARD
GB16	= REVERSE
X0	= ◎
X1	= ⓘ
X4	= ⊕
X5	= ⊖
X6	= Ⓡ

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Product Selection

Illuminated Pushbuttons, Flush, Momentary

Complete Devices

	Bezel	Button Colour	Contact Block Configuration [1]	Light Unit Voltage	Catalogue Number
M22-DL-G-K01-G	Silver	Red	NC	12–30 Vac/Vdc	**M22-DL-R-K01-R**
			NC	85–264 Vac	**M22-DL-R-K01-230R**
			2NC	12–30 Vac/Vdc	**M22-DL-R-K02-R**
			2NC	85–264 Vac	**M22-DL-R-K02-230R**
			1NO/1NC	12–30 Vac/Vdc	**M22-DL-R-K11-R**
			1NO/1NC	85–264 Vac	**M22-DL-R-K11-230R**
		Green	NO	12–30 Vac/Vdc	**M22-DL-G-K10-G**
			NO	85–264 Vac	**M22-DL-G-K10-230G**
			2NO	12–30 Vac/Vdc	**M22-DL-G-K20-G**
			2NO	85–264 Vac	**M22-DL-G-K20-230G**
			1NO/1NC	12–30 Vac/Vdc	**M22-DL-G-K11-G**
			1NO/1NC	85–264 Vac	**M22-DL-G-K11-230G**
		White	NO	12–30 Vac/Vdc	**M22-DL-W-K10-W**
			NO	85–264 Vac	**M22-DL-W-K10-230W**
			2NO	12–30 Vac/Vdc	**M22-DL-W-K20-W**
			2NO	85–264 Vac	**M22-DL-W-K20-230W**
			1NO/1NC	12–30 Vac/Vdc	**M22-DL-W-K11-W**
			1NO/1NC	85–264 Vac	**M22-DL-W-K11-230W**
M22S-DL-G-K01-G	Black	Red	NC	12–30 Vac/Vdc	**M22S-DL-R-K01-R**
			NC	85–264 Vac	**M22S-DL-R-K01-230R**
			2NC	12–30 Vac/Vdc	**M22S-DL-R-K02-R**
			2NC	85–264 Vac	**M22S-DL-R-K02-230R**
			1NO/1NC	12–30 Vac/Vdc	**M22S-DL-R-K11-R**
			1NO/1NC	85–264 Vac	**M22S-DL-R-K11-230R**
		Green	NO	12–30 Vac/Vdc	**M22S-DL-G-K10-G**
			NO	85–264 Vac	**M22S-DL-G-K10-230G**
			2NO	12–30 Vac/Vdc	**M22S-DL-G-K20-G**
			2NO	85–264 Vac	**M22S-DL-G-K20-230G**
			1NO/1NC	12–30 Vac/Vdc	**M22S-DL-G-K11-G**
			1NO/1NC	85–264 Vac	**M22S-DL-G-K11-230G**
		White	NO	12–30 Vac/Vdc	**M22S-DL-W-K10-W**
			NO	85–264 Vac	**M22S-DL-W-K10-230W**
			2NO	12–30 Vac/Vdc	**M22S-DL-W-K20-W**
			2NO	85–264 Vac	**M22S-DL-W-K20-230W**
			1NO/1NC	12–30 Vac/Vdc	**M22S-DL-W-K11-W**
			1NO/1NC	85–264 Vac	**M22S-DL-W-K11-230W**

Note

[1] All NC contact blocks are positively driven contact. ⊖

Illuminated Pushbuttons, Flush, Momentary

Operators Only ①

	Bezel	Button Colour	Catalogue Number
M22-DL-G	Silver	Red	**M22-DL-R**
		Green	**M22-DL-G**
		White	**M22-DL-W**
		Blue	**M22-DL-B**
		Yellow	**M22-DL-Y**
M22S-DL-G	Black	Red	**M22S-DL-R**
		Green	**M22S-DL-G**
		White	**M22S-DL-W**
		Blue	**M22S-DL-B**
		Yellow	**M22S-DL-Y**
M22-DGL-G	Silver guarded	Red	**M22-DGL-R**
		Green	**M22-DGL-G**
		White	**M22-DGL-W**
		Blue	**M22-DGL-B**
		Yellow	**M22-DGL-Y**

Note

① Includes contact block mounting adapter.

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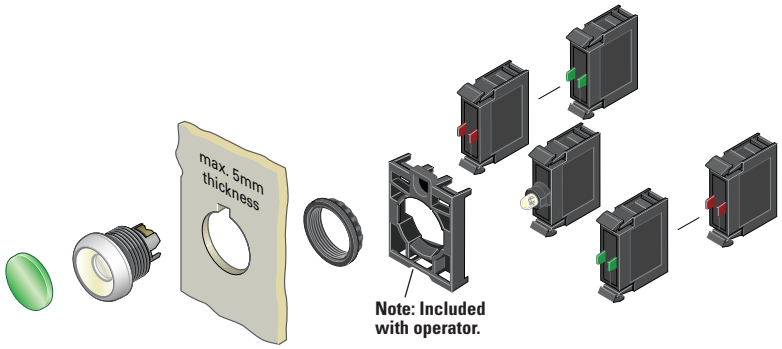
Illuminated Pushbuttons, Flush, Momentary



Components

M22-XDL-G

Button Lenses ①

Colour	Inscription	Catalogue Number
Red	—	**M22-XDL-R** ②
	Custom	**M22-XDL-R-ETCH** ③
	STOP	**M22-XDL-R-GB0**
	OFF	**M22-XDL-R-GB5**
	◎	**M22-XDL-R-X0**
Green	—	**M22-XDL-G** ②
	Custom	**M22-XDL-G-ETCH** ③
	START	**M22-XDL-G-GB1**
	ON	**M22-XDL-G-GB6**
	⏽	**M22-XDL-G-X1**
Blue	—	**M22-XDL-B** ②
	Custom	**M22-XDL-B-ETCH** ③
	RESET	**M22-XDL-B-GB14**
	Ⓡ	**M22-XDL-B-X6**
White	—	**M22-XDL-W** ②
	Custom	**M22-XDL-W-ETCH** ③
Yellow	—	**M22-XDL-Y** ②
	Custom	**M22-XDL-Y-ETCH** ③

Buttonless Operator

	Bezel	Catalogue Number ④
M22-DL-X	Silver	**M22-DL-X**
M22S-DL-X	Black	**M22S-DL-X**
M22-DGL-X	Silver guarded	**M22-DGL-X**

M22-LED-W

Light Units ①

Terminal Type	LED Colour	Light Unit Voltage	Catalogue Number
Screw	White	12–30 Vac/Vdc	**M22-LED-W**
	Red		**M22-LED-R**
	Green		**M22-LED-G**
	Blue		**M22-LED-B**
Screw	White	85–264 Vac	**M22-LED230-W**
	Red		**M22-LED230-R**
	Green		**M22-LED230-G**
	Blue		**M22-LED230-B**

M22-K10

Contact Blocks ①

Terminal Type	Contact Configuration ⑤	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Notes

① For complete listing of available button lenses, light units and contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.
② Minimum order quantity of (10).
③ When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes.
For example, M22-XDL-R-ETCH; Order Notes: Mark with symbol X91, Line item #_.
④ Includes contact block mounting adapter.
⑤ All NC contact blocks are positively driven contact. ⊖

Illuminated Pushbuttons, Flush, Maintained [2]

Complete Devices

	Bezel	Button Colour	Contact Block Configuration [1]	Light Unit Voltage	Catalogue Number
M22-DRL-W-K10-W	Silver	White	NO	12–30 Vac/Vdc	**M22-DRL-W-K10-W**
			NO	85–264 Vac	**M22-DRL-W-K10-230W**
			NC	12–30 Vac/Vdc	**M22-DRL-W-K01-W**
			NC	85–264 Vac	**M22-DRL-W-K01-230W**
			2NO	12–30 Vac/Vdc	**M22-DRL-W-K20-W**
			2NO	85–264 Vac	**M22-DRL-W-K20-230W**
			2NC	12–30 Vac/Vdc	**M22-DRL-W-K02-W**
			2NC	85–264 Vac	**M22-DRL-W-K02-230W**
			1NO/1NC	12–30 Vac/Vdc	**M22-DRL-W-K11-W**
			1NO/1NC	85–264 Vac	**M22-DRL-W-K11-230W**
M22S-DRL-W-K10-W	Black	White	NO	12–30 Vac/Vdc	**M22S-DRL-W-K10-W**
			NO	85–264 Vac	**M22S-DRL-W-K10-230W**
			NC	12–30 Vac/Vdc	**M22S-DRL-W-K01-W**
			NC	85–264 Vac	**M22S-DRL-W-K01-230W**
			2NO	12–30 Vac/Vdc	**M22S-DRL-W-K20-W**
			2NO	85–264 Vac	**M22S-DRL-W-K20-230W**
			2NC	12–30 Vac/Vdc	**M22S-DRL-W-K02-W**
			2NC	85–264 Vac	**M22S-DRL-W-K02-230W**
			1NO/1NC	12–30 Vac/Vdc	**M22S-DRL-W-K11-W**
			1NO/1NC	85–264 Vac	**M22S-DRL-W-K11-230W**

Operators Only [3]

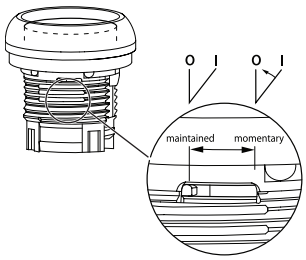
	Bezel	Button Colour	Catalogue Number
M22-DRL-W	Silver	Red	**M22-DRL-R**
		Green	**M22-DRL-G**
		White	**M22-DRL-W**
		Blue	**M22-DRL-B**
		Yellow	**M22-DRL-Y**
M22S-DRL-W	Black	Red	**M22S-DRL-R**
		Green	**M22S-DRL-G**
		White	**M22S-DRL-W**
		Blue	**M22S-DRL-B**
		Yellow	**M22S-DRL-Y**

Notes

[1] All NC contact blocks are positively driven contact. ⊖

[2] Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.

[3] Includes contact block mounting adapter.



Note: This pilot device features a selectable function switch that enables the device to be set to either maintained or momentary operation.

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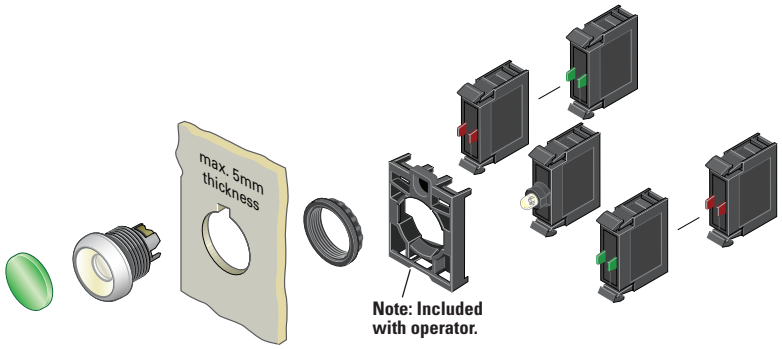
Illuminated Pushbuttons, Flush, Maintained ①



Components

M22-XDL-W

Button Lenses ②

Colour	Inscription	Catalogue Number
Red	—	**M22-XDL-R** ③
	Custom	**M22-XDL-R-ETCH** ④
	STOP	**M22-XDL-R-GB0**
	OFF	**M22-XDL-R-GB5**
	◎	**M22-XDL-R-X0**
Green	—	**M22-XDL-G** ③
	Custom	**M22-XDL-G-ETCH** ④
	START	**M22-XDL-G-GB1**
	ON	**M22-XDL-G-GB6**
	⏽	**M22-XDL-G-X1**
Blue	—	**M22-XDL-B** ③
	Custom	**M22-XDL-B-ETCH** ④
	RESET	**M22-XDL-B-GB14**
	Ⓡ	**M22-XDL-B-X6**
White	—	**M22-XDL-W** ③
	Custom	**M22-XDL-W-ETCH** ④
Yellow	—	**M22-XDL-Y** ③
	Custom	**M22-XDL-Y-ETCH** ④

Buttonless Operator

M22-DRL-X

M22S-DRL-X

Bezel	Catalogue Number ⑤
Silver	**M22-DRL-X**
Black	**M22S-DRL-X**

M22-LED-W

Light Units ②

Terminal Type	LED Colour	Light Unit Voltage	Catalogue Number
Screw	White	12–30 Vac/Vdc	**M22-LED-W**
	Red		**M22-LED-R**
	Green		**M22-LED-G**
	Blue		**M22-LED-B**
Screw	White	85–264 Vac	**M22-LED230-W**
	Red		**M22-LED230-R**
	Green		**M22-LED230-G**
	Blue		**M22-LED230-B**

M22-K10

Contact Blocks ②

Terminal Type	Contact Configuration ⑥	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Notes

① Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.
② For complete listing of available button lenses, light units and contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.
③ Minimum order quantity of (10).
④ When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes.
For example, M22-XDL-R-ETCH; Order Notes: Mark with symbol X91, Line item #_.
⑤ Includes contact block mounting adapter.
⑥ All NC contact blocks are positively driven contact. ⊖

Illuminated Pushbuttons, Extended, Momentary

Complete Devices

M22-DLH-R-K11-R

M22S-DLH-R-K11-R

Bezel	Button Colour	Contact Block Configuration ①	Light Unit Voltage	Catalogue Number
Silver	Red	1NO/1NC	12–30 Vac/Vdc	**M22-DLH-R-K11-R**
		1NO/1NC	85–264 Vac	**M22-DLH-R-K11-230R**
	Green	2NO	12–30 Vac/Vdc	**M22-DLH-G-K20-G**
		2NO	85–264 Vac	**M22-DLH-G-K20-230G**
	White	2NO	12–30 Vac/Vdc	**M22-DLH-W-K20-W**
		2NO	85–264 Vac	**M22-DLH-W-K20-230W**
Black	Red	1NO/1NC	12–30 Vac/Vdc	**M22S-DLH-R-K11-R**
		1NO/1NC	85–264 Vac	**M22S-DLH-R-K11-230R**
	Green	2NO	12–30 Vac/Vdc	**M22S-DLH-G-K20-G**
		2NO	85–264 Vac	**M22S-DLH-G-K20-230G**
	White	2NO	12–30 Vac/Vdc	**M22S-DLH-W-K20-W**
		2NO	85–264 Vac	**M22S-DLH-W-K20-230W**

Complete Press-to-Test Units

Bezel	Button Colour	Light Unit Voltage	Catalogue Number
Silver	Red	12–30 Vac/Vdc	**M22-T-R-R**
	Blue		**M22-T-B-B**
	Yellow		**M22-T-Y-W**
	Green		**M22-T-G-G**
	White		**M22-T-W-W**
	Red	85–264 Vac	**M22-T-R-230R**
	Blue		**M22-T-R-230B**
	Yellow		**M22-T-Y-230W**
	Green		**M22-T-G-230G**
	White		**M22-T-W-230W**
Black	Red	12–30 Vac/Vdc	**M22S-T-R-R**
	Blue		**M22S-T-B-B**
	Yellow		**M22S-T-Y-W**
	Green		**M22S-T-G-G**
	White		**M22S-T-W-W**
	Red	85–264 Vac	**M22S-T-R-230R**
	Blue		**M22S-T-B-230B**
	Yellow		**M22S-T-Y-230W**
	Green		**M22S-T-G-230G**
	White		**M22S-T-W-230W**

Operators Only ②

M22-DLH-R

M22S-DLH-R

M22-DGLH-R

Bezel	Button Colour	Catalogue Number
Silver	Red	**M22-DLH-R**
	Green	**M22-DLH-G**
	White	**M22-DLH-W**
	Blue	**M22-DLH-B**
	Yellow	**M22-DLH-Y**
Black	Red	**M22S-DLH-R**
	Green	**M22S-DLH-G**
	White	**M22S-DLH-W**
	Blue	**M22S-DLH-B**
	Yellow	**M22S-DLH-Y**
Silver guarded	Red	**M22-DGLH-R**
	Green	**M22-DGLH-G**
	White	**M22-DGLH-W**
	Blue	**M22-DGLH-B**
	Yellow	**M22-DGLH-Y**

Notes

① All NC contact blocks are positively driven contact. ⊖

② Includes contact block mounting adapter.

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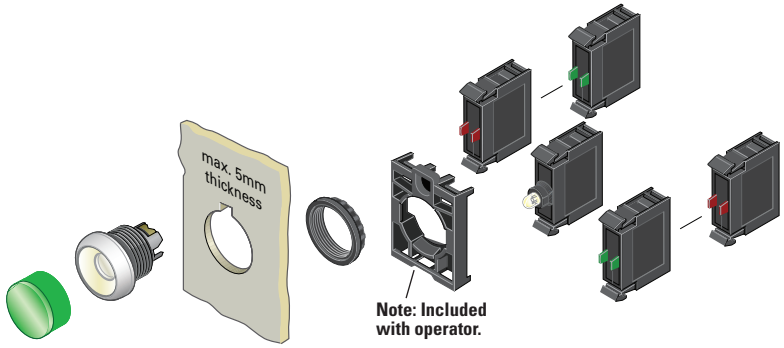
Illuminated Pushbuttons, Extended, Momentary



Components

M22-XDH-R

Button Lenses ①

Colour	Inscription	Catalogue Number
Red	—	**M22-XDLH-R** ②
	Custom	**M22-XDLH-R-ETCH** ③
	STOP	**M22-XDLH-R-GB0**
	OFF	**M22-XDLH-R-GB5**
	◎	**M22-XDLH-R-X0**
Green	—	**M22-XDLH-G** ②
	Custom	**M22-XDLH-G-ETCH** ③
	START	**M22-XDLH-G-GB1**
	ON	**M22-XDLH-G-GB6**
	⏽	**M22-XDLH-G-X1**
Blue	—	**M22-XDLH-B** ②
	Custom	**M22-XDLH-B-ETCH** ③
	RESET	**M22-XDLH-B-GB14**
	Ⓡ	**M22-XDLH-B-X6**
White	—	**M22-XDLH-W** ②
	Custom	**M22-XDLH-W-ETCH** ③
Yellow	—	**M22-XDLH-Y** ②
	Custom	**M22-XDLH-Y-ETCH** ③

Buttonless Operator

Bezel	Catalogue Number ④
Silver	**M22-DL-X**
Black	**M22S-DL-X**
Silver guarded	**M22-DGL-X**

M22-DL-X

M22S-DL-X

M22-DGL-X

M22-LED-W

Light Units ①

Terminal Type	LED Colour	Light Unit Voltage	Catalogue Number
Screw	White	12–30 Vac/Vdc	**M22-LED-W**
	Red		**M22-LED-R**
	Green		**M22-LED-G**
	Blue		**M22-LED-B**
Screw	White	85–264 Vac	**M22-LED230-W**
	Red		**M22-LED230-R**
	Green		**M22-LED230-G**
	Blue		**M22-LED230-B**

M22-K10

Contact Blocks ①

Terminal Type	Contact Configuration ⑤	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Notes

① For complete listing of available button lenses, light units and contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.
② Minimum order quantity of (10).
③ When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes.
For example, M22-XDH-S-ETCH; Order Notes: Mark with symbol X91, Line item #_.
④ Includes contact block mounting adapter.
⑤ All NC contact blocks are positively driven contact. ⊖

Illuminated Pushbuttons, Extended, Maintained ①

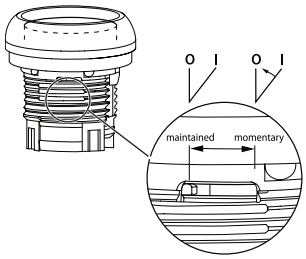
Operators Only ②

	Bezel	Button Colour	Catalogue Number
M22-DRLH-W	Silver	Red	**M22-DRLH-R**
		Green	**M22-DRLH-G**
		White	**M22-DRLH-W**
		Blue	**M22-DRLH-B**
		Yellow	**M22-DRLH-Y**
M22S-DRLH-W	Black	Red	**M22S-DRLH-R**
		Green	**M22S-DRLH-G**
		White	**M22S-DRLH-W**
		Blue	**M22S-DRLH-B**
		Yellow	**M22S-DRLH-Y**

Notes

① Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.

② Includes contact block mounting adapter.



Note: This pilot device features a selectable function switch that enables the device to be set to either maintained or momentary operation.

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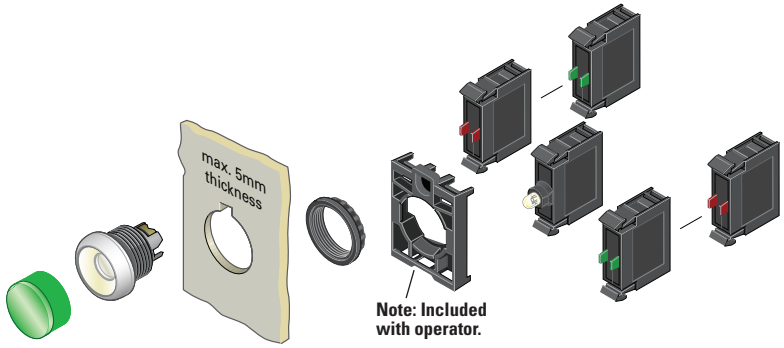
Illuminated Pushbuttons, Extended, Maintained ①



Components

M22-XDLH-W

Button Lenses ②

Colour	Inscription	Catalogue Number
Red	—	**M22-XDLH-R** ③
	Custom	**M22-XDLH-R-ETCH** ④
	STOP	**M22-XDLH-R-GB0**
	OFF	**M22-XDLH-R-GB5**
	◎	**M22-XDLH-R-X0**
Green	—	**M22-XDLH-G** ③
	Custom	**M22-XDLH-G-ETCH** ④
	START	**M22-XDLH-G-GB1**
	ON	**M22-XDLH-G-GB6**
	①	**M22-XDLH-G-X1**
Blue	—	**M22-XDLH-B** ③
	Custom	**M22-XDLH-B-ETCH** ④
	RESET	**M22-XDLH-B-GB14**
	Ⓡ	**M22-XDLH-B-X6**
White	—	**M22-XDLH-W** ③
	Custom	**M22-XDLH-W-ETCH** ④
Yellow	—	**M22-XDLH-Y** ③
	Custom	**M22-XDLH-Y-ETCH** ④

Buttonless Operator

Bezel	Catalogue Number ⑤
Silver	**M22-DRL-X**
Black	**M22S-DRL-X**

M22-DRL-X

M22S-DRL-X

M22-LED-W

Light Units ②

Terminal Type	LED Colour	Light Unit Voltage	Catalogue Number
	White	12–30 Vac/Vdc	**M22-LED-W**
	Red		**M22-LED-R**
	Green		**M22-LED-G**
	Blue		**M22-LED-B**
	White	85–264 Vac	**M22-LED230-W**
	Red		**M22-LED230-R**
	Green		**M22-LED230-G**
	Blue		**M22-LED230-B**

M22-K10

Contact Blocks ②

Terminal Type	Contact Configuration ⑥	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Notes

① Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.
② For complete listing of available button lenses, light units and contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.
③ Minimum order quantity of (10).
④ When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes.
For example, M22-XDLH-S-ETCH; Order Notes: Mark with symbol X91, Line item #_.
⑤ Includes contact block mounting adapter.
⑥ All NC contact blocks are positively driven contact. ⊖

Indicating Lights

Product Description

Eaton's M22 indicating lights use the combination of a durable, bright LED unit and modern lenses designed specifically for this type of LED to create a bright and visible indicating light.

As with the pushbuttons, the indicating light lenses can be laser engraved. Indicating lights can be ordered as complete devices, including lens and LED unit, or as modular components.

Features

- Customizable laser engraving on all lenses
- LED offering only for improved brightness quality and up to 100,000 hours of operation
- Lenses designed specifically for LED illumination
- Modular construction makes assembly fast and simplifies stocking of components and complete devices
- Capable of communicating via ASi protocol with ASi adapter modules

Protection Type

- IP67, IP69K
- NEMA 4X, 13

Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Indicating Lights

M22 - L – B – GB8 – B

Operator Type	Lens Colour	Plate Inscription	Light Units	
			12–30 Vac/Vdc	85–264 Vac
M22-L = Flush indicating light	**W** = White	**ETCH** = Custom ①	**W** = White	**230W** = White
	R = Red	**GB5** = OFF	**R** = Red	**230R** = Red
	G = Green	**GB6** = ON	**G** = Green	**230G** = Green
	Y = Yellow	**GB8** = FAULT	**B** = Blue	**230B** = Blue
	B = Blue	**GB15** = FORWARD		
		GB16 = REVERSE		

Note: Light unit should match colour of lens. Use white light unit with yellow lens.

① When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes. For example, M22-L-B-ETCH; Order Notes: Mark with symbol X91, Line item #_.

Product Selection

Indicating Lights, Flush

M22-L-R-R

Complete Devices

Lens Colour	Light Colour	Light Unit Voltage	Catalogue Number
White	White	12–30 Vac/Vdc	**M22-L-W-W**
Red	Red		**M22-L-R-R**
Green	Green		**M22-L-G-G**
Yellow	White		**M22-L-Y-W**
Blue	Blue		**M22-L-B-B**
Amber	White		**M22-L-A-W**
White	White	85–264 Vac	**M22-L-W-230W**
Red	Red		**M22-L-R-230R**
Green	Green		**M22-L-G-230G**
Yellow	White		**M22-L-Y-230W**
Blue	Blue		**M22-L-B-230B**
Amber	White		**M22-L-A-230W**

Operators Only ①

M22-L-R

Lens Colour	Catalogue Number
Flat	
White	**M22-L-W**
Red	**M22-L-R**
Green	**M22-L-G**
Yellow	**M22-L-Y**
Blue	**M22-L-B**
Amber	**M22-L-A**

M22-LH-R

Lens Colour	Catalogue Number
Conical	
White	**M22-LH-W**
Red	**M22-LH-R**
Green	**M22-LH-G**
Yellow	**M22-LH-Y**
Blue	**M22-LH-B**
Amber	**M22-LH-A**

Note

① Includes contact block mounting adapter.

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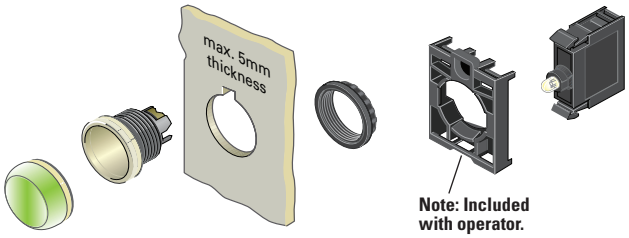
Indicating Lights, Flush



Components

M22-XL-R

Lenses ①

Colour	Inscription	Catalogue Number
Flat		
Red	—	**M22-XL-R** ②
	Custom	**M22-XL-R-ETCH** ③
	OFF	**M22-XL-R-GB5**
Green	—	**M22-XL-G** ②
	Custom	**M22-XL-G-ETCH** ③
	ON	**M22-XL-G-GB6**
	REVERSE	**M22-XL-G-GB16**
Blue	—	**M22-XL-B** ②
	Custom	**M22-XL-B-ETCH** ③
	FAULT	**M22-XL-B-GB8**
White	—	**M22-XL-W** ②
	Custom	**M22-XL-W-ETCH** ③
	OFF	**M22-XL-W-GB5**
	ON	**M22-XL-W-GB6**
	FAULT	**M22-XL-W-GB8**
	FORWARD	**M22-XL-W-GB15**
Yellow	—	**M22-XL-Y** ②
	Custom	**M22-XL-Y-ETCH** ③
Amber	—	**M22-XL-A** ②
	Custom	**M22-XL-A-ETCH** ③
Conical		
Red	–	**M22-XLH-R**
Green	–	**M22-XLH-G**
Blue	–	**M22-XLH-B**
White	–	**M22-XLH-W**
Yellow	–	**M22–XLH-Y**
Amber	–	**M22-XLH-A**

M22-L-X

Lensless Indicating Light

Catalogue Number
M22-L-X

M22-LED-W

Light Units ①④

Terminal Type	LED Colour	Light Unit Voltage	Catalogue Number
Screw	White	12–30 Vac/Vdc	**M22-LED-W**
	Red		**M22-LED-R**
	Green		**M22-LED-G**
	Blue		**M22-LED-B**
Screw	White	85–264 Vac	**M22-LED230-W**
	Red		**M22-LED230-R**
	Green		**M22-LED230-G**
	Blue		**M22-LED230-B**

Notes

① For complete listing of available lenses and light units, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.
② Minimum order quantity of (10).
③ When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes. For example, M22-XL-R-ETCH; Order Notes: Mark with symbol X91, Line item #_.
④ Select the same colour LED element as lens colour; for yellow and amber lenses, choose a white LED.

Emergency Stops

Product Description

Eaton's M22 emergency stops are a durable and reliable solution to a variety of e-stop applications. With standard push-pull, as well as twist-to-release and key-release, illuminated options and red or black operators, the M22 e-stop is a robust solution. As with all operators, they can be ordered as a ready to install complete device or as modular components for the perfect fit.

Features

- Push-pull and twist to release options available as well as illuminated and keyed release
- LED offering only for improved brightness quality and up to 100,000 hours of operation
- More than 100,000 mechanical operations
- Capable of communicating via ASi protocol with ASi adapter modules

Protection Type

- IP67, IP69K (IP66 key-release)
- NEMA 4X, 13

Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Emergency Stops

M22 – PVT – MS2 – K10 – 230R

Operator Colour
- **M22** = Silver
- **M22S** = Black

Operator Type
- **PV** = Non-illuminated push-pull emergency stop
- **PVT** = Non-illuminated twist-to-release emergency stop
- **PVT45P** = Non-illuminated twist-to-release 45 mm emergency stop
- **PVT60P** = Non-illuminated twist-to-release 60 mm emergency stop
- **PVT45P-MPI** = Non-illuminated twist-to-release with mechanical indication, 45 mm
- **PVT60P-MPI** = Non-illuminated twist-to-release with mechanical indication, 60 mm
- **PVS** = Non-illuminated keyed release (red operator only)
- **PVS45P** = Non-illuminated keyed release 45 mm (red only)
- **PVS60P** = Non-illuminated keyed release 60 mm (red only)
- **PVL** = Illuminated push-pull emergency stop
- **PVLT** = Illuminated twist-to-release emergency stop
- **PVLT45P** = Illuminated twist-to-release 45 mm emergency stop
- **PVLT60P** = Illuminated twist-to-release 60 mm emergency stop

Key Release Code
- **Blank** = MS1
- **MS2** = MS2
- **MS3** = MS3
- **MS4** = MS4
- **MS5** = MS5
- **MS6** = MS6
- **MS7** = MS7
- **MS8** = MS8
- **RS** = Ronis (45 and 60 mm only)

Contact Blocks
- **K10** = NO
- **K10P** = NO, early-make
- **K01** = NC
- **K01D** = NC, late-break
- **CK10** = NO
- **CK01** = NC
- **CK01D** = NC, late-break
- **Ck20** = 2NO
- **CK02** = 2NC
- **CK11** = NO-NC

Light Units
- **12–30 Vac/Vdc**
  - **W** = White
  - **R** = Red
  - **G** = Green
  - **B** = Blue
- **85–264 Vac**
  - **230W** = White
  - **230R** = Red
  - **230G** = Green
  - **230B** = Blue

Product Selection

Non-Illuminated Emergency Stops

M22-PV-K01

Complete Devices

Type	Colour	Contact Block Configuration ①	Catalogue Number
Push-pull	Red	NC	**M22-PV-K01**
		2NC	**M22-PV-K02**
		1NO-2NC	**M22-PV-K12**
Twist-to-release	Red	NC	**M22-PVT-K01**
		2NC	**M22-PVT-K02**
		1NO-2NC	**M22-PVT-K12**
Key release	Red	NC	**M22-PVS-K01**
		2NC	**M22-PVS-K02**
		1NO-2NC	**M22-PVS-K12**

Note

① All NC contact blocks are positively driven contact. ⊖

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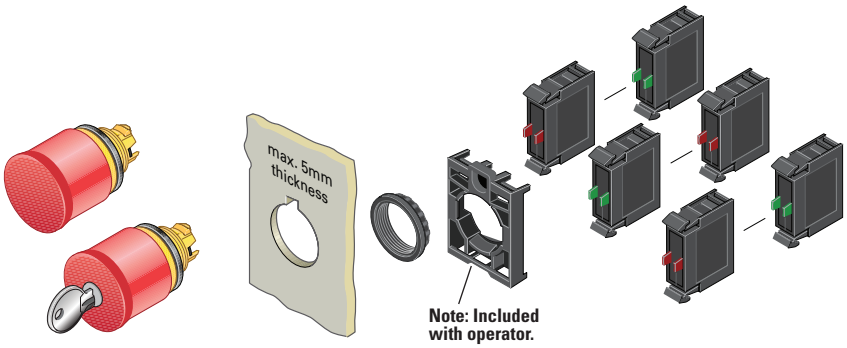
Non-Illuminated Emergency Stops



Components

Operators Only ①

	Type	Colour	Actuator Size	Catalogue Number
M22-PV	Push-pull	Red	35 mm	**M22-PV**
		Black	35 mm	**M22S-PV**
M22S-PVT	Twist-to-release	Red	35 mm	**M22-PVT**
			45 mm	**M22-PVT45P**
			60 mm	**M22-PVT60P**
		Black		**M22S-PVT**
	Key release ②	Red	35 mm	**M22-PVS** ③
				M22-PVS-MS2
				M22-PVS-MS3
				M22-PVS-MS4
				M22-PVS-MS5
				M22-PVS-MS6
				M22-PVS-MS7
				M22-PVS-MS8
			45 mm	**M22-PVS45P**
				M22-PVS45P-MS2
				M22-PVS45P-MS3
				M22-PVS45P-MS4
				M22-PVS45P-MS5
				M22-PVS45P-MS6
				M22-PVS45P-MS7
				M22-PVS45P-MS8
				M22-PVS45P-RS
			60 mm	**M22-PVS60P**
				M22-PVS60P-MS2
				M22-PVS60P-MS3
				M22-PVS60P-MS4
				M22-PVS60P-MS5
				M22-PVS60P-MS6
				M22-PVS60P-MS7
				M22-PVS60P-MS8
				M22-PVS60P-RS
	Mechanical indication	Red	45 mm	**M22-PVT45P-MPI**
			60 mm	**M22-PVT60P-MPI**

M22-K10

Contact Blocks ④

Terminal Type	Mounting Location ⑤	Contact Configuration ⑥	Catalogue Number
Screw	Front	NO	**M22-K10**
		NO, early-make	**M22-K10P**
		NC	**M22-K01**
		NC, late-break	**M22-K01D**
		SMCB, NC	**M22-K01SMC10**
		SMCB, 2NC	**M22-K02SMC10**
	Base	SMCB, NC	**M22-KC01SMC10**
		SMCB, 2NC	**M22-KC02SMC10**
Spring-cage	Front	NO	**M22-CK10**
		NC	**M22-CK01**
		NC, late-break	**M22-CK01D**
		2NO	**M22-CK20**
		2NC	**M22-CK02**
		NO-NC	**M22-CK11**

M22-ES-MS1

Extra Keys ⑦

For Key Code	Catalogue Number
MS1	**M22-ES-MS1**
MS2	**M22-ES-MS2**
MS3	**M22-ES-MS3**
MS4	**M22-ES-MS4**
MS5	**M22-ES-MS5**
MS6	**M22-ES-MS6**
MS7	**M22-ES-MS7**
MS8	**M22-ES-MS8**

Notes

① Includes contact block mounting adapter.
② Key included. For identical locks and keys, use the same key code. One key is included with actuator; additional keys are available as accessories.
③ Includes Key Code MS1.
④ For complete listing of available contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.
⑤ Self-monitoring contact blocks (SMCB type) cannot be used with illuminated emergency stops.
⑥ All NC contact blocks are positively driven contact. ⊖
⑦ For use with key release operators only. One key included with operator.

Accessories

	Description	Voltage	Catalogue Number
M22-XGPV	Yellow guard ring	—	**M22-XGPV**
M22G-XGPV	Gray guard ring	—	**M22G-XGPV**
M22-PL-PV	Sealing shroud	—	**M22-PL-PV**
M22-XPV60-Y-120	Illuminated ring	24 Vac/Vdc	**M22-XPV60-Y-24**
		120 Vac	**M22-XPV60-Y-120**
		230 Vac	**M22-XPV60-Y-230**

Illuminated Emergency Stops

M22-PVL-K01-R

Complete Devices

Type	Button Colour	LED Colour	Contact Block Configuration ①	Light Unit Voltage	Catalogue Number
Push-pull	Red	Red	NC	12–30 Vac/Vdc	**M22-PVL-K01-R**
			2NC	12–30 Vac/Vdc	**M22-PVL-K02-R**
			1NO-2NC	12–30 Vac/Vdc	**M22-PVL-K12-R**
			NC	85–264 Vac	**M22-PVL-K01-230R**
			2NC	85–264 Vac	**M22-PVL-K02-230R**
			1NO-2NC	85–264 Vac	**M22-PVL-K12-230R**
Twist-to-release			NC	12–30 Vac/Vdc	**M22-PVLT-K01-R**
			2NC	12–30 Vac/Vdc	**M22-PVLT-K02-R**
			1NO-2NC	12–30 Vac/Vdc	**M22-PVLT-K12-R**
			NC	85–264 Vac	**M22-PVLT-K01-230R**
			2NC	85–264 Vac	**M22-PVLT-K02-230R**
			1NO-2NC	85–264 Vac	**M22-PVLT-K12-230R**

Note

① All NC contact blocks are positively driven contact. ⊖

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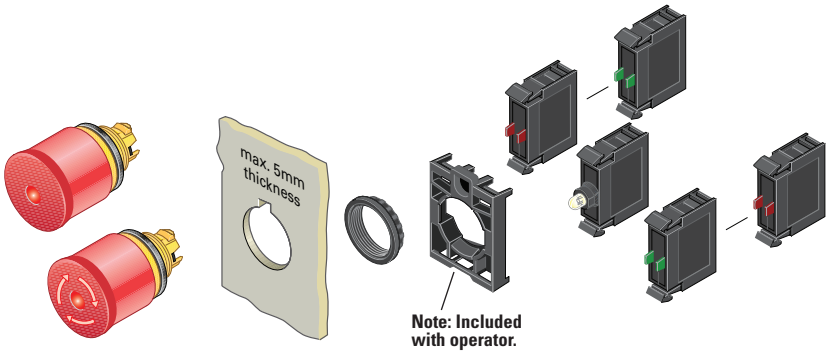
Illuminated Emergency Stops



Components

Operators Only ①

	Type	Colour	Actuator Size	Catalogue Number
M22-PVL	Push-pull	Red	35 mm	**M22-PVL**
		Black	35 mm	**M22S-PVL**
M22S-PVLT	Twist-to-release	Red	35 mm	**M22-PVLT**
			45 mm	**M22-PVLT45P**
			60 mm	**M22-PVLT60P**
		Black	35 mm	**M22S-PVLT**

Light Units ②

	Terminal Type	LED Colour	Light Unit Voltage	Catalogue Number
M22-LED-W	Screw	White	12–30 Vac/Vdc	**M22-LED-W**
		Red	12–30 Vac/Vdc	**M22-LED-R**
	Screw	White	85–264 Vac	**M22-LED230-W**
		Red	85–264 Vac	**M22-LED230-R**
	Screw	White	207–264 Vac	**M22-LED230H-W**
		Red	207–264 Vac	**M22-LED230H-R**

Contact Blocks ②

	Terminal Type	Contact Configuration ③	Catalogue Number
M22-K10	Screw	NO	**M22-K10**
		NO, early-make	**M22-K10P**
		NC	**M22-K01**
		NC, late-break	**M22-K01D**
	Spring-cage	NO	**M22-CK10**
		NC	**M22-CK01**
		NC, late-break	**M22-CK01D**
		2NO	**M22-CK20**
		2NC	**M22-CK02**
		NO-NC	**M22-CK11**

Accessories

	Description	Voltage	Catalogue Number
M22-XGPV	Yellow guard ring	—	**M22-XGPV**
M22G-XGPV	Gray guard ring	—	**M22G-XGPV**
M22-PL-PV	Sealing shroud	—	**M22-PL-PV**
	Illuminated ring	24 Vac/Vdc	**M22-XPV60-Y-24**
		120 Vac	**M22-XPV60-Y-120**
		230 Vac	**M22-XPV60-Y-230**

Notes

① Includes contact block mounting adapter.

② For complete listing of available light units and contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.

③ All NC contact blocks are positively driven contact.

Selector Switches

Contents

Description	*Page*
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Non-Illuminated Switches	**T37-62**
Illuminated Switches	**T37-67**
Key Operated	**T37-71**

Selector Switches

Product Description

Eaton's M22 selector switch line offers an almost endless variety of options in maintained/momentary, key-removal and illuminated devices. The coding adapters used for maintained/momentary and key removal positions make the M22 stand out from competitive devices. By simply adding or removing a coding adapter from inside the operator, the end-user can change the function of the button. Operator options include standard knob, rotary head, illuminated and keyed versions. As with all operators, they can be ordered as a ready to install complete device or as modular components to meet application specific requirements.

Features

- Adding or removing coding adapters allows for field convertibility of maintained/momentary and key removal positions
- LED offering only for improved brightness quality and up to 100,000 hours of operation
- More than 100,000 mechanical operations
- Coding adapter options make assembly fast and simplify stocking of different configurations of selector switches
- Capable of communicating via ASi protocol with ASi adapter modules

Protection Type

- IP66
- NEMA 4X, 13

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Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Non-Illuminated Selector Switches

M22 – WRK __ – X91 – K10

Bezel Colour
- **M22** = Silver
- **M22S** = Black

Handle Type ①
- **W** = Momentary rotary
- **WK** = Momentary knob
- **WKV** = Maintained V-position knob
- **WR** = Maintained rotary
- **WRK** = Maintained knob

① All momentary selector switches can be converted in the field to maintained operation with the removal of a colour-coded adapter.

Number of Positions
- **Blank** = Two-position
- **3** = Three-position
- **4** = Four-position

Inscription ②
- **X91** = AUTO-HAND
- **X92** = II-I

② Rotary type only.

Contact Blocks
- **K10** = NO
- **K10P** = NO, early-make

Options
- **K11** = NO-NC
- **K22** = 2NO-2NC
- **K20** = 2NO
- **K02** = 2NC

Product Selection

Non-Illuminated Selector Switches

M22-WKV-K10

Complete Devices, Knob Type ①

Type	Switching Position	Bezel	Contact Block Configuration ②	Catalogue Number
Two-position	Maintained	Silver	NO	**M22-WRK-K10**
			1NO-1NC	**M22-WRK-K11**
			2NO-2NC	**M22-WRK-K22**
		Black	NO	**M22S-WRK-K10**
			1NO-1NC	**M22S-WRK-K11**
			2NO-2NC	**M22S-WRK-K22**
	Maintained V	Silver	NO	**M22-WKV-K10**
			1NO-1NC	**M22-WKV-K11**
			2NO-2NC	**M22-WKV-K22**
		Black	NO	**M22S-WKV-K10**
			1NO-1NC	**M22S-WKV-K11**
			2NO-2NC	**M22S-WKV-K22**
Three-position	Maintained	Silver	2NO	**M22-WRK3-K20**
			2NO-2NC	**M22-WRK3-K22**
		Black	2NO	**M22S-WRK3-K20**
			2NO-2NC	**M22S-WRK3-K22**

Notes

① Includes contact block mounting adapter.

② All NC contact blocks are positively driven contact. ⊖

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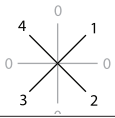
Non-Illuminated Selector Switches

Components

M22-WK

Operators Only, Knob Type ①

Type	Switching Position	Bezel	Catalogue Number
Two-position	Momentary ②	Silver	**M22-WK**
		Black	**M22S-WK**
	Maintained	Silver	**M22-WRK**
		Black	**M22S-WRK**
	Maintained V	Silver	**M22-WKV**
		Black	**M22S-WKV**
Three-position	Momentary ②	Silver	**M22-WK3**
		Black	**M22S-WK3**
	Maintained	Silver	**M22-WRK3**
		Black	**M22S-WRK3**
	Maintained, return from left	Silver	**M22-WRK3-2**
		Black	**M22S-WRK3-2**
	Maintained, return from right	Silver	**M22-WRK3-1**
		Black	**M22S-WRK3-1**
Four-position	Maintained 	Silver	**M22-WRK4**
		Black	**M22S-WRK4**

Notes

① Includes contact block mounting adapter.

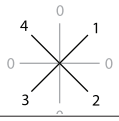
② Momentary selector switches can be converted in the field to maintained operation with the removal of a colour coded adapter. See **Page V7-T37-103**.

Non-Illuminated Selector Switches

Components

M22S-WR3-X94

Operators Only, Rotary Type ①

Type	Switching Position	Bezel	Inscription	Catalogue Number
Two-position	Momentary ②	Silver	I-O	**M22-W**
		Black	I-O	**M22S-W**
	Maintained	Silver	I-O	**M22-WR**
			Custom	**M22-WR-ETCH** ③
			AUTO-HAND	**M22-WR-X91**
			II-I	**M22-WR-X92**
		Black	I-O	**M22S-WR**
			Custom	**M22S-WR-ETCH** ③
			AUTO-HAND	**M22S-WR-X91**
			II-I	**M22S-WR-X92**
Three-position	Momentary ②	Silver	I-O-II	**M22-W3**
		Black	I-O-II	**M22S-W3**
	Maintained	Silver	I-O-II	**M22-WR3**
			Custom	**M22-WR3-ETCH** ③
			AUTO-O-MAN	**M22-WR3-X94**
		Black	I-O-II	**M22S-WR3**
			Custom	**M22S-WR3-ETCH** ③
			AUTO-O-MAN	**M22S-WR3-X94**
Four-position	Maintained 	Silver	0-1-0-2-0-3-0-4	**M22-WR4**
		Black	0-1-0-2-0-3-0-4	**M22S-WR4**

Notes

① Includes contact block mounting adapter.

② Momentary selector switches can be converted in the field to maintained operation with the removal of a colour coded adapter. See **Page V7-T37-103**.

③ When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes. For example, M22-WR3-ETCH; Order Notes: Mark with symbol X88, Line item #_.

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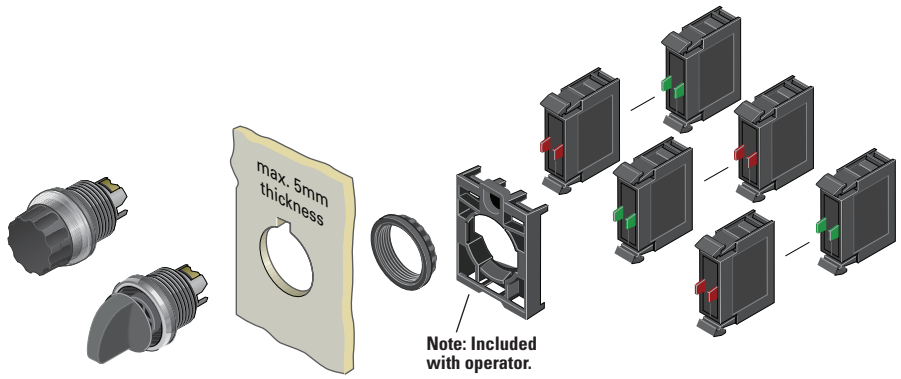
Non-Illuminated Selector Switches



Components

M22-K10

Contact Blocks ①

Terminal Type	Contact Configuration ②	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Accessories

	Description	Catalogue Number
M22-XW	Plunger bridge ③	**M22-XW**
M22-XWS	Key cover	**M22-XWS**
M22-XC-R	Key withdraw adapter ④	**M22-XC-R**
M22-XC-Y	Coding adapter	**M22-XC-Y**
M22-XGWK	Guard ring	**M22-XGWK**

Notes

① For complete listing of available contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.
② All NC contact blocks are positively driven contact. ⊖
③ Plunger needed to actuate centre-mounted contact blocks. Used for non-illuminated three-position selector switches only.
④ Enables a keyed selector switch to be set to user-selected key withdraw position.

Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Illuminated Selector Switches

M22 – WLK – R – K10 – R

Bezel Colour
- **M22** = Silver
- **M22S** = Black

Handle Type
- **WLK** = Illuminated knob type momentary, two-position
- **WLKV** = Illuminated Knob type momentary, V-position
- **WLK3** = Illuminated knob type momentary, three-position

Handle Colour
- **W** = White
- **R** = Red
- **G** = Green
- **Y** = Yellow
- **B** = Blue

Contact Blocks
- **K10** = 1NO
- **K01** = 1NC
- **K20** = 2NO
- **K02** = 2NC
- **K11** = 1NO-1NC
- **K30** = 3NO
- **K03** = 3NC
- **K21** = 2NO-1NC
- **K12** = 1NO-2NC

Light Units

12–30 Vac/Vdc
- **W** = White
- **R** = Red
- **G** = Green
- **B** = Blue

85–264 Vac
- **230W** = White
- **230R** = Red
- **230G** = Green
- **230B** = Blue

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Product Selection

Illuminated Selector Switches

Components

M22-WLK-W

Operators Only, Knob Type ①

Type	Switching Position	Bezel	Button Colour	Catalogue Number
Two-position	Momentary ②	Silver	White	**M22-WLK-W**
			Red	**M22-WLK-R**
			Green	**M22-WLK-G**
			Yellow	**M22-WLK-Y**
			Blue	**M22-WLK-B**
		Black	White	**M22S-WLK-W**
			Red	**M22S-WLK-R**
			Green	**M22S-WLK-G**
			Yellow	**M22S-WLK-Y**
			Blue	**M22S-WLK-B**
	Maintained	Silver	White	**M22-WRLK-W**
			Red	**M22-WRLK-R**
			Green	**M22-WRLK-G**
			Yellow	**M22-WRLK-Y**
			Blue	**M22-WRLK-B**
		Black	White	**M22S-WRLK-W**
			Red	**M22S-WRLK-R**
			Green	**M22S-WRLK-G**
			Yellow	**M22S-WRLK-Y**
			Blue	**M22S-WRLK-B**
	Maintained V	Silver	White	**M22-WLKV-W**
			Red	**M22-WLKV-R**
			Green	**M22-WLKV-G**
			Yellow	**M22-WLKV-Y**
			Blue	**M22-WLKV-B**
		Black	White	**M22S-WLKV-W**
			Red	**M22S-WLKV-R**
			Green	**M22S-WLKV-G**
			Yellow	**M22S-WLKV-Y**
			Blue	**M22S-WLKV-B**

Notes

① Includes contact block mounting adapter.

② Momentary selector switches can be converted in the field to maintained operation with the removal of a colour coded adapter. See **Page V7-T37-103**.

Illuminated Selector Switches

Components

M22-WLK3-W

Operators Only, Knob Type ①

Type	Switching Position	Bezel	Button Colour	Catalogue Number
Three-position	Momentary ②	Silver	White	**M22-WLK3-W**
			Red	**M22-WLK3-R**
			Green	**M22-WLK3-G**
			Yellow	**M22-WLK3-Y**
			Blue	**M22-WLK3-B**
		Black	White	**M22S-WLK3-W**
			Red	**M22S-WLK3-R**
			Green	**M22S-WLK3-G**
			Yellow	**M22S-WLK3-Y**
			Blue	**M22S-WLK3-B**
	Maintained	Silver	White	**M22-WRLK3-W**
			Red	**M22-WRLK3-R**
			Green	**M22-WRLK3-G**
			Yellow	**M22-WRLK3-Y**
			Blue	**M22-WRLK3-B**
		Black	White	**M22S-WRLK3-W**
			Red	**M22S-WRLK3-R**
			Green	**M22S-WRLK3-G**
			Yellow	**M22S-WRLK3-Y**
			Blue	**M22S-WRLK3-B**
	Maintained, return from right	Silver	White	**M22-WRLK3-1-W**
			Red	**M22-WRLK3-1-R**
			Green	**M22-WRLK3-1-G**
			Yellow	**M22-WRLK3-1-Y**
			Blue	**M22-WRLK3-1-B**
		Black	White	**M22S-WRLK3-1-W**
			Red	**M22S-WRLK3-1-R**
			Green	**M22S-WRLK3-1-G**
			Yellow	**M22S-WRLK3-1-Y**
			Blue	**M22S-WRLK3-1-B**
	Maintained, return from left	Silver	White	**M22-WRLK3-2-W**
			Red	**M22-WRLK3-2-R**
			Green	**M22-WRLK3-2-G**
			Yellow	**M22-WRLK3-2-Y**
			Blue	**M22-WRLK3-2-B**
		Black	White	**M22S-WRLK3-2-W**
			Red	**M22S-WRLK3-2-R**
			Green	**M22S-WRLK3-2-G**
			Yellow	**M22S-WRLK3-2-Y**
			Blue	**M22S-WRLK3-2-B**

Notes

① Includes contact block mounting adapter.

② Momentary selector switches can be converted in the field to maintained operation with the removal of a colour coded adapter. See **Page V7-T37-103**.

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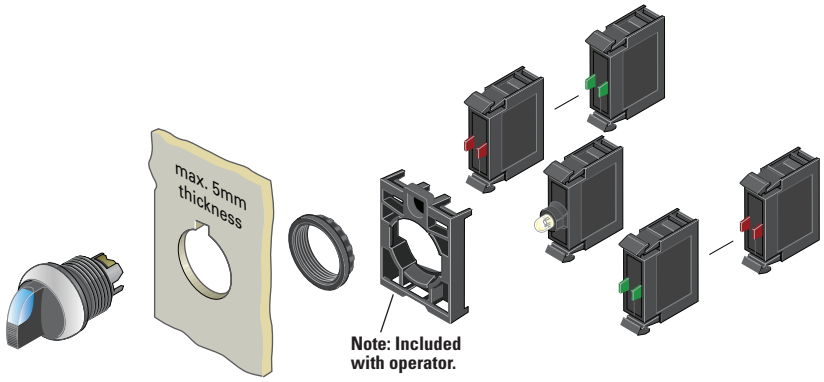
Illuminated Selector Switches



M22-LED-W

Light Units ①⑤

Terminal Type	LED Colour	Light Unit Voltage	Catalogue Number
Screw	White	12–30 Vac/Vdc	**M22-LED-W**
	Red		**M22-LED-R**
	Green		**M22-LED-G**
	Blue		**M22-LED-B**
Screw	White	85–264 Vac	**M22-LED230-W**
	Red		**M22-LED230-R**
	Green		**M22-LED230-G**
	Blue		**M22-LED230-B**

M22-K10

Contact Blocks ①

Terminal Type	Contact Configuration ③	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Accessories

	Description	Catalogue Number
M22-XW	Plunger bridge ②	**M22-XW**
M22-XWS	Key cover	**M22-XWS**
M22-XC-R	Key withdraw adapter ④	**M22-XC-R**
M22-XC-Y	Coding adapter	**M22-XC-Y**
M22-XGWK	Guard ring	**M22-XGWK**

Notes

① For complete listing of available light units and contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.
② Plunger needed to actuate centre-mounted contact blocks. Used for non-illuminated three-position selector switches only.
③ All NC contact blocks are positively driven contact. ⊖
④ Enables a keyed selector switch to be set to user-selected key withdraw position.
⑤ Select the same colour LED element as lens colour; for yellow lens, choose a white LED.

Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Key-Operated Selector Switches

M22 – WS – MS2 – A1

Bezel Colour	Handle Type	Key Code	Key Removal Position
M22 = Silver **M22S** = Black	**WS** = Two-position, momentary **WS3** = Three-position, momentary **WRS** = Two-position, maintained **WRS3** = Three-position, maintained	**Blank** = MS1 **MS2** = MS2 **MS3** = MS3 **MS4** = MS4 **MS5** = MS5 **MS6** = MS6 **MS7** = MS7 **MS8** = MS8	Refer to coding adapter assembly and functional test guide on **Page V7-T37-103**.

Product Selection

Key-Operated Selector Switches ①②

Components

M22-WS

Operators Only ③

Type	Switching Position	Bezel	Key Removal Position	Key Code	Catalogue Number
Two-position	Momentary ④	Silver	Return from right, key removable left	MS1	**M22-WS**
				MS2	**M22-WS-MS2**
				MS3	**M22-WS-MS3**
				MS4	**M22-WS-MS4**
				MS5	**M22-WS-MS5**
				MS6	**M22-WS-MS6**
				MS7	**M22-WS-MS7**
				MS8	**M22-WS-MS8**
		Black	Return from right, key removable left	MS1	**M22S-WS**
				MS2	**M22S-WS-MS2**
				MS3	**M22S-WS-MS3**
				MS4	**M22S-WS-MS4**
				MS5	**M22S-WS-MS5**
				MS6	**M22S-WS-MS6**
				MS7	**M22S-WS-MS7**
				MS8	**M22S-WS-MS8**

Notes

① Includes one key.
② Key removal positions can be modified in the field using coding adapters; see chart on **Page V7-T37-103**.
③ Includes contact block mounting adapter.
④ Momentary selector switches can be converted in the field to maintained operation with the removal of a colour coded adapter. See **Page V7-T37-103**.

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Key-Operated Selector Switches ①②
Components

Operators Only, continued ③

	Type	Switching Position	Bezel	Key Removal Position	Key Code	Catalogue Number
M22S-WRS	Two-position	Maintained	Silver	Key removable left	MS1	**M22-WRS-A1**
					MS2	**M22-WRS-MS2-A1**
					MS3	**M22-WRS-MS3-A1**
					MS4	**M22-WRS-MS4-A1**
					MS5	**M22-WRS-MS5-A1**
					MS6	**M22-WRS-MS6-A1**
					MS7	**M22-WRS-MS7-A1**
					MS8	**M22-WRS-MS8-A1**
				Key removable left/right	MS1	**M22-WRS**
					MS2	**M22-WRS-MS2**
					MS3	**M22-WRS-MS3**
					MS4	**M22-WRS-MS4**
					MS5	**M22-WRS-MS5**
					MS6	**M22-WRS-MS6**
					MS7	**M22-WRS-MS7**
					MS8	**M22-WRS-MS8**
			Black	Key removable left	MS1	**M22S-WRS-A1**
					MS2	**M22S-WRS-MS2-A1**
					MS3	**M22S-WRS-MS3-A1**
					MS4	**M22S-WRS-MS4-A1**
					MS5	**M22S-WRS-MS5-A1**
					MS6	**M22S-WRS-MS6-A1**
					MS7	**M22S-WRS-MS7-A1**
					MS8	**M22S-WRS-MS8-A1**
				Key removable left/right	MS1	**M22S-WRS**
					MS2	**M22S-WRS-MS2**
					MS3	**M22S-WRS-MS3**
					MS4	**M22S-WRS-MS4**
					MS5	**M22S-WRS-MS5**
					MS6	**M22S-WRS-MS6**
					MS7	**M22S-WRS-MS7**
					MS8	**M22S-WRS-MS8**
M22-WS3-X93	Three-position	Momentary ④	Silver	Return from left/right, key removable centre	MS1	**M22-WS3**
					MS2	**M22-WS3-MS2**
					MS3	**M22-WS3-MS3**
					MS4	**M22-WS3-MS4**
					MS5	**M22-WS3-MS5**
					MS6	**M22-WS3-MS6**
					MS7	**M22-WS3-MS7**
					MS8	**M22-WS3-MS8**
			Black	Return from left/right, key removable centre	MS1	**M22S-WS3**
					MS2	**M22S-WS3-MS2**
					MS3	**M22S-WS3-MS3**
					MS4	**M22S-WS3-MS4**
					MS5	**M22S-WS3-MS5**
					MS6	**M22S-WS3-MS6**
					MS7	**M22S-WS3-MS7**
					MS8	**M22S-WS3-MS8**

Notes

① Includes one key.
② Key removal positions can be modified in the field using coding adapters; see chart on **Page V7-T37-103**.
③ Includes contact block mounting adapter.
④ Momentary selector switches can be converted in the field to maintained operation with the removal of a colour coded adapter. See **Page V7-T37-103**.

Key-Operated Selector Switches [1][2]
Components

M22-WS3-X93

Operators Only, continued [3]

Type	Switching Position	Bezel	Key Removal Position	Key Code	Catalogue Number
Three-position	Maintained	Silver	Key removable centre	MS1	**M22-WRS3-A1**
				MS2	**M22-WRS3-MS2-A1**
				MS3	**M22-WRS3-MS3-A1**
				MS4	**M22-WRS3-MS4-A1**
				MS5	**M22-WRS3-MS5-A1**
				MS6	**M22-WRS3-MS6-A1**
				MS7	**M22-WRS3-MS7-A1**
				MS8	**M22-WRS3-MS8-A1**
			Key removable centre/left	MS1	**M22-WRS3-A2**
				MS2	**M22-WRS3-MS2-A2**
				MS3	**M22-WRS3-MS3-A2**
				MS4	**M22-WRS3-MS4-A2**
				MS5	**M22-WRS3-MS5-A2**
				MS6	**M22-WRS3-MS6-A2**
				MS7	**M22-WRS3-MS7-A2**
				MS8	**M22-WRS3-MS8-A2**
			Key removable centre/right	MS1	**M22-WRS3-A3**
				MS2	**M22-WRS3-MS2-A3**
				MS3	**M22-WRS3-MS3-A3**
				MS4	**M22-WRS3-MS4-A3**
				MS5	**M22-WRS3-MS5-A3**
				MS6	**M22-WRS3-MS6-A3**
				MS7	**M22-WRS3-MS7-A3**
				MS8	**M22-WRS3-MS8-A3**
			Key removable left/right	MS1	**M22-WRS3**
				MS2	**M22-WRS3-MS2**
				MS3	**M22-WRS3-MS3**
				MS4	**M22-WRS3-MS4**
				MS5	**M22-WRS3-MS5**
				MS6	**M22-WRS3-MS6**
				MS7	**M22-WRS3-MS7**
				MS8	**M22-WRS3-MS8**
			Return from left, key removable centre	MS1	**M22-WRS3-A7**
				MS2	**M22-WRS3-MS2-A7**
				MS3	**M22-WRS3-MS3-A7**
				MS4	**M22-WRS3-MS4-A7**
				MS5	**M22-WRS3-MS5-A7**
				MS6	**M22-WRS3-MS6-A7**
				MS7	**M22-WRS3-MS7-A7**
				MS8	**M22-WRS3-MS8-A7**
			Return from left, key removable centre/right	MS1	**M22-WRS3-A6**
				MS2	**M22-WRS3-MS2-A6**
				MS3	**M22-WRS3-MS3-A6**
				MS4	**M22-WRS3-MS4-A6**
				MS5	**M22-WRS3-MS5-A6**
				MS6	**M22-WRS3-MS6-A6**
				MS7	**M22-WRS3-MS7-A6**
				MS8	**M22-WRS3-MS8-A6**

Notes

[1] Includes one key.

[2] Key removal positions can be modified in the field using coding adapters; see chart on **Page V7-T37-103**.

[3] Includes contact block mounting adapter.

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Key-Operated Selector Switches [1][2]
Components

M22-WS3-X93

Operators Only, continued [3]

Type	Switching Position	Bezel	Key Removal Position	Key Code	Catalogue Number
Three-position	Maintained	Silver	Return from right, key removable left/centre	MS1	**M22-WRS3-A4**
				MS2	**M22-WRS3-MS2-A4**
				MS3	**M22-WRS3-MS3-A4**
				MS4	**M22-WRS3-MS4-A4**
				MS5	**M22-WRS3-MS5-A4**
				MS6	**M22-WRS3-MS6-A4**
				MS7	**M22-WRS3-MS7-A4**
				MS8	**M22-WRS3-MS8-A4**
			Return from right, key removable centre	MS1	**M22-WRS3-A5**
				MS2	**M22-WRS3-MS2-A5**
				MS3	**M22-WRS3-MS3-A5**
				MS4	**M22-WRS3-MS4-A5**
				MS5	**M22-WRS3-MS5-A5**
				MS6	**M22-WRS3-MS6-A5**
				MS7	**M22-WRS3-MS7-A5**
				MS8	**M22-WRS3-MS8-A5**
		Black	Key removable centre	MS1	**M22S-WRS3-A1**
				MS2	**M22S-WRS3-MS2-A1**
				MS3	**M22S-WRS3-MS3-A1**
				MS4	**M22S-WRS3-MS4-A1**
				MS5	**M22S-WRS3-MS5-A1**
				MS6	**M22S-WRS3-MS6-A1**
				MS7	**M22S-WRS3-MS7-A1**
				MS8	**M22S-WRS3-MS8-A1**
			Key removable centre/left	MS1	**M22S-WRS3-A2**
				MS2	**M22S-WRS3-MS2-A2**
				MS3	**M22S-WRS3-MS3-A2**
				MS4	**M22S-WRS3-MS4-A2**
				MS5	**M22S-WRS3-MS5-A2**
				MS6	**M22S-WRS3-MS6-A2**
				MS7	**M22S-WRS3-MS7-A2**
				MS8	**M22S-WRS3-MS8-A2**
			Key removable centre/right	MS1	**M22S-WRS3-A3**
				MS2	**M22S-WRS3-MS2-A3**
				MS3	**M22S-WRS3-MS3-A3**
				MS4	**M22S-WRS3-MS4-A3**
				MS5	**M22S-WRS3-MS5-A3**
				MS6	**M22S-WRS3-MS6-A3**
				MS7	**M22S-WRS3-MS7-A3**
				MS8	**M22S-WRS3-MS8-A3**
			Key removable left/right/centre	MS1	**M22S-WRS3**
				MS2	**M22S-WRS3-MS2**
				MS3	**M22S-WRS3-MS3**
				MS4	**M22S-WRS3-MS4**
				MS5	**M22S-WRS3-MS5**
				MS6	**M22S-WRS3-MS6**
				MS7	**M22S-WRS3-MS7**
				MS8	**M22S-WRS3-MS8**

Notes

[1] Includes one key.
[2] Key removal positions can be modified in the field using coding adapters; see chart on **Page V7-T37-103**.
[3] Includes contact block mounting adapter.

Key-Operated Selector Switches ①②
Components

M22-WS3-X93

Operators Only, continued ③

Type	Switching Position	Bezel	Key Removal Position	Key Code	Catalogue Number
Three-position	Maintained	Black	Return from left, key removable centre	MS1	**M22S-WRS3-A7**
				MS2	**M22S-WRS3-MS2-A7**
				MS3	**M22S-WRS3-MS3-A7**
				MS4	**M22S-WRS3-MS4-A7**
				MS5	**M22S-WRS3-MS5-A7**
				MS6	**M22S-WRS3-MS6-A7**
				MS7	**M22S-WRS3-MS7-A7**
				MS8	**M22S-WRS3-MS8-A7**
			Return from left, key removable centre/right	MS1	**M22S-WRS3-A6**
				MS2	**M22S-WRS3-MS2-A6**
				MS3	**M22S-WRS3-MS3-A6**
				MS4	**M22S-WRS3-MS4-A6**
				MS5	**M22S-WRS3-MS5-A6**
				MS6	**M22S-WRS3-MS6-A6**
				MS7	**M22S-WRS3-MS7-A6**
				MS8	**M22S-WRS3-MS8-A6**
			Return from right, key removable left/centre	MS1	**M22S-WRS3-A4**
				MS2	**M22S-WRS3-MS2-A4**
				MS3	**M22S-WRS3-MS3-A4**
				MS4	**M22S-WRS3-MS4-A4**
				MS5	**M22S-WRS3-MS5-A4**
				MS6	**M22S-WRS3-MS6-A4**
				MS7	**M22S-WRS3-MS7-A4**
				MS8	**M22S-WRS3-MS8-A4**
			Return from right, key removable centre	MS1	**M22S-WRS3-A5**
				MS2	**M22S-WRS3-MS2-A5**
				MS3	**M22S-WRS3-MS3-A5**
				MS4	**M22S-WRS3-MS4-A5**
				MS5	**M22S-WRS3-MS5-A5**
				MS6	**M22S-WRS3-MS6-A5**
				MS7	**M22S-WRS3-MS7-A5**
				MS8	**M22S-WRS3-MS8-A5**

Notes

① Includes one key.

② Key removal positions can be modified in the field using coding adapters; see chart on **Page V7-T37-103**.

③ Includes contact block mounting adapter.

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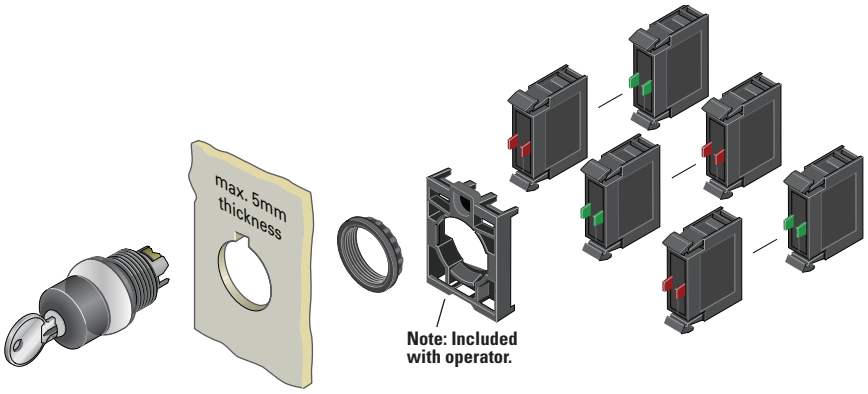
Key-Operated Selector Switches



Components

M22-K10

Contact Blocks ①

Terminal Type	Contact Configuration ②	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

M22-ES-MS1

Extra Keys

Key Code	Catalogue Number
MS1	**M22-ES-MS1**
MS2	**M22-ES-MS2**
MS3	**M22-ES-MS3**
MS4	**M22-ES-MS4**
MS5	**M22-ES-MS5**
MS6	**M22-ES-MS6**
MS7	**M22-ES-MS7**
MS8	**M22-ES-MS8**

Accessories

	Description	Catalogue Number
M22-XW	Plunger bridge ③	**M22-XW**
M22-XWS	Key cover	**M22-XWS**
M22-XC-R	Key withdraw adapter ④	**M22-XC-R**
M22-XC-Y	Coding adapter	**M22-XC-Y**
M22-XGWK	Guard ring	**M22-XGWK**

Notes

① For complete listing of available contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.
② All NC contact blocks are positively driven contact. ⊖
③ Plunger needed to actuate centre-mounted contact blocks. Used for non-illuminated three-position selector switches only.
④ Enables a keyed selector switch to be set to user-selected key withdraw position.

Mushroom Head Pushbuttons

Product Description

Eaton's M22 mushroom head operators are a durable and unique way to include standard pushbutton functionality. Like the standard pushbutton line, the maintained pushbuttons are field convertible to momentary. They also offer laser engraving and a robust five million mechanical operations on the standard momentary operator. As with all operators, they can be ordered as a ready to install complete device or as modular components.

Features

- Field convertible from maintained to momentary (available on maintained pushbuttons only)
- Customizable laser engraving on all buttons
- More than five million mechanical operations on momentary and one million on maintained pushbuttons
- Modular construction makes assembly fast and simplifies stocking of components and complete devices
- Capable of communicating via ASi protocol with ASi adapter modules

Protection Type

- IP67, IP69K
- NEMA 4X, 13

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Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Mushroom Head Pushbuttons

M22 – DP – R – GB4 – K01

Bezel
- **M22** = Silver
- **M22S** = Black

Operator Type
- **DP** = Non-illuminated momentary mushroom head pushbutton
- **DRP** = Non-illuminated maintained mushroom head pushbutton

Operator Colour
- **R** = Red
- **S** = Black
- **G** = Green
- **Y** = Yellow

Plate Inscription

ETCH = Custom ①	**X0** = ◎
GB0 = STOP	**X1** = ①
GB1 = START	**X4** = ⊕
GB3 = UP	**X5** = ⊖
GB4 = DOWN	**X6** = Ⓡ
GB5 = OFF	**X7** = Ⓣ
GB6 = ON	
GB15 = FORWARD	
GB16 = REVERSE	

Contact Blocks
- **K01** = NC
- **K10** = NO
- **K11** = NO-NC
- **K12** = 1NO-2NC

① When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes.
For example, M22-DP-R-ETCH;
Order Notes: Mark with symbol X91, Line item #_.

Product Selection

Mushroom Head Pushbuttons, Momentary ①

Complete Devices

	Bezel	Button Colour	Contact Block Configuration ②	Catalogue Number
M22-DP-R-K01	Silver	Red	NC	**M22-DP-R-K01**
			2NC	**M22-DP-R-K02**
			1NO-2NC	**M22-DP-R-K12**
			1NO-1NC	**M22-DP-R-K11**
M22S-DP-R-K01	Black	Red	NC	**M22S-DP-R-K01**
			2NC	**M22S-DP-R-K02**
			1NO-2NC	**M22S-DP-R-K12**
			1NO-1NC	**M22S-DP-R-K11**

Operators Only ②

	Bezel	Button Colour	Catalogue Number
M22-DP-G	Silver	Black	**M22-DP-S**
		Red	**M22-DP-R**
		Green	**M22-DP-G**
		Yellow	**M22-DP-Y**
M22S-DP-G	Black	Black	**M22S-DP-S**
		Red	**M22S-DP-R**
		Green	**M22S-DP-G**
		Yellow	**M22S-DP-Y**

Notes

① 35 mm diameter mushroom head button.

② Includes contact block mounting adapter. ⊖

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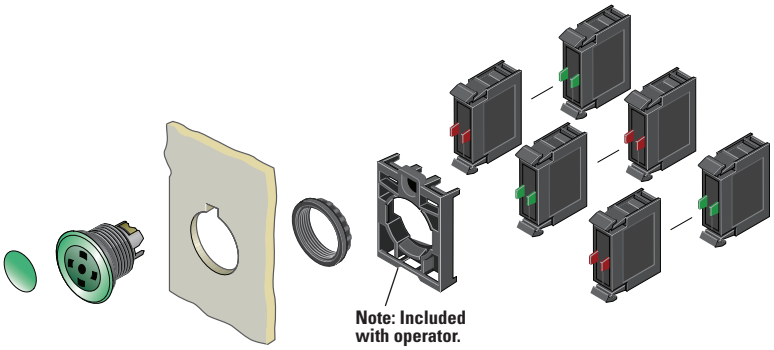
Non-Illuminated Mushroom Head Pushbuttons, Momentary ①



Components

M22-XDP-G

Mushroom Head Plates

Colour	Inscription	Catalogue Number
Black	—	**M22-XDP-S** ②
	Custom	**M22-XDP-S-ETCH** ③
	STOP	**M22-XDP-S-GB0**
	START	**M22-XDP-S-GB1**
	FORWARD	**M22-XDP-S-GB15**
	REVERSE	**M22-XDP-S-GB16**
	UP	**M22-XDP-S-GB3**
	DOWN	**M22-XDP-S-GB4**
	OFF	**M22-XDP-S-GB5**
	ON	**M22-XDP-S-GB6**
	◎	**M22-XDP-S-X0**
	⏽	**M22-XDP-S-X1**
	⊕	**M22-XDP-S-X4**
	⊖	**M22-XDP-S-X5**
	⏽	**M22-XDP-S-X7**
Red	—	**M22-XDP-R** ②
	Custom	**M22-XDP-R-ETCH** ③
	STOP	**M22-XDP-R-GB0**
	OFF	**M22-XDP-R-GB5**
	◎	**M22-XDP-R-X0**
Green	—	**M22-XDP-G** ②
	Custom	**M22-XDP-G-ETCH** ③
	START	**M22-XDP-G-GB1**
	ON	**M22-XDP-G-GB6**
	◎	**M22-XDP-G-X0**
	⏽	**M22-XDP-G-X1**
White	—	**M22-XDP-W** ②
	Custom	**M22-XDP-W-ETCH** ③
Yellow	—	**M22-XDP-Y** ②
	Custom	**M22-XDP-Y-ETCH** ③

M22-DP-G-X

Insertless Mushroom Head Operators

Bezel	Colour	Catalogue Number
Silver	Black	**M22-DP-S-X**
	Red	**M22-DP-R-X**
	Green	**M22-DP-G-X**
	Yellow	**M22-DP-Y-X**
Black	Black	**M22S-DP-S-X**
	Red	**M22S-DP-R-X**
	Green	**M22S-DP-G-X**
	Yellow	**M22S-DP-Y-X**

M22-K10

Contact Blocks ④

Terminal Type	Contact Configuration ⑤	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Notes

① 35 mm diameter mushroom head button.
② Minimum order quantity of (10).
③ When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes. For example, M22-XDP-S-ETCH; Order Notes: Mark with symbol X91, Line item #_.
④ For complete listing of available contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.
⑤ All NC contact blocks are positively driven contact. ⊖

Product Selection

Non-Illuminated Mushroom Head Pushbuttons, Maintained ① ②

Complete Devices

	Bezel	Button Colour	Contact Block Configuration ③	Catalogue Number
M22-DRP-R-K01	Silver	Red	NC	**M22-DRP-R-K01**
			2NC	**M22-DRP-R-K02**
			1NO-2NC	**M22-DRP-R-K12**
			1NO-1NC	**M22-DRP-R-K11**
M22S-DRP-R-K01	Black	Red	NC	**M22S-DRP-R-K01**
			2NC	**M22S-DRP-R-K02**
			1NO-2NC	**M22S-DRP-R-K12**
			1NO-1NC	**M22S-DRP-R-K11**

Operators Only

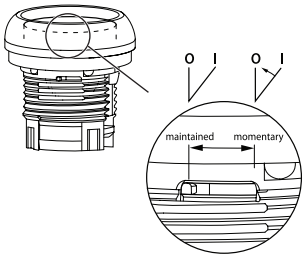
	Bezel	Button Colour	Catalogue Number
M22-DRP-G	Silver	Black	**M22-DRP-S**
		Red	**M22-DRP-R**
		Green	**M22-DRP-G**
		Yellow	**M22-DRP-Y**
M22S-DRP-G	Black	Black	**M22S-DRP-S**
		Red	**M22S-DRP-R**
		Green	**M22S-DRP-G**
		Yellow	**M22S-DRP-Y**

Notes

① 35 mm diameter mushroom head button.

② Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.

③ All NC contact blocks are positively driven contact. ⊖



Note: This pilot device features a selectable function switch that enables the device to be set to either maintained or momentary operation.

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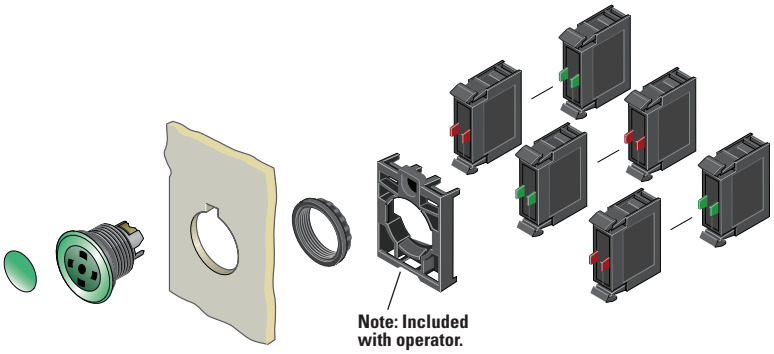
Non-Illuminated Mushroom Head Pushbuttons, Maintained ①②



Components

M22-XDP-G

Mushroom Head Plates ⑤

Colour	Inscription	Catalogue Number
Black	—	**M22-XDP-S** ③
	Custom	**M22-XDP-S-ETCH** ④
	STOP	**M22-XDP-S-GB0**
	START	**M22-XDP-S-GB1**
	FORWARD	**M22-XDP-S-GB15**
	REVERSE	**M22-XDP-S-GB16**
	UP	**M22-XDP-S-GB3**
	DOWN	**M22-XDP-S-GB4**
	OFF	**M22-XDP-S-GB5**
	ON	**M22-XDP-S-GB6**
	◎	**M22-XDP-S-X0**
	⏽	**M22-XDP-S-X1**
	⊕	**M22-XDP-S-X4**
	⊖	**M22-XDP-S-X5**
	⏐	**M22-XDP-S-X7**
Red	—	**M22-XDP-R** ③
	Custom	**M22-XDP-R-ETCH** ④
	STOP	**M22-XDP-R-GB0**
	OFF	**M22-XDP-R-GB5**
	◎	**M22-XDP-R-X0**
Green	—	**M22-XDP-G** ③
	Custom	**M22-XDP-G-ETCH** ④
	START	**M22-XDP-G-GB1**
	ON	**M22-XDP-G-GB6**
	◎	**M22-XDP-G-X0**
	⏽	**M22-XDP-G-X1**
White	—	**M22-XDP-W** ③
	Custom	**M22-XDP-W-ETCH** ④
Yellow	—	**M22-XDP-Y** ③
	Custom	**M22-XDP-Y-ETCH** ④

M22-DRP-G-X

Insertless Mushroom Head Operators

Bezel	Colour	Catalogue Number
Silver	Black	**M22-DRP-S-X**
	Red	**M22-DRP-R-X**
	Green	**M22-DRP-G-X**
	Yellow	**M22-DRP-Y-X**
Black	Black	**M22S-DRP-S-X**
	Red	**M22S-DRP-R-X**
	Green	**M22S-DRP-G-X**
	Yellow	**M22S-DRP-Y-X**

M22-K10

Contact Blocks ⑤

Terminal Type	Contact Configuration ⑥	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Notes

① 35 mm diameter mushroom head button.

② Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.

③ Minimum order quantity of (10).

④ When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes. For example, M22-XDP-S-ETCH; Order Notes: Mark with symbol X91, Line item #_.

⑤ For complete listing of available button plates and contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.

⑥ All NC contact blocks are positively driven contact. ⊖

Double Pushbuttons

Product Description

Eaton's M22 double pushbutton line is perfect for applications such as motor and pump starting, as well as anytime space is limited. In addition to the two buttons that fit in one 22 mm hole is the integrated white indicating light between them. These three operators allow for multiple functions to occur in a single space. Green/red, black/white and black/black colour options along with laser engraving allow for further custom applications.

Features

- Flush and extended, as well as colour options allow for the perfect combination button
- Integrated indicating light adds even more functionality in one standard 22 mm hole
- Customizable laser engraving on all buttons
- LED offering only for improved brightness quality and up to 100,000 hours of operation
- More than 200,000 mechanical operations
- Capable of communicating via ASi protocol with ASi adapter modules

Protection Type

- IP66
- NEMA 4X, 13

Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Double Pushbuttons

M22 – DDL – GR – GB5 – K10 – G

Bezel
M22 = Silver
M22S = Black

Operator Type
DDL = Extended buttons and light
DDLF = Flush buttons and light
DDLM = Extended bottom button

Button Plate Colour

	Top	Bottom
GR =	Green	Red
WS =	White	Black
S =	Black	Black

Inscription
GB0 = STOP
GB1 = START
GB3 = UP
GB4 = DOWN
GB5 = OFF
GB6 = ON
GB14 = RESET
GB15 = FORWARD
GB16 = REVERSE
X0 = ◎
X1 = ⓘ
X5 = ⊕
X5 = ⊖
X6 = Ⓡ
X7 = ⓣ
X5 = ⊘

Contact Blocks
K10 = 1NO
K01 = 1NC
K20 = 2NO
K02 = 2NC
K11 = 1NO-1NC
K30 = 3NO
K03 = 3NC
K21 = 2NO-1NC
K12 = 1NO-2NC

Light Units
12–30 Vac/Vdc
W = White
R = Red
G = Green
B = Blue
85–264 Vac
230W = White
230R = Red
230G = Green
230B = Blue

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Product Selection

Components

Double Pushbuttons, Extended Pushbuttons and Centre Light, Momentary

Operators Only ①

	Bezel	Colour Top	Bottom	Inscription Top	Bottom	Catalogue Number
M22-DDL-GR-GB1-GB0	Silver	Green	Red	—	—	**M22-DDL-GR**
				Custom	Custom	**M22-DDL-GR-ETCH** ②
				①	◎	**M22-DDL-GR-X1-X0**
				START	STOP	**M22-DDL-GR-GB1-GB0**
		White	Black	—	—	**M22-DDL-WS**
				Custom	Custom	**M22-DDL-WS-ETCH** ②
				①	◎	**M22-DDL-WS-X1-X0**
				START	STOP	**M22-DDL-WS-GB1-GB0**
		Black	Black	—	—	**M22-DDL-S**
				Custom	Custom	**M22-DDL-S-ETCH** ②
				—	—	**M22-DDL-S-X4-X5**
				①	ⓘ	**M22-DDL-S-X7-X7**
M22S-DDL-GR-X1-X0	Black	Green	Red	—	—	**M22S-DDL-GR**
				Custom	Custom	**M22S-DDL-GR-ETCH** ②
				①	◎	**M22S-DDL-GR-X1-X0**
				START	STOP	**M22S-DDL-GR-GB1-GB0**
		White	Black	—	—	**M22S-DDL-WS**
				Custom	Custom	**M22S-DDL-WS-ETCH** ②
				①	◎	**M22S-DDL-WS-X1-X0**
				START	STOP	**M22S-DDL-WS-GB1-GB0**
		Black	Black	—	—	**M22S-DDL-S**
				Custom	Custom	**M22S-DDL-S-ETCH** ②
				⊕	—	**M22S-DDL-S-X4-X5**
				①	ⓘ	**M22S-DDL-S-X7-X7**

Notes

① Includes contact block mounting adapter.

② When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes. For example, M22-DDL-S-ETCH; Order Notes: Mark with symbol X91, Line item #_.

Double Pushbuttons, Flush Top Pushbuttons and Centre Light, Momentary

Operators Only ①

	Bezel	Colour Top	Bottom	Inscription Top	Bottom	Catalogue Number
M22-DDLF-GR	Silver	Green	Red	—	—	**M22-DDLF-GR**
				Custom	Custom	**M22-DDLF-GR-ETCH** ②
		White	Black	—	—	**M22-DDLF-WS**
				Custom	Custom	**M22-DDLF-WS-ETCH** ②
		Green	Red	ⓘ	◎	**M22-DDLF-GR-X1-X0**
		White	Black	ⓘ	◎	**M22-DDLF-WS-X1-X0**
M22S-DDLF-GR-X1-X0	Black	Green	Red	—	—	**M22S-DDLF-GR**
				Custom	Custom	**M22S-DDLF-GR-ETCH** ②
		White	Black	—	—	**M22S-DDLF-WS**
				Custom	Custom	**M22S-DDLF-WS-ETCH** ②
		Green	Red	ⓘ	◎	**M22S-DDLF-GR-X1-X0**
		White	Black	ⓘ	◎	**M22S-DDLF-WS-X1-X0**

Double Pushbuttons, Flush Top Pushbutton and Centre Light, Extended Bottom Pushbutton, Momentary

Operators Only ①

	Bezel	Colour Top	Bottom	Inscription Top	Bottom	Catalogue Number
M22-DDLM-GR	Silver	Green	Red	—	—	**M22-DDLM-GR**
				Custom	Custom	**M22-DDLM-GR-ETCH** ②
		White	Black	—	—	**M22-DDLM-WS**
				Custom	Custom	**M22-DDLM-WS-ETCH** ②
		Green	Red	ⓘ	◎	**M22-DDLM-GR-X1-X0**
		White	Black	ⓘ	◎	**M22-DDLM-WS-X1-X0**
M22-DDLM-GR-X1-X0	Black	Green	Red	—	—	**M22S-DDLM-GR**
				Custom	Custom	**M22S-DDLM-GR-ETCH** ②
		White	Black	—	—	**M22S-DDLM-WS**
				Custom	Custom	**M22S-DDLM-WS-ETCH** ②
		Green	Red	ⓘ	◎	**M22S-DDLM-GR-X1-X0**
		White	Black	ⓘ	◎	**M22S-DDLM-WS-X1-X0**

Notes

① Includes contact block mounting adapter.

② When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes. For example, M22-DDLM-GR-ETCH; Order Notes: Mark with symbol X91, Line item #_.

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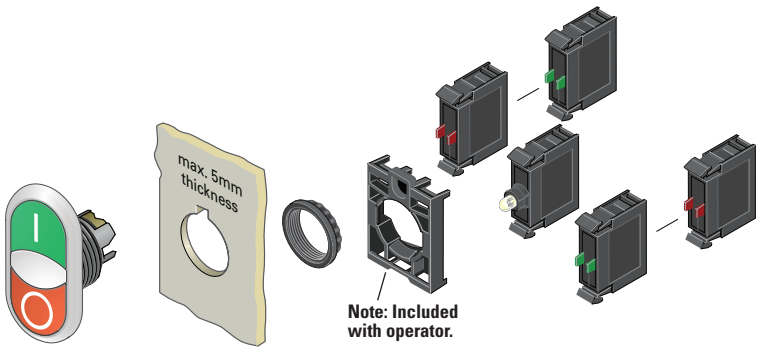
Double Pushbuttons



M22-LED-W

Light Units ①

Terminal Type	LED Colour	Light Unit Voltage	Catalogue Number
Screw	White	12–30 Vac/Vdc	**M22-LED-W**
		85–264 Vac	**M22-LED230-W**

M22-K10

Contact Blocks ①

Terminal Type	Contact Configuration ②	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Notes

① For complete listing of available light units and contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.

② All NC contact blocks are positively driven contact. ⊖

Four-Way Pushbuttons

Product Description

Eaton's M22 four-way pushbutton is a truly unique offering. A four-way pushbutton offers four different buttons mounted in a single 22 mm hole. This is ideal not only for an application with limited space, but also directional applications (when ordered with the four arrow engraving option). Another unique option is the interlocked version, which prevents two opposite buttons from being actuated at the same time.

Features

- Four buttons in one operator allows for increased functionality in limited space
- Optional interlocking option, which prevents two buttons from being actuated at the same time
- Customizable laser engraving on all buttons for directional or other applications
- Capable of communicating via ASi protocol with ASi adapter modules

Protection Type

- IP66

Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Four-Way Pushbuttons

M22 – D4 – S – X7 – K01

Bezel
M22 = Silver
M22S = Black

Operator Type
D4 = Four-way pushbutton, momentary, non-interlocked
DI4 = Four-way pushbutton, momentary, interlocked

Button Colour
S = Black

Inscription
ETCH = Custom ①
X7 = ⓘ⊖ⓘ⊖

① When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes.
For example, M22-D4-S-ETCH; Order Notes: Mark with symbol X91, Line item #_.

Contact Blocks	
K10 = 1NO	**K30** =3NO
K01 = 1NC	**K03** =3NC
K20 = 2NO	**K21** =2NO-1NC
K02 = 2NC	**K12** =1NO-2NC
K11 = 1NO-1NC	

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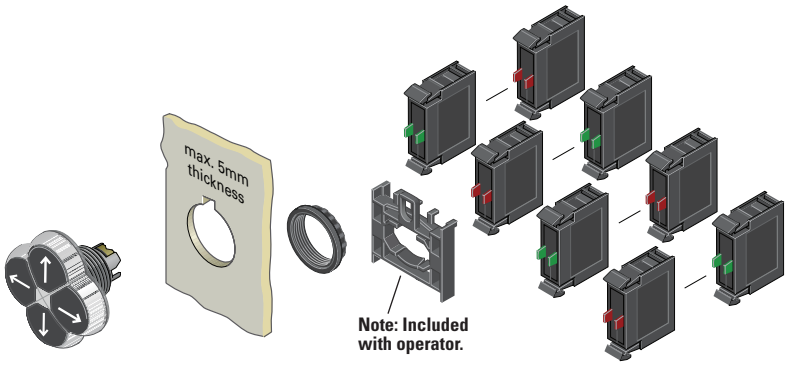
Product Selection

Four-Way Pushbuttons, Momentary



Components

M22-D4-S-X7

Operators Only ①

Type	Bezel	Colour	Inscription	Catalogue Number
Non-interlocked	Silver	Black	—	**M22-D4-S**
			Custom	**M22-D4-S-ETCH** ③
			Directional arrows	**M22-D4-S-X7**
	Black	Black	—	**M22S-D4-S**
			Custom	**M22S-D4-S-ETCH** ③
			Directional arrows	**M22S-D4-S-X7**
Interlocked	Silver	Black	—	**M22-DI4-S**
			Custom	**M22-DI4-S-ETCH** ③
			Directional arrows	**M22-DI4-S-X7**
	Black	Black	—	**M22S-DI4-S**
			Custom	**M22S-DI4-S-ETCH** ③
			Directional arrows	**M22S-DI4-S-X7**

M22-K10

Contact Blocks ②

Terminal Type	Contact Configuration ④	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Notes

① Includes contact block mounting adapter.
② For complete listing of available contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.
③ When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes.
For example, M22-D4-S-ETCH; Order Notes: Mark with symbol X91, Line item #_.
④ All NC contact blocks are positively driven contact.

Joysticks

Product Description

Eaton's M22 joystick line comes in a wide variety of options. From vertical and horizontal two-position switches to the maintained four-position, these operators fit a variety of applications. An additional option, two switch points, allows for eight isolated circuits to be actuated individually on a single operator.

Features

- Available in four-position and two-position
- Two switch point option allows for two contacts in each direction (up to eight total contacts in one operator)
- Capable of communicating via ASi protocol with ASi adapter modules

Protection Type

- IP66

Product Selection

Joysticks

Components

M22-WJ2H

Operators ①

Bezel	Number of Directions	Switching Position	Catalogue Number
Silver	Two-position horizontal	Momentary	**M22-WJ2H**
	Two switch points		**M22-WJ2H-2P**
	Two-position horizontal	Maintained	**M22-WRJ2H**
	Two-position vertical	Momentary	**M22-WJ2V**
	Two switch points		**M22-WJ2V-2P**
	Two-position vertical	Maintained	**M22-WRJ2V**
	Four-position	Momentary	**M22-WJ4**
	Two switch points		**M22-WJ4-2P**
	Four-position	Maintained	**M22-WRJ4**
Black	Two-position horizontal	Momentary	**M22S-WJ2H**
	Two switch points		**M22S-WJ2H-2P**
	Two-position horizontal	Maintained	**M22S-WRJ2H**
	Two-position vertical	Momentary	**M22S-WJ2V**
	Two switch points		**M22S-WJ2V-2P**
	Two-position vertical	Maintained	**M22S-WRJ2V**
	Four-position	Momentary	**M22S-WJ4**
	Two switch points		**M22S-WJ4-2P**
	Four-position	Maintained	**M22S-WRJ4**

Note

① Includes contact block mounting adapter.

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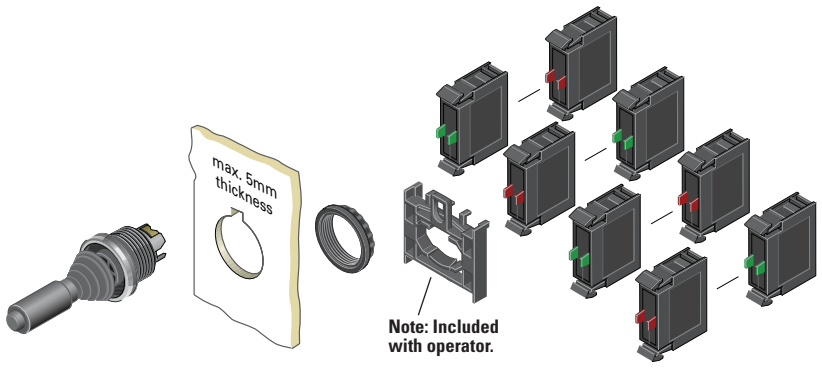
Joysticks



M22-K10

Contact Blocks ①②

Terminal Type	Contact Configuration ③	Catalogue Number
Screw	NO	**M22-K10**
	NO, early-make	**M22-K10P**
	NC	**M22-K01**
	NC, late-break	**M22-K01D**
Spring-cage	NO	**M22-CK10**
	NC	**M22-CK01**
	NC, late-break	**M22-CK01D**
	2NO	**M22-CK20**
	2NC	**M22-CK02**
	NO-NC	**M22-CK11**

Notes

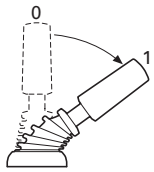
① Includes contact block mounting adapter.

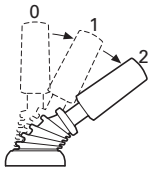
② For complete listing of available contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.

③ All NC contact blocks are positively driven contact. ⊖

Joystick with Double Contact

The joystick allows the control of up to four directions of movement on machines. Different variants of the joystick have two/four-positions and other variants have two settings for each position. This allows, for example, two-speed settings for each direction. For this application, a standard normally open contact and an early-make contact are fitted in series. Momentary contact and latching contact versions are available.





Potentiometers

Product Description

Eaton's M22 potentiometers allow for a ready to use operator in a conveniently sized package. M22 potentiometers include the resistive element, instead of just a knob, and a built in legend surrounding the knob. The slim design, with integrated contacts and the range of resistances available, allows for a quick install.

Features

- Scale markings on the knob allows the operator to be used without an additional legend plate
- Oversized knob option available
- Slim design allows for space saving and simple wiring and installation

Protection Type

- IP66
- NEMA 4X, 13

Product Selection

Potentiometers

M22-R10K

Complete Devices

Bezel	Resistance Rk	Catalogue Number
Silver	1	**M22-R1K**
	4.7	**M22-R4K7**
	10	**M22-R10K**
	47	**M22-R47K**
	100	**M22-R100K**
	470	**M22-R470K**
Black	1	**M22S-R1K**
	4.7	**M22S-R4K7**
	10	**M22S-R10K**
	47	**M22S-R47K**
	100	**M22S-R100K**
	470	**M22S-R470K**
Oversized Knob		
Silver	1	**M22-R1K-RH**
	4.7	**M22-R4K7-RH**
	10	**M22-R10K-RH**
	47	**M22-R47K-RH**
	100	**M22-R100K-RH**
	470	**M22-R470K-RH**
Black	1	**M22S-R1K-RH**
	4.7	**M22S-R4K7-RH**
	10	**M22S-R10K-RH**
	47	**M22S-R47K-RH**
	100	**M22S-R100K-RH**
	470	**M22S-R470K-RH**

Acoustic Devices

Product Description

Eaton's M22 acoustic devices are a simple and aesthetic way to add a buzzer or indicator to any application. Fitting in the same 22 mm hole, these devices can be ordered in continuous or pulsed tone and with or without the IP40 enclosure.

Features

- Continuous or pulsed tone available
- 83dB/10 cm decibel rating
- Slim design allows for space saving and simple wiring and installation

Protection Type

- IP40
- NEMA 12

Product Selection

Acoustic Devices

M22-AMC-XAM

Complete Devices

Description	Decibel Rating	Catalogue Number
Indicator with buzzer, black continuous tone, 24 Vac/Vdc	83 dB/ 10 cm	**M22-AMC-XAM**
Indicator with buzzer, black pulsed tone, 24 Vdc	83 dB/ 10 cm	**M22-AMC-XAMP**

M22-XAM

Buzzers

Description	Decibel Rating	Catalogue Number
Indicator without buzzer, black	83 dB/ 10 cm	**M22-AMC**
Buzzer only, continuous tone, 24 Vac/Vdc	83 dB/ 10 cm	**M22-XAM**
Buzzer only, pulsed tone, 24 Vdc	83 dB/ 10 cm	**M22-XAMP**

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Through-the-Door Operators

Product Description

Eaton's M22 through-the-door operators use the same familiar flush pushbutton look with the addition of a cut-to-length rod that allows for a simple reset operator.

Features

- Customizable laser engraving on all buttons
- More than five million mechanical operations
- Pushrod can be cut to length

Protection Type

- IP67, IP69K
- NEMA 4X, 13

Product Selection

Through-the-Door Operators ①

M22-DZ-B-X6

Complete Devices

Colour	Inscription	Catalogue Number
Blue	—	**M22-DZ-B**
	RESET	**M22-DZ-B-GB14**
	Ⓡ	**M22-DZ-B-X6**
Red	—	**M22-DZ-R**
	◎	**M22-DZ-R-X0**
	STOP	**M22-DZ-R-GB0**

M22-DZ-X

Buttonless Operator

Bezel	Catalogue Number
Silver	**M22-DZ-X**

M22-XD-B

Button Plates ②

Colour	Inscription	Catalogue Number
Blue	—	**M22-XD-B** ③
	RESET	**M22-XD-B-GB14**
	Ⓡ	**M22-XD-B-X6**
Red	—	**M22-XD-R** ③
	◎	**M22-XD-R-X0**
	STOP	**M22-XD-R-GB0**

Bulkhead Interfaces

Product Description

Eaton's M22 bulkhead interfaces are another unique offering in the M22 line. This device allows for a secure connection to any USB or RJ45 connected device within an enclosure or panel. With an IP66 rating when closed, these devices are not only convenient, but robust and reliable.

Features

- Convenient and safe way to make a data connection to inside of the panel without opening the panel door

Protection Type

- IP66 when closed, IP20 when connected

Product Selection

Bulkhead Interfaces

M22-USB-SA

USB Socket ④⑤

Description	Catalogue Number
Used for USB connection USB 2.0 Type A plug IP65 when closed IP20 when connected	**M22-USB-SA**

M22-RJ45-SA

RJ45 Socket ⑥

Description	Catalogue Number
Used for RJ45 Ethernet connection IP65 when closed IP20 when connected	**M22-RJ45-SA**

Notes

① The pushrod is 3.24 in long and can be cut to length.
② Any combination of plate colour and inscription is available.
③ Minimum order quantity of (10).
④ USB interface is complete with 2-ft-long USB cable.
⑤ UL and CSA pending.
⑥ RJ45 interface is an eight-wire connector.

ASi Adapter Modules

Product Description

Eaton's M22 ASi adapter modules add functionality to every operator in the M22 line. These devices can be connected to any operator that uses contact blocks or LED units. The simple snap-on design allows for a quick integration of an entire application of operators to a communicating network.

Features

- Allows compatible operators to communicate on an ASi network
- Not only can the status of a contact block be read, but LEDs can be illuminated by an ASi adapter
- ASi adapters simply clip on to the back of the contact blocks and LEDs
- Insulation displacement connectors allow for installation of adapters without any tools
- Two integrated LEDs indicate status of communications

Protection Type

- IP20

Product Selection

ASi Adapter Modules

M22-ASI

Complete Devices

Description	Catalogue Number
ASi adapter module	**M22-ASI**
ASi adapter module for base mounting	**M22-ASI-C**
ASi adapter module for E-stop	**M22-ASI-S**
ASi adapter module for E-stop base mounting	**M22-ASI-CS**

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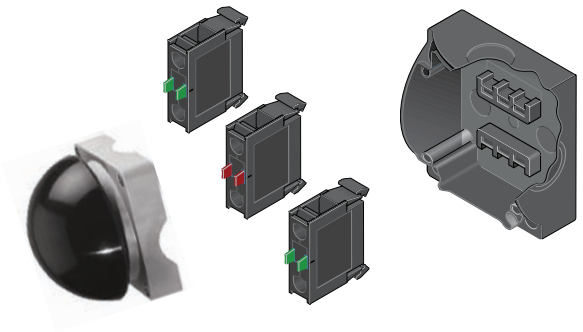
Palm Switches



Product Description

Eaton's M22 palm switches are an oversized button that mount directly to an enclosure base. This allows for a standalone button that can be mounted anywhere. The enclosure uses base-mounted contact blocks, which allows for quick wiring and mounting. The palm switches come in momentary or maintained versions. As with other M22 operators, the palm switches are available as complete devices, including the enclosure and contact blocks or as modular components.

Features

- Oversized operator in black, red and yellow colour options
- Button integrated directly into an enclosure
- Base mounting contact blocks allow for simple wiring and installation
- More than one million mechanical operations on momentary and 100,000 on maintained operators

Protection Type

- IP67, IP69K
- NEMA 4X, 13

Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Palm Switches, Type 4X/13 Enclosure

FAK – S – KC10 – I

Operator Type	Operator Colour	Contact Blocks	Enclosure Top Colour
FAK = Palm switch	**S** = Black **R** = Red **Y** = Yellow	**KC10** = NO **KC01** = NC **CKC10** = NO **CKC01** = NC	**I** = Gray **IY** = Yellow

Product Selection

Complete Devices

Operator, Base and Contact Blocks ①

FAK-S-KC11-I

FAK-R-V-KC01-IY

Button Colour	Contact Block Configuration ②	Catalogue Number
Momentary		
Black	1NO-1NC	**FAK-S-KC11-I**
Red	1NO-1NC	**FAK-R-KC11-I**
Yellow	1NO-1NC	**FAK-Y-KC11-I**
Maintained		
Red	NC	**FAK-R-V-KC01-IY**
	2NC	**FAK-R-V-KC02-IY**
	1NO-2NC	**FAK-R-V-KC12-IY**
	1NO-1NC	**FAK-R-V-KC11-IY**

Notes

① For complete listing of available contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.

② All NC contact blocks are positively driven contact. ⊖

Components

FAK-S

Operators Only

Type	Button Colour	Catalogue Number
Momentary	Black	**FAK-S**
	Red	**FAK-R**
	Yellow	**FAK-Y**
Maintained	Red	**FAK-R-V-Y**

FAK-IU

Palm Switch Enclosure Base

Catalogue Number
FAK-IU

M22-KC10

Contact Blocks [1]

Terminal Type	Contact Configuration [2]	Catalogue Number
Screw	NO	**M22-KC10**
	NC	**M22-KC01**
Spring-cage	NO	**M22-CKC10**
	NC	**M22-CKC01**

Notes

[1] For complete listing of available contact blocks, see Accessories, **Pages V7-T37-96** to **V7-T37-101**.

[2] All NC contact blocks are positively driven contact. ⊖

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Accessories

M22-XD-S

M22-XDH-R

M22-XDP-G

Button Plates

Colour	Inscription	Catalogue Number Flush Pushbutton	Catalogue Number Extended Pushbutton	Catalogue Number Mushroom Head Button
Black	—	**M22-XD-S**	**M22-XDH-S**	**M22-XDP-S**
White	—	**M22-XD-W**	**M22-XDH-W**	**M22-XDP-W**
Red	—	**M22-XD-R**	**M22-XDH-R**	**M22-XDP-R**
Green	—	**M22-XD-G**	**M22-XDH-G**	**M22-XDP-G**
Yellow	—	**M22-XD-Y**	**M22-XDH-Y**	**M22-XDP-Y**
Blue	—	**M22-XD-B**	**M22-XDH-B**	—
Black, white, red, green, yellow, blue	—	**M22-XD-SWRGYB**	**M22-XDH-SWRGYB**	—
Black, red, green	—	**M22-XD-SRG**	**M22-XDH-SRG**	—
Black	Custom	**M22-XD-S-ETCH**	**M22-XDH-S-ETCH**	**M22-XDP-S-ETCH**
White	Custom	**M22-XD-W-ETCH**	**M22-XDH-W-ETCH**	**M22-XDP-W-ETCH**
Red	Custom	**M22-XD-R-ETCH**	**M22-XDH-R-ETCH**	**M22-XDP-R-ETCH**
Green	Custom	**M22-XD-G-ETCH**	**M22-XDH-G-ETCH**	**M22-XDP-G-ETCH**
Yellow	Custom	**M22-XD-Y-ETCH**	**M22-XDH-Y-ETCH**	**M22-XDP-Y-ETCH**
Blue	Custom	**M22-XD-B-ETCH**	**M22-XDH-B-ETCH**	—
Black	STOP	**M22-XD-S-GB0**	**M22-XDH-S-GB0**	**M22-XDP-S-GB0**
Red	STOP	**M22-XD-R-GB0**	**M22-XDH-R-GB0**	**M22-XDP-R-GB0**
Black	START	**M22-XD-S-GB1**	**M22-XDH-S-GB1**	**M22-XDP-S-GB1**
White	START	**M22-XD-W-GB1**	**M22-XDH-W-GB1**	—
Green	START	**M22-XD-G-GB1**	**M22-XDH-G-GB1**	**M22-XDP-G-GB1**
Black	CLOSE	**M22-XD-S-GB2**	**M22-XDH-S-GB2**	—
Black	UP	**M22-XD-S-GB3**	**M22-XDH-S-GB3**	**M22-XDP-S-GB3**
Black	DOWN	**M22-XD-S-GB4**	**M22-XDH-S-GB4**	**M22-XDP-S-GB4**
Black	OFF	**M22-XD-S-GB5**	**M22-XDH-S-GB5**	**M22-XDP-S-GB5**
Red	OFF	**M22-XD-R-GB5**	**M22-XDH-R-GB5**	**M22-XDP-R-GB5**
Black	ON	**M22-XD-S-GB6**	**M22-XDH-S-GB6**	**M22-XDP-S-GB6**
Green	ON	**M22-XD-G-GB6**	**M22-XDH-G-GB6**	**M22-XDP-G-GB6**
Black	TEST	**M22-XD-S-GB9**	**M22-XDH-S-GB9**	—
Blue	RESET	**M22-XD-B-GB14**	**M22-XDH-B-GB14**	—
Black	FORWARD	**M22-XD-S-GB15**	**M22-XDH-S-GB15**	**M22-XDP-S-GB15**
Black	REVERSE	**M22-XD-S-GB16**	**M22-XDH-S-GB16**	**M22-XDP-S-GB16**
Black	RAISE	**M22-XD-S-GB17**	**M22-XDH-S-GB17**	—
Black	LOWER	**M22-XD-S-GB18**	**M22-XDH-S-GB18**	—
Black	◎	**M22-XD-S-X0**	**M22-XDH-S-X0**	**M22-XDP-S-X0**
Red	◎	**M22-XD-R-X0**	**M22-XDH-R-X0**	**M22-XDP-R-X0**
Green	◎	—	—	**M22-XDP-G-X0**
Black	①	**M22-XD-S-X1**	**M22-XDH-S-X1**	**M22-XDP-S-X1**
White	①	**M22-XD-W-X1**	**M22-XDH-W-X1**	—
Green	①	**M22-XD-G-X1**	**M22-XDH-G-X1**	**M22-XDP-G-X1**
Black	⑪	**M22-XD-S-X2**	**M22-XDH-S-X2**	—
Green	⑪	**M22-XD-G-X2**	**M22-XDH-G-X2**	—
Black	⊕	**M22-XD-S-X4**	**M22-XDH-S-X4**	**M22-XDP-S-X4**
Black	⊖	**M22-XD-S-X5**	**M22-XDH-S-X5**	**M22-XDP-S-X5**
Blue	Ⓡ	**M22-XD-B-X6**	**M22-XDH-B-X6**	—
Black	①	**M22-XD-S-X7**	**M22-XDH-S-X7**	**M22-XDP-S-X7**
Black	①	**M22-XD-S-X8**	**M22-XDH-S-X8**	—
Black	See ① below	**M22-XD-S-X9**	**M22-XDH-S-X9**	—
Black	See ① below	**M22-XD-S-X10**	**M22-XDH-S-X10**	—
Black	See ① below	**M22-XD-S-X11**	**M22-XDH-S-X11**	—
Black	See ① below	**M22-XD-S-X12**	**M22-XDH-S-X12**	—
Black	See ① below	**M22-XD-S-X13**	**M22-XDH-S-X13**	—
Black	See ① below	**M22-XD-S-X14**	**M22-XDH-S-X14**	—
Black	See ① below	**M22-XD-S-X15**	**M22-XDH-S-X15**	—
Black	See ① below	**M22-XD-S-X16**	**M22-XDH-S-X16**	—
Black	See ① below	**M22-XD-S-X17**	**M22-XDH-S-X17**	—

Note

① Refer to the Symbols Library, (see **Pages V7-T37-114** to **V7-T37-121**), for symbol image.

M22-XDLH-W

M22-XDL-G

Button Lenses

Colour	Inscription	Catalogue Number Flush	Catalogue Number Extended	Colour	Inscription	Catalogue Number Flush	Catalogue Number Extended
White	—	**M22-XDL-W**	**M22-XDLH-W**	Blue	Custom	**M22-XDL-B-ETCH**	**M22-XDLH-B-ETCH**
Red	—	**M22-XDL-R**	**M22-XDLH-R**	Red	STOP	**M22-XDL-R-GB0**	**M22-XDLH-R-GB0**
Green	—	**M22-XDL-G**	**M22-XDLH-G**	Green	START	**M22-XDL-G-GB1**	**M22-XDLH-G-GB1**
Yellow	—	**M22-XDL-Y**	**M22-XDLH-Y**	Red	OFF	**M22-XDL-R-GB5**	**M22-XDLH-R-GB5**
Blue	—	**M22-XDL-B**	**M22-XDLH-B**	Green	ON	**M22-XDL-G-GB6**	**M22-XDLH-G-GB6**
White	Custom	**M22-XDL-W-ETCH**	**M22-XDLH-W-ETCH**	Blue	RESET	**M22-XDL-B-GB14**	**M22-XDLH-B-GB14**
Red	Custom	**M22-XDL-R-ETCH**	**M22-XDLH-R-ETCH**	Red	◎	**M22-XDL-R-X0**	**M22-XDLH-R-X0**
Green	Custom	**M22-XDL-G-ETCH**	**M22-XDLH-G-ETCH**	Green	ⓘ	**M22-XDL-G-X1**	**M22-XDLH-G-X1**
Yellow	Custom	**M22-XDL-Y-ETCH**	**M22-XDLH-Y-ETCH**	Blue	Ⓡ	**M22-XDL-B-X6**	**M22-XDLH-B-X6**

Mounting Adapters

		Description	Catalogue Number
M22-A		Contact block mounting adapter	**M22-A**
M22-A4		Contact block mounting adapter, four-position (for use with four-way pushbuttons, joysticks and four-position selector switches only).	**M22-A4**
M22-LS		Allows mounting of M22 pushbuttons to LS-Titan limit switch bodies (for the full LS-Titan catalogue section, see **CA08100010E/MSC**).	**M22-LS**

M22-K10

Contact Blocks

Mounting Location	Terminal Type	Contact Configuration ①	Package Qty.	Catalogue Number
Front	Screw	NO	1	**M22-K10**
		NO	25	**M22-K10-B25**
		NO	100	**M22-K10-B100**
		NO, early-make	1	**M22-K10P**
		NC	1	**M22-K01**
		NC	25	**M22-K01-B25**
		NC	100	**M22-K01-B100**
		NC, late-break	1	**M22-K01D**
		SMCB, NC	1	**M22-K01SMC10**
		SMCB, 2NC	1	**M22-K02SMC10**
Base		NO	1	**M22-KC10**
		NO	25	**M22-KC10-B25**
		NO	100	**M22-KC10-B100**
		NC	1	**M22-KC01**
		NC	25	**M22-KC01-B25**
		NC	100	**M22-KC01-B100**
		SMCB, NC	1	**M22-KC01SMC10**
		SMCB, 2NC	1	**M22-KC02SMC10**
Front	Spring-cage	NO	1	**M22-CK10**
		NC	1	**M22-CK01**
		NC, late-break	1	**M22-CK01D**
		2NO ②	1	**M22-CK20**
		2NC ②	1	**M22-CK02**
		NO-NC ②	1	**M22-CK11**
Base		NO	1	**M22-CKC10**
		NC	1	**M22-CKC01**

Notes

① All NC contact blocks are positively driven contact. ⊖

② Not stackable.

M22-LED-W

Light Units

Terminal Type	Mounting Location	LED Colour	Light Unit Voltage	Catalogue Number
Screw	Front	White	12–30 Vac/Vdc	**M22-LED-W**
		Red		**M22-LED-R**
		Green		**M22-LED-G**
		Blue		**M22-LED-B**
		White	85–264 Vac	**M22-LED230-W**
		Red		**M22-LED230-R**
		Green		**M22-LED230-G**
		Blue		**M22-LED230-B**
		White	207–264 Vac	**M22-LED230H-W**
		Red		**M22-LED230H-R**
		Green		**M22-LED230H-G**
		Blue		**M22-LED230H-B**
	Base	White	12–30 Vac/Vdc	**M22-LEDC-W**
		Red		**M22-LEDC-R**
		Green		**M22-LEDC-G**
		Blue		**M22-LEDC-B**
		White	85–264 Vac	**M22-LEDC230-W**
		Red		**M22-LEDC230-R**
		Green		**M22-LEDC230-G**
		Blue		**M22-LEDC230-B**
		White	207–264 Vac	**M22-LEDC230H-W**
		Red		**M22-LEDC230H-R**
		Green		**M22-LEDC230H-G**
		Blue		**M22-LEDC230H-B**
Spring-cage	Front	White	12–30 Vac/Vdc	**M22-CLED-W**
		Red		**M22-CLED-R**
		Green		**M22-CLED-G**
		Blue		**M22-CLED-B**
		White	85–264 Vac	**M22-CLED230-W**
		Red		**M22-CLED230-R**
		Green		**M22-CLED230-G**
		Blue		**M22-CLED230-B**
	Base	White	12–30 Vac/Vdc	**M22-CLEDC-W**
		Red		**M22-CLEDC-R**
		Green		**M22-CLEDC-G**
		Blue		**M22-CLEDC-B**
		White	85–264 Vac	**M22-CLEDC230-W**
		Red		**M22-CLEDC230-R**
		Green		**M22-CLEDC230-G**
		Blue		**M22-CLEDC230-B**

M22-XLED60

LED Resistor and Test Elements

Terminal Type	Mounting Location	Element Type	Voltage	Catalogue Number
Screw	Front	Resistor ①②	42–60 Vac/Vdc	**M22-XLED60**
			220 Vdc	**M22-XLED220**
		Test	12–240 Vac/Vdc	**M22-XLED-T**
			85–264 Vac	**M22-XLED230-T**

Notes

① Resistor units to be used with 12–30V light units.

② Refer to **IL04716002E** for use of resistor elements in series for higher DC voltage.

Legend Plate Holders and Inserts, Pushbuttons and Double Pushbuttons ②

	Description	Inscription	Catalogue Number
M22S-ST-X	Legend plate holder, without legend plate insert, for pushbuttons	—	**M22S-ST-X**
	Legend plate holder, without legend plate insert, for double pushbuttons	—	**M22S-STDD-X**
M22-XST-GB0	Legend plate insert	—	**M22-XST**
		Custom	**M22-XST-ETCH** ①
		STOP	**M22-XST-GB0**
		START	**M22-XST-GB1**
		OFF	**M22-XST-GB5**
		ON	**M22-XST-GB6**
		RUN	**M22-XST-GB7**
		FAULT	**M22-XST-GB8**
		OFF ON	**M22-XST-GB10**
		MAN. AUTO	**M22-XST-GB11**
		MAN. O AUTO	**M22-XST-GB12**
		HAND AUTO	**M22-XST-D11**
		HAND O AUTO	**M22-XST-D12**
		1	**M22-XST-X52**
		2	**M22-XST-X53**
		O I	**M22-XST-X88**
		O - I	**M22-XST-X89**
		I O II	**M22-XST-X93**

Notes

① When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes.
For example, M22-XD-S-ETCH; Order Notes: Mark with symbol X91, Line item #_.

② Legend plates are IP66 and NEMA 4X/13.

Example

To order a legend plate for a pushbutton with non-standard markings (FORWARD):

1. Select legend plate holder—M22S-ST-X.
2. Select legend plate insert—M22-XST-ETCH.
3. Select FORWARD from the Symbols Library, **Pages V7-T37-114** to **V7-T37-121**, identified by GB15 suffix.
4. Indicate on the order form in the order notes—suffix GB15, line item # ___ .

Legend Plates, Complete ②

		Description	Inscription	Catalogue Number
M22S-ST-GB0	For use with pushbuttons and indicating lights	Legend plate holder with insert	STOP	**M22S-ST-GB0**
			START	**M22S-ST-GB1**
			OFF	**M22S-ST-GB5**
			ON	**M22S-ST-GB6**
			RUN	**M22S-ST-GB7**
			FAULT	**M22S-ST-GB8**
			1	**M22S-ST-X52**
			2	**M22S-ST-X53**
	Selector switches	—	OFF ON	**M22S-ST-GB10**
			MAN. AUTO	**M22S-ST-GB11**
			MAN. O AUTO	**M22S-ST-GB12**
			HAND AUTO	**M22S-ST-D11**
			HAND O AUTO	**M22S-ST-D12**
			O I	**M22S-ST-X88**
			O - I	**M22S-ST-X89**
			I O II	**M22S-ST-X93**
M22-XZK	Emergency-stop operators	Rectangular yellow legend plate	—	**M22-XZK**
			Custom	**M22-XZK-ETCH** ①
			EMERGENCY-STOP	**M22-XZK-GB99**
M22-XYK		Square yellow legend plate	—	**M22-XYK**
			—	**M22-XYK-ETCH** ①
			EMERGENCY-STOP four-language	**M22-XYK1**
			EMERGENCY-STOP (top and bottom)	**M22-XYK5**
		Round yellow legend plate, 90 mm	—	**M22-XAK**
			Custom	**M22-XAK-ETCH** ①
			EMERGENCY-STOP four-language	**M22-XAK1**
			EMERGENCY-STOP (top and bottom)	**M22-XAK5**
M22-XBK1		Round yellow legend plate, 60 mm	—	**M22-XBK**
			Custom	**M22-XBK-ETCH** ①
			EMERGENCY-STOP four-language	**M22-XBK1**
			EMERGENCY-STOP (top and bottom)	**M22-XBK5**
M22-XCK1	Four-way pushbutton, joystick and four-position selector switches	Silver square legend plate	—	**M22-XCK**
			Custom	**M22-XCK-ETCH** ①
			Four directional arrows	**M22-XCK1**
			0-1-0-2-0-3-0-4	**M22-XCK2**
			Two directional arrows	**M22-XCK3**

Notes

① When ordering, specify inscription per catalogue number suffix from the Symbols Library (see **Pages V7-T37-114** to **V7-T37-121**) into the Order Notes. For example, M22-XD-S-ETCH; Order Notes: Mark with symbol X91, Line item #_.

② Legend plates are IP66 and NEMA 4X/13.

Surface Mounting Enclosures [1]

M22-IY1-PG

M22-IY-PG

Description	Catalogue Number
Yellow top, black base for emergency-stop operators	**M22-IY1-PG**
One-element enclosure	**M22-I1-PG**
Two-element enclosure	**M22-I2-PG**
Three-element enclosure	**M22-I3-PG**
Four-element enclosure	**M22-I4-PG**
Six-element enclosure	**M22-I6-PG**
M20 connecting screw	**M22-XI**
M20 cord grip	**V-M20**

Flush Mounting Plates, Aluminum

M22-EY1

Finish	Rating	Catalogue Number
One Hole		
Yellow paint for emergency-stop operators	—	**M22-EY1**
Gray anodized	IP65	**M22-E1**
Two Holes		
Gray anodized	IP65	**M22-E2**
Three Holes		
Gray anodized	IP65	**M22-E3**
Four Holes		
Gray anodized	IP65	**M22-E4**
Five Holes		
Gray anodized	IP65	**M22-E5**
Six Holes		
Anodized	IP40	**M22-E6**

Shrouds, Plastic

M22-H1

Description	Rating	Catalogue Number
One-element	IP55	**M22-H1**
Two-element	IP55	**M22-H2**
Three-element	IP55	**M22-H3**
Four-element	IP40	**M22-H4**
Five-element	IP40	**M22-H5**
Six-element	IP40	**M22-H6**
Mounting plate	—	**M22-XE5**
Plaster keys for flush mounting	—	**M22-UPE**

Selector Switch Accessories

Description	Catalogue Number
M22-XW Plunger bridge [2]	**M22-XW**
M22-XWS Key cover	**M22-XWS**
M22-XC-R Key withdraw adapter [3]	**M22-XC-R**
M22-XC-Y Coding adapter	**M22-XC-Y**
M22-XGWK Guard ring	**M22-XGWK**

Emergency Stop Operator Accessories

Description	Voltage	Catalogue Number
M22-XGPV Yellow guard ring	—	**M22-XGPV**
M22G-XGPV Gray guard ring	—	**M22G-XGPV**
M22-PL-PV Sealing shroud	—	**M22-PL-PV**
Illuminated ring	24 Vac/Vdc	**M22-XPV60-Y-24**
	120 Vac	**M22-XPV60-Y-120**
	230 Vac	**M22-XPV60-Y-230**

Blanking Plugs

M22-B

Colour	Catalogue Number
Gray	**M22-B**
Black	**M22S-B**

Notes

[1] Requires use of base mounted contact blocks.

[2] Plunger needed to actuate centre-mounted contact blocks. Used for non-illuminated three-position selector switches only.

[3] Enables a keyed selector switch to be set to user-selected key withdraw position.

Mounting Accessories

	Description	Catalogue Number
M22-TC and M22-TA	Telescopic clip with top-hat rail	**M22-TC**
	Telescopic clip	**M22-TA**
	Telescopic clip extension	**M22-TCV**
M22-IVS	DIN rail mounting adapter	**M22-IVS**
M22-GR	Mounting ring	**M22-GR**
M22-MS	Mounting ring tool	**M22-MS**
M22S-R30	Adapter ring set for 30 mm holes	**M22S-R30**

M22-T-D and M22-T-DD

Protective Diaphragm

For Use with …	Catalogue Number
Flush pushbuttons and indicating lights	**M22-T-D**
Double pushbuttons	**M22-T-DD**

M22-ADC4

Dust Covers

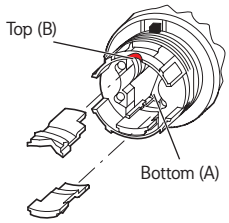
Description	Catalogue Number
Contact block dust cover	**M22-XKDP**
Operator dust cover, max three contact blocks	**M22-ADC**
Operator dust cover, max four contact blocks	**M22-ADC4**

Kits

Description	Catalogue Number
Includes one each: M22-XW, M22-XC-R, M22-XC-Y, M22S-B, M22-A, M22-XD-SWRGYB	**M22-KT1**

Coding Adapter Guide

Selector Switches



Two-Position Selector Switch

Top (B)	Bottom (A)	Catalogue Number	Function
		M22(S)-W(L)(K)	Momentary
		M22(S)-WR(L)(K)	Maintained

Three-Position Selector Switch

Top (B)	Bottom (A)	Catalogue Number	Function Left	Right
		M22(S)-W(L)(K)3	Momentary	Momentary
		M22(S)-WR(L)(K)3	Maintained	Maintained
		M22(S)-WR(L)(K)3-1	Maintained	Momentary
		M22(S)-WR(L)(K)3-2	Momentary	Maintained

Two-Position Key-Operated Selector Switch

Top (B)	Bottom (A)	Catalogue Number	Centre Key Withdraw	Right Function	Key Withdraw
		M22(S)-WS	Yes	Momentary	No
		M22(S)-WRS	Yes	Maintained	Yes
		M22(S)-WRS-A1	Yes	Maintained	No

Three-Position Key-Operated Selector Switch

Top (B)	Bottom (A)	Catalogue Number	Left Function	Key Withdraw	Centre Key Withdraw	Right Function	Key Withdraw
		M22(S)-WS3	Momentary	No	Yes	Momentary	No
		M22(S)-WRS3	Maintained	Yes	Yes	Maintained	Yes
		M22(S)-WRS3-A1	Maintained	No	Yes	Maintained	No
		M22(S)-WRS3-A2	Maintained	Yes	Yes	Maintained	No
		M22(S)-WRS3-A3	Maintained	No	Yes	Maintained	Yes
		M22(S)-WRS3-A4	Maintained	Yes	Yes	Momentary	No
		M22(S)-WRS3-A5	Maintained	No	Yes	Momentary	No
		M22(S)-WRS3-A6	Momentary	No	Yes	Maintained	Yes
		M22(S)-WRS3-A7	Momentary	No	Yes	Maintained	No

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Technical Data and Specifications

Pushbuttons, Indicating Lights, Selector Switches and Emergency-Stop Operators

Description			Momentary Pushbuttons	Maintained Pushbuttons	Indicating Lights, Buzzers and Potentiometers	Emergency-Stop Operators	Selector Switches	Key-Operated Operators	Double Pushbuttons
General									
Standards			IEC/EN 60947 VDE 0660 UL #E29184	IEC/EN 60947 VDE 0660 UL #E29184	IEC/EN 60947 VDE 0660 UL #E29184	IEC/EN 60947 VDE 0660 UL #340491	IEC/EN 60947 VDE 0660 UL #E29184	IEC/EN 60947 VDE 0660 UL #E29184	IEC/EN 60947 VDE 0660 UL #E29184
Lifespan, mechanical	Operations	x 10^6	>5	>1	—	>0.1	>0.1	>0.1	>0.2
Operating frequency	Operations/h		≥3600	≥1800	—	≥600	≥2000	≥100	≥3600
Actuating force		n	≥5	≥5	—	≥50	–	—	≥5
Operating torque (screw terminals)		Nm	—	—	—	—	≥0.3	≥0.5	—
Protection Type									
IP			IP67, IP69K	IP67, IP69K	Indicating lights: IP67, 69K Buzzers: IP40 Potentiometers: IP66	IP67, IP69K	IP66	IP66	IP66
UL type			4X, 13	4X, 13	Indicating lights: 4X/13 Buzzers: 12 Potentiometers: 4X/13	4X, 13	4X, 13	4X, 13	4X, 13
Climatic proofing			Damp heat, constant, according to IEC 60068-2-78 Damp heat, cyclical to IEC 60068-2-30						
Ambient temperature, operating		°F (°C)	–13 to 158 (–25 to 70)	–13 to 158 (–25 to 70)	–13 to 158 (–25 to 70)	–13 to 158 (–25 to 70)	–13 to 158 (–25 to 70)	–13 to 158 (–25 to 70)	–13 to 158 (–25 to 70)
Mounting position			As required	As required	As required	As required	As required	As required	As required
Mechanical shock resistance to IEC 60068-2-27 shock duration 11 ms, half-sinusoidal		g	>30	>30	>30	>50	>30	>30	>30
Terminal Capacities									
Solid		AWG	—	—	20-16	—	—	—	—
		mm^2		—	0.5–1.5	—		—	
Stranded		AWG	—	—	20-16	—	—	—	—
		mm^2		—	0.5–1.5	—		—	
Contacts									
Rated impulse withstand voltage	U_{imp}	Vac	—	—	4000	—	—	—	—
Rated insulation voltage	U_i	V	—	—	2500	—	—	—	—
Overvoltage category/ pollution degree			—	—	III/3	—	—	—	—

Contact Blocks and Light Units

Description			Contact Blocks	LED Light Units
General				
Standards			IEC/EN 60947 VDE 0660 UL #E29184	IEC/EN 60947 VDE 0660 UL #E29184
Lifespan, mechanical	Operations	x 10^6	>5	—
Operating frequency	Operations/h		≥3600	—
Actuating force		n	≥5	—
Operating torque (screw terminals)		Nm	≤0.8	—
Protection Type				
IP			IP20	IP20
UL type			—	—
Climatic proofing			Damp heat, constant, according to IEC 60068-2-78 Damp heat, cyclical to IEC 60068-2-30	
Ambient temperature, operating		°F (°C)	–13 to 158 (–25 to 70)	–13 to 158 (–25 to 70)
Mounting position			As required	As required
Mechanical shock resistance to IEC 60068-2-27 shock duration 11 ms, half-sinusoidal		g	>30	>30
Terminal Capacities				
Solid		AWG	18–14	18–14
		mm^2	0.75–2.5	0.75–2.5
Stranded		AWG	20–14	20–14
		mm^2	0.5–2.5	0.5–2.5
Contacts				
Rated impulse withstand voltage	U_{imp}	Vac	6000	6000
Rated insulation voltage	U_i	V	500	500
Overvoltage category/ pollution degree			III/3	III/3
NEMA contact ratings			A600, Q300	—
Current draw			—	5–15 mA
Control Circuit Reliability				
at 24 Vdc/5 mA	H_F	Fault probability	$<10^{-7}$, <1 fault in 10^7 operations	—
at 5 Vdc/1 mA	H_F	Fault probability	$<5 \times 10^{-6}$, <1 fault in 5×10^6 operations	—
Max. Short-Circuit Protective Device				
Fuse	gG/gL	A	10	—
Switching Capacity				
Rated Operational Current				
AC-15				
115V	I_e	A	6	—
230V	I_e	A	6	—
400V	I_e	A	4	—
500V	I_e	A	2	—
DC-13				
24V	I_e	A	3	—
42V	I_e	A	1.7	—
60V	I_e	A	1.2	—
110V	I_e	A	0.8	—
220V	I_e	A	0.3	—
Lifespan, Electrical				
AC-15				
230V/0.5A	Operations	x 10^6	1.6	—
230V/1.0A	Operations	x 10^6	1	—
230V/3.0A	Operations	x 10^6	0.7	—
DV-13				
12V/2.8A	Operations	x 10^6	1.2	—

Contact Element Note: >200 Vac/60 Hz: –25/55°C

Palm Switches

Description			Momentary	Maintained	FAK-R-V-KC11-I
General					
Standards			IEC/EN 60947 VDE 0660	IEC/EN 60947 VDE 0660	IEC/EN 60947 VDE 0660
Lifespan, mechanical	Operations	x 10^6	>1	>0.1	>0.1
Operating frequency	Operations/h		≥3600	≥600	≥600
Actuating force		n	20–40	40–60	15–25
Operating torque		Nm	—	—	—
Degree of protection, IEC/EN 60529		IP	IP67, IP69K	IP67, IP69K	IP65
		UL Type	4X, 13	4X, 13	4X, 13
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30		
Ambient temperature, operating		°F (°C)	–73 to 104 (–25 to 40)	–73 to 104 (–25 to 40)	–73 to 104 (–25 to 40)
Mounting position			As required		
Mechanical shock resistance to IEC 60068-2-27 shock duration 11 ms, half-sinusoidal		g	>15	>15	>15

ASi Adapter Modules

Description		M22-ASI	M22-ASI-C
General			
Standards		IEC/EN 60947, DIN EN 50295	IEC/EN 60947, DIN EN 50295
Radio interference suppression		EN 55011, EN 55022	EN 55011, EN 55022
Limit value class		—	—
Protection type		IP20	IP00
Climatic proofing		Damp heat, constant, to IEC 60068-2-78, cyclical, to IEC 60068-2-30	
Ambient temperature, operating	°F (°C)	–13 to 131 (–25 to 55)	–13 to 131 (–25 to 55)
Shock resistance shock duration 11 ms	g	>30	>30
Vibration to IEC 60068-2-27 (amplitude 1 mm)	Hz	—	—
Dimensions	mm	—	—
Weight	kg	—	—
Mounting		Front mounting	Front mounting
Mounting position		As required	As required
Power Supply			
Rated voltage to AS-interface specification	Vdc	26.5–31.6	26.5–31.6
Connection technique		Yellow plug-in terminal as insulation piercing terminal	Two cables onboard
Power supply		Completely from the AS-interface cable	
Addressing		Via connection to AS-interface cable	
Total power consumption of the AS-interface	mA	≥40	≥40
AS-interface		—	—
Rated operational current at full load	mA	—	—
Rated operational current when idle (no I, O set)	mA	—	—
Status LEDs		POWER AS-interface cable: green LED on the rear side of the element ERROR AS-interface, AS-interface master failure: red LED on the rear side of the element	POWER AS-interface cable: green LED on the board ERROR AS-interface, AS-interface master failure: red LED on the board

ASi-S Adapter Modules

Description		M22-ASI-S	M22-ASI-CS
Inputs			
Inputs, protected against short-circuit	Number	Two (normally 22V/5 mA)	Two (normally 22V/5 mA)
Voltage range	Vdc	—	—
Rated current per input	mA	—	—
High signal level	V	—	—
Low signal	mA	—	—
Length of connecting cables	cm	—	—
Outputs			
Outputs, protected against short-circuit	Number	One (normally 19V/8 mA)	One (normally 19V/8 mA)
Voltage range	Vdc	—	—
Max. Current Carrying Capacity			
All outputs		—	—
Σ three external outputs		—	—
Length of connecting cables	cm	—	—
Profile		S-3.A.E	S-3.A.E
Specification		2.1	2.1
Addresses	Number	62	62
Emergency-Stop Circuits			
Connection of the AS-interface line		Yellow plug terminal with insulation piercing	Two cables on the circuit board
Power supply		Complete from AS-interface, cable 26.5–31.6 Vdc	Complete from AS-interface, cable 26.5–31.6 Vdc
Fixing		Front mounted	Base mounted
Addressing		Via AS-interface cable	Via AS-interface cable
Max. total current	A	45 mA	45 mA
Ambient temperature, operating	°F (°C)	–13 to 131 (–25 to 55)	–13 to 131 (–25 to 55)
Shock resistance		30g/11 ms as per IEC 60068-2-27	30g/11 ms as per IEC 60068-2-27
Protection type		IP20	IP00
Climatic proofing		Damp heat, constant, to IEC 60068-2-78, cyclical, to IEC 60068-2-30	Damp heat, constant, to IEC 60068-2-78, cyclical, to IEC 60068-2-30
Mounting position		As required	As required
Standards		EN 50178 EN 50 295	EN 50178 EN 50 295
Inputs		Two-channel input (22V/5 mA) (moduled by code sequence) (two break contact sets M22-K01)	Two-channel input (22V/5 mA) (moduled by code sequence) (two break contact sets M22-K01)
Outputs		One output, typically 19V/8 mA, short-circuit proof	One output, typically 19V/8 mA, short-circuit proof
Status Displays			
Power, AS-interface cable		Green LED on the back	Green LED on the back
AS-interface error, AS-interface master failure		Red LED on the back	Red LED on the back
Profile		S-7.B.E	S-7.B.E

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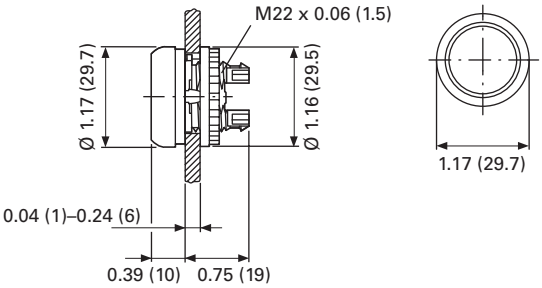
Dimensions

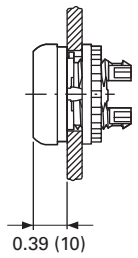
Approximate Dimensions in Inches (mm)

Operators and Indicating Lights

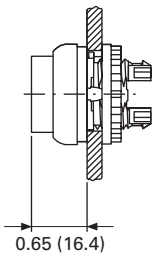


Pushbuttons

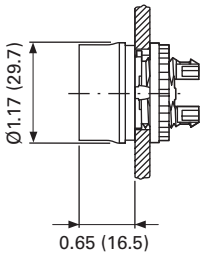
M22…-D-_



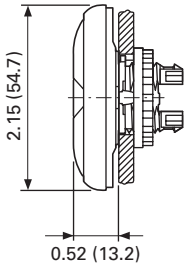
M22…-DH-_



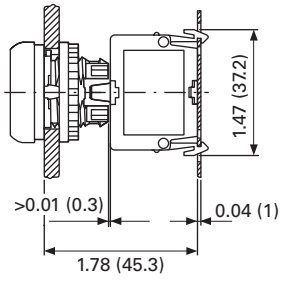
M22-DG(L)-_



M22…-DD-_

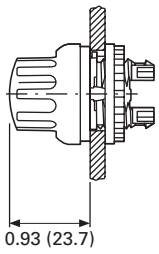


M22-D, Base Mounted

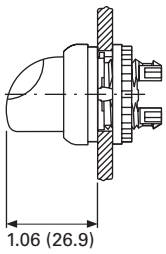


Selector Switches Operators

M22…-W-_

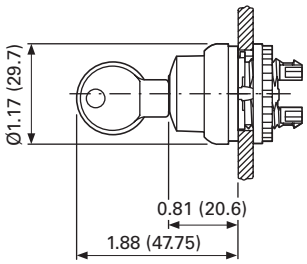


M22…-WL-_



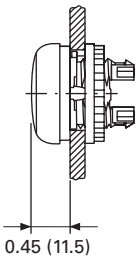
Key-Operated Selector Switches

M22…-W(R)S-_



Indicating Light

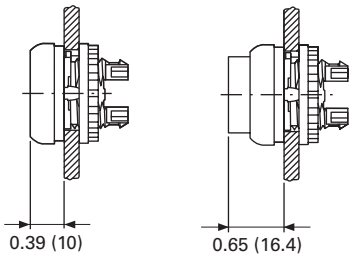
M22-L_



Approximate Dimensions in Inches (mm)

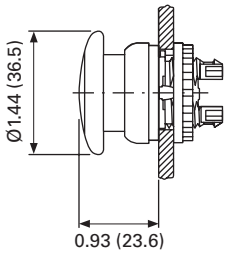
Illuminated Pushbuttons

M22…-DL-_ **M22…-DLH_**



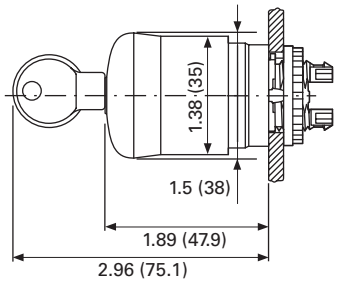
Mushroom Head Pushbutton

M22…-DP-_



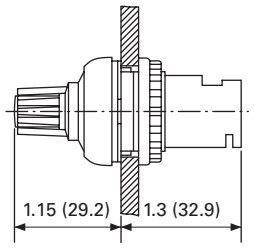
Emergency-Stop Operators

M22-PV_
M22S-PV_
M22-PVL_
M22-PVS_



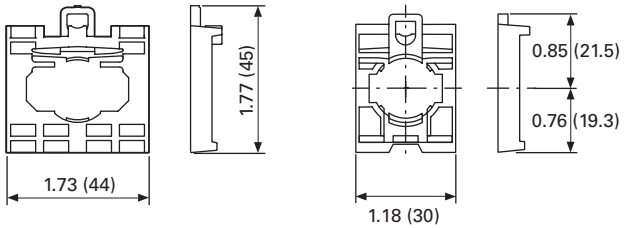
Potentiometer

M22(S)-R_



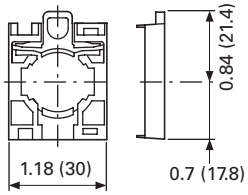
Contact Block Mounting Adapter

M22-A_ **M22S-A…**

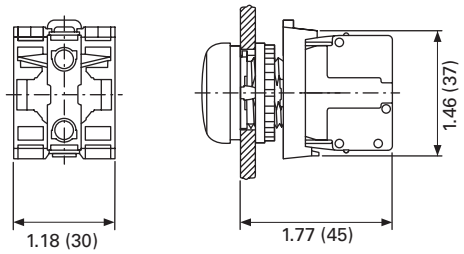


Front Mounted Centering Adapter

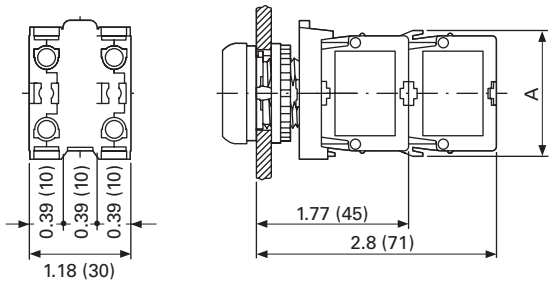
M22-ZA



Front Mounted Indicating Light



Pushbutton, Complete Devices



	1 x M22-K_	2 x M22-K_	1 x M22-CK_	2 x M22-CK_
A	1.46 (37.2)	1.46 (37.2)	1.54 (39.0)	1.54 (39.0)

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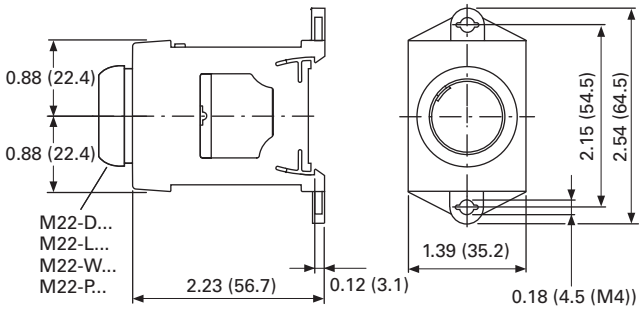
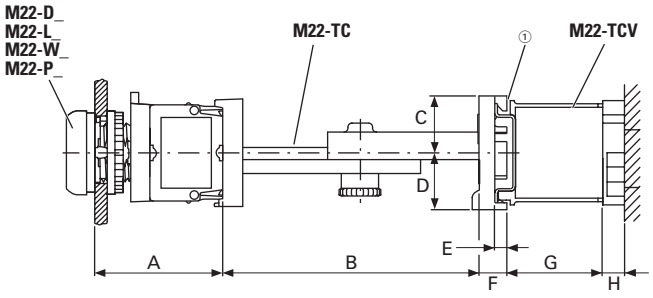
Approximate Dimensions in Inches (mm)

DIN-Rail Mounting Adapter



Pushbuttons and Indicating Lights with M22-TC Telescopic Clip and M22-TVC Extension

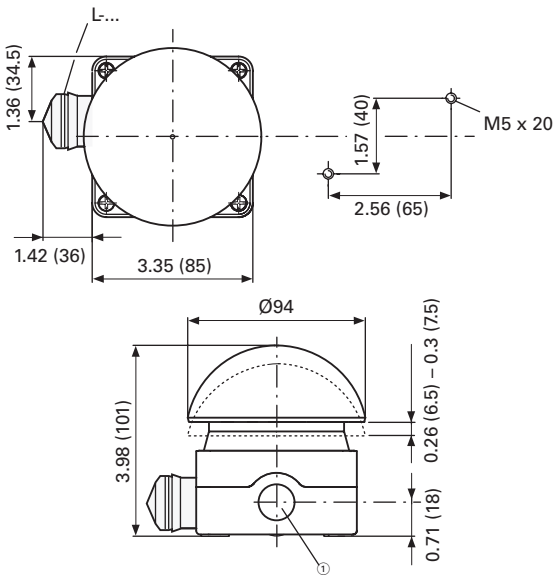


A	B	C	D	E	F	G	H
1.77 (45)	2.36–3.94 (60–100)	0.79 (20)	0.79 (20)	0.18 (4.5)	0.39 (10)	154 (39)	0.39 (10)

① Top-hat rail to IEC/EN 60715.

Palm Switches

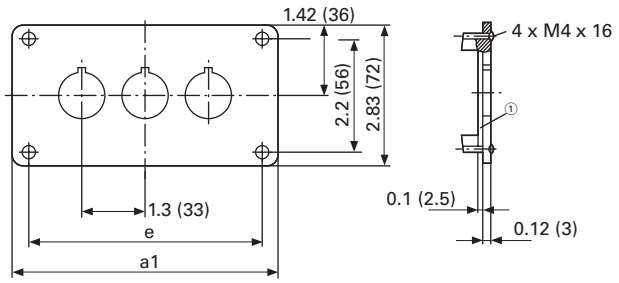
FAK_



① 3 x M20 lateral, 1 x M16 in bottom.

Front Mounted Mounting Plate

M22-E_

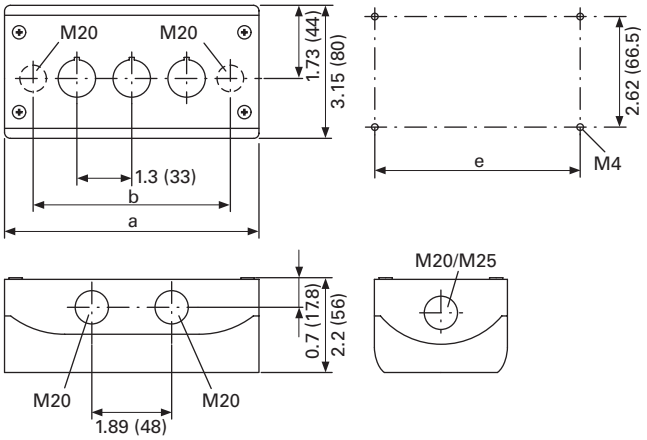


Catalogue Number	a1	e
M22-E(Y) ①	2.83 (72)	2.21 (56)
M22-E2	4.13 (105)	3.50 (89)
M22-E3	5.43 (138)	4.80 (122)

Catalogue Number	a1	e
M22-E4	6.73 (171)	6.10 (155)
M22-E5	8.03 (204)	7.40 (188)
M22-E6	9.33 (237)	8.70 (221)

Base Mounted Surface Mounting Enclosure

M22-I_

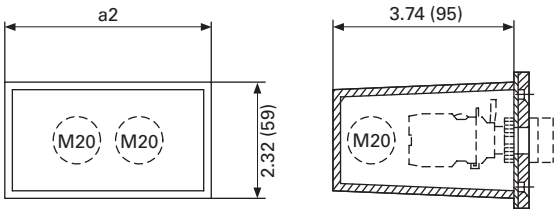


Catalogue Number	Mounting Locations	a	b	e	Cable Entries		
M22-I(Y)1	1	2.83 (72.0)	1.68 (42.6)	2.30 (58.5)	2 x M16	3 x M20	2 x M25
M22-I2	2	4.72 (120.0)	3.37 (85.6)	4.19 (106.5)	2 x M20	3 x M20	2 x M25
M22-I3	3	6.02 (153.0)	4.67 (118.6)	5.49 (139.5)	2 x M20	2 x M25	4 x M20
M22-I4	4	7.32 (186.0)	5.97 (151.6)	6.79 (172.5)	2 x M20	2 x M25	4 x M20
M22-I6	6	9.92 (252.0)	8.57 (217.6)	9.39 (238.5)	2 x M20	2 x M25	4 x M20

Approximate Dimensions in Inches (mm)

Covers

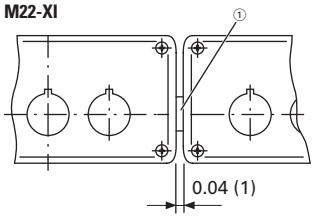
M22-H_



Catalogue Number	a2	Cable Entry	Style
M22-H1	1.65 (42)	3 x M20	One-piece
M22-H2	2.95 (75)	4 x M20	
M22-H3	4.25 (108)	4 x M20	
M22-H4	5.55 (141)	4 x M20	Split
M22-H5	6.85 (174)	5 x M20	
M22-HE6	8.15 (207)	6 x M20	

Connecting Screw

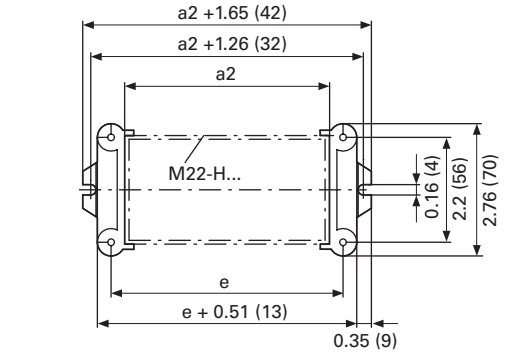
M22-XI

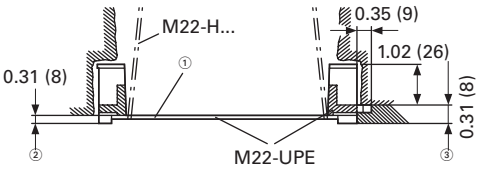


① Gasket.

Shroud with Plaster Keys

M22-UPE

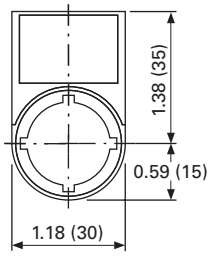




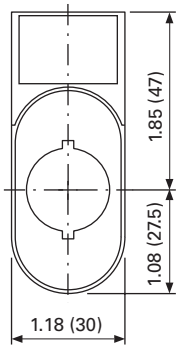
② Box for closing off when plastering.
③ Plaster thickness less than 8 mm.
④ Plaster thickness more than 8 mm

Legend Plates

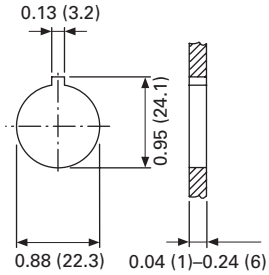
M22S-ST-_



M22S-STDD-X



Mounting Hole with Lug Slot



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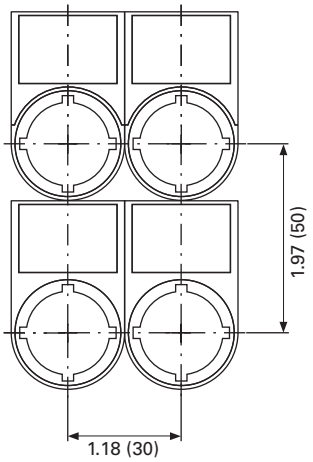
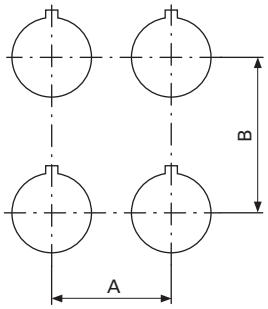
Approximate Dimensions in Inches (mm)

Grid Dimension to IEC/EN 60947

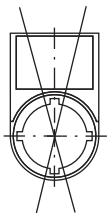


Grid Dimension for Various Combinations



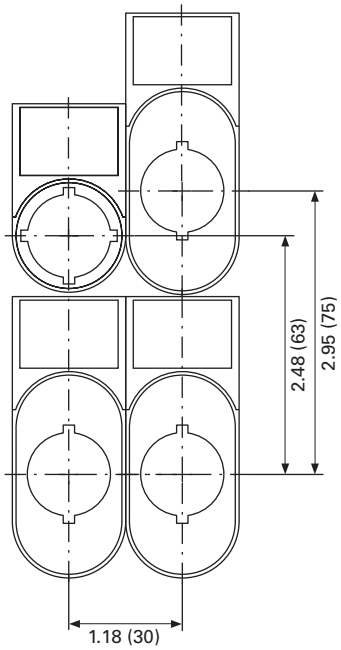
Pushbutton Diaphragm

Pushbutton diaphragm cannot be combined with label mount.

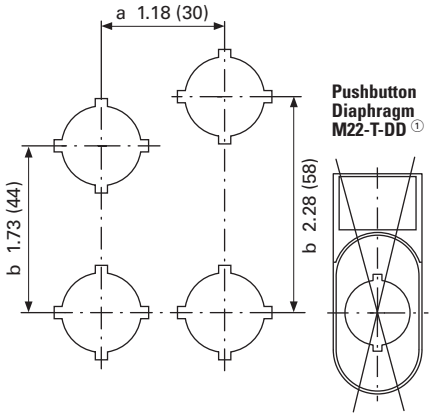


Catalogue Number	A ≥	B ≥
M22(S)-_(IEC/EN 60947)	1.18 (30.0)	1.97 (50.0)
RMQ-Titan min.	1.18 (30.0)	1.58 (40.0)
M22-D_ + M22-T-D	1.30 (33.0)	1.58 (40.0)
M22-D(R)P_	1.50 (38.0)	1.58 (40.0)
M22-PV_	1.50 (38.0)	1.58 (40.0)
M22-PV(L) + M22-PL-PV	1.89 (48.0)	2.20 (56.0)
M22-PV(L)(S_) + M22-D_	1.30 (33.0)	1.58 (40.0)
M22-DDL_	1.18 (30.0)	2.17 (55.0)
M22-DDL_ + M22-T-DD	1.30 (33.0)	2.28 (58.0)
M22-ST_	1.18 (30.0)	1.97 (50.0)
M22-STDD_	1.18 (30.0)	2.95 (75.0)
M22-CK_	1.18 (30.0)	1.77 (45.0)
M22-CLED_	1.18 (30.0)	1.77 (45.0)
M22-XAK_	3.54 (90.0)	3.54 (90.0)
M22-XZK_	1.30 (33.0)	2.04 (52.0)
M22-XBK_	2.36 (60.0)	2.36 (60.0)
M22-XYK_	1.97 (50.0)	1.97 (50.0)
M22-D4	2.17 (55.0)	2.17 (55.0)
M22-WR…4	1.97 (50.0)	1.97 (50.0)
M22-W…J4	1.97 (50.0)	1.97 (50.0)

Grid Dimension for M22-DD_



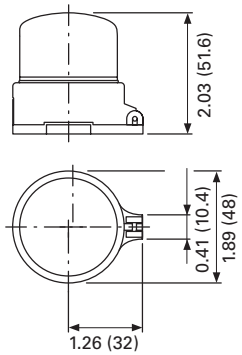
Grid Dimension for M22-DDL_



① Pushbutton diaphragm cannot be combined with label mount.

Emergency Stop Sealing Cover

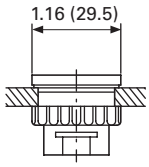
M22-PL-PV



Approximate Dimensions in Inches (mm)

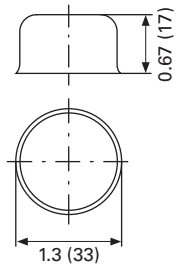
Blanking Plugs

M22…B-_

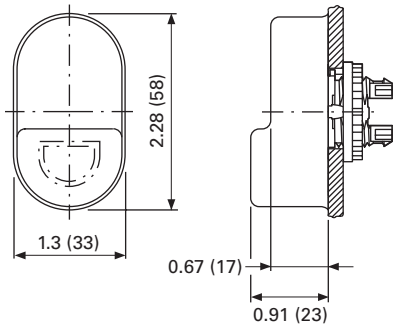


Pushbutton Diaphragm

M22-T-D

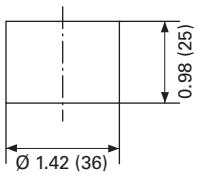


M22-T-D

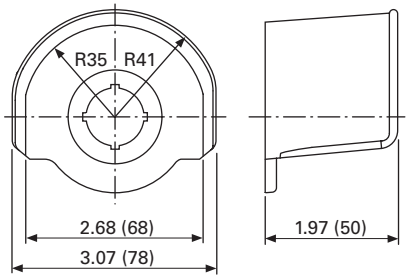


Guard Ring

M22-XGWK

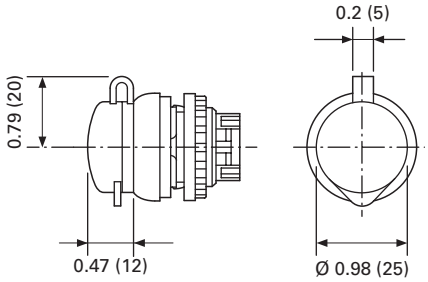


M22-XGPV



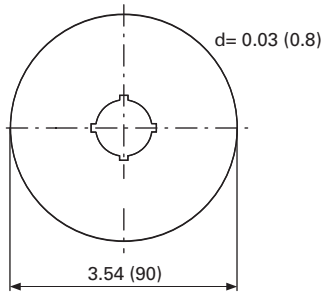
Key Cover

M22-XWS

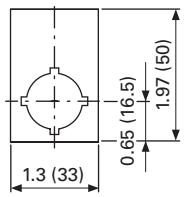


Emergency Stop Legend Plate

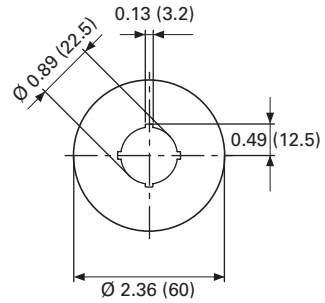
M22-XAK_



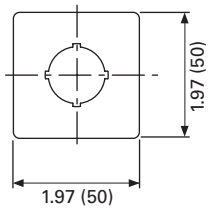
M22-X(Y)ZK_



M22-XBK-_

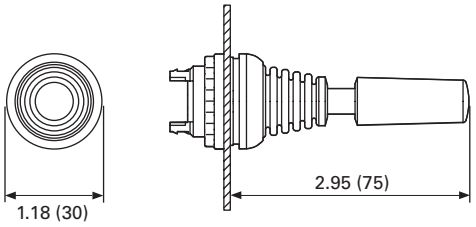


M22-XYK-_



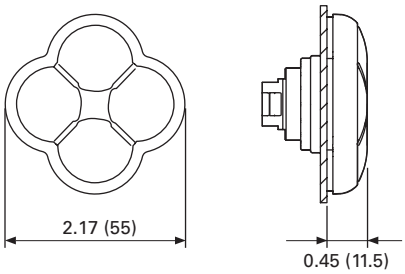
Joystick

M22…W…J_



Four-Way Pushbutton

M22…-D…4-_



37

Symbols Library

Instructions for Ordering Laser Inscriptions

1. Identify part number to be inscribed.
2. Pick symbol from library and identify suffix code associated with the symbol.
3. Order part number already listed in the catalogue with -ETCH suffix.
4. When placing an order by fax or Vistaline on the Web, reference order item number and indicate appropriate suffix code.

Example

To order a green flush button plate with the inscription AUTO HAND:

Order Catalogue Number: M22-XD-G-ETCH (see **Page V7-T37-38**).

AUTO HAND inscription is found on **Page V7-T37-118** in the Symbols Library, suffix code is X91.

In the order notes, reference item number and suffix X91.

Letter height 3 mm: max three lines, max. 12 characters per line.

Letter height 5 mm: max. two lines, max. eight characters per line.

Note: For symbols or text not found in the Symbols Library, please contact the Eaton Customer Support Centre at 1-800-268-3578.

Letter Height Specifications: ≤ five characters; letter height = 0.197 in (5 mm). > five characters; letter height = 0.118 in (3 mm).

Text—English

Inscription	Catalogue Number Suffix
STOP	GB0
START	GB1
CLOSE	GB2
UP	GB3
DOWN	GB4
OFF	GB5
ON	GB6
RUN	GB7
FAULT	GB8
TEST	GB9
OFF ON	GB10
MAN. AUTO	GB11
MAN. 0 AUTO	GB12
RESET	GB14
FORWARD	GB15
REVERSE	GB16
RAISE	GB17
LOWER	GB18
LEFT	GB19
RIGHT	GB20
BRAKE	GB21
HIGH	GB22
LOW	GB23
FAST	GB24
SLOW	GB25
FASTER	GB26
SLOWER	GB27
OPEN	GB32
PROG	GB62
CALL	GB63
OCCUPIED	GB64
BYPASS 0 1	GB65
BYPASS UP	GB66
EMERGENCY-STOP	GB99

Text—German

Inscription	Catalogue Number Suffix
Halt	D0
Start	D1
Zu	D2
Auf	D3
Ab	D4
Aus	D5
En	D6
Betrieb	D7
Störung	D8
Prüfung	D9
Aus Ein	D10
HAND AUTO	D11
HAND 0 AUTO	D12
Antrieb	D13
Entsperren	D14
Vorwärts	D15
Rückwärts	D16
Heben	D17
Senken	D18
Links	D19
Rechts	D20
Bremsen	D21
Hoch	D22
Niedrig	D23
Schnell	D24
Langsam	D25
HAND	D28
AUTO	D29
Einrichten	D30
Tippen	D31
Öffnen	D32
Steuerspannung	D33
Start Automatik	D34
Lampentest	D35
Phasenkontrolle	D36
Alarm	D37
Alarm - Reset	D38
Sammelstörung	D39
Quittieren	D40
Quittierung	D41
Steuerung Ein	D42
Steuerung Aus	D43
Störung quittieren	D44
FÜHLER int. ext.	D72
HEIZUNG 1 2	D73
AUS-BLASEN	D74
SOLLWERT int. ext.	D75
Not-Aus	D99
Not - Aus quittieren	D100

Text Size: 3 mm—Max. eight characters in first line; 10 characters in second line; eight characters in third line.

Text Size: 5 mm—Max. five characters per line.

Letter Height Specifications: ≤ five characters; letter height = 0.197 in (5 mm). > five characters; letter height = 0.118 in (3 mm).

Text—French

Inscription	Catalogue Number Suffix
ARRÊT	F0
MARCHE	F1
FERMÉ	F2
MONTÉE	F3
DESCENTE	F4
ARRÊT	F5
MARCHE	F6
EN SERVICE	F7
PANNE	F8
ESSAI	F9
ARRÉT MARCHE	F10
MAN. AUTO	F11
MAN. 0 AUTO	F12
REARM.	F14
AVANT	F15
ARRIÈRE	F16
MONTER	F17
DESCENDRE	F18
GAUCHE	F19
DROITE	F20
DEFAULT	F67
SOUS TENSION	F68
ARRÊT D'URGENCE	F99

Text—Swedish

Inscription	Catalogue Number Suffix
STOPP	S0
START	S1
STÄNG	S2
UPP	S3
NED	S4
FRÅN	S5
TILL	S6
KÖR	S7
FEL	S8
PROV	S9
FRAN TILL	S10
MAN. AUTO	S11
MAN. 0 AUTO	S12
ÅTERSTÄLLNING	S14
FRAM	S15
BACK	S16
ÖKA	S17
MINSKA	S18
VÄNSTER	S19
HÖGER	S20
BROMS	S21
HÖG	S22
LÅG	S23
ÖPPNA	S32
IN	S45
UT	S46
NÖDSTOPP	S99

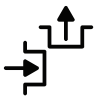
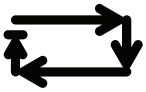
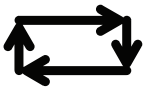
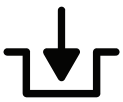
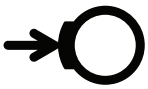
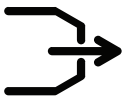
Symbols

Inscription	Catalogue Number Suffix
	X0
	X1
	X2
	X3
	X4
	X5
R	X6
	X7
	X8
	X9
	X10
	X11
	X12

Inscription	Catalogue Number Suffix
	X13
	X14
	X15
	X16
	X17
X	X18
L	X19
T	X20
IV	X21
V	X22
VI	X23
Y	X24
	X25

Text Size: 3 mm—Max. eight characters in first line; 10 characters in second line; eight characters in third line.

Text Size: 5 mm—Max. five characters per line.

Inscription	Catalogue Number Suffix
	X26
	X27
	X28
	X29
	X30
	X31
	X32
	X33
	X34
	X35
	X36
	X37
	X38
	X39
	X40
	X41
	X42
	X43
	X44
	X45
	X46
	X47
	X48
	X49
	X50
0	X51
1	X52
2	X53
3	X54
4	X55
5	X56
6	X57
7	X58
8	X59
9	X60
	X61
	X62
	X63
	X64
	X65
	X66
	X67
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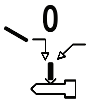
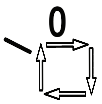
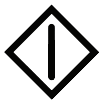
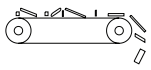
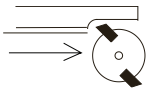
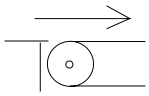
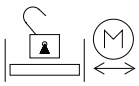
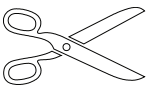
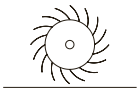
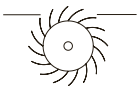
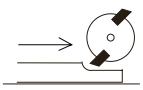
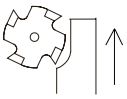
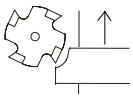
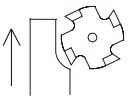
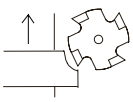
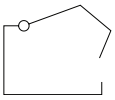
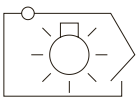
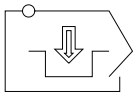
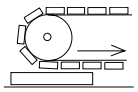
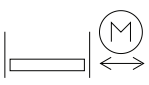
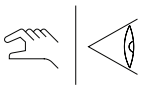
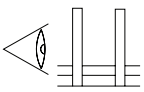
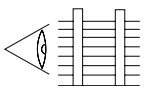
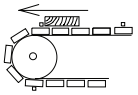
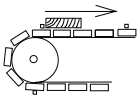
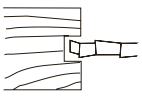
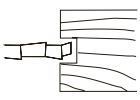
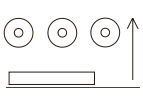
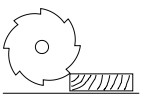
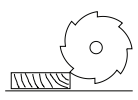
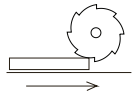
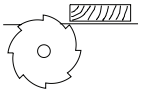
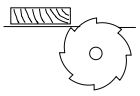
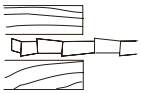
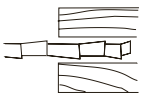
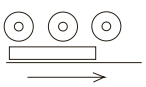
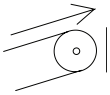
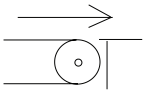
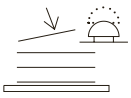
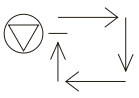
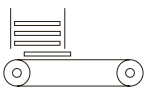
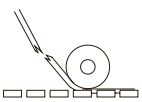
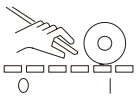
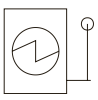
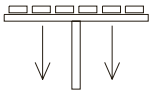
	X77
	X78
	X79
	X80
	X81

Text Size: 3 mm—Max. eight characters in first line; 10 characters in second line; eight characters in third line.

Text Size: 5 mm—Max. five characters per line.

Inscription	Catalogue Number Suffix
	X82
	X83
0 I	X88
0 I	X89
I 0	X90
AUTO HAND	X91
II I	X92
I 0 II	X93
Auto 0 Man.	X94
I II	X95
	X100
	X101
	X102
	X103
	X104
	X105
	X106
	X107
	X108
	X109
	X110
	X111
	X112
	X113
	X114
	X115
	X116
	X117
	X118
	X119
	X120
	X121
	X122
	X123
	X124
	X125
	X126
	X127
	X128
	X129
	X130
	X131
	X132
	X133
	X134
	X135
	X136
	X137
	X138
	X139
	X140
	X141
	X142
	X143
	X144
	X145

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Text Size: 5 mm—Max. five characters per line.

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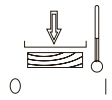	X146
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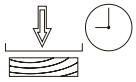
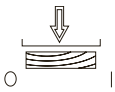
	X148
	X149
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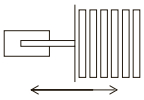
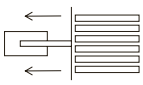
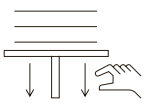
	X151
	X152
	X153
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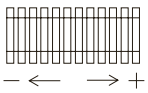
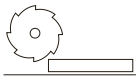
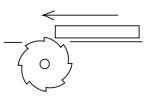
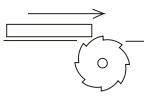
	X156
	X157
	X158
	X159

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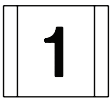	X166
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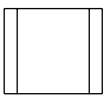	X172
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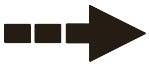	X183
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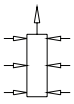
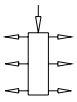
	X186
	X187

Inscription	Catalogue Number Suffix
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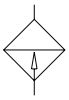
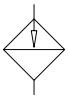
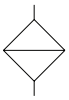
	X191
	X192
	X193
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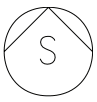	X199
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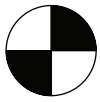	X203
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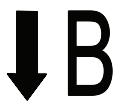	X209
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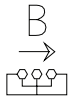
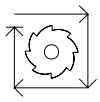
	X215
	X216
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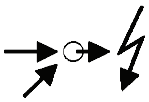	X218
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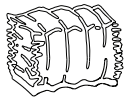	X227
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Inscription	Catalogue Number Suffix
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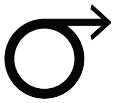	X231
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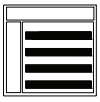	X236
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Inscription	Catalogue Number Suffix
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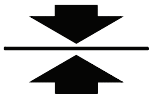	X248
OPEN / CLOSE PROTECT.DOOR	X249
ROTATE AXIS	X250
SET IN	X251
CLAMP / UNCLAMP CLAMP.DEVICE	X252
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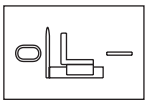	X261
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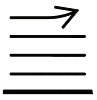
	X265
	X266
	X267
	X268
	X269
	X270
CHEM I	X271
CHEM II	X272
CHEM III	X273
	X274
	X275
CONTI CUT	X276
	X277
TOOL UNLOCKING	X278
T1 - Tn CHANGE TOOL ARM	X279
	X280
OUT OF SERVICE	X281
	X282
	X283
	X284
	X285

Text Size: 3 mm—Max. eight characters in first line; 10 characters in second line; eight characters in third line.

Text Size: 5 mm—Max. five characters per line.

22.5 mm Compact Pushbuttons—C22

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Product Overview

Product Description

Eaton's C22 compact pushbutton line offers an industry leading array of functional, attractive, and ergonomically designed "all-in-one" illuminated and non-illuminated pushbuttons, selector switches, emergency stops and indicating lights. The complete illuminated line is only offered in LED light units to ensure high-quality brightness and up to 100,000 hours of LED illumination. C22 operators are available with either a silver or black bezel and share the exact same front of the panel look and feel as Eaton's M22 line. The C22's compact, "all-in-one" design with the contact block(s) and operators integral provides the user with a simple solution.

Wide Product Breadth

- In addition to the standard compact offering of indicating lights and pushbuttons, Eaton's C22 offers keyed and non-keyed operators and emergency stops
- Hundreds of styles with standard laser etch markings with the ability to use custom M22 laser etched buttons in conjunction with C22 buttonless operators

LED Indicators

- 100,000 hours of life in high-vibration environments
- Lenses specifically designed for LED illumination

Rugged Design

- Pushbuttons (momentary) rated for 5 million mechanical operations and selector switches (non-keyed) rated for 1 million mechanical operations
- All components have IP65 rating, and some carry IP67 and IP69K for wash-down environment

Standards and Certifications

All operators are IEC/EN 60947 VDE 0660, UL Listed, and CSA Certified.

All operators carry an IP65, IP66, IP67 or IP69K rating.

All products carry ratings of NEMA 1, 3R, 4X, 12 and 13

Features

- Field convertible maintained pushbuttons from maintained to momentary
- Field convertible selector switches from momentary to maintained operation and vice versa
- LED offering only for all illuminated operators
- Laser engraved pushbuttons and lenses
- Heavy-duty construction with a minimum of IP65 and UL NEMA® Type 4X/13 on front of panel operators. Many operators even carry IP67 and IP69K, for the toughest applications
- Silver or black colored nylon bezels
- Notched hole mounting with anti-rotation tab and central nut mounting on each operator
- Pushbuttons (momentary) rated for 5 million mechanical operations and selector switches (non-keyed) rated for 1 million mechanical operations
- Unique compact offerings, including keyed and non-keyed operators and emergency stops

Benefits

- Compact, "all-in-one" operator and contact block design simplifies product selection, inventory, and installation
- Field convertibility of pushbuttons and selector switches helps distributors and customers reduce inventory and increase functionality
- LED offering only for improved brightness quality and up to 100,000 hours of operation
- Plastic construction is corrosion resistant
- Operators are designed for rugged environments, ideal for wash-down applications (reference each operator's IP ratings for ingress protection definition)
- Anti-rotation tab saves installation time and prevents operator rotation
- High mechanical and electrical life allows for use in tough and challenging applications
- Laser inscription capabilities allow for high quality, wear-resistant markings
- By having a compact design emergency stop, the C22 design eliminates the need for self-monitoring contact blocks

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Product Selection Guide

Pushbuttons

Description	Non-illuminated, flush		Non-illuminated, extended		Illuminated, flush		Illuminated, extended	
Operator	Momentary	Maintained	Momentary	Maintained	Momentary	Maintained	Momentary	Maintained
Product Selection	**Page V7-T37-126**	**Page V7-T37-127**	**Page V7-T37-128**	**Page V7-T37-129**	**Page V7-T37-130**	**Page V7-T37-131**	**Page V7-T37-132**	**Page V7-T37-133**

Indicating Lights

Description	Indicating lights
Product Selection	**Page V7-T37-135**

Emergency Stops

Description	Twist release	Keyed-release
Product Selection	**Page V7-T37-137**	**Page V7-T37-137**

Selector Switches

Description	Non-illuminated, knob type	Key-operated
Product Selection	**Page V7-T37-140**	**Page V7-T37-141**

Pushbuttons—Non-Illuminated and Illuminated

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Pushbuttons—Non-Illuminated and Illuminated

Product Description

Eaton's C22 Compact Pushbuttons are a complete line of monoblock type pushbuttons with the contact blocks, mounting adapter, and operator all-in-one. The C22 pushbuttons offer the same look and feel as their modular counterpart, the M22. They also carry many of the same rugged ratings and options, such as laser etching, field convertibility, and LED technology.

Note: For additional accessories, please see Volume 7—Motor Controls, Logic and Connectivity, CA08100008E, Tab 37, section 37.4, 22.5 mm Modular Pushbuttons—M22.

Features

- Field convertible maintained pushbuttons from maintained to momentary
- LED offering only for improved brightness quality and up to 100,000 hours of operation
- Laser engraved pushbuttons and lenses
- Pushbuttons (momentary) rated for 5 million mechanical operations

Protection Type

- IP67/IP69K
- NEMA 4X, 13

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Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Non-Illuminated Pushbuttons

C22 - D - G - X1 - K10

Bezel	Operator Type	Button Plate Colour	Button Etching	Contact Blocks
C22 = Silver **C22S** = Black	**D** = Flush, momentary **DR** = Flush, maintained **DH** = Extended, momentary **DRH** = Extended, maintained	**G** = Green **R** = Red **S** = Black **W** = White **X** = Buttonless	**X0** = ◎ **X1** = ⓘ	**K10** = 1NO **K20** = 2NO **K01** = 1NC **K02** = 2NC **K11** = 1NO/1NC

Product Selection

Non-Illuminated, Flush, Momentary

C22(S)-D-_

Non-Illuminated Pushbuttons, Flush, Momentary

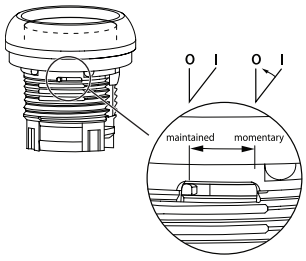
Button Colour	Button Etching	Contact Block Configuration	Silver Bezel Catalogue Number	Black Bezel Catalogue Number
Green	—	1NO	**C22-D-G-K10**	**C22S-D-G-K10**
	—	2NO	**C22-D-G-K20**	**C22S-D-G-K20**
	—	1NO/1NC	**C22-D-G-K11**	**C22S-D-G-K11**
	X1	1NO	**C22-D-G-X1-K10**	**C22S-D-G-X1-K10**
	X1	2NO	**C22-D-G-X1-K20**	**C22S-D-G-X1-K20**
	X1	1NO/1NC	**C22-D-G-X1-K11**	**C22S-D-G-X1-K11**
Red	—	1NC	**C22-D-R-K01**	**C22S-D-R-K01**
	—	2NC	**C22-D-R-K02**	**C22S-D-R-K02**
	—	1NO/1NC	**C22-D-R-K11**	**C22S-D-R-K11**
	X0	1NC	**C22-D-R-X0-K01**	**C22S-D-R-X0-K01**
	X0	2NC	**C22-D-R-X0-K02**	**C22S-D-R-X0-K02**
	X0	1NO/1NC	**C22-D-R-X0-K11**	**C22S-D-R-X0-K11**
Black	—	1NC	**C22-D-S-K01**	**C22S-D-S-K01**
	—	2NC	**C22-D-S-K02**	**C22S-D-S-K02**
	—	1NO/1NC	**C22-D-S-K11**	**C22S-D-S-K11**
	X0	1NC	**C22-D-S-X0-K01**	**C22S-D-S-X0-K01**
	X0	2NC	**C22-D-S-X0-K02**	**C22S-D-S-X0-K02**
	X0	1NO/1NC	**C22-D-S-X0-K11**	**C22S-D-S-X0-K11**
White	—	1NO	**C22-D-W-K10**	**C22S-D-W-K10**
	—	2NO	**C22-D-W-K20**	**C22S-D-W-K20**
	—	1NO/1NC	**C22-D-W-K11**	**C22S-D-W-K11**
	X1	1NO	**C22-D-W-X1-K10**	**C22S-D-W-X1-K10**
	X1	2NO	**C22-D-W-X1-K20**	**C22S-D-W-X1-K20**
	X1	1NO/1NC	**C22-D-W-X1-K11**	**C22S-D-W-X1-K11**
Buttonless	—	1NO	**C22-D-X-K10**	**C22S-D-X-K10**
	—	2NO	**C22-D-X-K20**	**C22S-D-X-K20**
	—	1NC	**C22-D-X-K01**	**C22S-D-X-K01**
	—	2NC	**C22-D-X-K02**	**C22S-D-X-K02**
	—	1NO/1NC	**C22-D-X-K11**	**C22S-D-X-K11**

Non-Illuminated, Flush, Maintained

C22(S)-DR-_

Non-Illuminated Pushbuttons, Flush, Maintained

Button Colour	Button Etching	Contact Block Configuration	Silver Bezel Catalogue Number	Black Bezel Catalogue Number
Green	—	1NO	**C22-DR-G-K10**	**C22S-DR-G-K10**
	—	2NO	**C22-DR-G-K20**	**C22S-DR-G-K20**
	—	1NO/1NC	**C22-DR-G-K11**	**C22S-DR-G-K11**
	X1	1NO	**C22-DR-G-X1-K10**	**C22S-DR-G-X1-K10**
	X1	2NO	**C22-DR-G-X1-K20**	**C22S-DR-G-X1-K20**
	X1	1NO/1NC	**C22-DR-G-X1-K11**	**C22S-DR-G-X1-K11**
Red	—	1NC	**C22-DR-R-K01**	**C22S-DR-R-K01**
	—	2NC	**C22-DR-R-K02**	**C22S-DR-R-K02**
	—	1NO/1NC	**C22-DR-R-K11**	**C22S-DR-R-K11**
	X0	1NC	**C22-DR-R-X0-K01**	**C22S-DR-R-X0-K01**
	X0	2NC	**C22-DR-R-X0-K02**	**C22S-DR-R-X0-K02**
	X0	1NO/1NC	**C22-DR-R-X0-K11**	**C22S-DR-R-X0-K11**
Black	—	1NC	**C22-DR-S-K01**	**C22S-DR-S-K01**
	—	2NC	**C22-DR-S-K02**	**C22S-DR-S-K02**
	—	1NO/1NC	**C22-DR-S-K11**	**C22S-DR-S-K11**
	X0	1NC	**C22-DR-S-X0-K01**	**C22S-DR-S-X0-K01**
	X0	2NC	**C22-DR-S-X0-K02**	**C22S-DR-S-X0-K02**
	X0	1NO/1NC	**C22-DR-S-X0-K11**	**C22S-DR-S-X0-K11**
White	—	1NO	**C22-DR-W-K10**	**C22S-DR-W-K10**
	—	2NO	**C22-DR-W-K20**	**C22S-DR-W-K20**
	—	1NO/1NC	**C22-DR-W-K11**	**C22S-DR-W-K11**
	X1	1NO	**C22-DR-W-X1-K10**	**C22S-DR-W-X1-K10**
	X1	2NO	**C22-DR-W-X1-K20**	**C22S-DR-W-X1-K20**
	X1	1NO/1NC	**C22-DR-W-X1-K11**	**C22S-DR-W-X1-K11**
Buttonless	—	1NO	**C22-DR-X-K10**	**C22S-DR-X-K10**
	—	2NO	**C22-DR-X-K20**	**C22S-DR-X-K20**
	—	1NC	**C22-DR-X-K01**	**C22S-DR-X-K01**
	—	2NC	**C22-DR-X-K02**	**C22S-DR-X-K02**
	—	1NO/1NC	**C22-DR-X-K11**	**C22S-DR-X-K11**



Note: Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.

Non-Illuminated, Extended, Momentary

C22(S)-DH-_

Non-Illuminated Pushbuttons, Extended, Momentary

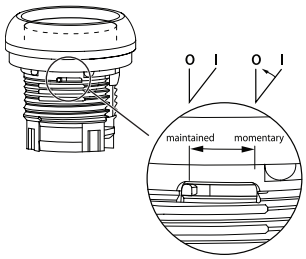
Button Colour	Button Etching	Contact Block Configuration	Silver Bezel Catalogue Number	Black Bezel Catalogue Number
Green	—	1NO	**C22-DH-G-K10**	**C22S-DH-G-K10**
	—	2NO	**C22-DH-G-K20**	**C22S-DH-G-K20**
	—	1NO/1NC	**C22-DH-G-K11**	**C22S-DH-G-K11**
	X1	1NO	**C22-DH-G-X1-K10**	**C22S-DH-G-X1-K10**
	X1	2NO	**C22-DH-G-X1-K20**	**C22S-DH-G-X1-K20**
	X1	1NO/1NC	**C22-DH-G-X1-K11**	**C22S-DH-G-X1-K11**
Red	—	1NC	**C22-DH-R-K01**	**C22S-DH-R-K01**
	—	2NC	**C22-DH-R-K02**	**C22S-DH-R-K02**
	—	1NO/1NC	**C22-DH-R-K11**	**C22S-DH-R-K11**
	X0	1NC	**C22-DH-R-X0-K01**	**C22S-DH-R-X0-K01**
	X0	2NC	**C22-DH-R-X0-K02**	**C22S-DH-R-X0-K02**
	X0	1NO/1NC	**C22-DH-R-X0-K11**	**C22S-DH-R-X0-K11**
Black	—	1NC	**C22-DH-S-K01**	**C22S-DH-S-K01**
	—	2NC	**C22-DH-S-K02**	**C22S-DH-S-K02**
	—	1NO/1NC	**C22-DH-S-K11**	**C22S-DH-S-K11**
	X0	1NC	**C22-DH-S-X0-K01**	**C22S-DH-S-X0-K01**
	X0	2NC	**C22-DH-S-X0-K02**	**C22S-DH-S-X0-K02**
	X0	1NO/1NC	**C22-DH-S-X0-K11**	**C22S-DH-S-X0-K11**
White	—	1NO	**C22-DH-W-K10**	**C22S-DH-W-K10**
	—	2NO	**C22-DH-W-K20**	**C22S-DH-W-K20**
	—	1NO/1NC	**C22-DH-W-K11**	**C22S-DH-W-K11**
	X1	1NO	**C22-DH-W-X1-K10**	**C22S-DH-W-X1-K10**
	X1	2NO	**C22-DH-W-X1-K20**	**C22S-DH-W-X1-K20**
	X1	1NO/1NC	**C22-DH-W-X1-K11**	**C22S-DH-W-X1-K11**

Non-Illuminated, Extended, Maintained

C22(S)-DRH-_

Non-Illuminated Pushbuttons, Extended, Maintained

Button Colour	Button Etching	Contact Block Configuration	Silver Bezel Catalogue Number	Black Bezel Catalogue Number
Green	—	1NO	**C22-DRH-G-K10**	**C22S-DRH-G-K10**
	—	2NO	**C22-DRH-G-K20**	**C22S-DRH-G-K20**
	—	1NO/1NC	**C22-DRH-G-K11**	**C22S-DRH-G-K11**
	X1	1NO	**C22-DRH-G-X1-K10**	**C22S-DRH-G-X1-K10**
	X1	2NO	**C22-DRH-G-X1-K20**	**C22S-DRH-G-X1-K20**
	X1	1NO/1NC	**C22-DRH-G-X1-K11**	**C22S-DRH-G-X1-K11**
Red	—	1NC	**C22-DRH-R-K01**	**C22S-DRH-R-K01**
	—	2NC	**C22-DRH-R-K02**	**C22S-DRH-R-K02**
	—	1NO/1NC	**C22-DRH-R-K11**	**C22S-DRH-R-K11**
	X0	1NC	**C22-DRH-R-X0-K01**	**C22S-DRH-R-X0-K01**
	X0	2NC	**C22-DRH-R-X0-K02**	**C22S-DRH-R-X0-K02**
	X0	1NO/1NC	**C22-DRH-R-X0-K11**	**C22S-DRH-R-X0-K11**
Black	—	1NC	**C22-DRH-S-K01**	**C22S-DRH-S-K01**
	—	2NC	**C22-DRH-S-K02**	**C22S-DRH-S-K02**
	—	1NO/1NC	**C22-DRH-S-K11**	**C22S-DRH-S-K11**
	X0	1NC	**C22-DRH-S-X0-K01**	**C22S-DRH-S-X0-K01**
	X0	2NC	**C22-DRH-S-X0-K02**	**C22S-DRH-S-X0-K02**
	X0	1NO/1NC	**C22-DRH-S-X0-K11**	**C22S-DRH-S-X0-K11**
White	—	1NO	**C22-DRH-W-K10**	**C22S-DRH-W-K10**
	—	2NO	**C22-DRH-W-K20**	**C22S-DRH-W-K20**
	—	1NO/1NC	**C22-DRH-W-K11**	**C22S-DRH-W-K11**
	X1	1NO	**C22-DRH-W-X1-K10**	**C22S-DRH-W-X1-K10**
	X1	2NO	**C22-DRH-W-X1-K20**	**C22S-DRH-W-X1-K20**
	X1	1NO/1NC	**C22-DRH-W-X1-K11**	**C22S-DRH-W-X1-K11**



Note: Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.

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Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Illuminated Pushbuttons

C22 - DL - G - X1 - K10 - 24

Bezel	Operator Type	LED/Lens Colour	Lens Etching	Contact Blocks	LED Voltage
C22 = Silver **C22S** = Black	**DL** = Illuminated, flush, momentary **DRL** = Illuminated, flush, maintained **DHL** = Illuminated, extended, momentary **DRHL** = Illuminated, extended, maintained	**G** = Green **R** = Red **W** = White **B** = Blue **XG** = Green without lens **XR** = Red without lens **XW** = White without lens **XB** = Blue without lens	**X0** = ◎ **X1** = ⓘ	**K10** = 1NO **K01** = 1NC	**24** = 24 Vac/Vdc **120** = 120 Vac **230** = 230 Vac

Product Selection

Illuminated, Flush, Momentary

C22(S)-DL-_

Illuminated Pushbuttons, Flush, Momentary

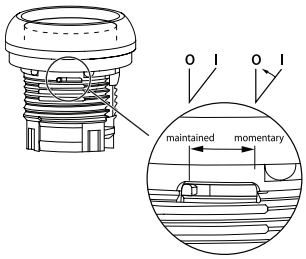
LED Colour	Button Colour	Voltage	Button Etching	Contact Block Configuration	Silver Bezel Catalogue Number	Black Bezel Catalogue Number
Green	Green	24 Vac/Vdc	—	1NO	**C22-DL-G-K10-24**	**C22S-DL-G-K10-24**
		120 Vac	—	1NO	**C22-DL-G-K10-120**	**C22S-DL-G-K10-120**
		230 Vac	—	1NO	**C22-DL-G-K10-230**	**C22S-DL-G-K10-230**
		24 Vac/Vdc	X1	1NO	**C22-DL-G-X1-K10-24**	**C22S-DL-G-X1-K10-24**
		120 Vac	X1	1NO	**C22-DL-G-X1-K10-120**	**C22S-DL-G-X1-K10-120**
		230 Vac	X1	1NO	**C22-DL-G-X1-K10-230**	**C22S-DL-G-X1-K10-230**
	Buttonless	24 Vac/Vdc	—	1NO	**C22-DL-XG-K10-24**	**C22S-DL-XG-K10-24**
		120 Vac	—	1NO	**C22-DL-XG-K10-120**	**C22S-DL-XG-K10-120**
		230 Vac	—	1NO	**C22-DL-XG-K10-230**	**C22S-DL-XG-K10-230**
Red	Red	24 Vac/Vdc	—	1NC	**C22-DL-R-K01-24**	**C22S-DL-R-K01-24**
		120 Vac	—	1NC	**C22-DL-R-K01-120**	**C22S-DL-R-K01-120**
		230 Vac	—	1NC	**C22-DL-R-K01-230**	**C22S-DL-R-K01-230**
		24 Vac/Vdc	X0	1NC	**C22-DL-R-X0-K01-24**	**C22S-DL-R-X0-K01-24**
		120 Vac	X0	1NC	**C22-DL-R-X0-K01-120**	**C22S-DL-R-X0-K01-120**
		230 Vac	X0	1NC	**C22-DL-R-X0-K01-230**	**C22S-DL-R-X0-K01-230**
	Buttonless	24 Vac/Vdc	—	1NC	**C22-DL-XR-K01-24**	**C22S-DL-XR-K01-24**
		120 Vac	—	1NC	**C22-DL-XR-K01-120**	**C22S-DL-XR-K01-120**
		230 Vac	—	1NC	**C22-DL-XR-K01-230**	**C22S-DL-XR-K01-230**
White	White	24 Vac/Vdc	—	1NO	**C22-DL-W-K10-24**	**C22S-DL-W-K10-24**
		120 Vac	—	1NO	**C22-DL-W-K10-120**	**C22S-DL-W-K10-120**
		230 Vac	—	1NO	**C22-DL-W-K10-230**	**C22S-DL-W-K10-230**
		24 Vac/Vdc	X1	1NO	**C22-DL-W-X1-K10-24**	**C22S-DL-W-X1-K10-24**
		120 Vac	X1	1NO	**C22-DL-W-X1-K10-120**	**C22S-DL-W-X1-K10-120**
		230 Vac	X1	1NO	**C22-DL-W-X1-K10-230**	**C22S-DL-W-X1-K10-230**
	Buttonless	24 Vac/Vdc	—	1NO	**C22-DL-XW-K10-24**	**C22S-DL-XW-K10-24**
		120 Vac	—	1NO	**C22-DL-XW-K10-120**	**C22S-DL-XW-K10-120**
		230 Vac	—	1NO	**C22-DL-XW-K10-230**	**C22S-DL-XW-K10-230**
Blue	Blue	24 Vac/Vdc	—	1NO	**C22-DL-B-K10-24**	**C22S-DL-B-K10-24**
		120 Vac	—	1NO	**C22-DL-B-K10-120**	**C22S-DL-B-K10-120**
		230 Vac	—	1NO	**C22-DL-B-K10-230**	**C22S-DL-B-K10-230**
	Buttonless	24 Vac/Vdc	—	1NO	**C22-DL-XB-K10-24**	**C22S-DL-XB-K10-24**
		120 Vac	—	1NO	**C22-DL-XB-K10-120**	**C22S-DL-XB-K10-120**
		230 Vac	—	1NO	**C22-DL-XB-K10-230**	**C22S-DL-XB-K10-230**

Illuminated, Flush, Maintained

C22(S)-DRL-_

Illuminated Pushbuttons, Flush, Maintained

LED Colour	Button Colour	Voltage	Contact Block Configuration	Silver Bezel Catalogue Number	Black Bezel Catalogue Number
Green	Green	24 Vac/Vdc	1NO	**C22-DRL-G-K10-24**	**C22S-DRL-G-K10-24**
		120 Vac	1NO	**C22-DRL-G-K10-120**	**C22S-DRL-G-K10-120**
		230 Vac	1NO	**C22-DRL-G-K10-230**	**C22S-DRL-G-K10-230**
	Buttonless	24 Vac/Vdc	1NO	**C22-DRL-XG-K10-24**	**C22S-DRL-XG-K10-24**
		120 Vac	1NO	**C22-DRL-XG-K10-120**	**C22S-DRL-XG-K10-120**
		230 Vac	1NO	**C22-DRL-XG-K10-230**	**C22S-DRL-XG-K10-230**
Red	Red	24 Vac/Vdc	1NC	**C22-DRL-R-K01-24**	**C22S-DRL-R-K01-24**
		120 Vac	1NC	**C22-DRL-R-K01-120**	**C22S-DRL-R-K01-120**
		230 Vac	1NC	**C22-DRL-R-K01-230**	**C22S-DRL-R-K01-230**
	Buttonless	24 Vac/Vdc	1NC	**C22-DRL-XR-K01-24**	**C22S-DRL-XR-K01-24**
		120 Vac	1NC	**C22-DRL-XR-K01-120**	**C22S-DRL-XR-K01-120**
		230 Vac	1NC	**C22-DRL-XR-K01-230**	**C22S-DRL-XR-K01-230**
White	White	24 Vac/Vdc	1NO	**C22-DRL-W-K10-24**	**C22S-DRL-W-K10-24**
		120 Vac	1NO	**C22-DRL-W-K10-120**	**C22S-DRL-W-K10-120**
		230 Vac	1NO	**C22-DRL-W-K10-230**	**C22S-DRL-W-K10-230**
	Buttonless	24 Vac/Vdc	1NO	**C22-DRL-XW-K10-24**	**C22S-DRL-XW-K10-24**
		120 Vac	1NO	**C22-DRL-XW-K10-120**	**C22S-DRL-XW-K10-120**
		230 Vac	1NO	**C22-DRL-XW-K10-230**	**C22S-DRL-XW-K10-230**
Blue	Blue	24 Vac/Vdc	1NO	**C22-DRL-B-K10-24**	**C22S-DRL-B-K10-24**
		120 Vac	1NO	**C22-DRL-B-K10-120**	**C22S-DRL-B-K10-120**
		230 Vac	1NO	**C22-DRL-B-K10-230**	**C22S-DRL-B-K10-230**
	Buttonless	24 Vac/Vdc	1NO	**C22-DRL-XB-K10-24**	**C22S-DRL-XB-K10-24**
		120 Vac	1NO	**C22-DRL-XB-K10-120**	**C22S-DRL-XB-K10-120**
		230 Vac	1NO	**C22-DRL-XB-K10-230**	**C22S-DRL-XB-K10-230**



Note: Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.

Illuminated, Extended, Momentary

C22(S)-DLH-_

Illuminated Pushbuttons, Extended, Momentary

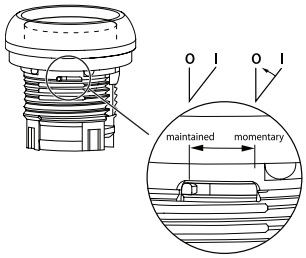
LED Colour	Button Colour	Voltage	Button Etching	Contact Block Configuration	Silver Bezel Catalogue Number	Black Bezel Catalogue Number
Green	Green	24 Vac/Vdc	—	1NO	**C22-DLH-G-K10-24**	**C22S-DLH-G-K10-24**
		120 Vac	—	1NO	**C22-DLH-G-K10-120**	**C22S-DLH-G-K10-120**
		230 Vac	—	1NO	**C22-DLH-G-K10-230**	**C22S-DLH-G-K10-230**
		24 Vac/Vdc	X1	1NO	**C22-DLH-G-X1-K10-24**	**C22S-DLH-G-X1-K10-24**
		120 Vac	X1	1NO	**C22-DLH-G-X1-K10-120**	**C22S-DLH-G-X1-K10-12**
		230 Vac	X1	1NO	**C22-DLH-G-X1-K10-230**	**C22S-DLH-G-X1-K10-23**
Red	Red	24 Vac/Vdc	—	1NC	**C22-DLH-R-K01-24**	**C22S-DLH-R-K01-24**
		120 Vac	—	1NC	**C22-DLH-R-K01-120**	**C22S-DLH-R-K01-120**
		230 Vac	—	1NC	**C22-DLH-R-K01-230**	**C22S-DLH-R-K01-230**
		24 Vac/Vdc	X0	1NC	**C22-DLH-R-X0-K01-24**	**C22S-DLH-R-X0-K01-24**
		120 Vac	X0	1NC	**C22-DLH-R-X0-K01-120**	**C22S-DLH-R-X0-K01-12**
		230 Vac	X0	1NC	**C22-DLH-R-X0-K01-230**	**C22S-DLH-R-X0-K01-23**
White	White	24 Vac/Vdc	—	1NO	**C22-DLH-W-K10-24**	**C22S-DLH-W-K10-24**
		120 Vac	—	1NO	**C22-DLH-W-K10-120**	**C22S-DLH-W-K10-120**
		230 Vac	—	1NO	**C22-DLH-W-K10-230**	**C22S-DLH-W-K10-230**
		24 Vac/Vdc	X1	1NO	**C22-DLH-W-X1-K10-24**	**C22S-DLH-W-X1-K10-24**
		120 Vac	X1	1NO	**C22-DLH-W-X1-K10-120**	**C22S-DLH-W-X1-K10-12**
		230 Vac	X1	1NO	**C22-DLH-W-X1-K10-230**	**C22S-DLH-W-X1-K10-23**
Blue	Blue	24 Vac/Vdc	—	1NO	**C22-DLH-B-K10-24**	**C22S-DLH-B-K10-24**
		120 Vac	—	1NO	**C22-DLH-B-K10-120**	**C22S-DLH-B-K10-120**
		230 Vac	—	1NO	**C22-DLH-B-K10-230**	**C22S-DLH-B-K10-230**

Illuminated, Extended, Maintained

C22(S)-DRLH-_

Illuminated Pushbuttons, Flush, Maintained

LED Colour	Button Colour	Voltage	Button Etching	Contact Block Configuration	Silver Bezel Catalogue Number	Black Bezel Catalogue Number
Green	Green	24 Vac/Vdc	—	1NO	**C22-DRLH-G-K10-24**	**C22S-DRLH-G-K10-24**
		120 Vac	—	1NO	**C22-DRLH-G-K10-120**	**C22S-DRLH-G-K10-120**
		230 Vac	—	1NO	**C22-DRLH-G-K10-230**	**C22S-DRLH-G-K10-230**
		24 Vac/Vdc	X1	1NO	**C22-DRLH-G-X1-K10-24**	**C22S-DRLH-G-X1-K10-24**
		120 Vac	X1	1NO	**C22-DRLH-G-X1-K10-120**	**C22S-DRLH-G-X1-K10-120**
		230 Vac	X1	1NO	**C22-DRLH-G-X1-K10-230**	**C22S-DRLH-G-X1-K10-230**
Red	Red	24 Vac/Vdc	—	1NC	**C22-DRLH-R-K01-24**	**C22S-DRLH-R-K01-24**
		120 Vac	—	1NC	**C22-DRLH-R-K01-120**	**C22S-DRLH-R-K01-120**
		230 Vac	—	1NC	**C22-DRLH-R-K01-230**	**C22S-DRLH-R-K01-230**
		24 Vac/Vdc	X0	1NC	**C22-DRLH-R-X0-K01-24**	**C22S-DRLH-R-X0-K01-24**
		120 Vac	X0	1NC	**C22-DRLH-R-X0-K01-120**	**C22S-DRLH-R-X0-K01-120**
		230 Vac	X0	1NC	**C22-DRLH-R-X0-K01-230**	**C22S-DRLH-R-X0-K01-230**
White	White	24 Vac/Vdc	—	1NO	**C22-DRLH-W-K10-24**	**C22S-DRLH-W-K10-24**
		120 Vac	—	1NO	**C22-DRLH-W-K10-120**	**C22S-DRLH-W-K10-120**
		230 Vac	—	1NO	**C22-DRLH-W-K10-230**	**C22S-DRLH-W-K10-230**
		24 Vac/Vdc	X1	1NO	**C22-DRLH-W-X1-K10-24**	**C22S-DRLH-W-X1-K10-24**
		120 Vac	X1	1NO	**C22-DRLH-W-X1-K10-120**	**C22S-DRLH-W-X1-K10-120**
		230 Vac	X1	1NO	**C22-DRLH-W-X1-K10-230**	**C22S-DRLH-W-X1-K10-230**
Blue	Blue	24 Vac/Vdc	—	1NO	**C22-DRLH-B-K10-24**	**C22S-DRLH-B-K10-24**
		120 Vac	—	1NO	**C22-DRLH-B-K10-120**	**C22S-DRLH-B-K10-120**
		230 Vac	—	1NO	**C22-DRLH-B-K10-230**	**C22S-DRLH-B-K10-230**



Note: Maintained pushbuttons can be converted in the field to momentary operation by switching the locking ring, which is accessible through the side of the operator body.

Indicating Lights

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Indicating Lights

Product Description

C22 indicating lights use a combination of a durable, bright LED unit and modern lenses designed specifically for this type of LED to create a bright and visible indicating light. As with the pushbuttons, the indicating light lenses can be laser etched, simply order without lens and order M22/C22 custom etched lenses to attach.

Note: For additional accessories, please see section 37.4 Modular Pushbuttons—M22 of this catalogue.

Features

- LED offering only for improved brightness quality and up to 100,000 hours of operation
- Lenses specifically designed for LED illumination
- Lenses capable of being laser etched for custom solutions that last

Protection Type

- IP67/IP69K
- NEMA 4X, 13

Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Indicating Lights

C22 - L - G - 24

Bezel	LED/Lens Colour	LED Voltage
C22-L = Flush indicating light	**G** = Green **R** = Red **W** = White **Y** = Yellow **B** = Blue **XG** = Green without lens **XR** = Red without lens **XW** = White without lens ① **XB** = Blue without lens	**24** = 24 Vac/Vdc **120** = 120 Vac **230** = 230 Vac

Product Selection

Indicating Lights

C22-L-_

Indicating Lights

Lens Colour	LED Colour	Voltage	Catalogue Number
Green	Green	24 Vac/Vdc	**C22-L-G-24**
		120 Vac	**C22-L-G-120**
		230 Vac	**C22-L-G-230**
Red	Red	24 Vac/Vdc	**C22-L-R-24**
		120 Vac	**C22-L-R-120**
		230 Vac	**C22-L-R-230**
White	White	24 Vac/Vdc	**C22-L-W-24**
		120 Vac	**C22-L-W-120**
		230 Vac	**C22-L-W-230**
Yellow	White	24 Vac/Vdc	**C22-L-Y-24**
		120 Vac	**C22-L-Y-120**
		230 Vac	**C22-L-Y-230**
Blue	Blue	24 Vac/Vdc	**C22-L-B-24**
		120 Vac	**C22-L-B-120**
		230 Vac	**C22-L-B-230**
Without Lens	Green	24 Vac/Vdc	**C22-L-XG-24**
		120 Vac	**C22-L-XG-120**
		230 Vac	**C22-L-XG-230**
	Red	24 Vac/Vdc	**C22-L-XR-24**
		120 Vac	**C22-L-XR-120**
		230 Vac	**C22-L-XR-230**
	White	24 Vac/Vdc	**C22-L-XW-24**
		120 Vac	**C22-L-XW-120**
		230 Vac	**C22-L-XW-230**
	Blue	24 Vac/Vdc	**C22-L-XB-24**
		120 Vac	**C22-L-XB-120**
		230 Vac	**C22-L-XB-230**

Note

① Use white LED for both white and yellow lenses.

Emergency Stops

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Emergency Stops

Product Description

C22 emergency stops are a durable and reliable solution to a variety of e-stop applications. This compact e-stop, available as twist-to-release and keyed-release, is a simple product that eliminates the need for self-monitoring contact blocks, all while still meeting almost all of the industry safety standards.

Note: For additional accessories, please see section 37.4 Modular Pushbuttons—M22 of this catalogue.

Features

- Available in both twist-release and keyed-release with either 45 mm or 60 mm operators

Protection Type

- Twist-Release
  - IP67/IP69K
- Keyed-Release
  - IP66
- NEMA 4X, 13

Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Emergency Stops

C22 - PVS45P - MS1 - K01

Operator Type	Key Code	Contact Blocks
PVT45P = Twist-release, 45 mm **PVT60P** = Twist-release, 60 mm **PVS45P** = Key-release, 45 mm **PVS60P** = Key-release, 60 mm	**MS1** = MS1 **MS2** = MS2 **MS3** = MS3 **MS4** = MS4 **MS5** = MS5 **MS6** = MS6 **MS7** = MS7 **MS8** = MS8 **RS** = Ronis-445	**K02** = 2NC **K11** = 1NO/1NC

Product Selection

Non-Illuminated, Twist-Release

C22-PVT_

Non-Illuminated Emergency Stops, Twist-Release

Release Method	Operator Size	Contact Block Configuration	Catalogue Number
Twist-release	45 mm	2NC	**C22-PVT45P-K02**
		1NO/1NC	**C22-PVT45P-K11**
	60 mm	2NC	**C22-PVT60P-K02**
		1NO/1NC	**C22-PVT60P-K11**

Non-Illuminated, Keyed-Release

C22-PVS_

Non-Illuminated Emergency Stops, Keyed-Release

Release Method	Operator Size	Key Code	Contact Block Configuration	Catalogue Number
Keyed-release	45 mm	MS1	2NC	**C22-PVS45P-MS1-K02**
			1NO/1NC	**C22-PVS45P-MS1-K11**
		MS2	2NC	**C22-PVS45P-MS2-K02**
			1NO/1NC	**C22-PVS45P-MS2-K11**
		MS3	2NC	**C22-PVS45P-MS3-K02**
			1NO/1NC	**C22-PVS45P-MS3-K11**
		MS4	2NC	**C22-PVS45P-MS4-K02**
			1NO/1NC	**C22-PVS45P-MS4-K11**
		MS5	2NC	**C22-PVS45P-MS5-K02**
			1NO/1NC	**C22-PVS45P-MS5-K11**
		MS6	2NC	**C22-PVS45P-MS6-K02**
			1NO/1NC	**C22-PVS45P-MS6-K11**
		MS7	2NC	**C22-PVS45P-MS7-K02**
			1NO/1NC	**C22-PVS45P-MS7-K11**
		MS8	2NC	**C22-PVS45P-MS8-K02**
			1NO/1NC	**C22-PVS45P-MS8-K11**
		Ronis	2NC	**C22-PVS45P-RS-K02**
			1NO/1NC	**C22-PVS45P-RS-K11**

C22-PVS_

Non-Illuminated Emergency Stops, Keyed-Release, continued

Release Method	Operator Size	Key Code	Contact Block Configuration	Catalogue Number
Keyed-release	60 mm	MS1	2NC	**C22-PVS60P-MS1-K02**
			1NO/1NC	**C22-PVS60P-MS1-K11**
		MS2	2NC	**C22-PVS60P-MS2-K02**
			1NO/1NC	**C22-PVS60P-MS2-K11**
		MS3	2NC	**C22-PVS60P-MS3-K02**
			1NO/1NC	**C22-PVS60P-MS3-K11**
		MS4	2NC	**C22-PVS60P-MS4-K02**
			1NO/1NC	**C22-PVS60P-MS4-K11**
		MS5	2NC	**C22-PVS60P-MS5-K02**
			1NO/1NC	**C22-PVS60P-MS5-K11**
		MS6	2NC	**C22-PVS60P-MS6-K02**
			1NO/1NC	**C22-PVS60P-MS6-K11**
		MS7	2NC	**C22-PVS60P-MS7-K02**
			1NO/1NC	**C22-PVS60P-MS7-K11**
		MS8	2NC	**C22-PVS60P-MS8-K02**
			1NO/1NC	**C22-PVS60P-MS8-K11**
		Ronis	2NC	**C22-PVS60P-RS-K02**
			1NO/1NC	**C22-PVS60P-RS-K11**

Selector Switches

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Selector Switches

Product Description

With over 20 variations of operation and 8 varieties of key codes, the C22 line offers a very complete line of selector switches.

Note: For additional accessories, please see section 37.4 Modular Pushbuttons—M22 of this catalogue.

Features

- Selector switch (non-keyed) rated for 1 million mechanical operations
- Momentary selector switches are field convertible from momentary to maintained

Protection Type

- IP65
- NEMA 4X, 13

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Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Selector Switches—Non-Keyed

C22 - WK - K10

Bezel	Operator Type	Contact Blocks
C22 = Silver **C22S** = Black	**WK** = 2-position, momentary **WKV** = 2-position, momentary, "V" position **WRK** = 2-position, maintained **WRKV** = 2-position, maintained, "V" position **WK3** = 3-position, momentary **WRK3** = 3-position, maintained	**K10** = 1NO **K20** = 2NO **K01** = 1NC **K02** = 2NC **K11** = 1NO/1NC

Product Selection

Non-Illuminated, Knob Type

C22(S)-WK-_/
C22(S)-WRK_

Non-Illuminated Selector Switches, Knob Type

Type	Switching Position	Contact Block Configuration	Silver Bezel Catalogue Number	Black Bezel Catalogue Number
Two-position	Momentary 40°	1NO	**C22-WK-K10**	**C22S-WK-K10**
		2NO	**C22-WK-K20**	**C22S-WK-K20**
		1NC	**C22-WK-K01**	**C22S-WK-K01**
		2NC	**C22-WK-K02**	**C22S-WK-K02**
		1NO/1NC	**C22-WK-K11**	**C22S-WK-K11**
	Momentary 60°	1NO	**C22-WKV-K10**	**C22S-WKV-K10**
		2NO	**C22-WKV-K20**	**C22S-WKV-K20**
		1NC	**C22-WKV-K01**	**C22S-WKV-K01**
		2NC	**C22-WKV-K02**	**C22S-WKV-K02**
		1NO/1NC	**C22-WKV-K11**	**C22S-WKV-K11**
	Maintained 40°	1NO	**C22-WRK-K10**	**C22S-WRK-K10**
		2NO	**C22-WRK-K20**	**C22S-WRK-K20**
		1NC	**C22-WRK-K01**	**C22S-WRK-K01**
		2NC	**C22-WRK-K02**	**C22S-WRK-K02**
		1NO/1NC	**C22-WRK-K11**	**C22S-WRK-K11**
	Maintained 60°	1NO	**C22-WRKV-K10**	**C22S-WRKV-K10**
		2NO	**C22-WRKV-K20**	**C22S-WRKV-K20**
		1NC	**C22-WRKV-K01**	**C22S-WRKV-K01**
		2NC	**C22-WRKV-K02**	**C22S-WRKV-K02**
		1NO/1NC	**C22-WRKV-K11**	**C22S-WRKV-K11**
Three-position	Momentary 40° 40°	2NO	**C22-WK3-K20**	**C22S-WK3-K20**
		2NC	**C22-WK3-K02**	**C22S-WK3-K02**
		1NO/1NC	**C22-WK3-K11**	**C22S-WK3-K11**
	Maintained 60° 60°	2NO	**C22-WRK3-K20**	**C22S-WRK3-K20**
		2NC	**C22-WRK3-K02**	**C22S-WRK3-K02**
		1NO/1NC	**C22-WRK3-K11**	**C22S-WRK3-K11**

Note: Momentary selector switches can be field converted to maintained.

Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Selector Switches—Keyed

C22 - WS - MS1 - A1 - K10
①

Bezel	Operator Type	Key Code	Contact Blocks
C22 = Silver **C22S** = Black	**WS** = 2-position, momentary **WRS** = 2-position, maintained **WRS-…-A1** ① = 2-position, maintained, key removal left **WS3** = 3-position, momentary **WRS3** = 3-position, maintained	**MS1** = MS1 **MS2** = MS2 **MS3** = MS3 **MS4** = MS4 **MS5** = MS5 **MS6** = MS6 **MS7** = MS7 **MS8** = MS8	**K10** = 1NO **K20** = 2NO **K01** = 1NC **K02** = 2NC **K11** = 1NO/1NC

Non-Illuminated, Key Operated

C22(S)-WS-MS_

Non-Illuminated Selector Switches, Key Operated

Position	Type	Key Code	Contact Block Configuration	Silver Bezel Catalogue Number	Black Bezel Catalogue Number
Two-position	Momentary key removal left 40°	MS1	1NO	**C22-WS-MS1-K10**	**C22S-WS-MS1-K10**
			2NO	**C22-WS-MS1-K20**	**C22S-WS-MS1-K20**
			1NC	**C22-WS-MS1-K01**	**C22S-WS-MS1-K01**
			2NC	**C22-WS-MS1-K02**	**C22S-WS-MS1-K02**
			1NO/1NC	**C22-WS-MS1-K11**	**C22S-WS-MS1-K11**
		MS2	1NO	**C22-WS-MS2-K10**	**C22S-WS-MS2-K10**
			2NO	**C22-WS-MS2-K20**	**C22S-WS-MS2-K20**
			1NC	**C22-WS-MS2-K01**	**C22S-WS-MS2-K01**
			2NC	**C22-WS-MS2-K02**	**C22S-WS-MS2-K02**
			1NO/1NC	**C22-WS-MS2-K11**	**C22S-WS-MS2-K11**
		MS3	1NO	**C22-WS-MS3-K10**	**C22S-WS-MS3-K10**
			2NO	**C22-WS-MS3-K20**	**C22S-WS-MS3-K20**
			1NC	**C22-WS-MS3-K01**	**C22S-WS-MS3-K01**
			2NC	**C22-WS-MS3-K02**	**C22S-WS-MS3-K02**
			1NO/1NC	**C22-WS-MS3-K11**	**C22S-WS-MS3-K11**
		MS4	1NO	**C22-WS-MS4-K10**	**C22S-WS-MS4-K10**
			2NO	**C22-WS-MS4-K20**	**C22S-WS-MS4-K20**
			1NC	**C22-WS-MS4-K01**	**C22S-WS-MS4-K01**
			2NC	**C22-WS-MS4-K02**	**C22S-WS-MS4-K02**
			1NO/1NC	**C22-WS-MS4-K11**	**C22S-WS-MS4-K11**
		MS5	1NO	**C22-WS-MS5-K10**	**C22S-WS-MS5-K10**
			2NO	**C22-WS-MS5-K20**	**C22S-WS-MS5-K20**
			1NC	**C22-WS-MS5-K01**	**C22S-WS-MS5-K01**
			2NC	**C22-WS-MS5-K02**	**C22S-WS-MS5-K02**
			1NO/1NC	**C22-WS-MS5-K11**	**C22S-WS-MS5-K11**

Note: Momentary selector switches can be field converted to maintained.

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C22(S)-WRS-MS_

Non-Illuminated Selector Switches, Key Operated, continued

Position	Type	Key Code	Contact Block Configuration	Silver Bezel Catalogue Number	Black Bezel Catalogue Number
Two-position, continued	Momentary key removal left 40°	MS6	1NO	**C22-WS-MS6-K10**	**C22S-WS-MS6-K10**
			2NO	**C22-WS-MS6-K20**	**C22S-WS-MS6-K20**
			1NC	**C22-WS-MS6-K01**	**C22S-WS-MS6-K01**
			2NC	**C22-WS-MS6-K02**	**C22S-WS-MS6-K02**
			1NO/1NC	**C22-WS-MS6-K11**	**C22S-WS-MS6-K11**
		MS7	1NO	**C22-WS-MS7-K10**	**C22S-WS-MS7-K10**
			2NO	**C22-WS-MS7-K20**	**C22S-WS-MS7-K20**
			1NC	**C22-WS-MS7-K01**	**C22S-WS-MS7-K01**
			2NC	**C22-WS-MS7-K02**	**C22S-WS-MS7-K02**
			1NO/1NC	**C22-WS-MS7-K11**	**C22S-WS-MS7-K11**
		MS8	1NO	**C22-WS-MS8-K10**	**C22S-WS-MS8-K10**
			2NO	**C22-WS-MS8-K20**	**C22S-WS-MS8-K20**
			1NC	**C22-WS-MS8-K01**	**C22S-WS-MS8-K01**
			2NC	**C22-WS-MS8-K02**	**C22S-WS-MS8-K02**
			1NO/1NC	**C22-WS-MS8-K11**	**C22S-WS-MS8-K11**
Two-position	Maintained key removal left/right 40°	MS1	1NO	**C22-WRS-MS1-K10**	**C22S-WRS-MS1-K10**
			2NO	**C22-WRS-MS1-K20**	**C22S-WRS-MS1-K20**
			1NC	**C22-WRS-MS1-K01**	**C22S-WRS-MS1-K01**
			2NC	**C22-WRS-MS1-K02**	**C22S-WRS-MS1-K02**
			1NO/1NC	**C22-WRS-MS1-K11**	**C22S-WRS-MS1-K11**
		MS2	1NO	**C22-WRS-MS2-K10**	**C22S-WRS-MS2-K10**
			2NO	**C22-WRS-MS2-K20**	**C22S-WRS-MS2-K20**
			1NC	**C22-WRS-MS2-K01**	**C22S-WRS-MS2-K01**
			2NC	**C22-WRS-MS2-K02**	**C22S-WRS-MS2-K02**
			1NO/1NC	**C22-WRS-MS2-K11**	**C22S-WRS-MS2-K11**
		MS3	1NO	**C22-WRS-MS3-K10**	**C22S-WRS-MS3-K10**
			2NO	**C22-WRS-MS3-K20**	**C22S-WRS-MS3-K20**
			1NC	**C22-WRS-MS3-K01**	**C22S-WRS-MS3-K01**
			2NC	**C22-WRS-MS3-K02**	**C22S-WRS-MS3-K02**
			1NO/1NC	**C22-WRS-MS3-K11**	**C22S-WRS-MS3-K11**

Note: Momentary selector switches can be field converted to maintained.

C22(S)-WRS…-MS1_

Non-Illuminated Selector Switches, Key Operated, continued

Position	Type	Key Code	Contact Block Configuration	Silver Bezel Catalogue Number	Black Bezel Catalogue Number
Two-position, continued	Maintained key removal left/right 40°	MS4	1NO	**C22-WRS-MS4-K10**	**C22S-WRS-MS4-K10**
			2NO	**C22-WRS-MS4-K20**	**C22S-WRS-MS4-K20**
			1NC	**C22-WRS-MS4-K01**	**C22S-WRS-MS4-K01**
			2NC	**C22-WRS-MS4-K02**	**C22S-WRS-MS4-K02**
			1NO/1NC	**C22-WRS-MS4-K11**	**C22S-WRS-MS4-K11**
		MS5	1NO	**C22-WRS-MS5-K10**	**C22S-WRS-MS5-K10**
			2NO	**C22-WRS-MS5-K20**	**C22S-WRS-MS5-K20**
			1NC	**C22-WRS-MS5-K01**	**C22S-WRS-MS5-K01**
			2NC	**C22-WRS-MS5-K02**	**C22S-WRS-MS5-K02**
			1NO/1NC	**C22-WRS-MS5-K11**	**C22S-WRS-MS5-K11**
		MS6	1NO	**C22-WRS-MS6-K10**	**C22S-WRS-MS6-K10**
			2NO	**C22-WRS-MS6-K20**	**C22S-WRS-MS6-K20**
			1NC	**C22-WRS-MS6-K01**	**C22S-WRS-MS6-K01**
			2NC	**C22-WRS-MS6-K02**	**C22S-WRS-MS6-K02**
			1NO/1NC	**C22-WRS-MS6-K11**	**C22S-WRS-MS6-K11**
		MS7	1NO	**C22-WRS-MS7-K10**	**C22S-WRS-MS7-K10**
			2NO	**C22-WRS-MS7-K20**	**C22S-WRS-MS7-K20**
			1NC	**C22-WRS-MS7-K01**	**C22S-WRS-MS7-K01**
			2NC	**C22-WRS-MS7-K02**	**C22S-WRS-MS7-K02**
			1NO/1NC	**C22-WRS-MS7-K11**	**C22S-WRS-MS7-K11**
		MS8	1NO	**C22-WRS-MS7-K10**	**C22S-WRS-MS7-K10**
			2NO	**C22-WRS-MS7-K20**	**C22S-WRS-MS7-K20**
			1NC	**C22-WRS-MS7-K01**	**C22S-WRS-MS7-K01**
			2NC	**C22-WRS-MS7-K02**	**C22S-WRS-MS7-K02**
			1NO/1NC	**C22-WRS-MS7-K11**	**C22S-WRS-MS7-K11**
Two-position	Maintained key removal left 40°	MS1	1NO	**C22-WRS-MS1-A1-K10**	**C22S-WRS-MS1-A1-K10**
			2NO	**C22-WRS-MS1-A1-K20**	**C22S-WRS-MS1-A1-K20**
			1NC	**C22-WRS-MS1-A1-K01**	**C22S-WRS-MS1-A1-K01**
			2NC	**C22-WRS-MS1-A1-K02**	**C22S-WRS-MS1-A1-K02**
			1NO/1NC	**C22-WRS-MS1-A1-K11**	**C22S-WRS-MS1-A1-K11**
Three Position	Momentary Key Removal Centre 40° 40°	MS1	2NO	**C22-WS3-MS1-K20**	**C22S-WS3-MS1-K20**
			2NC	**C22-WS3-MS1-K02**	**C22S-WS3-MS1-K02**
			1NO/1NC	**C22-WS3-MS1-K11**	**C22S-WS3-MS1-K11**
	Maintained Key Removal Left/Right 60° 60°	MS1	2NO	**C22-WRS3-MS1-K20**	**C22S-WRS3-MS1-K20**
			2NC	**C22-WRS3-MS1-K02**	**C22S-WRS3-MS1-K02**
			1NO/1NC	**C22-WRS3-MS1-K11**	**C22S-WRS3-MS1-K11**

Note: Momentary selector switches can be field converted to maintained.

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Technical Data and Specifications

22.5 mm Compact Pushbuttons—C22

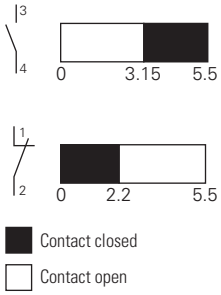
Description	Unit		Pushbutton Actuators Illuminated Pushbuttons C22 Momentary	Maintained	Indicator Lights C22	Selector Switch Actuators C22	Key-Operated Buttons C22	Emergency Stop/ Emergency Switching OFF Pushbuttons C22
General								
Standards					IEC/EN 60947 VDE 0660			
Lifespan, mechanical	Operations	x 10^6	5	1	—	1	0.1	0.05
Operating frequency	Operations/h		≥3600	≥3600	—	≥2000	≥100	≥300
Actuating force		N	≥5	≥5	—	—	—	≥50
Operating torque		Nm	—	—	—	≥0.3	≥0.5	—
Terminal screw tightening torque		Nm	0.8	0.8	0.8	0.8	0.8	0.8
Threaded ring tightening torque		Nm	2	2	2	2	2	2
Protection type			IP67, IP69K	IP67, IP69K	IP67, IP69K	IP65	IP66	IP67, IP69K
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30					
Ambient temperature								
Open		°C	–25° to 70°	–25° to 70°	–25° to 70°	–25° to 70°	–25° to 70°	–25° to 70°
Storage		°C	–30° to 80°	–30° to 80°	–30° to 80°	–30° to 80°	–30° to 80°	–30° to 80°
Mounting position			As required	As required	As required	As required	As required	As required
Mechanical shock resistance to IEC 60068-2-27 Shock duration 11 ms, half-sinusoidal		g	30	30	30	30	30	30
Terminal capacities								
Solid		mm^2	2 x 0.5–1.5	2 x 0.5–1.5	2 x 0.5–1.5	2 x 0.5–1.5	2 x 0.5–1.5	2 x 0.5–1.5
Flexible with ferrule		mm^2	2 x 0.5–1.5	2 x 0.5–1.5	2 x 0.5–1.5	2 x 0.5–1.5	2 x 0.5–1.5	2 x 0.5–1.5
Contacts								
Rated impulse withstand voltage	U_{imp}	Vac	4000	4000	4000	4000	4000	4000
Rated insulation voltage	U_i	V	250	250	250	250	250	250
Overvoltage category/pollution degree			III/3	III/3	III/3	III/3	III/3	III/3
Control circuit reliability								
at 5 Vdc/1 mA	H_F	Fault probability	Values follow	Values follow	—	Values follow	Values follow	Values follow
at 17 Vdc/7 mA	H_F	Fault probability	N/O contact: statistically determined 1 failure per 17 x 106 operations N/C contact: statistically determined 1 failure per 0.9 x 10^6 operations		—	N/O contact: statistically determined 1 failure per 17 x 106 operations N/C contact: statistically determined 1 failure per 0.9 x 10^6 operations		
at 24 Vdc/5 mA	H_F	Fault probability	Values follow	Values follow	—	Values follow	Values follow	Values follow
Max. short-circuit protective device								
Fuse	gG/gL	A	10	10	—	10	10	10

22.5 mm Compact Pushbuttons—C22, continued

Description	Unit		Push-button Actuators Illuminated Pushbuttons C22 Momentary	Maintained	Indicator Lights C22	Selector Switch Actuators C22	Key-Operated Buttons C22	Emergency Stop/ Emergency Switching OFF Pushbuttons C22
Switching Capacity								
Rated operational current								
AC-15								
24V	I_e	A	4	4	—	4	4	4
110V	I_e	A	2	2	—	2	2	2
230V	I_e	A	1.5	1.5	—	1.5	1.5	1.5
DC-13								
24V	I_e	A	3	3	—	3	3	3
60V	I_e	A	1	1	—	1	1	1
110V	I_e	A	0.6	0.6	—	0.6	0.6	0.6
220V	I_e	A	0.3	0.3	—	0.3	0.3	0.3
Lifespan, electrical								
AC-15								
230V/0.5A	Operations	x 10^6	0.4	0.4	—	0.4	0.4	0.4
230V/1.0A		x 10^6	0.6	0.6	—	0.6	0.6	0.6

Contact Travel

Contact Travel Diagram



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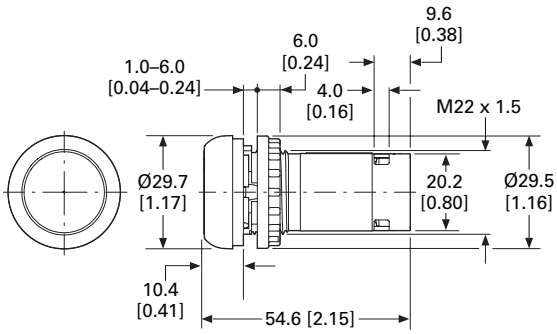
Dimensions

Approximate Dimensions in mm [in]

Illuminated Pushbuttons

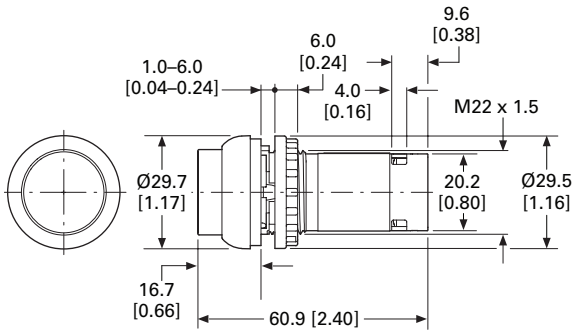
Flat

C22(S)-DRL_/C22(S)-DL_



Extended

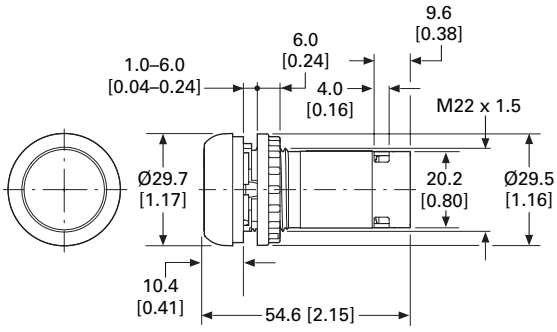
C22(S)-DRLH_/C22(S)-DLH_



Pushbutton Actuators

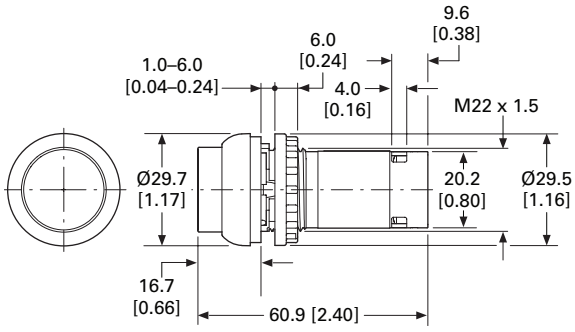
Flat

C22(S)-DR_/C22(S)-D_



Extended

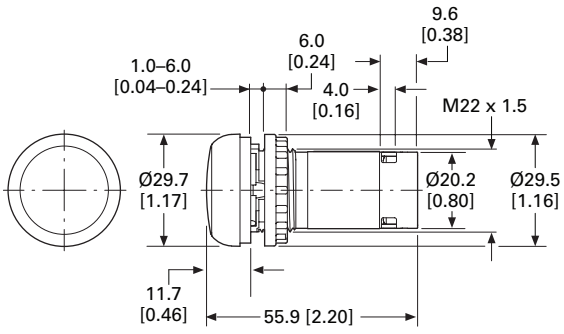
C22(S)-DRH_/C22(S)-DH_



Indicating Lights

Flat

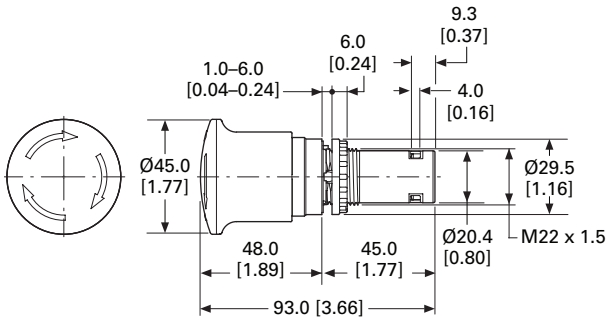
C22-L_



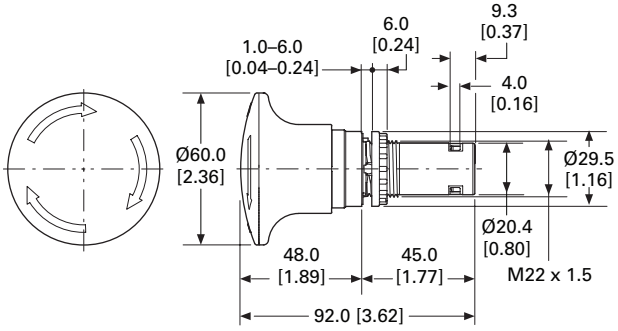
Approximate Dimensions in mm [in]

Emergency Stop/Emergency Switching OFF Pushbuttons

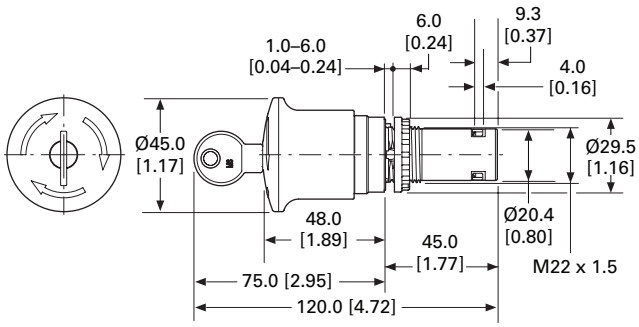
C22-PVT45P_



C22-PVT60P_



C22-PVT45P-MS_



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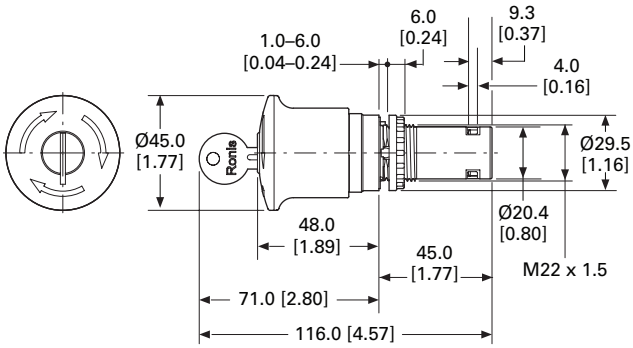
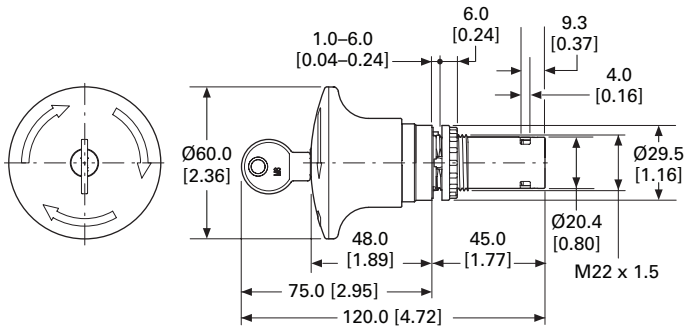
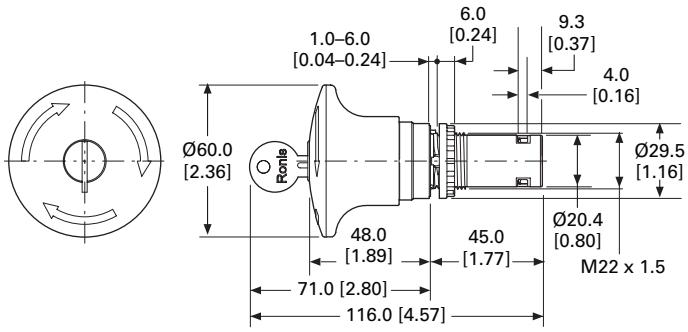


C22-PVT60P-MS_



C22-PVT60P-MS_



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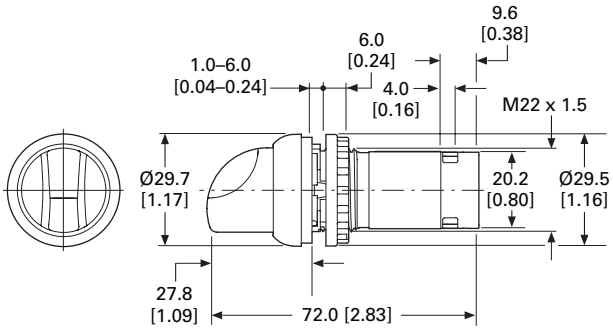
Approximate Dimensions in mm [in]

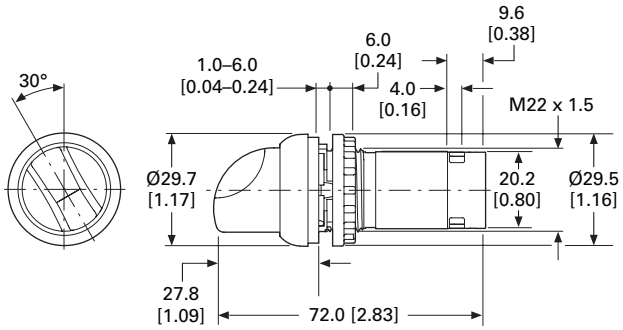
Selector Switch Actuators

C22(S)-W(R)K_



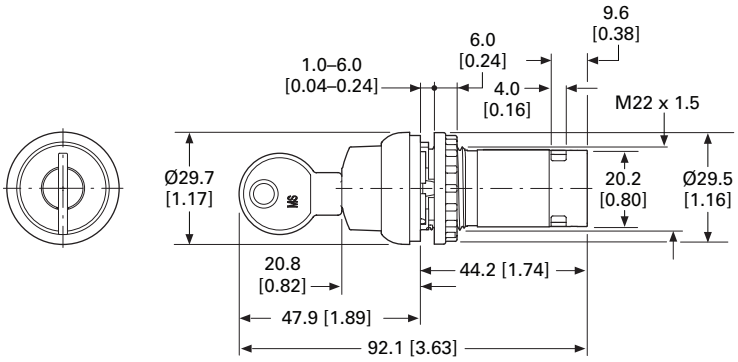
Selector Switch Actuators/V Position

C22(S)-W(R)KV_

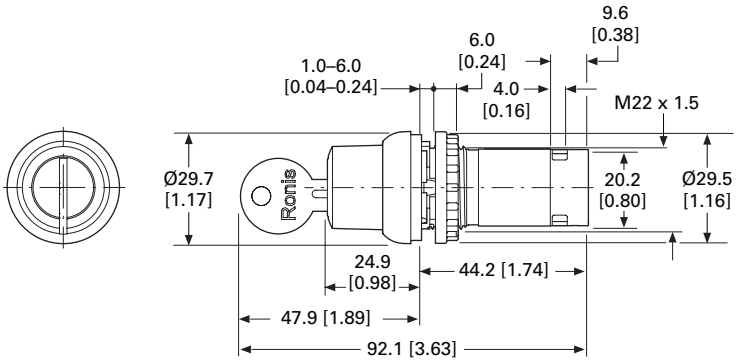


Key Operated Actuators

C22(S)-WS(3)-MS_/C22(S)-WRS(3)-MS_



C22(S)-WS(3)-RS_/C22(S)-WRS(3)-RS_



30.5 mm Square Multifunction Watertight/Oiltight—E30

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Product Description

The E30 industrial pushbutton and indicating light line from Eaton's electrical sector features a wide selection of square, multifunction operators which conveniently mount in a standard 30.5 mm (1-13/64 in) diameter panel hole. Up to six input and indicating functions can be grouped into a single operating head, saving valuable panel space. Attractive square operator styling, coupled with custom legending of colored buttons and lenses and many special function accessories, makes E30 components ideally suited for use on control consoles and for a variety of industrial OEM applications.

Features

Type E30 control units consist of a basic operator with one or more buttons and lenses and contact block selection dependent on the specific operator configuration.

- **Pushbutton operators** will accommodate up to four single depth stackable contact blocks behind each operating button, up to eight circuits maximum.
- **Indicating lights** are supplied complete with either a transformer light unit up to 600 Vac supply line voltage or full voltage light unit up to 120 Vac/Vdc supply line voltage.
- **Combination pushbutton with indicating light** operators are supplied complete with a transformer or full voltage unit. Contact blocks must be ordered separately, up to four circuits maximum.

Die Cast Construction

Each operator has high pressure type seals to prevent the passage of oil and other contaminants through the operator into the contact structure or panel interior. Each operator uses a Buna N cork gasket between the mounting flange on the operator and the panel to maintain oiltightness.

Standards and Certifications

- UL Listed—File No. E131568
- CSA Certified—File No. LR68551

Ingress Protection

- Single and dual indicating lights
  - UL (NEMA) Type 1, 2, 3, 3R, 3S, 4, 4X, 12, 13
- All other operators
  - UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

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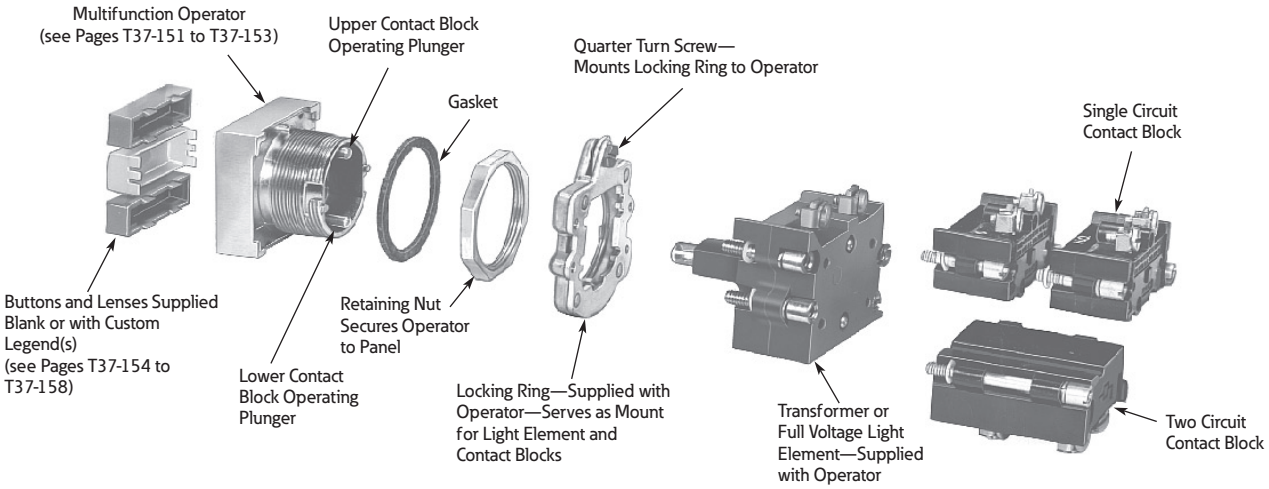
Product Identification

30.5 mm Square Multifunction Watertight/Oiltight



Product Selection

Operators

When Ordering a Complete E30 Control Unit Specify

Catalogue Number of …	Ordering Example (E30AB)	
Operator	E30KB130	"START"
Button(s)	E30KB231	"STOP"
Contact block(s)	E30KLA1	1NO
Accessories (if required)	E30KLA2	1NC

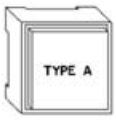
Square Multifunction Operators

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Single Button Operator

Shown with Extended Button

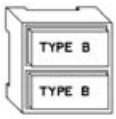
Single Button Operator/without Button (Order Button Separately)

Button Type Required ①	Operation	Special Features	Catalogue Number
	Momentary	—	**E30AA**

Two Button Operator

Shown with Extended Buttons

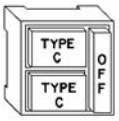
Two Button Operator/without Buttons (Order Buttons Separately)

Button Types Required ①	Operation		Special Features	Catalogue Number
	Top Button	Bottom Button		
	Momentary	Momentary	—	**E30AB**
	Momentary	Momentary	With mechanical interlock	**E30AC**
	Maintained (all contacts)	Release (all contacts)	—	**E30AD** ②
	Maintained (all contacts)	Release (all contacts)	With mechanical interlock	**E30AP** ②③

Two Button Operator

Shown with Long Release Bar

Two Button Operator with Long (OFF) Release Bar—Includes OFF Bar/Button (Order Other Buttons Separately)

Button Types Required ④⑤	Operation		Special Features	Catalogue Number
	Top Button	Bottom Button		
	Maintained	Maintained	—	**E30AF**
	Maintained	Maintained	With mechanical interlock	**E30AG**
	Maintained	Momentary	With mechanical interlock	**E30AH**
	Maintained (all contacts)	Maintained (bottom contacts only)	Top button operates both top and bottom contacts	**E30AK** ⑥

Notes

① Order from table on **Page T37-154**.

② Limited to two single circuit, one double circuit 600V or two 120V (E30KLA9) contact blocks behind each button.

③ Buttons are interlocked so that one of the two is maintained at all times. Depressing the other button releases the maintained button and maintains the depressed button.

④ Operators are supplied as standard with red extended bar(s) marked "OFF" as shown in sketch. For other colours or markings, contact your nearest Eaton Distributor or call our Customer Service Centre 1-800-268-3578. For replacement of standard red release bar, order **E30KR100.**

⑤ Order from table on **Page T37-155**.

⑥ Limited to two single circuit, one double circuit 600V or two 120V (E30KLA9) contact blocks behind each button.

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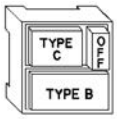
Square Multifunction Operators and Indicating Lights
UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Two Button Operator with (OFF) Release—Includes OFF Bar/Button(s) (Order Other Buttons Separately)

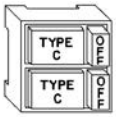
Two Button Operator

Shown with Release Bar for Top Button

Button Types Required ①②	Operation Top Button	Bottom Button	Special Features	Catalogue Number
	Maintained	Momentary	Release bar for top button	**E30AL**

Two Button Operator

Shown with Release Bars for Each Button

Button Types Required ①②	Operation Top Button	Bottom Button	Special Features	Catalogue Number
	Maintained	Maintained	Individual release bars for each button	**E30AN**
	Maintained with interlock	Maintained with interlock	Individual release bars for each button	**E30AM**

Single Indicating Light Unit/without Lens (Order Lens Separately)

Single Indicating Light Unit

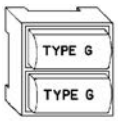
Shown with Lens

Lens Type Required ③	Type of Light Element: Transformer (60/50 Hertz AC) Voltage	Lamp Number ④	Catalogue Number	Full Voltage (60/50 Hertz AC or DC) Voltage	Lamp Number ④	Catalogue Number
	120	6PSB	**E30BA**	24	24PSB	**E30BJ**
				120	120PSB	**E30BM**

Dual Indicating Light Unit/without Lenses (Order Lenses Separately)

Dual Indicating Light Unit

Shown with Lens

Lens Types Required ⑤	Type of Light Element: Transformer (60/50 Hertz AC) Voltage	Lamp Number ④	Catalogue Number	Full Voltage (60/50 Hertz AC or DC) Voltage	Lamp Number ④	Catalogue Number
	120	6PSB	**E30CA**	24	24PSB	**E30CJ**
				120	120PSB	**E30CM**

Notes

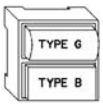
① Order from table on **Page T37-155**.
② Operators are supplied as standard with red extended release bar(s) marked "OFF" as shown in sketch. For other colours or markings, contact your nearest Eaton Distributor or call our Customer Service Centre 1-800-268-3578. For replacement of standard red release bar, order **E30KR101**.
③ Order from table on **Page T37-156**.
④ Light units will also accept LED lamps. For LED part numbers, see table on **Page T37-164**.
⑤ Order from table on **Page T37-157**.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Single Button Operator and Indicating Light

Shown with Button and Lens

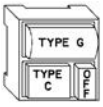
Single Button Operator with Indicating Light/without Button or Lens (Order Button and Lens Separately)

Button and Lens Types Required ①	Operation (Bottom Button)	Type of Light Element: Transformer (60/50 Hertz AC) Voltage	Lamp Number ②	Catalogue Number	Full Voltage (60/50 Hertz AC or DC) Voltage	Lamp Number ②	Catalogue Number
	Momentary	120	6PSB	**E30DA**	24	24PSB	**E30DX3**
					120	120PSB	**E30DF**

Single Button Operator with Release Bar and Indicating Light

Shown with Button and Lens

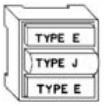
Single Button Operator with (OFF) Release Bar and Indicating Light—Includes OFF Bar/Button (Order Other Button and Lens Separately)

Button and Lens Types Required ①	Operation (Bottom Button)	Type of Light Element: Transformer (60/50 Hertz AC) Voltage	Lamp Number ③	Catalogue Number	Full Voltage (60/50 Hertz AC or DC) Voltage	Lamp Number ②	Catalogue Number
	Maintained	120	6PSB	**E30DG**	24	24PSB	**E30DX13**
					120	120PSB	**E30DM**

Two Button Operator with Indicating Light

Shown with Button and Lens

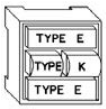
Two Button Operator with Indicating Light/without Buttons or Lens (Order Buttons and Lens Separately)

Button and Lens Types Required ④	Button Operation	Type of Light Element: Transformer (60/50 Hertz AC) Voltage	Lamp Number ②	Catalogue Number	Full Voltage (60/50 Hertz AC or DC) Voltage	Lamp Number ②	Catalogue Number
	Momentary	120	6PSB	**E30EA**	24	24PSB	**E30EX3**
					120	120PSB	**E30EF**
	Momentary with interlock	120	6PSB	**E30EG**	24	24PSB	**E30EX13**
					120	120PSB	**E30EM**

Two Button Operator with Dual Indicating Lights

Shown with Button and Lens

Two Button Operator with Dual Indicating Lights/without Buttons and Lens

Button and Lens Types Required ①	Button Operation	Type of Light Element: Transformer (60/50 Hertz AC) Voltage	Lamp Number ②	Catalogue Number	Full Voltage (60/50 Hertz AC or DC) Voltage	Lamp Number ②	Catalogue Number
	Momentary	120	6PSB	**E30JA**	24	24PSB	**E30JX3**
					120	120PSB	**E30JF**

Notes

① Order from tables on **Pages T37-154** to **T37-158**.

② Light units will also accept LED lamps. For LED part numbers, see table on **Page T37-164**.

③ Operators are supplied as standard with red extended release bar(s) marked "OFF" as shown in sketch. For other colours or markings, contact your nearest Eaton Distributor or call our Customer Service Centre 1-800-268-3578. For replacement of standard red release bar, order **E30KR101**.

④ Order from tables on **Pages T37-156** and **T37-157**.

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Operator Components

Operating Buttons Only

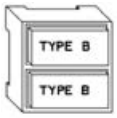
Type A Extended Button

Type A Buttons with Standard Markings ①

Button Application	Colour	Marking③	Extended Button Catalogue Number	Short Button Catalogue Number	Colour	Marking③	Extended Button Catalogue Number	Short Button Catalogue Number
	Black	Blank	**E30KA100**	**E30KA150**	Green	START	**E30KA330**	**E30KA380**
		START	—	**E30KA180**	Yellow	Blank	**E30KA400**	**E30KA450**
	Red	Blank	**E30KA200**	**E30KA250**	White	Blank	**E30KA500**	**E30KA550**
		EMERG. STOP	**E30KA204**	—	Gray	Blank	**E30KA600**	**E30KA650**
		OFF	**E30KA218**	**E30KA268**	Brown	Blank	**E30KA700**	**E30KA750**
		STOP	**E30KA231**	**E30KA281**	Orange	Blank	**E30KA800**	**E30KA950**
	Green	Blank	**E30KA300**	**E30KA350**	Blue	Blank	**E30KA900**	**E30KA950**

Type B Extended Button

Type B Buttons with Standard Markings ②

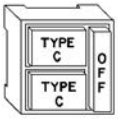
Button Application	Colour	Marking③	Extended Button Catalogue Number	Short Button Catalogue Number	Colour	Marking③	Extended Button Catalogue Number	Short Button Catalogue Number
	Black	Blank	**E30KB100**	**E30KB150**	Black	REVERSE	**E30KB125**	**E30KB175**
		AUTO	**E30KB101**	**E30KB151**		RUN	**E30KB126**	**E30KB176**
		CLOSE	**E30KB102**	**E30KB152**		SLOW	**E30KB128**	**E30KB178**
		DOWN	**E30KB103**	**E30KB153**		START	**E30KB130**	**E30KB180**
		FAST	**E30KB105**	**E30KB155**		TEST	**E30KB132**	**E30KB182**
		FORWARD	**E30KB107**	**E30KB157**		UP	**E30KB134**	**E30KB184**
		HIGH	**E30KB109**	**E30KB159**	Red	Blank	**E30KB200**	**E30KB250**
		IN	**E30KB110**	**E30KB160**		EMERG. STOP	**E30KB204**	—
		INCH	**E30KB111**	**E30KB161**		OFF	**E30KB218**	**E30KB268**
		JOG	**E30KB112**	**E30KB162**		STOP	**E30KB231**	**E30KB281**
		JOG FOR.	**E30KB113**	**E30KB163**	Green	Blank	**E30KB300**	**E30KB350**
		JOG REV.	**E30KB114**	**E30KB164**		START	**E30KB330**	**E30KB380**
		LOW	**E30KB115**	**E30KB165**	Yellow	Blank	**E30KB400**	**E30KB450**
		LOWER	**E30KB116**	**E30KB166**	White	Blank	**E30KB500**	**E30KB550**
		MAN	**E30KB117**	**E30KB167**		AUTO	**E30KB501**	—
		ON	**E30KB119**	**E30KB169**		HAND	**E30KB508**	—
		OPEN	**E30KB120**	**E30KB170**	Gray	Blank	**E30KB600**	**E30KB650**
		OUT	**E30KB121**	**E30KB171**	Brown	Blank	**E30KB700**	**E30KB750**
		RAISE	**E30KB122**	**E30KB172**	Orange	Blank	**E30KB800**	**E30KB850**
		RESET	**E30KB124**	**E30KB174**	Blue	Blank	**E30KB900**	**E30KB950**

Notes

① Use with operator E30AA, legend characters 3/16 in (4.8 mm) high.
② Use with operators E30AB thru AE, AL and DA thru DF, legend characters 3/16 in (4.8 mm) high.
③ See Appendix 4 for French engraving.

Type C Extended Button

Type C Buttons with Standard Markings ①

Button Application	Colour	Marking②	Extended Button Catalogue Number	Short Button Catalogue Number
	Black	Blank	**E30KC100**	**E30KC150**
		AUTO	**E30KC101**	**E30KC151**
		CLOSE	**E30KC102**	**E30KC152**
		DOWN	**E30KC103**	**E30KC153**
		FAST	**E30KC105**	**E30KC155**
		FORWARD	**E30KC107**	**E30KC157**
		HAND	**E30KC108**	**E30KC158**
		HIGH	**E30KC109**	**E30KC159**
		IN	**E30KC110**	**E30KC160**
		INCH	**E30KC111**	**E30KC161**
		JOG	**E30KC112**	**E30KC162**
		JOG FOR.	**E30KC113**	**E30KC163**
		JOG REV.	**E30KC114**	**E30KC164**
		LOW	**E30KC115**	**E30KC165**
		LOWER	**E30KC116**	**E30KC166**
		MAN	**E30KC117**	**E30KC167**
		ON	**E30KC119**	**E30KC169**
		OPEN	**E30KC120**	**E30KC170**
		OUT	**E30KC121**	**E30KC171**
		RAISE	**E30KC122**	**E30KC172**
	Black	RESET	**E30KC124**	**E30KC174**
		REVERSE	**E30KC125**	**E30KC175**
		RUN	**E30KC126**	**E30KC176**
		SLOW	**E30KC128**	**E30KC178**
		START	**E30KC130**	**E30KC180**
		TEST	**E30KC132**	**E30KC182**
		UP	**E30KC134**	**E30KC184**
	Red	Blank	**E30KC200**	**E30KC250**
		OFF	**E30KC218**	—
		STOP	**E30KC231**	**E30KC281**
	Green	Blank	**E30KC300**	**E30KC350**
		START	**E30KC330**	**E30KC380**
	Yellow	Blank	**E30KC400**	**E30KC450**
	White	Blank	**E30KC500**	**E30KC550**
	Gray	Blank	**E30KC600**	**E30KC650**
	Brown	Blank	**E30KC700**	**E30KC750**
	Orange	Blank	**E30KC800**	**E30KC850**
	Blue	Blank	**E30KC900**	**E30KC950**

Note

① Use with operators E30AF thru AK, AL thru AM and DG thru DM, legend characters 1/8 in (3.2 mm) high.

② See Appendix 4 for French engraving.

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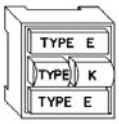
Operating Buttons and Lens Only

Standard Colour Buttons and Lens Marking ①

Black lettering on — White, Amber, Yellow and Clear.
White lettering on — Green, Red, Blue, Brown, Black, Orange and Gray.

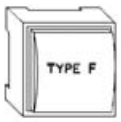
Type E Button

Type E Buttons with Standard Markings ②

Button Application	Colour	Marking④	Extended Button Catalogue Number
	Black	Blank	**E30KE100**
		CLOSE	**E30KE102**
		DOWN	**E30KE103**
		FAST	**E30KE105**
		FORWARD	**E30KE107**
		HIGH	**E30KE109**
		IN	**E30KE110**
		INCH	**E30KE111**
		JOG	**E30KE112**
		JOG FOR.	**E30KE113**
		JOG REV.	**E30KE114**
		LOW	**E30KE115**
		LOWER	**E30KE116**
		ON	**E30KE119**
		OPEN	**E30KE120**
		OUT	**E30KE121**
		PHASE	**E30KE122**
	Black	RESET	**E30KE124**
		REVERSE	**E30KE125**
		RUN	**E30KE126**
		SLOW	**E30KE128**
		START	**E30KE130**
		TEST	**E30KE132**
		UP	**E30KE134**
	Red	Blank	**E30KE200**
		OFF	**E30KE218**
		STOP	**E30KE231**
	Green	Blank	**E30KE300**
		START	**E30KE330**
	Yellow	Blank	**E30KE400**
	White	Blank	**E30KE500**
	Gray	Blank	**E30KE600**
	Brown	Blank	**E30KE700**
	Orange	Blank	**E30KE800**
	Blue	Blank	**E30KE900**

Type F Lens

Type F Lenses with Standard Markings ③

Button Application	Colour	Marking④	Catalogue Number
	Red	Blank	**E30KF10**
		MOTOR RUN	**E30KF11**
		ON	**E30KF12**
		POWER ON	**E30KF13**
	Green	Blank	**E30KF20**
		MOTOR STOP	**E30KF21**
		MOTOR RUN	**E30KF23**
	Green	OFF	**E30KF22**
	Amber	Blank	**E30KF30**
	Blue	Blank	**E30KF40**
	Clear	Blank	**E30KF50**
	White	Blank	**E30KF60**

Notes

① For lenses with special markings or with standard markings but in a different colour, refer to instructions on **Pages T37-161** to **T37-163**.
② Use with operators E30EA thru EM, FA thru FM and JA thru JM, legend characters 1/8 in (3.2 mm) high.
③ Use with operators E30BA thru BY, legend characters 3/16 in (4.8 mm) high.
④ See Appendix 4 for French engraving.

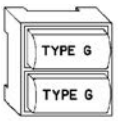
Operating Lens Only

Standard Colour Buttons and Lens Marking ①

Black lettering on — White, Amber, Yellow and Clear.
White lettering on — Green, Red, Blue, Brown, Black, Orange and Gray.

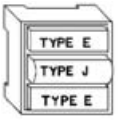
Type G Lens

Type G Lenses with Standard Markings ②

Lens Application	Colour	Marking⑤	Catalogue Number	Colour	Marking⑤	Catalogue Number
	Red	Blank	**E30KG10**	Green	OFF	**E30KG22**
		MOTOR RUN	**E30KG11**		READY	**E30KG23**
		ON	**E30KG12**	Amber	Blank	**E30KG30**
		POWER ON	**E30KG13**	Blue	Blank	**E30KG40**
	Green	Blank	**E30KG20**	Clear	Blank	**E30KG50**
		MOTOR RUN	**E30KG24**	White	Blank	**E30KG60**
		MOTOR STOP	**E30KG21**			

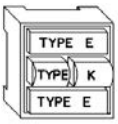
Type J Lens

Type J Lenses with Standard Markings ③

Lens Application	Colour	Marking⑤	Catalogue Number	Colour	Marking⑤	Catalogue Number
	Red	Blank	**E30KJ10**	Green	OFF	**E30KJ22**
		MOTOR RUN	**E30KJ11**		ON	**E30KJ24**
		ON	**E30KJ12**	Amber	Blank	**E30KJ30**
		POWER ON	**E30KJ13**	Blue	Blank	**E30KJ40**
		MOTOR STOP	**E30KJ14**	Clear	Blank	**E30KJ50**
	Green	Blank	**E30KJ20**	White	Blank	**E30KJ60**
		MOTOR STOP	**E30KJ21**			
		MOTOR RUN	**E30KJ23**			

Type K Lenses

Type K Lenses with Standard Markings (Sold in Pairs Only) ④

Lens Application	Colour Left Hand Lens	Colour Right Hand Lens	Marking⑤ Left Hand Lens	Marking⑤ Right Hand Lens	Catalogue Number
	Red	Red	ON	ON	**E30KK12**
		Green	ON	OFF	**E30KK13**
	Green		OFF	OFF	**E30KK22**
		Red	OFF	ON	**E30KK23**

Notes

① For lenses with special markings or with standard markings but in a different colour, refer to instructions on **Pages T37-161** to **T37-163**.
② Use with operators E30CA thru CM and DA thru DM, legend characters 3/16 in (4.8 mm) high except MOTOR RUN, POWER ON and MOTOR STOP are 1/8 in (3.2 mm) high.
③ Use with operators E30EA thru EM, FA thru FM and GA thru GM, legend characters 1/8 in (3.2 mm) high.
④ Use with operators E30JA thru JW, legend characters 1/8 in (3.2 mm) high
⑤ See Appendix 4 for French engraving.

Type K Lenses

Type K Lenses—Blank (Sold in Pairs Only)

Colour			Colour		
Left Hand Lens	**Right Hand Lens**	**Catalogue Number**	**Left Hand Lens**	**Right Hand Lens**	**Catalogue Number**
Red	Red	**E30KK10**	Blue	Red	**E30KK41**
	Green	**E30KK11**		Green	**E30KK42**
	Amber	**E30KK17**		Amber	**E30KK43**
	Blue	**E30KK14**		Blue	**E30KK40**
	Clear	**E30KK15**		Clear	**E30KK45**
	White	**E30KK16**		White	**E30KK46**
Green	Red	**E30KK21**	Clear	Red	**E30KK51**
	Green	**E30KK20**		Green	**E30KK52**
	Amber	**E30KK27**		Amber	**E30KK53**
	Blue	**E30KK24**		Blue	**E30KK54**
	Clear	**E30KK25**		Clear	**E30KK50**
	White	**E30KK26**		White	**E30KK56**
Amber	Red	**E30KK31**	White	Red	**E30KK61**
	Green	**E30KK32**		Green	**E30KK62**
	Amber	**E30KK30**		Amber	**E30KK63**
	Blue	**E30KK34**		Blue	**E30KK64**
	Clear	**E30KK35**		Clear	**E30KK65**
	White	**E30KK36**		White	**E30KK60**

Contact Blocks

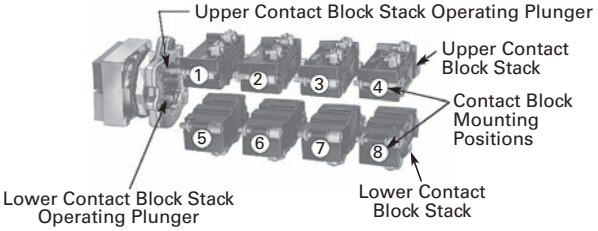
Standard Contact Blocks—Molded, phenolic construction. Enclosed silver contacts with reliability "nibs" that improve the reliability of switching performance under dry circuit, corrosive atmosphere and fine dust conditions. For more extreme conditions, the logic level contact blocks described below are recommended.

Logic Level Contact Blocks—Feature palladium contacts. Palladium, which is more inert than gold, is well suited for voltages and currents approaching zero. When mounted in an enclosure rated for highly corrosive environments, logic level contact blocks can be used where exposure to chemicals may cause failure to other types of materials.

Mounting Limitations

See the contact block mounting limitations for Type E30 pushbutton and combination pushbutton and light operators on this page. Mounting positions 1 thru 8 indicate single depth contact blocks. Each of these positions can represent either a single circuit 600 volt block or a two-circuit 120 volt block. The two-circuit 600 volt block requires two of the numbered positions shown.

Mounting Positions



Catalogue Number of Operator	Contact Blocks Can Be Mounted in Positions Listed Below	
	Upper Stack	Lower Stack
E30AA thru **E30AM** ①	1-2-3-4	5-6-7-8
E30BA thru **E30CM**	None	None
E30DA thru **E30DM**	None	5-6-7-8
E30EA thru **E30GM**	2-3-4	6-7-8
E30JA thru **E30JM**	3-4	7-8

Contact Block Selection

Contact Block Type ②

Single Circuit, Screw Terminals

Two Circuit, Screw Terminals

Two Circuit, Quick Connect Terminals

120 Vac Only—Two Circuit

Circuit		Pressure Terminals Standard Catalogue Number	Pressure Terminals Logic Level Catalogue Number	Quick Connect Terminals ③ Standard Catalogue Number
	1NO	**600 Vac, 250 Vdc—Single Circuit**		
		E30KLA1	**E30KLAE1**	**E30KLB1**
	1NC	**E30KLA2**	**E30KLAE2**	**E30KLB2**
	1NO-1NC	**600 Vac, 250 Vdc—Two Circuit**		
		E30KLA3	**E30KLAE3**	**E30KLB3**
	2NO	**E30KLA4**	**E30KLAE4**	**E30KLB4**
	2NC	**E30KLA5**	**E30KLAE5**	**E30KLB5**
Special Contact Operation				
	1NO-1NC Overlapping	**E30KLA6** ④	—	**E30KLB6** ④
	2NO (One early closing)	**E30KLA7** ④	—	**E30KLB7** ④
	2NC (One late opening)	**E30KLA8**	—	**E30KLB8**
	1NO-1NC	**120 Vac Only—Two Circuit**		
		E30KLA9 ⑤	—	**E30KLB9** ⑤

Notes

① Except operator E30AD, AJ or AK which will accommodate contact blocks 1, 2, 5 and 6 only. (See Mounting Positions above.)
② Individually boxed contact blocks master packed 10 per carton.
③ Supplied with non-stacking screws. Limited to 2 contact blocks mounted in positions 1 and 5.
④ Do not use with maintained operators.
⑤ Contacts must be same polarity.

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Accessories

Accessories

	Description	Colour/Type	Catalogue Number
E30KR_	**Collar**—Snap on mounting for assembly in the field. Permits colour coding of operator heads. Size: 1-19/32 x 1-19/32 x 9/16 in.	Black	**E30KR1**
		Red	**E30KR2**
		Green	**E30KR3**
		Yellow	**E30KR4**
		White	**E30KR5**
		Gray	**E30KR6**
		Orange	**E30KR8**
		Blue	**E30KR9**
		Brown	**E30KR10**
E30KT_	**Shroud**—Similar to collar above except for extension above the face of button to prevent accidental actuation of button. Half shroud with an extension on only half the collar may be positioned to protect top or bottom button.	Full shroud (gray)	**E30KT6**
		Half shroud (gray)	**E30KT7**
E30KR3_	**Guard**—Two collars deep, removable slide prevents accidental operation. White slide can be marked with grease pencil.	Red with white slide	**E30KR31**
		Red with clear slide	**E30KR32**
E30KR30	**Terminal Block**—2 terminals, each will accommodate 2-wire terminations.		**E30KR30**
E30KT_	**Padlock Attachment** for locking single button and bottom button of multi-function operators in the depressed position. Locks NC contacts open or early closing NO contacts closed. Cannot be used in conjunction with collar, shroud or boot.	Short button	**E30KT1**
		Extended button	**E30KT2**
E30KT3	**Transparent Boot**—Guards against ingress of foreign material and freezing rain. **Note:** If this boot is used in conjunction with operator types AD or AE, an extended type button must be used in the top position and a short button in the lower position.		**E30KT3** ①
E30KT_	**Square Hole Plug**—		
	Gray enameled		**E30KT4**
	Stainless steel		**E30KT5**
E30KV1	**Lamp and Lens Removal Tool**—Will not fit Cat. No. E30B light units listed on **Page T37-152**.		**E30KV1**
E22CW	**Octagonal Wrench** for mounting operators to panel.		**E22CW**
E30KV2	**Button and Lens Removal Tool**		**E30KV2**

Note

① Colour coordinating collars, padlock attachments or legend plates cannot be used with operators equipped with a transparent boot.

Options

Markings and Legend Plates

Buttons or Lenses with Non-Standard Horizontal Markings

Markings not listed as Standard Markings below are considered non-standard. If more than one marking is required on a button or lens, order non-standard markings.

Ordering Instructions

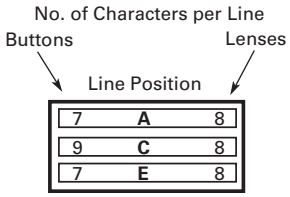
- Specify catalogue number of blank button or lens of desired colour, plus suffix "STAMP" for non-standard or "STD" for standard markings in order notes. See **Pages T37-154** to **T37-158**.
- Specify size, legend desired and location in order notes by alphas as shown in example.
- Do not exceed maximum number of legend characters per line.

Ordering Example

Green Type B button to be marked with non-standard legend "ALL ELEVATORS DOWN."

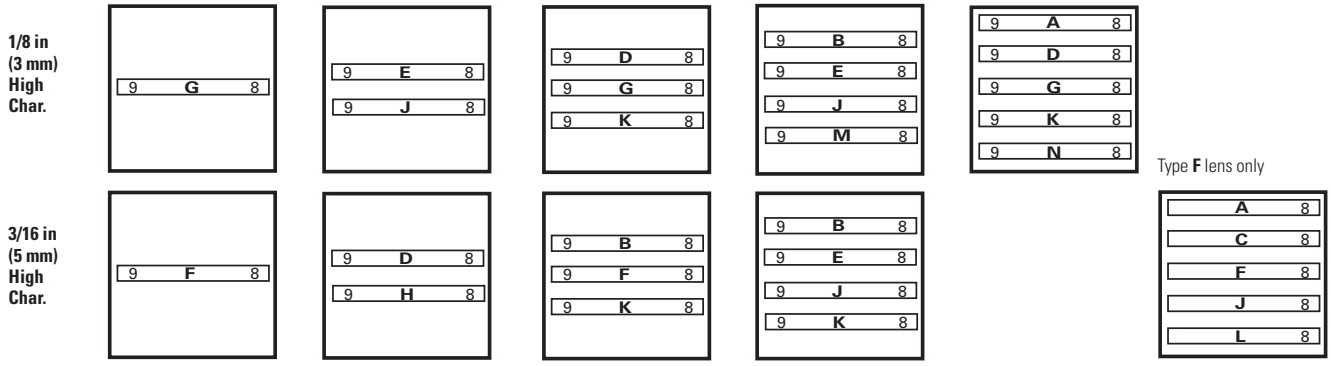
Catalogue No.:
E30KB300STAMP
Letter Size: 1/8 in
Pos. A—ALL
Pos. C—ELEVATORS
Pos. F—DOWN

How to Use the Legend Location Figure

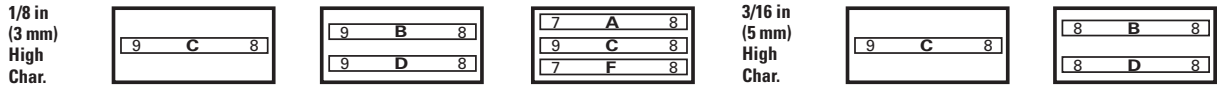


Legend Locations

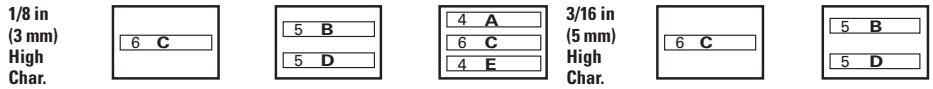
Type **A** buttons and Type **F** lenses



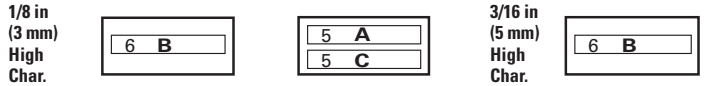
Type **B** buttons and Type **G** lenses



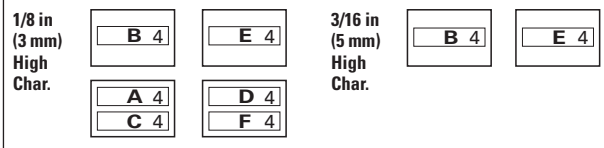
Type **C** buttons



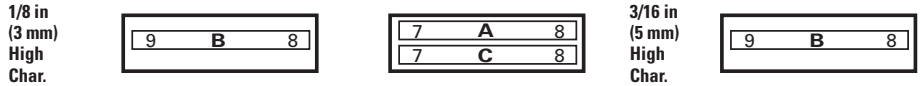
Type **D** buttons



Type **K** buttons



Type **E** buttons and Type **J** lenses

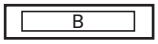


Standard Markings

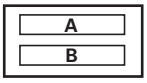
AUTO	EMERG. STOP	HAND	INCH	JOG REV.	MAN.	OPEN	RESET	SLOW	TEST	MOTOR STOP
CLOSE	FAST	HIGH	JOG	LOW	OFF	OUT	REVERSE	START	UP	POWER ON
DOWN	FORWARD	IN	JOG FOR.	LOWER	ON	RAISE	RUN	STOP	MOTOR RUN	READY

Legend Arrangements and Legend Locations

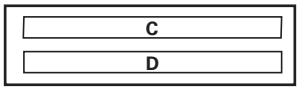
Legend plates
E30KM1 or KM11

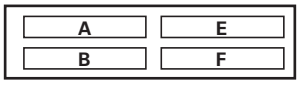


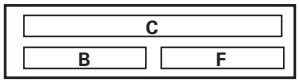
Legend plates
E30KM4 or KM14



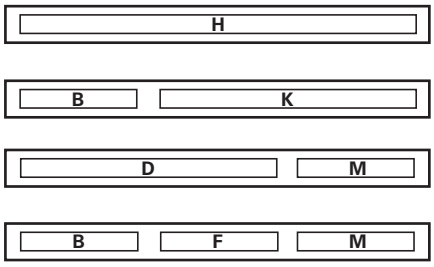
Legend plates
E30KM3 or KM13



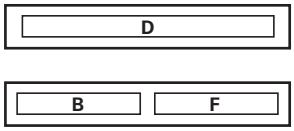




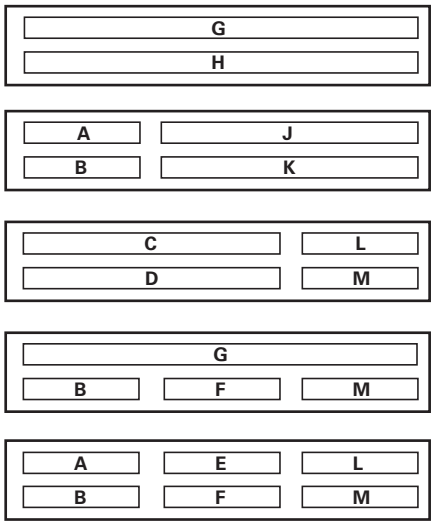
Legend plates
E30KM5 or KM15



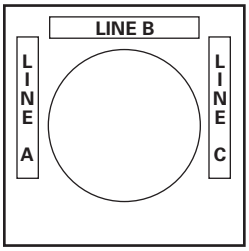
Legend plates
E30KM2 or KM12



Legend plates
E30KM6 or KM16



Legend Plates E30KN76 or KN76B



Legend plates
E30KN76 or KN76B
1/8 in character
size only with a maximum
of six characters.

Maximum Number and Size of Permissible Legend Characters of Custom Stamped Legend Plates

		Size and Maximum Number of Characters Per Line								
		One Span			Two Span			Three Span		
Type	No.of Lines	3/32 in (2.5 mm)	1/8 in (3 mm)	3/16 in (5 mm)	3/32 in (2.5 mm)	1/8 in (3 mm)	3/16 in (5 mm)	3/32 in (2.5 mm)	1/8 in (3 mm)	3/16 in (5 mm)
Standard	1	13	10	10	30	22	22	47	34	34
Large	1	13	10	10	30	23	23	47	36	36
	2	13	10	10	30	23	23	47	36	36

Characters available for non-standard markings
3/32 in (2.5 mm)—1/8 in (3 mm)—3/16 in (5 mm)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	**. / — ,**	**1 2 3 4 5 6 7 8 9 0**

Buttons or Lenses with Non-Standard Vertical Markings

Ordering Instructions

- Specify catalogue number of blank button or lens of desired colour, selected from listings on **Pages T37-154** to **T37-158**.
- Specify size, legend desired, location and state "vertically marked" in order notes.

Note: Specify either 1/8 or 3/16 in (3.2 or 4.8 mm) character height. Do not exceed maximum number of characters as outlined in table below.

Ordering Example:

Green Type K button to be marked with "RUN" "ON."

Catalogue No.: **E30KK20STAMP**
Letter Size: 3/16 in (4.8 mm)
Vertically Marked
Pos. B—RUN
Pos. E—ON

Legend Plates

Legend plates for Type E30 compact pushbutton and indicating light operators hook directly onto the operator and are clamped in place when the operator locking nut behind the panel is secured.

Two and three span plates are designed for use where two or more operators are mounted adjacent to each other **on minimum horizontal mounting centers.** These legend plates mount in the same manner as single span units.

When Ordering Legend Plates with Markings

- Catalogue number of blank legend plate
- Insert the following in order notes:
  - Legends required
  - Size of characters—3/32, 1/8, 3/16 in (2.4, 3.2, 4.8 mm)
  - Positions of legends on one line standard and two line large legend plates by alphas as shown in sketches on following page.

Ordering Example:

Three span legend plate to be marked "MASTER CONTROL", "STATION A" and "STATION B."

Catalogue No.:
E30KM3STAMP
Letter Size: 1/8 in (3.2 mm)
Pos. C—MASTER CONTROL
Pos. B—STATION A
Pos. F—STATION B

Maximum Number of Characters

Description	Type	Maximum Number of Characters 1/8 in (3.2 mm)	3/16 in (4.8 mm)
Buttons	A	7	5
	B	7	5
	C	4	3
	D	5	3
	E	7	5
Lenses	F	7	5
	G	7	5
	J	7	5
	K	3	2

Blank Legend Plates and Legend Plates with Markings

	Type	One Span Catalogue Number
	Black	
Standard— One Span	Standard	**E30KM1**
Large—One Span	Large	**E30KM4**

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Replacement Parts

Replacement Light Units for E30 Components

Voltage AC and DC	Part Numbers—Receptacles without Lamps Single Indicating Light	Dual Indicating Light	Single Light Single Pushbutton	Single Light Dual Pushbutton	Dual Light Dual Pushbutton
Full Voltage Type					
6V	**57-2579-3A**	**57-2568A**	**57-2568A**	**57-2579-3A**	**57-2567**
12V	**57-2579-3A**	**57-2568A**	**57-2568A**	**57-2579-3A**	**57-2567**
18/24V	**57-2579-3A**	**57-2568A**	**57-2568A**	**57-2579-3A**	**57-2567**
28V	**57-2579-3A**	**57-2568A**	**57-2568A**	**57-2579-3A**	**57-2567**
32V	**57-2579-3A**	**57-2568-2A**	**57-2568-2A**	—	**57-2567**
48V	**57-2579-3A**	**57-2568A**	**57-2568A**	**57-2579-3A**	**57-2567**
120V	**57-2579-3A**	**57-2568A**	**57-2568A**	**57-2579-3A**	**57-2567**
Transformer Type					
120V	**42-2672A**	**42-2663A**	**42-2663A**	**42-2671A**	**42-2664A**
208V	**42-2672-2A**	**42-2663-2A**	**42-2663-2A**	**42-2671-2A**	**42-2664-2A**
240V	**42-2672-3A**	**42-2663-3A**	**42-2663-3A**	**42-2671-3A**	**42-2664-3A**
380V	**42-2672-4A**	**42-2663-4A**	**42-2663-4A**	**42-2671-4A**	**42-2664-4A**
480V	**42-2672-5A**	**42-2663-5A**	**42-2663-5A**	**42-2671-5A**	**42-2664-5A**
600V	**42-2672-6A**	**42-2663-6A**	**42-2663-6A**	**42-2671-6A**	**42-2664-6A**
Description and Part Numbers—Related Parts					
Inner lens	**28-1008**	**28-1010**	**28-1010**	**28-1010**	**28-1010**
Retaining nut	**15-1885**	**15-1885**	**15-1885**	**15-1885**	**15-1885**
Gasket	**16-2092**	**16-2092**	**16-2092**	**16-2092**	**16-2092**
Locking ring	**52-1116**	**52-1116**	**52-1116**	**52-1116**	**52-1116**

Replacement Lamps for E30 Illuminated Operators

Mfg. Lamp Type	Voltage	Base Style	Application	Part Number
6PSB	6V	T2 slide	E30 transformer and full voltage	**28-1022**
12PSB	12V	T2 slide	E30 full voltage	**28-1025**
24PSB	24V	T2 slide	E30 full voltage	**28-1026**
28PSB	28V	T2 slide	E30 full voltage	**28-1027**
48PSB	48V	T2 slide	E30 full voltage	**28-1028**
60PSB	60V	T2 slide	E30 full voltage	**28-1598**
120PSB	120V	T2 slide	E30 full voltage	**28-1029**
#259	6.3V	T3-1/4 wedge	E30 single transformer	**28-949**

Replacement Lamps—Incandescent and LED

Lamp Voltage	Incandescent Lamps Manufacturer's Part Number	Base Style	Eaton's Part Number	LED Lamps Eaton's Part Number Red	Green	Yellow	Blue ①
6	6PSB	T2 slide	**28-1022**	**35-1523**	**35-1523-2**	**35-1523-3**	**35-1523-17**
12	12PSB	T2 slide	**28-1025**	**35-1523-11**	**35-1523-12**	**35-1523-13**	**35-1523-18**
24	24PSB	T2 slide	**28-1026**	**35-1523-4**	**35-1523-5**	**35-1523-6**	**35-1523-19**
28	28PSB	T2 slide	**28-1027**	**35-1523-4**	**35-1523-5**	**35-1523-6**	**35-1523-19**
48	48PSB	T2 slide	**28-1028**	**35-1523-14**	**35-1523-15**	**35-1523-16**	**35-1523-20**
120	120PSB	T2 slide	**28-1029**	**35-1523-7**	**35-1523-8**	**35-1523-9**	**35-1523-21**

Note

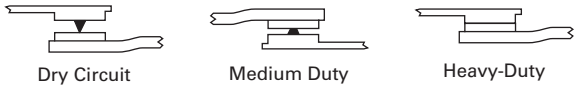
① E30 blue LED bulbs may not provide sufficient intensity for some applications.

Technical Data and Specifications

Operator Specifications

Description	Specification
Climate Conditions	
Operating	–20° to 150°F (–29° to 65°C)
Terminals	
Light units	Terminals are saddle clamp type for 2 stranded or solid wires up to 12 AWG (4.0 mm^2) Torque—7 lb-in (0.8 Nm)
Contact block	Terminals are saddle clamp type for 2 stranded or solid wires up to 12 AWG (4.0 mm^2) Torque—7 lb-in (0.8 Nm)
Materials	
Operator	Zinc base die casting with a copper-nickel-chrome plated finish Withstands the 200 hr. salt spray test in accordance with MIL Spec. QQ-M-151A and NEMA 4X testing.
Internal parts	Including shafts, washers and springs, are made of stainless steel
Buttons and lenses	Colorfast, wear resistant, molded acetal resin
Contact blocks	Made of molded, heat resistant, mineral filled phenolic Contact block plungers are molded of nylon filled phenolic Contacts are silver
Reliability nibs	These nibs combine a scrubbing action with high pressure density when the contacts are closed They push through particles and films found on contact surfaces in industrial environments Reliability nibs self-adjust to the application—dry circuit, normal or heavy-duty

Reliability Nibs



Electrical Ratings

Contact Blocks

Meet or Exceed NEMA Contact Rating Designation A600 and P300

	Vac A600				Vdc P300		
Description	**120V**	**240V**	**480V**	**600V**	**24/28V**	**125V**	**250V**
Make and emergency interrupting capacity (Amps)	60	30	15	12	5.73	1.1	0.55
Normal load break (Amps)	6	3	1.5	1.2	5.73	1.1	0.55
Continuous current (Amps)	10	10	10	10	5	5	5

- UL A600/P300 nominal connect 10A
- 1NO, 1NC, 2NO, 2NC, 1NO-1NC, early make, late break and overlapping configurations
- Mechanical positive drive operation on NC contacts
- Palladium alloy contact for logic level or highly corrosive environments

Maximum Ratings for Logic Level and Hostile Atmosphere Application

Description	Specification
Maximum amperes	0.5A ①
Maximum volts	120 Vac/Vdc

Light Unit

Description	Specification
Bulbs—Average Life	
Transformer type	20,000 hrs.
Resistor/direct voltage type	2,500 hrs. min. at rated voltage
LED	60,000 to 100,000 hrs.

Note

① Logic level contact blocks are UL A600/P500 rated per table above.

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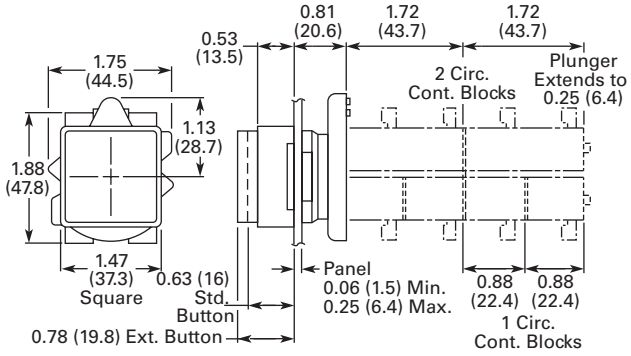
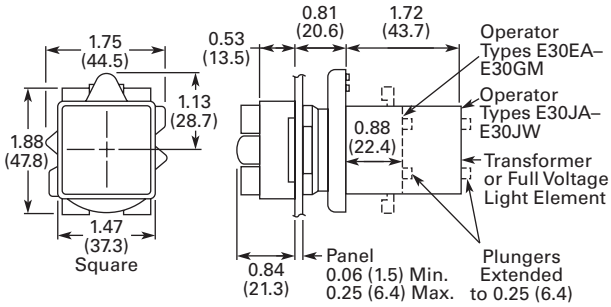
Dimensions

Approximate Dimensions in Inches (mm)

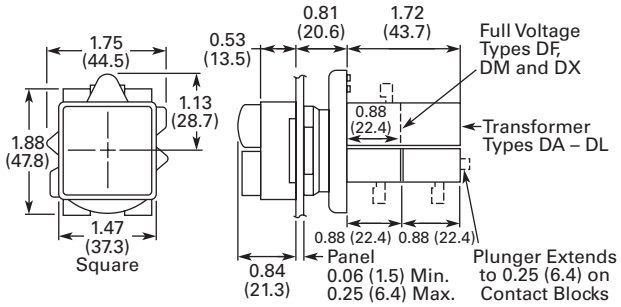
Pushbutton Operators



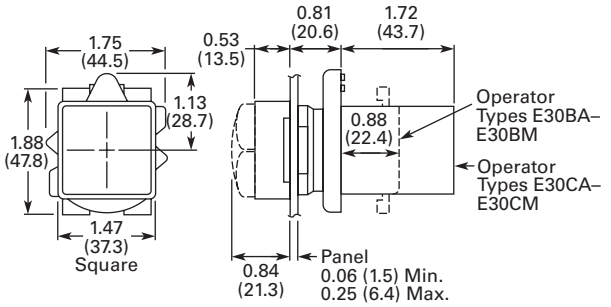
Combination Pushbutton and Indicating Light Operators



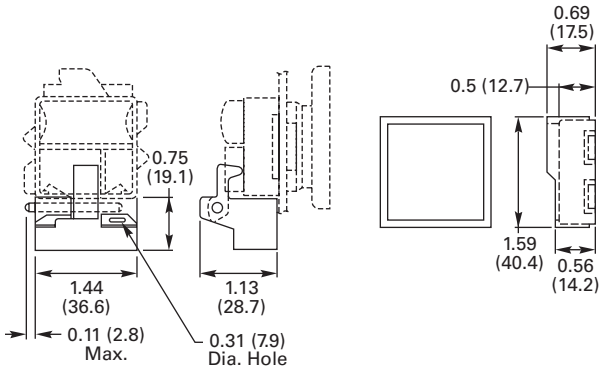
Combination Pushbutton and Indicating Light Operators



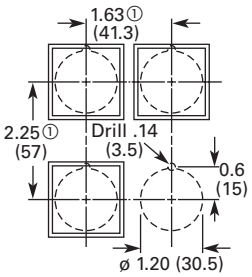
Indicating Light Operators



Padlocking Attachment and Half Shroud E30KT7



Drilling Dimensions—Minimum Spacing ①②

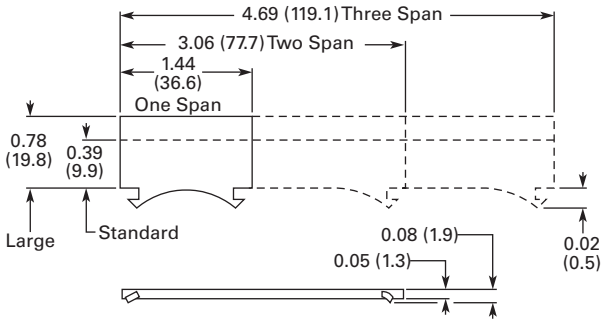


Notes

① Dimensions shown allow adequate space for the addition of one or two high legend plates and colour coordinating collars.

② Locating nib hole or notch is 0.136 in (3.5 mm) drill. Alternate to drilling mounting holes use Greenlee Tool Co. punch (No. 730-S) to punch the hole and (No. 730-K) to punch the notch.

Legend Plates



30.5 mm Heavy-Duty Watertight/Oiltight—10250T

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Product Description

The 30.5 mm pushbutton line features a zinc die cast construction with chrome-plated housing and mounting nut. The same durable construction is also available with the corrosive resistant E34 line of pushbuttons. See E34 section on **Pages T37-240** to **T37-274**.

Features

- Heavy-duty zinc die cast construction
- Enclosed silver contacts with reliability nibs
- Diaphragm seals with drainage holes
- Grounding nibs on the operator casing

Benefits

- Reliability nibs improve contact reliability even under dry circuit and fine dust conditions
- Drainage holes prevent buildup of liquid inside the operator which can prevent operation in freezing environments
- Grounding nibs bit through paint and other coatings to provide secure ground

Application Description

Contact Operation

Slow make and break. All normally closed contacts have positive opening operation, i.e., normally closed contacts are forced open in the event of contact weld or spring breakage.

Standards and Certifications

- CE EN 60947-5-1 and 60947-5-5
- UL 508—File No. 131568
- CSA C22.2 No. 14—File No. LR68551

Ingress Protection

When mounted in similarly rated enclosure—

- Standard indicating lights
  - UL (NEMA) Type 1, 2, 3, 3R, 3S, 4, 4X, 12, 13
  - IEC IP65
- All other operators
  - UL (NEMA) Type 1, 2, 3, 3R, 4, 4X, 12, 13
  - IEC IP65

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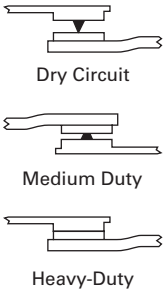
Product Overview

Reliability Nibs

Eaton's contact blocks feature enclosed silver contacts with pointed "reliability nibs" for reliable performance from logic level up to 600V. To ensure reliable switching, nibs bite through oxide which can form on silver contacts, eliminating the need for expensive logic level blocks for most applications.

Reliability Nibs

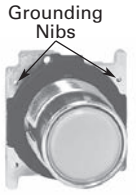


Reliability nibs improve performance in dry circuit, corrosive, fine dust and other contaminated atmospheres. Under normal environmental conditions, the minimum operational voltage is 5V and the minimum operational current is 1 mA, AC/DC. For operation under a wider range of environmental conditions, logic level contact blocks with inert palladium tipped contacts are recommended.

Grounding Nibs

10250T line operators have "grounding nibs"—four metal points on the operator casting designed to bite through most paints and other coatings on metal panels to enhance the ground connection when the operator is securely tightened.

Grounding Nibs

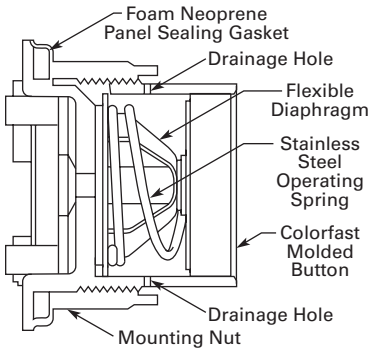


Diaphragm Seal with Drainage Holes

Liquid Drainage

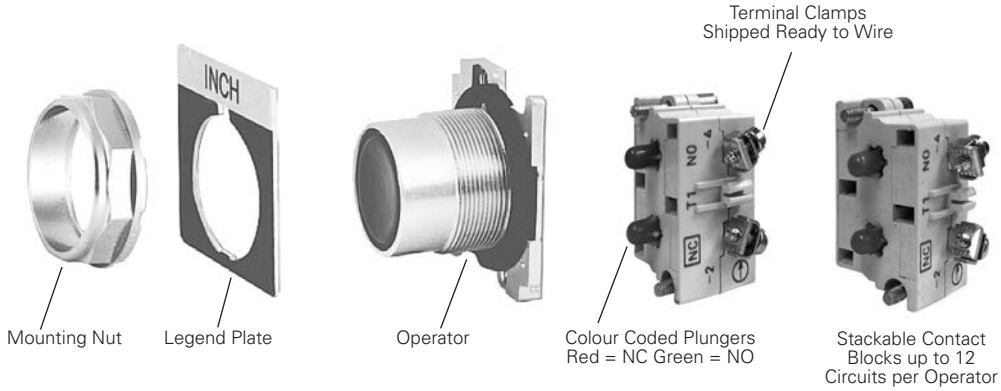
Eaton's pushbutton operators offer front of panel drainage via holes in the operator bushing. Hidden from view by the mounting nut, these holes prevent buildup of liquid inside the operator, which can prevent operation in freezing environments. The holes also provide a route for escaping liquid in high pressure washdowns, effectively relieving pressure from the internal diaphragm seal, ensuring reliable sealing in applications even beyond NEMA 4.

Diaphragm Seal



Product Identification

30.5 mm Heavy-Duty Watertight/Oiltight—10250T Series



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Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Non-Illuminated Pushbuttons

10250T 10 1 – 1 ①

Operator
10 = Flush
11 = Extended
12 = 40 mm mushroom
17 = 65 mm mushroom
50 = 1/2 shroud vertical mount
51 = 1/2 shroud horizontal mount

Button Colour	
1 = Black	**5** = Gray
2 = Red	**6** = White
3 = Green	**8** = Blue
4 = Yellow	**9** = Orange

Circuit
Blank = Operator only
1 = 1NO-1NC
2 = 2NO
3 = 2NC
51 = 1NC
53 = 1NO

Illuminated and Non-Illuminated Push-Pulls

10250T 5 63 C47 __ – 1 ①

Operator
5 = Two-position maintained
4 = Three-position mom push-mom pull
9 = Three-position mt push-mom pull
10 = Three-position mom push-mom pull

Incandescent Light Unit	LED Light Unit
Blank = Non-illuminated	**Blank** = Non-illuminated
89 = 24V/XFR	**89L** = 24V/XFR
63 = 120V/XFR	**63L** = 120V/XFR
64 = 208V/XFR	**64L** = 208V/XFR
65 = 240V/XFR	**65L** = 240V/XFR
82 = 277V/XFR	**82L** = 277V/XFR
66 = 380V/XFR	**66L** = 380V/XFR
67 = 480V/XFR	**67L** = 480V/XFR
68 = 600V/XFR	**68L** = 600V/XFR
69 = 6V/FV	**97L** = Full voltage
70 = 12V/FV	
79 = 24V/FV	
83 = 32V/FV	
80 = 120V/RES	
81 = 240V/RES	

LED Voltage
Blank = Non-illuminated
Blank = Incandescent
06 = 6 Vac/Vdc
12 = 12 Vac/Vdc
24 = 24 Vac/Vdc
48 = 48 Vac/Vdc
60 = 60 Vac/Vdc
2A = 120 Vac
2D = 120 Vdc

Circuit
Blank = Operator only
1 = 1NO-1NC
2 = 2NO
3 = 2NC
51 = 1NC
53 = 1NO

Non-illuminated	Illuminated		
Button	Incandescent	LED	Lens Type
B60 = Black 40 mm	**C47** =	**RD** =	Red 40 mm
B62 = Red 40 mm	**C53** =	**ED** =	Red 40 mm—"E" STOP
B63 = Red 40 mm—"E" STOP	**C48** =	**GD** =	Green 40 mm
B61 = Green 40 mm	**C49** =	**LD** =	Blue 40 mm
B64 = Blue 40 mm	**C50** =	**AD** =	Amber 40 mm
J60 = Black 65 mm	**C51** =	**WD** =	White 40 mm
J62 = Red 65 mm	**C52** =	**—** =	Clear 40 mm
J63 = Red 65 mm—"E" STOP	**C57** =	**RS** =	Red side light
J61 = Green 65 mm	**C63** =	**ES** =	Red side light—"E" STOP
J64 = Yellow 65 mm	**C58** =	**GS** =	Green side light
	C59 =	**LS** =	Blue side light
	C64 =	**AS** =	Amber side light
	C60 =	**YS** =	Yellow side light
	C61 =	**WS** =	White side light
	C62 =	**—** =	Clear side light
	C65 =	**RH** =	Red heavy-duty
	C66 =	**GH** =	Green heavy-duty
	C67 =	**AH** =	Amber heavy-duty

Note

① Add **X** at end of catalogue number to receive parts assembled from factory.

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Illuminated Pushbuttons

10250T 416 C21 ___ – 1 ①

Incandescent Light Unit	LED Light Unit
416 = 24V/XFR	**416L** = 24V/XFR
412 = 120V/XFR	**411L** = 120V/XFR
412 = 240V/XFR	**412L** = 240V/XFR
419 = 277V/XFR	**419L** = 277V/XFR
413 = 380V/XFR	**413L** = 380V/XFR
414 = 480V/XFR	**414L** = 480V/XFR
415 = 600V/XFR	**415L** = 600V/XFR
473 = 6V/FV	**497L** = Full voltage
474 = 12V/FV	
476 = 24V/FV	
477 = 32V/FV	
478 = 48V/FV	
471 = 120V/RES	
472 = 240V/RES	

Incandescent Lens Colour	LED Lens Colour
C21 = Red	**RD** = Red
C22 = Green	**GD** = Green
C23 = Yellow	**YD** = Yellow
C26 = White	**WD** = White
C24 = Blue	**LD** = Blue
C43 = Amber	**AD** = Amber
C25 = Clear	

LED Voltage
Blank = Incandescent
06 = 6 Vac/Vdc
12 = 12 Vac/Vdc
24 = 24 Vac/Vdc
48 = 48 Vac/Vdc
60 = 60 Vac/Vdc
2A = 120 Vac
2D = 120 Vdc

Circuit
Blank = Operator only
1 = 1NO-1NC
2 = 2NO
3 = 2NC
51 = 1NC
53 = 1NO

Standard Indicating Lights, PresTest and Master Test

10250T 203N C1N ___ ①

Light Unit Type	
Standard—Incandescent	**Standard—LED**
181N = 120V/XFR	**181L** = 120V/XFR
182N = 240V/XFR	**182L** = 240V/XFR
198N = 277V/XFR	**198L** = 277V/XFR
183N = 380V/XFR	**183L** = 380V/XFR
184N = 480V/XFR	**184L** = 480V/XFR
185N = 600V/XFR	**185L** = 600V/XFR
203N = 6V/FV	**197L** = Full voltage
204N = 12V/FV	**PresTest—LED**
206N = 24V/FV	**221L** = 120V/XFR
207N = 32V/FV	**222L** = 240V/XFR
208N = 48V/FV	**223L** = 380V/XFR
201N = 120V/RES	**224L** = 480V/XFR
202N = 240V/RES	**225L** = 600V/XFR
226N = 120V/neon	**297L** = Full voltage
227N = 240V/neon	
PresTest—Incandescent	
221N = 120V/XFR	
222N = 240V/XFR	
223N = 380V/XFR	
224N = 480V/XFR	
225N = 600V/XFR	
232N = 6V/FV	
233N = 12V/FV	
235N = 24V/FV	
238N = 32V/FV	
239N = 48V/FV	
231N = 120V/RES	
240N = 240V/RES	
Master Test—Incandescent	
187N = 120V/XFR	
189N = 240 Vac—SS	

Plastic	Glass	Lens Colour	Plastic	Glass	Lens Colour
Standard/Master—Incandescent			**Standard/Master/PresTest—LED**		
C1N =	**C7N** =	Red	**RP** =	**RG** =	Red
C2N =	**C8N** =	Green	**GP** =	**GG** =	Green
C3N =	— =	Yellow	**YP** =	— =	Yellow
C6N =	**C12N** =	White	**WP** =	**WG** =	White
C4N =	**C10N** =	Blue	**LP** =	**LG** =	Blue
C19N =	**C9N** =	Amber	**AP** =	**AG** =	Amber
C5N =	**C11N** =	Clear			
PresTest—Incandescent					
C21 =	**C13N** =	Red			
C22 =	**C14N** =	Green			
C23 =	— =	Yellow			
C26 =	**C18N** =	White			
C24 =	**C16N** =	Blue			
C43 =	**C15N** =	Amber			
C25 =	**C17N** =	Clear			

LED Voltage
Blank = Incandescent
06 = 6 Vac/Vdc
12 = 12 Vac/Vdc
24 = 24 Vac/Vdc
48 = 48 Vac/Vdc
60 = 60 Vac/Vdc
2A

LED Voltage
Blank = Incandescent
06 = 6 Vac/Vdc
12 = 12 Vac/Vdc
24 = 24 Vac/Vdc
48 = 48 Vac/Vdc
60 = 60 Vac/Vdc

Note

① Add **X** at end of catalogue number to receive parts assembled from factory.

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Product Selection

Point-of-Purchase Packaging

Point-of-Purchase Packaged Pilot Device

10250T Point-of-Purchase Packaged Pilot Devices

Product	Description	Catalogue Number
Emergency Stop Operators		
Red non-illuminated push-pull	1NO-1NC contact block. Also includes two square engraved legend plates: EMERG. STOP and STOP.	**10250T5B62-1-POP**
Red mushroom pushbutton	1NO-1NC contact block. Also includes two square engraved legend plates: EMERG. STOP and STOP.	**10250T32R-POP**
Red jumbo mushroom pushbutton	Engraved EMERG. STOP with 1NO-1NC contact block.	**10250T33-POP**
Momentary Pushbuttons		
Black flush pushbutton	1NO-1NC contact block. Also includes two square engraved legend plates: START and JOG.	**10250T30B-POP**
Red extended pushbutton	1NO-1NC contact block. Also includes one square engraved legend plate: STOP.	**10250T31R-POP**
Indicating Lights		
Red indicating light	Full voltage 24 Vac/Vdc with two extra lenses: Green and amber. Also includes two square engraved legend plates: RUN and JOG.	**10250T206NC1N-POP**
Red indicating light	Resistor 120 Vac/Vdc with two extra lenses: Green and Amber. Also includes one square engraved legend plate: RUN and JOG.	**10250T34R-POP**
Illuminated Pushbuttons		
Red illuminating pushbutton	Full voltage 24 Vac/Vdc with 1NO-1NC contact block and two extra lenses: Green and amber. Also includes one square engraved legend plate: POWER ON.	**10250T476C21-1-POP**
Red illuminating pushbutton	Resistor 120 Vac/Vdc with 1NO-1NC contact block and two extra lenses: Green and amber. Also includes one square engraved legend plate: POWER ON.	**10250T411C21-1-POP**
Selector Switches		
Black knob two-position selector switch	1NO-1NC contact block. Also includes three square engraved legend plates: OFF/ON, HAND/AUTO and RUN/JOG.	**10250T20KB-POP**
Black knob three-position selector switch	2NO-2NC contact blocks. Also includes 1 square engraved legend plate: HAND/OFF/AUTO.	**10250T22KB-POP**
Black knob three-position selector switch	1NO-1NC contact block. Also includes legend plate: HAND/OFF/AUTO	**10250T21KB-POP**

Non-Illuminated Momentary Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Flush Button

Extended Button

Mushroom Button

Jumbo Mushroom

Pushbutton Units—Flush, Extended, Mushroom Head or Jumbo Mushroom Head Operators

Contact Type	Button Colour	Flush Button Catalogue Number	Extended Button Catalogue Number	Mushroom Button Catalogue Number	Jumbo Mushroom ① Catalogue Number
1NO	Black	**10250T23B**	**10250T25B**	**10250T26B**	**10250T27B**
	Red	**10250T23R**	**10250T112-53**	**10250T122-53**	**10250T172-53**
	Green	**10250T23G**	**10250T25G**	**10250T26G**	**10250T27G**
	Yellow	**10250T23Y**	**10250T25Y**	**10250T26Y**	**10250T27Y**
	Red—Engraved EMERG. STOP	—	—	—	**10250T17213-53**
1NC	Black	**10250T101-51**	**10250T111-51**	**10250T121-51**	**10250T171-51**
	Red	**10250T102-51**	**10250T25R**	**10250T26R**	**10250T27R**
	Green	**10250T103-51**	**10250T113-51**	**10250T123-51**	**10250T173-51**
	Yellow	**10250T104-51**	**10250T120-51**	**10250T124-51**	**10250T174-51**
	Red—Engraved EMERG. STOP	—	—	—	**10250T29**
1NO-1NC	Black	**10250T30B**	**10250T31B**	**10250T32B**	**10250T33B**
	Red	**10250T30R**	**10250T31R**	**10250T32R**	**10250T33R**
	Green	**10250T30G**	**10250T31G**	**10250T32G**	**10250T33G**
	Yellow	**10250T30Y**	**10250T31Y**	**10250T32Y**	**10250T33Y**
	Red—Engraved EMERG. STOP	—	—	—	**10250T33**
2NO	Black	**10250T101-2**	**10250T111-2**	**10250T121-2**	**10250T171-2**
	Red	**10250T102-2**	**10250T112-2**	**10250T122-2**	**10250T172-2**
	Green	**10250T103-2**	**10250T113-2**	**10250T123-2**	**10250T173-2**
	Yellow	**10250T104-2**	**10250T120-2**	**10250T124-2**	**10250T174-2**
	Red—Engraved EMERG. STOP	—	—	—	**10250T17213-2**
2NC	Black	**10250T101-3**	**10250T111-3**	**10250T121-3**	**10250T171-3**
	Red	**10250T102-3**	**10250T112-3**	**10250T122-3**	**10250T172-3**
	Green	**10250T103-3**	**10250T113-3**	**10250T123-3**	**10250T173-3**
	Yellow	**10250T104-3**	**10250T120-3**	**10250T124-3**	**10250T174-3**
	Red—Engraved EMERG. STOP	—	—	—	**10250T17213-3**

Note

① Anodized aluminum head is not suitable for use in ultraviolet light applications.

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Pushbuttons

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Momentary Pushbutton Operators, Non-illuminated

	Button	Colour	Catalogue Number	
10250T10_	Flush button ①	Black	**10250T101**	
		Red	**10250T102**	
		Green	**10250T103**	
		Yellow	**10250T104**	
		Gray	**10250T105**	
		White	**10250T106**	
		Blue	**10250T108**	
		Orange	**10250T109**	
10250T11_	Extended button	Black	**10250T111**	
		Red	**10250T112**	
		Green	**10250T113**	
		Yellow	**10250T120**	
		White	**10250T116**	
		Blue	**10250T118**	
		Orange	**10250T119**	
10250T5_	Half shrouded button		**Vertical**	**Horizontal**
		Black	**10250T501**	**10250T511**
		Red	**10250T502**	**10250T512**
		Green	**10250T503**	**10250T513**
		Yellow	**10250T504**	**10250T514**
		Gray	**10250T505**	**10250T515**
		White	**10250T506**	**10250T516**
		Blue	**10250T508**	**10250T518**
		Orange	**10250T509**	**10250T519**
10250T12_	Mushroom button	Black	**10250T121**	
		Red	**10250T122**	
		Green	**10250T123**	
		Yellow	**10250T124**	
		Blue	**10250T129**	
10250T17_	Jumbo mushroom button ②	Black	**10250T171**	
		Red	**10250T172**	
		Red (EMERG. STOP)	**10250T17213**	
		Green	**10250T173**	
		Yellow	**10250T174**	
10250ED1164_	Low operating force—jumbo mushroom ②③	Black	**10250ED1164-2**	
		Red	**10250ED1164-3**	
		Green	**10250ED1164-4**	
		Yellow	**10250ED1164-5**	
		Clear	**10250ED1164**	

Notes

① To order operator with factory assembled extended retaining nut, **10250TA12**, for thick panel applications, add suffix letter **E** to listed catalogue number. Example: 10250T101**E**.

② Anodized aluminum head is not suitable for use in ultraviolet light applications.

③ Operating force—Standard = 2.4 lb; low force = 1.6 lb.

Note: To order complete assembled unit using one composite catalogue number, add contact block and legend plate suffix to the end of operator catalogue number. Example: 10250T101-**1TS33**

Operator
10250T101

+

Contact Block
10250T1

+

Legend Plate
10250TS33

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

10250TA_

Mechanically Interlocked Pushbutton Operators

Description	Catalogue Number
Black flush and green flush	**10250TA66**
Black flush and long red	**10250TA67**
Black flush and red mushroom head	**10250TA68**
Black flush and lock-down red mushroom head	**10250TA69** ①
Black flush and red jumbo mushroom head	**10250TA76**
Green flush and long red	**10250TA72**
Black long and long red	**10250TA73**
Green flush and red mushroom head	**10250TA77**
Green flush and black flush	**10250TA75**

Note

① NC contacts must be mounted behind lock-down mushroom head operator to ensure lockout.

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Lockout Pushbutton Operators with Padlock Attachments

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

The following pushbutton and mushroom operators include an integral padlock attachment for applications requiring lockout/tagout of specific machine functions. They are available in styles which allow locking of a button in the down position (stopped position) or locking a button in the up position (to prevent starting). Select the **"Hand"** latch type which functions as a momentary pushbutton until the operator presses the button and moves the padlock attachment into position for locking, or choose the **"Spring Loaded"** latch type where the padlock attachment springs into place when the button is pressed. Units accept a customer supplied 1/4 in padlock.

10250TA16

Padlockable in the Down Position ①

Operator Type	Colour	Latch Type	Catalogue Number
Flush head	Red	Hand	**10250TA16**
Mushroom head	Red	Hand	**10250TA42**
	Red	Spring loaded	**10250TA45**
Jumbo head ②	Red	Hand	**10250TA52**
	Red	Spring loaded	**10250TA55**
	Red (EMERG. STOP)	Spring loaded	**10250ED952**

Padlockable in the Up Position ①

10250TA4_

10250TA5_

Operator Type	Colour	Latch Type	Catalogue Number
Mushroom head	Black	Hand	**10250TA41**
	Green	Hand	**10250TA43**
Jumbo mushroom head ②	Black	Hand	**10250TA51**
	Green	Hand	**10250TA53**
	Yellow	Hand	**10250TA54**

Notes

Hand attachment must be manually moved into place for locking. Spring loaded: when operator is pressed—attachment springs into place. Must be moved manually to release button.

① Operators can be latched down without a padlock. Padlock not included.

② Jumbo mushroom heads are not recommended for use in applications where exposure to ultraviolet light exists.

Key Pushbutton Operator

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

These devices incorporate an integral locking mechanism which enables locking units in various positions (**Locked Down**), locking units to prevent operation (**Locked Up**) or setting unit to lock when the button is pressed (**Push to Lock**), requiring the key to be inserted to return to normal operation. With the key in the centre position, these operators function as a normal momentary pushbutton (**Free**).

Replacement Keys or Dissimilar Locks for Key Operators Below

Listed operators have identical locks and keys (Key Code H661) Catalogue Number 10250ED824. For dissimilar lock and key combinations, see listing on **Page T37-198.**

Replacement Keys

Description	Catalogue Number
Replacement keys (code H661)	**10250ED824**

10250T43_

Key Pushbutton Operator

Key Position and Pushbutton Operations			Key Removal Positions	Vertical Mounting ① Catalogue Number
↖	↑	↗		
Three-Position				
Lock up	Free	Lock down	All	**10250T430**
Lock up	Free	Lock down	L and R	**10250T431**
Lock up	Free	Lock down	C and R	**10250T432**
Two-Position				
Lock up	Free	—	L and C	**10250T433**
Lock up	Free	—	L	**10250T434**
—	Free	Lock down	C and R	**10250T435**
—	Free	Lock down	R	**10250T436**
—	Free	Push to lock	C and R	**10250T437**
—	Free	Push to lock	R	**10250T438**

Latch-In, Twist-to-Release Operator

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

10250ED1043-4

Operator Only with Button

Description	Catalogue Number
Latch-in, twist-to-release operator with red mushroom head button	**10250ED1043-4**

Note

① Horizontal mounting available on request.

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Illuminated Momentary Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- LED or incandescent
- Full voltage, resistor or transformer type
- Plastic lenses

24V Full Voltage Illuminated Pushbutton

Illuminated Pushbutton Units

Type	Voltage	Colour	LED/Lamp Number	Illuminated Pushbutton 1NO Catalogue Number	1NO-1NC Catalogue Number	1NC Catalogue Number
LED Lamp						
Full voltage	24 Vac/Vdc	Red	Bayonet base	**10250T397LRD24-53**	**10250T397LRD24-1**	**10250T397LRD24-51**
		Green		**10250T397LGD24-53**	**10250T397LGD24-1**	**10250T397LGD24-51**
		Amber		**10250T397LAD24-53**	**10250T397LAD24-1**	**10250T397LAD24-51**
		Yellow		**10250T397LYD24-53**	**10250T397LYD24-1**	**10250T397LYD24-51**
		Blue		**10250T397LLD24-53**	**10250T397LLD24-1**	**10250T397LLD24-51**
		White		**10250T397LWD24-53**	**10250T397LWD24-1**	**10250T397LWD24-51**
	120 Vac	Red		**10250T397LRD2A-53**	**10250T397LRD2A-1**	**10250T397LRD2A-51**
		Green		**10250T397LGD2A-53**	**10250T397LGD2A-1**	**10250T397LGD2A-51**
		Amber		**10250T397LAD2A-53**	**10250T397LAD2A-1**	**10250T397LAD2A-51**
		Yellow		**10250T397LYD2A-53**	**10250T397LYD2A-2**	**10250T397LYD2A-51**
		Blue		**10250T397LLD2A-53**	**10250T397LLD2A-1**	**10250T397LLD2A-51**
		White		**10250T397LWD2A-53**	**10250T397LWD2A-1**	**10250T397LWD2A-51**
Transformer	120 Vac	Red		**10250T411LRD06-53**	**10250T411LRD06-1**	**10250T411LRD06-51**
		Green		**10250T411LGD06-53**	**10250T411LGD06-1**	**10250T411LGD06-51**
		Amber		**10250T411LAD06-53**	**10250T411LAD06-1**	**10250T411LAD06-51**
		Yellow		**10250T411LYD06-53**	**10250T411LYD06-1**	**10250T411LYD06-51**
		Blue		**10250T411LLD06-53**	**10250T411LLD06-1**	**10250T411LLD06-51**
		White		**10250T411LWD06-53**	**10250T411LWD06-1**	**10250T411LWD06-51**
Incandescent Lamp						
Full voltage	24 Vac/Vdc	Red	#757	**10250T476C21-53**	**10250T476C21-1**	**10250T476C21-51**
		Green		**10250T476C22-53**	**10250T476C22-1**	**10250T476C22-51**
		Amber		**10250T476C43-53**	**10250T476C43-1**	**10250T476C43-51**
		Yellow		**10250T476C23-53**	**10250T476C23-1**	**10250T476C23-51**
		Blue		**10250T476C24-53**	**10250T476C24-1**	**10250T476C24-51**
		Clear		**10250T476C25-53**	**10250T476C25-1**	**10250T476C25-51**
		White		**10250T476C26-53**	**10250T476C26-1**	**10250T476C26-51**
Resistor	120 Vac/Vdc	Red	120MB	**10250T471C21-53**	**10250T471C21-1**	**10250T471C21-51**
		Green		**10250T471C22-53**	**10250T471C22-1**	**10250T471C22-51**
		Amber		**10250T471C43-53**	**10250T471C43-1**	**10250T471C43-51**
		Yellow		**10250T471C23-53**	**10250T471C23-1**	**10250T471C23-51**
		Blue		**10250T471C24-53**	**10250T471C24-1**	**10250T471C24-51**
		Clear		**10250T471C25-53**	**10250T471C25-1**	**10250T471C25-51**
		White		**10250T471C26-53**	**10250T471C26-1**	**10250T471C26-51**
Transformer	120 Vac	Red	#755	**10250T75R** ①	**10250T76R** ①	**10250T77R** ①
		Green		**10250T75G** ①	**10250T76G** ①	**10250T77G** ①
		Amber		**10250T75A** ①	**10250T76A** ①	**10250T77A** ①
		Yellow		**10250T75Y** ①	**10250T76Y** ①	**10250T77Y** ①
		Blue		**10250T75B** ①	**10250T76B** ①	**10250T77B** ①
		Clear		**10250T75C** ①	**10250T76C** ①	**10250T77C** ①
		White		**10250T75W** ①	**10250T76W** ①	**10250T77W** ①

Note

① For flashing module catalogue number 10250TFL1, add suffix code **FM** to listed catalogue number. Example: 10250T75R**FM**.

Indicating Light Units ①

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- LED or incandescent
- Full voltage, resistor or transformer type
- Standard and PresTest types
- Plastic lenses

PresTest—This device incorporates a press-to-test feature whereby depressing the lens disconnects the light from the source being monitored and connects the lamp to a continuously energized circuit for immediate detection of faulty lamps.

24V Full Voltage Illuminated Light

120 Vac Transformer PresTest

Indicating Light Units

Type	Voltage	Colour	LED/Lamp Number	Indicating Light Catalogue Number	PresTest Catalogue Number
LED Lamp					
Full voltage	24 Vac/Vdc	Red	Bayonet base	**10250T197LRP24**	**10250T297LRP24**
		Green		**10250T197LGP24**	**10250T297LGP24**
		Amber		**10250T197LAP24**	**10250T297LAP24**
		Yellow		**10250T197LYP24**	**10250T297LYP24**
		Blue		**10250T197LLP24**	**10250T297LLP24**
		White		**10250T197LWP24**	**10250T297LWP24**
	120 Vac	Red		**10250T197LRP2A**	**10250T297LRP2A**
		Green		**10250T197LGP2A**	**10250T297LGP2A**
		Amber		**10250T197LAP2A**	**10250T297LAP2A**
		Yellow		**10250T197LYP2A**	**10250T297LYP2A**
		Blue		**10250T197LLP2A**	**10250T297LLP2A**
		White		**10250T197LWP2A**	**10250T297LWP2A**
Transformer	120 Vac	Red		**10250T181LRP06**	**10250T221LRP06**
		Green		**10250T181LGP06**	**10250T221LGP06**
		Amber		**10250T181LAP06**	**10250T221LAP06**
		Yellow		**10250T181LYP06**	**10250T221LYP06**
		Blue		**10250T181LLP06**	**10250T221LLP06**
		White		**10250T181LWP06**	**10250T221LWP06**
Incandescent Lamp					
Full voltage	24 Vac/Vdc	Red	#757	**10250T206NC1N**	**10250T235NC21**
		Green		**10250T206NC2N**	**10250T235NC22**
		Amber		**10250T206NC19N**	**10250T235NC43**
		Yellow		**10250T206NC3N**	**10250T235NC23**
		Blue		**10250T206NC4N**	**10250T235NC24**
		Clear		**10250T206NC5N**	**10250T235NC25**
		White		**10250T206NC6N**	**10250T235NC26**
Resistor	120 Vac/Vdc	Red	120MB	**10250T201NC1N**	**10250T231NC21**
		Green		**10250T201NC2N**	**10250T231NC22**
		Amber		**10250T201NC19N**	**10250T231NC43**
		Yellow		**10250T201NC3N**	**10250T231NC23**
		Blue		**10250T201NC4N**	**10250T231NC24**
		Clear		**10250T201NC5N**	**10250T231NC25**
		White		**10250T201NC6N**	**10250T231NC26**
Transformer ②	120 Vac	Red	#755	**10250T34R**	**10250T74NR**
		Green		**10250T34G**	**10250T74NG**
		Amber		**10250T34A**	**10250T74NA**
		Yellow		**10250T34Y**	**10250T74NY**
		Blue		**10250T34B**	**10250T74NB**
		Clear		**10250T34C**	**10250T74NC**
		White		**10250T34W**	**10250T74NW**

Notes

① Standard indicating lights are rated UL (NEMA) 3S as well.

② For flashing lamp add letter **F** to listed catalogue number. Example: 10250T34R**F**.

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Illuminated Pushbuttons and Indicating Lights

- LED or incandescent
- Full voltage, resistor or transformer type

Illuminated Pushbutton

Indicating Light

PresTest

Master Test

Operators without Lens

Type	Voltage	LED/Lamp Number	Illuminated Pushbutton Catalogue Number	Indicating Light Catalogue Number	PresTest Catalogue Number	Master Test Catalogue Number
Incandescent Unit						
Full voltage AC/DC	6	#755	**10250T473**	**10250T203N**	**10250T232N**	—
	12	#756	**10250T474**	**10250T204N**	**10250T233N**	—
	24	#757	**10250T476**	**10250T206N**	**10250T235N**	—
	32	#1828	**10250T477**	**10250T207N**	**10250T238N**	—
	48	#1835	**10250T478**	**10250T208N**	**10250T239N**	—
Resistor AC/DC ②	120	120MB	**10250T47**	**10250T201N**	**10250T231N**	—
	240	120MB	**10250T472**	**10250T202N**	**10250T240N**	—
Transformer AC only ③	24	#755	**10250T416**	—	—	—
	120		**10250T411**	**10250T181N**	**10250T221N**	—
	240		**10250T422**	**10250T182N**	**10250T222N**	—
	277		**10250T419**	**10250T198N**	—	—
	380		**10250T413**	**10250T183N**	**10250T223N**	—
	480		**10250T414**	**10250T184N**	**10250T224N**	—
	600		**10250T415**	**10250T185N**	**10250T225N**	—
Neon AC/DC ④	120	NE51H-R22	—	**10250T226N**	—	—
	240	NE51H-R68	—	**10250T227N**	—	—
Solid-state 50/60 Hz only	120	120MB	—	—	—	**10250T189N**
LED (LEDs not included) ①						
Full voltage	—	Bayonet base	**10250T397L**	**10250T197L**	**10250T297L**	—
Transformer AC only	24		**10250T416L**	—	—	—
	120		**10250T411L**	**10250T181L**	**10250T221L**	—
	240		**10250T412L**	**10250T182L**	**10250T222L**	—
	277		**10250T419L**	**10250T198L**	—	—
	380		**10250T413L**	**10250T183L**	**10250T223L**	—
	480		**10250T414L**	**10250T184L**	**10250T224L**	—
	600		**10250T415L**	**10250T185L**	**10250T225L**	—

Notes

① These units do not include lamps. Order LED separately to match lens colour. See **Page T37-225** for LED Selection and **Page T37-171** for Catalogue Numbering System.
② Resistor units are not available for use with LEDs, choose either transformer or full voltage LED style.
③ For flashing lamp, add letter **F** to listed catalogue number. Example: 10250T181N**F.**
④ Resistant to shock and vibration. For best illumination use amber, yellow or clear lens.

Indicating and Master Test Lenses

Plastic

Glass

Colour	Plastic Catalogue Number	Glass Catalogue Number
Red	**10250TC1N**	**10250TC7N**
Green	**10250TC2N**	**10250TC8N**
Amber	**10250TC19N**	**10250TC9N**
Yellow	**10250TC3N**	—
Blue	**10250TC4N**	**10250TC10N**
Clear	**10250TC5N**	**10250TC11N**
White	**10250TC6N**	**10250TC12N**

Illuminated Pushbutton Lenses

10250TC2_

Colour	Catalogue Number
Red	**10250TC21**
Green	**10250TC22**
Yellow	**10250TC23**
Amber	**10250TC43**
Blue	**10250TC24**
Clear	**10250TC25**
White	**10250TC26**

PresTest Lenses

Plastic

Glass

Colour	Plastic Catalogue Number	Glass Catalogue Number
Red	**10250TC21**	**10250TC13N**
Green	**10250TC22**	**10250TC14N**
Amber	**10250TC43**	**10250TC15N**
Yellow	**10250TC23**	—
Blue	**10250TC24**	**10250TC16N**
Clear	**10250TC25**	**10250TC17N**
White	**10250TC26**	**10250TC18N**

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Push-Pull Emergency Stops (Compliant with IEC 60947-5-5)

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Two- and three-position
- Non-illuminated
- LONC contact block

10250T579C47-71X

Two-Position Push-Pull Units

Operator Position ①

Pull	Push	Button Type/Colour	Lamp	Type	Voltage	Catalogue Number
X	0	40 mm red—illuminated	Incandescent	Transformer	120 Vac/Vdc	**10250T563C47-71X**
X	0	40 mm red—illuminated EMERG. STOP	Incandescent	Transformer	120 Vac/Vdc	**10250T563C53-71X**
X	0	40 mm red—illuminated EMERG. STOP	LED	Transformer	120 Vac/Vdc	**10250T563LED06-71X**
X	0	40 mm red—illuminated	Incandescent	Full voltage	24 Vdc	**10250T579C47-71X**
X	0	40 mm red—illuminated EMERG. STOP	Incandescent	Full voltage	24 Vdc	**10250T579C53-71X**
X	0	40 mm red—illuminated	Incandescent	Resistor	120 Vac/Vdc	**10250T580C47-71X**
X	0	40 mm red—illuminated EMERG. STOP	Incandescent	Resistor	120 Vac/Vdc	**10250T580C53-71X**
X	0	40 mm red—illuminated	Incandescent	Transformer	24 Vdc	**10250T589C47-71X**
X	0	40 mm red—illuminated EMERG. STOP	Incandescent	Transformer	24 Vdc	**10250T589C53-71X**
X	0	40 mm red—illuminated EMERG. STOP	LED	Transformer	24 Vdc	**10250T589LED06-71X**
X	0	40 mm red—illuminated	LED	Transformer	24 Vdc	**10250T589LRD06-71X**
X	0	40 mm red—illuminated EMERG. STOP	LED	Full voltage	24 Vdc	**10250T597LED24-71X**
X	0	40 mm red—illuminated EMERG. STOP	LED	Full voltage	120 Vac/Vdc	**10250T597LED2A-71X**
X	0	40 mm red—illuminated	LED	Full voltage	24 Vdc	**10250T597LRD24-71X**
X	0	40 mm red—illuminated	LED	Full voltage	120 Vac/Vdc	**10250T597LRD2A-71X**
X	0	40 mm red	—	—	—	**10250T5B62-71X**
X	0	40 mm red	—	—	—	**10250T5B63-71X**
X	0	65 mm red	—	—	—	**10250T5J62-71X**
X	0	65 mm red	—	—	—	**10250T5J63-71X**

Note

① X = closed circuit, 0 = open circuit.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Two-Position Push-Pull Units

	Operator Position ① Pull	Push	Button Type/Colour ②	Contact Type	Mounting Location A	Mounting Location B	Catalogue Number ②
	Two-Position Maintained Push, Maintained Pull						
10250T5B62-1X	0 X	X 0	40 mm/red	1NO			**10250T5B62-1X**
				1NC			
10250T5B63-1X	0 X	X 0	40 mm engraved EMERG. STOP/red	1NO			**10250T5B63-1X**
				1NC			
10250T5J63-1X	0 X	X 0	65 mm aluminum engraved EMERG. STOP/red	1NO			**10250T5J63-1X**
				1NC			
10250ED1080-2	0 X	X 0	65 mm aluminum engraved EMERG. STOP/red	1NO			**10250ED1080-2**
			Special security jumbo mushroom head	1NC			

Button and Colour Selection

	Colour	Suffix Code	Catalogue Number
Standard	**Standard—40 mm**		
	Red	**B62**	**10250TB62**
	Red (EMERG. STOP)	**B63**	**10250TB63**
	Green	**B61**	**10250TB61**
	Black	**B60**	**10250TB60**
	Blue	**B64**	**10250TB64**
Jumbo Mushroom Head	**Jumbo Mushroom Head ③ (Anodized) Aluminum—65 mm**		
	Red	**J62**	**10250TJ62**
	Red (EMERG. STOP)	**J63**	**10250TJ63**
	Green	**J61**	**10250TJ61**
	Black	**J60**	**10250TJ60**
	Yellow	**J64**	**10250TJ64**

Notes

① X = closed circuit, O = open circuit.

② To order different type or colour buttons, substitute the underlined characters with appropriate suffix code from the table. Example: 10250T5**B64**-1X.

③ Anodized aluminum head is not suitable for use in ultraviolet light applications.

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UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

10250T_

Three-Position Push-Pull Units

Operator Position ① Pull	Intermediate	Push	Button Type/Colour ②	Contact Type	Mounting Location A	Mounting Location B	Catalogue Number ②
Maintained Push, Momentary Pull							
X	0	0	40 mm/black	1NC	○ | ○		**10250T9B60-3X**
X	X	0	40 mm/red	1NC		○ | ○	**10250T9B62-3X**
			40 mm engraved EMERG. STOP/red				**10250T9B63-3X**
Momentary Push, Momentary Pull							
X	0	0	40 mm/black	1NC	○ | ○		**10250T4B60-3X**
X	X	0	40 mm/red	1NC		○ | ○	**10250T4B62-3X**
0	0	X	40 mm/black	1NO	| ○		**10250T10B60-1X**
X	0	0	40 mm/red	1NC		○ | ○	**10250T10B62-1X**

Button and Colour Selection

Standard

Colour	Suffix Code	Catalogue Number
Standard—40 mm		
Red	**B62**	**10250TB62**
Red (EMERG. STOP)	**B63**	**10250TB63**
Green	**B61**	**10250TB61**
Black	**B60**	**10250TB60**
Blue	**B64**	**10250TB64**

Jumbo Mushroom Head

Colour	Suffix Code	Catalogue Number
Jumbo Mushroom Head ③ (Anodized) Aluminum—65 mm		
Red	**J62**	**10250TJ62**
Red (EMERG. STOP)	**J63**	**10250TJ63**
Green	**J61**	**10250TJ61**
Black	**J60**	**10250TJ60**
Yellow	**J64**	**10250TJ64**

Notes

① X = closed circuit, 0 = open circuit.

② To order different type or colour buttons, substitute the underlined characters with appropriate suffix code from the table. Example: 10250T5**B64**-1X.

③ Anodized aluminum head is not suitable for use in ultraviolet light applications.

Illuminated Push-Pull Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- LED or incandescent
- Full voltage, resistor or transformer type
- Two-position maintained

Two-Position Push-Pull Operator

Two-Position Illuminated Maintained Push, Maintained Pull

Operator Position ①

Maintained—Pull	Maintained—Push	Lamp	Type	Voltage	Contact Type	Mounting Location A	Mounting Location B	LED/Lamp Number	Red Standard Push-Pull Catalogue Number ②
0	X	LED	Full Voltage	24 Vac/Vdc	1NO			Bayonet base	**10250T597LRD24-1X**
X	0			120 Vac/Vdc	1NC				**10250T597LRD2A-1X**
			Transformer	24 Vac					**10250T589LRD06-1X**
				120 Vac					**10250T563LRD06-1X**
0	X	Incandescent	Full voltage	24 Vac/Vdc	1NO			#757	**10250T579C47-1X**
X	0		Resistor	120 Vac/Vdc	1NC			120MB	**10250T580C47-1X**
			Transformer	24 Vac				#755	**10250T589C47-1X**
				120 Vac					**10250T563C47-1X**

10250ED137_

Jumbo Lens Illuminated E-Stops

Lamp	Button Type/Colour	Type	Voltage	Contact Type	Catalogue Number
LED	Two-position illuminated maintained push/pull—50 mm jumbo lens/red	Full voltage	24 Vac/Vdc	1NO 1NC	**10250ED1375**
LED	Three-position illuminated momentary push/pull—50 mm jumbo lens/red	Full voltage	24 Vac/Vdc	1NC 1NC	**10250ED1376**
LED	Three-position illuminated momentary push/pull—50 mm jumbo lens/red	Full voltage	24 Vac/Vdc	1NO 1NC	**10250ED1377**
LED	Three-position illuminated maintained push/momentary pull—50 mm lens/red	Full voltage		1NO 1NC	**10250ED1378**

Notes

① X = closed circuit, 0 = open circuit.

② To order different type or colour lens, substitute the underlined characters with appropriate suffix code from table on next page. Example: 10250T579**C63**-1X. For LEDs with different voltages see ordering example on **Page T37-191**.

Lens and Colour Selection

Standard

Colour	Incandescent Suffix Code	LED Suffix Code	Catalogue Number
Standard—40 mm			
Red	**C47**	**RD**	**10250TC47**
Red (EMERG. STOP)	**C53**	**ED**	**10250TC53**
Green	**C48**	**GD**	**10250TC48**
Blue	**C49**	**LD**	**10250TC49**
Amber	**C50**	**AD**	**10250TC50**
White	**C51**	**WD**	**10250TC51**
Clear	**C52**	**CD**	**10250TC52**

Side-Lighted Aluminum

Side-Lighted Aluminum—40 mm ①			
Red	**C57**	**RS**	**10250TC57**
Red (EMERG. STOP)	**C63**	**ES**	**10250TC63**
Green	**C58**	**GS**	**10250TC58**
Blue	**C59**	**LS**	**10250TC59**
Amber	**C64**	**AS**	**10250TC64**
Yellow	**C60**	**YS**	**10250TC60**
White	**C61**	**WS**	**10250TC61**
Clear	**C62**	**CS**	**10250TC62**

Aluminum Transparent Centre

Aluminum Transparent Centre—40 mm ①			
Red	**C65**	**RH**	**10250TC65**
Green	**C66**	**GH**	**10250TC66**
Amber	**C67**	**AH**	**10250TC67**

Jumbo Lens

Jumbo Lens—50 mm			
Red	—	—	**10250TC77**

Note

① Clear anodized aluminum and colored lens.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Three-Position Push-Pull Operator

Three-Position Illuminated Momentary Push, Momentary Pull

Operator Position ①

Momentary—Pull	Maintained—Intermediate	Momentary—Push	Lamp	Type	Voltage	Contact Type	Mounting Location A	Mounting Location B	LED/ Lamp Number	Red Standard Push-Pull Catalogue Number ③
0	0	X	LED	Full voltage	24 Vac/Vdc	1NO			Bayonet base	**10250T1097LRD24-1X**
X	0	0			120 Vac	1NC				**10250T1097LRD2A-1X**
				Transformer	24 Vac					**10250T1089LRD06-1X**
					120 Vac					**10250T1063LRD06-1X**
X	0	0		Full voltage	24 Vac/Vdc	1NC			Bayonet base	**10250T497LRD24-3X**
X	X	0			120 Vac	1NC				**10250T497LRD2A-3X**
				Transformer	24 Vac					**10250T489LRD06-3X**
					120 Vac					**10250T463LRD06-3X**
0	0	X	Incan-descent	Full voltage	24 Vac/Vdc	1NO			#757	**10250T1079C47-1X**
X	0	0		Resistor	120 Vac	1NC			120MB	**10250T1080C47-1X**
				Transformer	24 Vac				#755	**10250T1089C47-1X**
					120 Vac					**10250T1063C47-1X**
X	0	0		Full voltage	24 Vac/Vdc	1NC			#757	**10250T479C47-3X**
X	X	0		Resistor	120 Vac	1NC			120MB	**10250T480C47-3X**
				Transformer	24 Vac				#755	**10250T489C47-3X**
					120 Vac					**10250T463C47-3X**

Three-Position Push-Pull Operator

Three-Position Illuminated Maintained Push, Momentary Pull

Operator Position ①

Momentary—Pull	Maintained—Intermediate	Momentary—Push	Lamp	Type	Voltage	Contact Type	Mounting Location A	Mounting Location B	LED/ Lamp Number	Red Standard Push-Pull Catalogue Number ②
X	0	0	LED	Full voltage	24 Vac/Vdc	1NC			Bayonet base	**10250T997LRD24-3X**
X	X	0			120 Vac	1NC				**10250T997LRD2A-3X**
				Transformer	24 Vac					**10250T989LRD06-3X**
					120 Vac					**10250T963LRD06-3X**
X	0	0	Incan-descent	Full voltage	24 Vac/Vdc	1NC			#757	**10250T979C47-3X**
X	X	0		Resistor	120 Vac	1NC			120MB	**10250T980C47-3X**
				Transformer	24 Vac				#755	**10250T989C47-3X**
					120 Vac					**10250T963C47-3X**

Notes

① X = closed circuit, O = open circuit.

② To order different type or colour lens, substitute the underlined characters with appropriate suffix code from table on **Page T37-186.** Example: 10250T1079**C53**-1X. For LEDs with different voltages see ordering example on **Page T37-191**.

③ To order different type or colour lens, substitute the underlined characters with appropriate suffix code from table on **Page T37-186**. Example: 10250T979**C53**X. For LEDs with different voltages see ordering example on **Page T37-191**.

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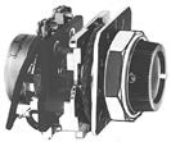
Potentiometers

UL (NEMA) Type 3, 3R, 4, 12, 13

Vertical or Horizontal ①
One-Hole Mounting



Potentiometer with Knob and Standard Dial Plate—Linear Type ±10%

Potentiometer Ohms	Catalogue Number
2 Watt (60V Max.) Single Potentiometer with Standard Aluminum Dial Plate ②③	
1000	**10250T331**
2500	**10250T332**
5000	**10250T338**
10000	**10250T333**
25000	**10250T334**
50000	**10250T335**
Operator only ④	**10250T330**
Alternative—black plastic large legend with standard markings	**E34LP99**

Notes

① Shown with standard aluminum dial plate.

② Large dial plate with space for legend is available at no charge. To order, add suffix **36** to catalogue number. Example: 10250T331**36**. To order separately, see footnote ③ below.

③ Large dial plate has space at top for 15 letters. 3/32 in high. For custom stamped legend plates, order legend plate as separate item **10250TR30** and specify stamping.

④ For use with commercially purchased potentiometers having shaft dimensions per dimension drawing on **Page T37-235**.

Push-Pull Operators

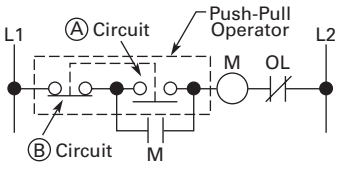
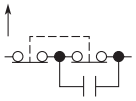
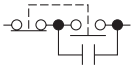
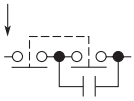
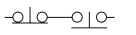
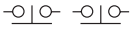
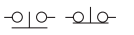
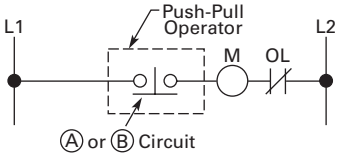
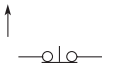
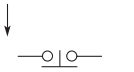
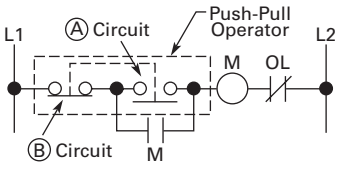
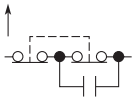
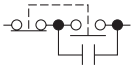
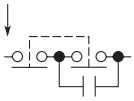
An illuminated push-pull pushbutton unit, arranged for one-hole mounting, can replace two pushbuttons and a pilot light or the non-illuminated form can replace two pushbuttons. These units are available in three basic types:

- **Maintained**—(Two-position). Maintains in the pulled or pushed position until manually actuated to the opposite mode.
- **Momentary**—(Three-position). Spring returns to an intermediate position when pulled or pushed and released.
- **Momentary Pull, Maintained Push**—(Three-position). Spring returns to intermediate position when pulled. Maintains in pushed position until manually returned to intermediate (ready to reset) position. Maintained stop holds circuit open and will prevent other series connected operators from starting the system.

The operators, buttons, contact blocks, etc., are offered as building block components that can be intermixed to satisfy many requirements. This minimizes the need for a varied and costly inventory.

Two-Position Maintained Push-Pull ①

Typical Applications

Control	Line—Diagram	Operator	Circuits	Operator Mode		
Three-wire three-position momentary		Momentary push and pull 10250T4	2NC contact block 10250T3	START (mom.) 	Normal pos. (maint.) 	STOP (mom.) 
		Momentary push and pull 10250T10	1NO-1NC contact block 10250T1			
Two-wire two-position maintained		Maintained push and pull 10250T5	1NC contact block 10250T51	START (maint.) 	No intermediate position	STOP (maint.) 
Three-wire momentary pull maintained push		Maintained push and momentary pull 10250T9	2NC contact block 10250T3	START (mom.) 	Normal pos. (maint.) 	STOP (maint.) 

Notes

A and **B** circuits shown in the application illustrations are defined in the "Application Guide" on the following page.

① Shown without button on lens.

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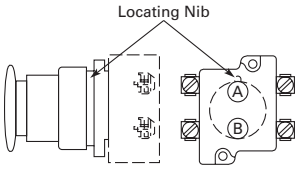
Application Guide

To assist in the selection of contact blocks, the sketch to the right shows pictorially by symbols **A** and **B** locations of contact circuits after assembly of contact blocks and adapter to the operator. The table below shows the effect of the push and pull operations on either NO or NC contacts. (X = contact closed, O = contact open).

Contact Circuit Locations



10250T579C47-71X

Push-Pull Operator Components

Operator Position and Circuit Arrangement

Out—Pull | **Intermediate** | **In—Push**

Contact Block Mounting Location

Type of Operator	A		B	A		B	A		B	Contact Block ①	Catalogue Number
Two-Position Operator without Lens											
Maintained push-pull	0 X	or	0 X	No intermediate position			X 0	or	X 0	1NO 1NC	**10250T5**
	0 X		0 X				X 0		X 0	2NO 2NC	
Maintained push-pull with anti-theft jumbo mushroom	0 X	or	0 X	No intermediate position			X 0	or	X 0	1NO 1NC	**10250ED1080**
	0 X		0 X				X 0		X 0	2NO 2NC	
Three-Position Operator without Lens											
Momentary push-pull	0 X	or	0 X	0 0	or	0 X	X 0	or	0 0	1NO 1NC	**10250T4** ①
	0 X		0 X	0 0		0 X	X 0		0 0	2NO 2NC	
Maintained push-momentary pull	0 X	or	0 X	0 0	or	0 X	X 0	or	0 0	1NO 1NC	**10250T9** ①
	0 X		0 X	0 0		0 X	X 0		0 0	2NO 2NC	
Momentary push-pull	0 X	or	0 X	0 0	or	0 0	X 0	or	X 0	1NO 1NC	**10250T10** ①
	0 X		0 X	0 0		0 0	X 0		X 0	2NO 2ND	

Note

① Maximum of two blocks, four circuits. Special function contact blocks shown on **Page T37-221** CANNOT be used with three-position push-pull operators 10250T4, 10250T9 or 10250T10.

Push-Pull Light Units, Lenses and Buttons

Ordering Example with One Composite Number

Non-illuminated:
10250T5 + 10250TB62 + 10250T1 = **10250T5B62-1X**

Incandescent:
10250T5 + 10250T79 + 10250TC47 + 10250T1 = **10250T579C47-1X**

LED:
10250T5 + 10250T97L + 10250TC47 + Voltage code + 10250T1 = **10250T597LRD24-1X**

06—6 Vac/Vdc
12—12 Vac/Vdc
24—24 Vac/Vdc
48—48 Vac/Vdc
60—60 Vac/Vdc
2A—120 Vac
2D—120 Vdc

Light Units for Illuminated Push-Pull Devices

Light Unit Type	Type	Voltage	LED/Lamp Number	Catalogue Number
LED (LEDs not included) ①	Full voltage	—	Bayonet base	**10250T97L**
	Transformer AC only 50/60 Hz	24		**10250T89L**
		120		**10250T63L**
		208		**10250T64L**
		240		**10250T65L**
		277		**10250T82L**
		380		**10250T66L**
		480		**10250T67L**
		600		**10250T68L**
Incandescent	Full voltage AC or DC	6		**10250T69**
		12		**10250T70**
		24/28		**10250T79**
		32		**10250T83**
	Resistor AC or DC	120	120MB	**10250T80**
		240		**10250T81**
	Transformer AC only 50/60 Hz	24	#755	**10250T89**
		120		**10250T63**
		208		**10250T64**
		240		**10250T65**
		277		**10250T82**
		380		**10250T66**
		480		**10250T67**
		600		**10250T68**

Note

① These units do not include lamps. Order LED separately to match lens colour, see **Page T37-225**.

Alternate Lenses for Illuminated Push-Pull Devices

Standard

Side-Lighted Anodized Aluminum Ring

Heavy-Duty Aluminum

Jumbo Lens

Lens Colour	Incandescent Suffix Code	LED Suffix Code ①	Catalogue Number
Standard			
Red	**C47**	**RD**	**10250TC47**
Red (EMERG. STOP)	**C53**	**ED**	**10250TC53**
Green	**C48**	**GD**	**10250TC48**
Blue	**C49**	**LD**	**10250TC49**
Amber	**C50**	**AD**	**10250TC50**
White	**C51**	**WD**	**10250TC51**
Clear	**C52**	**CD**	**10250TC52**
Side-Lighted Anodized Aluminum Ring			
Red	**C57**	**RS**	**10250TC57**
Red (EMERG. STOP)	**C63**	**ES**	**10250TC63**
Green	**C58**	**GS**	**10250TC58**
Blue	**C59**	**LS**	**10250TC59**
Amber	**C64**	**AS**	**10250TC64**
Yellow	**C60**	**YS**	**10250TC60**
White	**C61**	**WS**	**10250TC61**
Clear	**C62**	**CS**	**10250TC62**
Heavy-Duty Aluminum with Transparent Centre			
Red	**C65**	**RH**	**10250TC65**
Green	**C66**	**GH**	**10250TC66**
Amber	**C67**	**AH**	**10250TC67**
Blue	**C69**	—	**10250TC69**
White	**C68**	—	**10250TC68**
Jumbo Lens—50 mm			
Red	—	—	**10250TC77**

Buttons for Non-Illuminated Push-Pull Devices

Standard

Jumbo Mushroom Head

Colour	Suffix Code	Catalogue Number
Standard		
Red	**B62**	**10250TB62**
Red (EMERG. STOP)	**B63**	**10250TB63**
Green	**B61**	**10250TB61**
Black	**B60**	**10250TB60**
Blue	**B64**	**10250TB64**
Jumbo Mushroom Head ② (Anodized) Aluminum		
Red	**J62**	**10250TJ62**
Red (EMERG. STOP)	**J63**	**10250TJ63**
Green	**J61**	**10250TJ61**
Black	**J60**	**10250TJ60**
Yellow	**J64**	**10250TJ64**

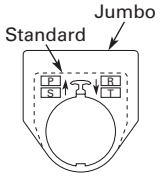
Notes

① Suffix codes should only be used for assembling composite catalogue numbers. To order lens above, order by catalogue number.

② Anodized aluminum head is not suitable for use in ultraviolet light applications.

Legend Plates

For a complete listing of available legend plates see **Pages T37-216** to **T37-218**.



Selector Switch Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Two-, three- and four-position maintained
- Non-illuminated and illuminated

Two-Position Maintained Switch

Two-Position Selector Switch

Operator Position ①		Operator Action ②	Contact Type	Mounting Location A	Mounting Location B	Non-Illuminated Black Knob Catalogue Number ③	Black Lever Catalogue Number ③	Illuminated—120V Transformer Red Knob Catalogue Number ③	Red Lever Catalogue Number ③
X	0	M M	1NC			10250T20K**B**	10250T20L**B**	10250ED1117-K**R**	10250ED1117-L**R**
0	X		1NO						

Three-Position Maintained Switch

Three-Position Maintained Switch

Three-Position Selector Switch

Operator Position ①			Operator Action ②	Contact Type	Mounting Location A	Mounting Location B	Non-Illuminated Black Knob Catalogue Number ③	Black Lever Catalogue Number ③	Illuminated—120V Transformer Red Knob Catalogue Number ③	Red Lever Catalogue Number ③
X	0	0	M M M	1NO			10250T21K**B**	10250T21L**B**	10250ED1117-2K**R**	10250ED1117-2L**R**
0	0	X		1NO						
X	0	0		1NO			10250T22K**B**	10250T22L**B**	10250ED1117-3K**R**	10250ED1117-3L**R**
0	X	0		2NC (Series)						
0	0	X		1NO						

Three-Position Maintained Switch

Four-Position Selector Switch

Operator Position ①				Operator Action ②	Contact Type	Mounting Location A	Mounting Location B	Non-Illuminated Black Knob Catalogue Number ③	Black Lever Catalogue Number ③	Illuminated—120V Transformer Red Knob Catalogue Number ③	Red Lever Catalogue Number ③
X	0	0	0	M M M M	1NC			10250T46K**B**	10250T46L**B**	10250ED1117-4K**R**	10250ED1117-4L**R**
0	X	0	0		1NO						
0	0	X	0		1NO						
0	0	0	X		1NC						

Colour Selection

Illuminated

Colour	Code Letter	Colour	Code Letter	Colour	Code Letter
Red	**R**	White	**W**	Amber	**A**
Green	**G**	Blue	**B**	Clear	**C**

Non-Illuminated

Colour	Code Letter	Colour	Code Letter	Colour	Code Letter
Black	**B**	Green	**G**	Blue	**L**
Red	**R**	White	**W**	Orange	**O**

Notes

① X = closed circuit, 0 = open circuit.

② M = Maintained.

③ To order different type or colour selector switch, substitute the underlined character with appropriate suffix code from the Colour Selection table. Example: 10250T20K**G**.

Selector Switch Selection

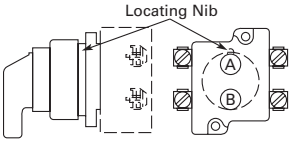
Cam and Contact Block Selection

Selector switches in their varied forms (two-position, three-position and four-position) are a big factor contributing to the great flexibility of control that a well rounded line of "pushbuttons" can achieve. Because of their flexibility, they tend to cause difficulty with product selection and application. The following systematic approach should simplify that task.

Cam and contact block selection is better understood if you:

- Work with each incoming and outgoing wire/circuit separately.
- Recognize the terms NO and NC only identify the type of contact by its mode before mounting to the operator. The "X-O" table (**Page T37-196**) shows how that contact will act after assembly to the operator with the selected cam shape. X = closed circuit, O = open circuit.
- Up to six NO or NC contacts may be mounted behind each plunger location for a total of twelve contacts. Single circuit contact blocks have only one plunger with the other side of the block "open." Therefore, single circuit contact blocks transmit motion to blocks behind them only for the position containing the circuit.
- Each cam has two separate lobes, each of which operates one of the two contact block plungers independently of each other. Those are identified as position A (locating nib side) and position B (opposite of locating nib). The position designations give direction in selecting and mounting of the contact blocks.

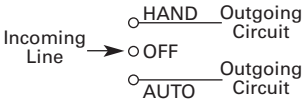
Contact Circuit Locations



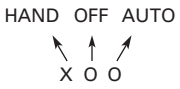
Systematic Approach

Application: **HAND-OFF-AUTO** selector switch. In this circuit, one incoming line is distributed to two other outgoing circuits by the switch. The two circuits can be looked at individually.

Step 1: Elementary Diagram.
Construct on paper, or in your mind, a simple elementary diagram of the switching scheme as follows:

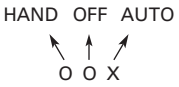


Step 2: "X-O" Pattern.
From the elementary diagram, you can construct an "X-O" diagram which describes when the contacts are to be closed (X) or open (O) in the various positions of the switch. The "X-O" for the **HAND** circuit looks like this:



In this circuit, you want a contact closed on the left (HAND) but open in the centre and right.

For the **AUTO** circuit, the "X-O" diagram would look like this:



Putting them together, the complete "X-O" diagram is:

X O O
O O X

Once the "X-O" diagram has been generated the next step is to select the cam and contact block, or blocks, needed to perform the desired "X-O" functions. The selection tables on the following pages list the various types (shapes) of cams by number to choose from and the type of contact and position to achieve the function outlined in your "X-O" diagram.

Step 3: Cam Selection.
The cam you select determines the operation of all contact blocks mounted to the operator. It is selected on the basis that it provides the simplest circuitry for the desired "X-O" diagram. The selection tables show all the "X-O" combinations. For the purpose of this example, the applicable portion of those tables is shown on this page.

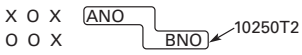
Now to make the cam selection, make a simple worksheet such as:

	Cam 2	Cam 3
X O O	(A)NO-(B)NC	**(A)NO**
O O X	(B)NO	**(B)NO**

It becomes immediately obvious that cam 3 is the better choice for two reasons, (1) the series combination can be avoided making it simpler to wire, (2) only two contacts are required, which is less expensive than the three contacts required by cam 2.

Step 4: Contact Block Selection.
Having selected the cam, contact block selection is simply a matter of gathering the A position and B position circuits into pairs which make up the most convenient contact block arrangement. If there is an imbalance in the number of circuits under A or B, then single circuit blocks must be selected for these leftover circuits.

Back to the worksheet, having selected cam 3 do this:



Step 5: Selector Switch Operator.
Lastly, you have to choose from the many types of operators—knob and lever in various colors or keyed. Also what combinations of maintained and spring return functions are required. Selection of these operators can be found on **Page T37-198**. For the example in step 4 you may want a three-position maintained black knob, cam 3—Catalogue Number 10250T1323.

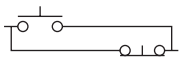
The Complete Switch:
10250T1323 with one 10250T2 or, for one composite catalogue number, 10250T21KB found on **Page T37-193.**

Diagrams
Circuits shown illustrate connections to obtain a selector switch circuit combination and are shown with their appropriate line diagrams. Field wiring of jumper connections required as shown.

X = Closed circuit
O = Open circuit

Wiring of Jumper Connections

Series Connection


Parallel Connection

Four-position selector switches are limited to four contact blocks.

Contact Blocks
For selection and number of available contact blocks per operator, see **Pages T37-221** to **T37-224**.

Example Selection Table

No.	"X-O" Pattern			Cam Code #2 Top A	Cam Code #2 Bottom B	Cam Code #3 Top A	Cam Code #3 Bottom B
1	X	O	O	① NO	NC	NO	—
4	O	O	X	—	NO	—	NO

Two-Position Selector Switch Contact Block Selection

No.	Desired Circuit and Operator Position		Contact Blocks Required to Accomplish Circuit Function: Top Plunger A		Bottom Plunger B
1	X	O	NC	or	NC
2	O	X	NO	or	NO

Note
① Wired in series.

Three-Position Switch—Cam and Contact Block Selection

No.	Desired Circuit and Operator Position			Contact Blocks Required to Accomplish Circuit Function (Jumpers must be installed where indicated) Operator with Cam Code #2 Mounting Location Top Plunger A	Operator with Cam Code #2 Mounting Location Bottom Plunger B	Operator with Cam Code #3 Mounting Location Top Plunger A	Operator with Cam Code #3 Mounting Location Bottom Plunger B
1	X	0	0	NO	NC	NO	
2	X	X	0		NC		NC
3	X	0	X	NO		NO NO	
4	0	0	X		NO		NO
5	0	X	X	NC	NO	NC	
6	0	X	0	NC		NC	NC

Four-Position Switch—Contact Block Selection

No.	Desired Circuit and Operator Position				Contact Blocks Required to Accomplish Circuit Function Mounting Location Top Plunger A	Bottom Plunger B
1	X	0	0	0	NC	
2	0	X	0	0		NO
3	0	0	X	0	NO	
4	0	0	0	X		NC
5	X	0	0	X	NC	NC
6	0	X	X	0	NO	NO
7	0	0	X	X	NO	NC
8	X	X	0	0	NC	NO
9	0	X	0	X		NO NC
10	X	0	X	0	NC NO	
11	X	X	X	0	NC NO	NO
12	0	X	X	X	NO	NC NO
13	X	0	X	X	NO NC	NC
14	X	X	0	X	NC	NO NC

Selector Switch Operators

Key Operators

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Two-Position Maintained ①

Key Operators with Cam

Positions	Operator Action ②	Cam Code ③	Optional Key Removal Positions ④	Vertical Mounting Catalogue Number	Horizontal Mounting Catalogue Number
Two-position—60° throw	M M	1	1, 2, 3	**10250T1511_**	**10250T1611_**
	M S	1	2	**10250T1571_**	**10250T1581_**
Three-position—60° throw	M M M	2	1–7	**10250T1522_**	**10250T1622_**
		3		**10250T1523_**	**10250T1623_**
	S M M	2	1, 4, 5	**10250T1532_**	**10250T1632_**
		3		**10250T1533_**	**10250T1633_**
	S M S	2	4	**10250T1542_**	**10250T1642_**
		3		**10250T1543_**	**10250T1643_**
	M M S	2	2, 4, 6	**10250T1652_**	**10250T1662_**
		3		**10250T1653_**	**10250T1663_**
Four-position—40° throw	M M M M	7	7	**10250T1677_**	**10250T1687_**

Notes

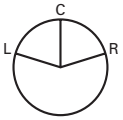
① Horizontal mount, key removal #1 keyed selector switch, cam 1 shown.

② M = Maintained. S = Spring return in direction of arrow (R).

③ For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and tables on **Pages T37-194**, **T37-195** and **T37-196**.

④ Choose key removal position required for application from table on **Page T37-198**. Add key removal code no. to listed catalogue number. Example: 10250T1511**2**.

Key Removal Positions



Code Suffix	Key Removal Position
1	Right only
2	Left only
3	Right and left
4	Centre only
5	Right and centre
6	Left and centre
7	All positions

Note: Key removal in "spring return from" positions not recommended.

Replacement Keys or Dissimilar Locks for Key Operators

Operators listed on **Page T37-198** have identical locks and keys (Key Code H661) Catalogue Number 10250ED824. For dissimilar lock and key combinations, see listing on this page.

Replacement Key

Description	Catalogue Number
Replacement keys (code H661)	**10250ED824**

Selector Switch Operators with Dissimilar Locks and Keys (UL [NEMA] 4, 4X and 13)

The locks in all key operators listed on **Pages T37-177, T37-198** and **T37-311** are identical and use key code number H661. Two keys are supplied with every lock. For additional code number H661 keys, order **Catalogue Number 10250ED824**. For others, order 10250ED1130 and designate lock number. When dissimilar locks for each operator or each group of operators are required, select from the lock and key combination listed below. **When Ordering Operator Only** or a complete control unit with a substitute lock, order from table below and add "except Lock and Key Code No. …"

"H" Series Locks without Master Key—with Key Slot Cover

Lock and Key Code Numbers

H501	H635	H663
H620	H639	H675
H621	H643	H683
H634	H654	H688

"M" Series Locks with Master Key—with Key Slot Cover

Lock and Key Code Numbers

MD1	MD14	ME8	MJ6
MD2	MD15	ME11	MJ10
MD3	MD16	ME16	MJ11
MD4	MD19	ME17	MJ13
MD5	MD20	ME18	MJ15
MD7	ME2	ME19	MJ16
MD9	ME3	MJ1	MD17
MD10	ME5	MJ3	
MD11	ME6	MJ4	
MD13	ME7	MJ5	

Master Keys for Above Locks

Application	Catalogue Number
For code:	
MD1–MD20	10250ED825-3
ME2–ME18	10250ED825-4
MJ1–MJ16	10250ED825-5

Selector Switch Operators with Caps

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Selector Switch Operators with Caps

Two-Position Maintained ①

Three-Position Maintained ⑤

Positions	Operator Action ②	Black Knob Selector Switch—Vertical Mounting ③ Cam Code ④	Black Knob Selector Switch—Vertical Mounting ③ Catalogue Number	Black Lever Selector Switch—Vertical Mounting ③ Cam Code ④	Black Lever Selector Switch—Vertical Mounting ③ Catalogue Number
Two-position—60° throw	M M	1	**10250T1311**	1	**10250T3011**
	M S	1	**10250T1371**	1	**10250T3071**
Three-position—60° throw	M M M	2	**10250T1322**	2	**10250T3022**
		3	**10250T1323**	3	**10250T3023**
	S M M	2	**10250T1332**	2	**10250T3032**
		3	**10250T1333**	3	**10250T3033**
	S M S	2	**10250T1342**	2	**10250T304**
		3	**10250T1343**	3	**10250T3043**
	M M S	2	**10250T1352**	2	**10250T3052**
		3	**10250T1353**	3	**10250T3053**
Four-position—40° throw	M M M M	7	**10250T1367**	7	**10250T3067**

Notes

① Black knob selector switch, cam 1 shown.
② M = Maintained. S = Spring return in direction of arrow (R).
③ Field convertible to horizontal mounting or order operator only and separate operator cap.
④ For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and tables on **Pages T37-194**, **T37-195** and **T37-196**.
⑤ Black lever selector switch, cam 3 shown.

Selector Switch Operators without Caps

Operators can be ordered with caps assembled to them by adding the code number from the table on this page to the end of catalogue number below.
Example: 10250T4011**KB**

Two-Position Selector Switch Maintained

Selector Switch Operators without Caps

Positions	Operator Action ①	Cam Code ②	Catalogue Number
Two-position—60° throw	M M	1	**10250T4011**
	M S	1	**10250T4081**
Three-position—60° throw	M M M	2	**10250T4022**
		3	**10250T4023**
	M S M	2	**10250T4032**
		3	**10250T4033**
	M S S	2	**10250T4042**
		3	**10250T4043**
	M M S	2	**10250T4052**
		3	**10250T4053**
Four-position—40° throw	M M M M	7	**10250T4067**

Knob

Lever

Lever for Use with Maintained Operators

Coin Slot

Operating Caps

Colour	Knob Catalogue and Code Number	Lever Catalogue and Code Number	Colour	Lever ③ Catalogue and Code Number	Coin Slot Catalogue and Code Number
Black	**10250TKB**	**10250TLB**	Black	**10250TSB**	**10250TCB**
Red	**10250TKR**	**10250TLR**	Red	**10250TSR**	**10250TCR**
Green	**10250TKG**	**10250TLG**	Green	**10250TSG**	**10250TCG**
Yellow	**10250TKY**	**10250TLY**	Yellow	**10250TSY**	**10250TCY**
White	**10250TKW**	**10250TLW**	White	**10250TSW**	**10250TCW**
Gray	**10250TKA**	**10250TLA**	Gray	**10250TSA**	**10250TCA**
Blue	**10250TKL**	**10250TLL**	Blue	**10250TSL**	**10250TCL**
Orange	**10250TKD**	**10250TLO**	Orange	**10250TSO**	**10250TCO**

Notes

① M = Maintained. S = Spring return in direction of arrow (R).

② For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and tables on **Pages T37-194**, **T37-195** and **T37-196**.

③ Designed for added ingress protection. For use in maintained operators only.

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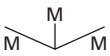
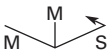
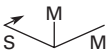
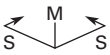
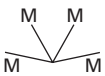
Illuminated Selector Switch Operators

Illuminated Selector Switches without Caps

Two-Position Selector Switch Maintained

Operator without Knob or Lever

Positions	Operator Action ①	Transformer Type—50/60 Hz 6 Volt #755 Lamp: Cam Code ②	Voltage	Code Number and Catalogue Number ③	Full Voltage Type—AC or DC ④ Lamps: 6V—#755, 12V—#756, 24V—#757, 48V—#1835, 120/240V—120MB: Cam Code ②	Voltage	Code Number and Catalogue Number ③
Two-position—60° throw		1	24	**10250T5961**	1	6	**10250T6201**
			120	**10250T5971**		12	**10250T6211**
			208	**10250T6511**		24	**10250T6221**
			240	**10250T5981**		48	**10250T6231**
			380	**10250T5991**		120	**10250T6361**
			480	**10250T6001**		240 ⑤	**10250T6371**
			600	**10250T6011**			
Three-position—60° throw		+ 2 or 3	24	**10250T602_**	+ 2 or 3	6	**10250T624_**
			120	**10250T603_**		12	**10250T625_**
			208	**10250T652_**		24	**10250T626_**
			240	**10250T604_**		48	**10250T627_**
			380	**10250T605_**		120	**10250T638_**
			480	**10250T606_**		240 ⑤	**10250T639_**
			600	**10250T607_**			
		+ 2 or 3	24	**10250T654_**	+ 2 or 3	6	**10250T612_**
			120	**10250T620_**		12	**10250T632_**
			208	**10250T655_**		24	**10250T642_**
			240	**10250T656_**		48	**10250T672_**
			380	**10250T657_**		120	**10250T622_**
			480	**10250T658_**		240	**10250T682_**
			600	**10250T659_**			
		+ 2 or 3	24	**10250T660_**	+ 2 or 3	6	**10250T613_**
			120	**10250T621_**		12	**10250T633_**
			208	**10250T661_**		24	**10250T643_**
			240	**10250T662_**		48	**10250T673_**
			380	**10250T663_**		120	**10250T623_**
			480	**10250T664_**		240	**10250T683_**
			600	**10250T665_**			
		+ 2 or 3	24	**10250T614_**	+ 2 or 3	6	**10250T628_**
			120	**10250T615_**		12	**10250T629_**
			208	**10250T653_**		24	**10250T630_**
			240	**10250T616_**		48	**10250T631_**
			380	**10250T617_**		120	**10250T640_**
			480	**10250T618_**		240 ⑤	**10250T641_**
			600	**10250T619_**			
Four-position—40° throw		7	24	**10250T6087**	7	6	**10250T6327**
			120	**10250T6097**		12	**10250T6337**
			208	**10250T6547**		24	**10250T6347**
			240	**10250T6107**		48	**10250T6357**
			380	**10250T6117**		120	**10250T6427**
			480	**10250T6127**		240 ⑤	**10250T6437**
			600	**10250T6137**			

Notes

① M = Maintained. S = Spring return in direction of arrow (R).

② For selection of the proper cam and contact block, to obtain the proper circuit sequence, see selection tables on **Pages T37-194**, **T37-195** and **T37-196**.

③ Operator includes lens gasket and lens attachment screws.

④ Full voltage light units can be used at other than listed voltages by changing lamp. Replacement lamps are listed on **Page T37-225**.

⑤ Resistor type. May generate excess heat if used in high density.

Knob

Lever

Illuminated Knobs and Levers

Colour ①	Knob Code Number and Catalogue Number	Lever Code Number and Catalogue Number
Red	**10250TER**	**10250TFR**
Green	**10250TEG**	**10250TFG**
Yellow	**10250TEA**	**10250TFA**
Blue	**10250TEL**	**10250TFL**
Clear	**10250TEC**	**10250TFC**
White	**10250TEW**	**10250TFW**
Amber	**10250TEM**	**10250TFM**

Joystick Units

Two-Position Joystick

Joystick Units—UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Operator Position ②

Up	Centre	Down	Operator Action ③	Contact Type	Mounting Location A	Mounting Location B	Two-Position Assembled Unit Catalogue Number ④
X	O	O	M S	1NC			**10250T452-3X**
O	O	X	M S	1NC			

Notes

① Amber, clear and white lenses have a black arrow (pointer), red, green and blue lenses have a white arrow (pointer).
② X = closed circuit, O = open circuit.
③ M = Maintained. S = Spring return in direction of arrow (R).
④ Field convertible momentary to maintained or vice versa.

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Joysticks

Two-Position Joystick Operators

The device mounts in the standard 30.5 mm mounting hole. Allow sufficient panel space for lever movement.

The maximum travel of the knob operator (full up to full down) is 2.2 in (24˚) momentary, 2.5 in (30˚) maintained, but ample space for lever operation must be allowed. These operators are field convertible from momentary to maintained operation or vice versa.

The use of NC contacts is preferred because they provide positive drive contact opening and a direct relationship between lever movement and affected terminal, i.e., up movement affects the top terminals.

Application Caution

Joystick operators are not recommended on certain DC applications above 24 Vdc which may involve lightly engaging the contacts (teasing) to achieve speed control, positioning, jogging, etc. Excessive arcing and deterioration of the contacts will occur.

Two-Position Joystick Operator

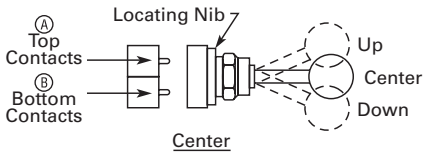
Two-Position Joystick Operators—UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Contact Block Limitations	Two-Position Operator Only—AC Applications Only Description ①	Catalogue Number
Momentary Mode 4NC contact blocks max. 3NO contact blocks max.	Momentary up and down	**10250T452**
	Maintained up—momentary down	**10250T4521**
	Maintained down—momentary up	**10250T4522**
Maintained Mode 2 contact blocks max.	Maintained up and down	**10250T4525**

Contact Block Operation and Selection

Handle Position ② Up	Centre	Down	Contact Block Type ④	Mounting Location ②③ Top A	Bottom B	Catalogue Number
X	0	0	1NC			**10250T51**
0	0	X	1NC			**10250T51**
0	X	0	2LONC (Series)			**10250T45**
X	0	0	1NC			**10250T3**
0	0	X	1NC			
X	X	0	1LONC			**10250T45**
0	X	X	1LONC			
X	0	0	1NC			**10250T44** ⑤
0	0	X	1NO			
0	0	X	1NC			
X	0	0	1NO			

A and B Mounting Location



Up
NC Contact at Top Is Closed, NO at Bottom Is Closed

Center
All NC and NO Contacts Are Open (1/2 Way), Late Opening NC Is Closed

Down
NC Contact at Bottom Is Closed, NO at Top Is Closed

Notes

① Field convertible momentary to maintained or vice versa. To expedite shipment of maintained types, order momentary operator 10250T452 which is a stocked device.
② Bolded circuit corresponds to "X-0" circuit selection. X = closed circuit, 0 = open circuit.
③ See above for "A" and "B" mounting location.
④ NO = normally open, NC = normally closed, LONC = late opening normally closed.
⑤ Four circuits in single block depth—rated 300V max.

Four-Position Joystick Operators

The joystick operated control unit is intended for AC application only. For other use, see **Application Caution** on preceding page.

The panel area required for the four-position operator is equivalent to two standard pushbutton operators.

The latch holds the lever in the centre position. The trigger latch must be released before lever can moved into any position.

Four-Position Joystick Operator

Four-Position Joystick Operator with Latch

Four-Position Joystick Operators—UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Contact Block Limitations	Description ①	Catalogue Number
Operator Only—AC Application Only		
Four contact blocks max.—two in each position	Four-position—without latch	**10250T451_**
	Four-position—with latch	**10250T461_**
Hole Plug		
Four contact blocks max.—two in each position	To plug unused hole	**10250TA7**

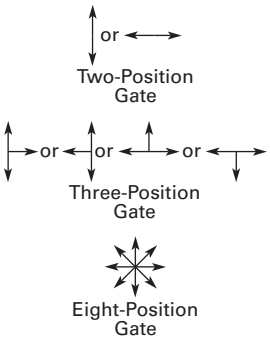
Field Conversion—Gate

The factory assembled four-position operator is assembled with a gate arranged for four handle positions.

Handle Positions

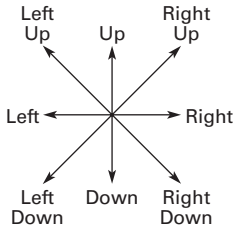
Three additional gates, supplied with every operator, allow on the job conversion to three- or eight-position operation as illustrated.

Two-, Three- or Eight-Position Operation



The eight-position gate controls the four functions shown as "Up," "Down," "Left" and "Right." The remaining four diagonal positions each actuate two adjacent functions; for example, "Left Down" actuates both "Left" and "Down." The operator may be arranged for spring return of handle to centre position, or maintained in up to eight positions (see description of maintained position operator).

Adjacent Functions



Maintained Position

For maintained position (non-spring return), locate required maintained position or positions of operating lever and add appropriate suffix number to the catalogue number selected from the table above.

Maintained Positions

Maintained Positions				Suffix
Up	Down	Left	Right	Number
X	—	—	—	**1**
—	—	—	—	**2**
—	X	—	—	**3**
—	—	X	—	**4**
—	—	—	—	**5**
X	—	X	—	**6**
X	—	—	X	**7**
—	X	X	—	**8**
—	X	—	X	**9**
—	—	X	X	**10**
X	X	X	—	**11**
X	X	—	X	**12**
X	—	X	X	**13**
—	X	X	X	**14**
X	X	X	X	**15**

On an eight-position gate, when an adjacent vertical and horizontal position are both maintained, the included diagonal position is also maintained.

Note

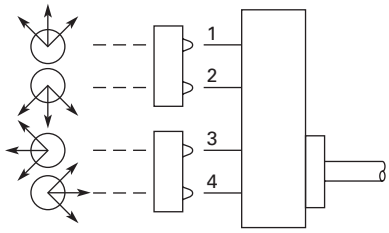
① Momentary operators—spring return to centre. For maintained operators add suffix code from table on this page. Example: 10250T451**10**. Operator without latch, maintained in left and right positions.

Contact Block Operation

Contact blocks mount directly to the back of the operator. For reliable operation, the maximum number of contact blocks that should be installed behind each operator lever is two (four total).

The figure below identifies the circuits activated by each of the eight possible lever positions. Contact block plungers 1, 2, 3, 4 are depressed (change state) when handle is in the position indicated by arrows below.

Circuit Activation



Note: Joystick in its resting state, centre position, does not activate contact block plungers.

Ordering Example:

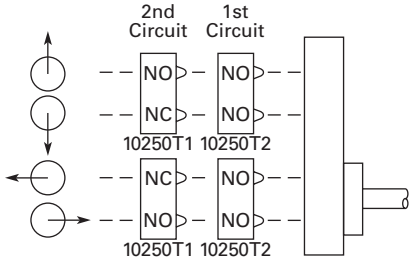
Suppose you are looking for a four-position momentary joystick without a latch and the following circuit arrangements.
X = Closed Circuit, O = Open Circuit.

Example Circuit Arrangements

Circuit	Up	Down	Left	Right
1st	X	X	X	X
2nd	X	O	O	X

The contact blocks and their mounting locations would be as follows:

Example Contact Blocks and Locations



A complete bill of material for this example would include:

Example Order

Qty.	Catalogue Number
1	**10250T4**
2	**10250T2**
2	**10250T1**

Blank Legend Plates for Joystick Operators

When ordering engraved legend plates, order by catalogue number and insert the following into order notes:

- Legend required
- Size of characters: 3/16, 1/8, 3/32 in (4.8, 3.2, 2.4 mm)
- Location by letter (A–N)

Locations K and M can accommodate up to two lines horizontally; L and N up to two lines vertically.

Maximum number of characters:

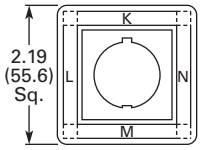
- Horizontal
  3/16 in—13, 1/8 in—14, 3/32 in—19
- Vertical
  3/16 in—10, 1/8 in—13, 3/32 in—14

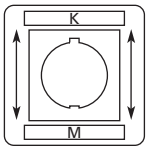
Ordering Example:

Two-position legend plate to be marked "UP" "DOWN."

Catalogue No. **10250TJ2S4STAMP**
Letter Size: 3/16 in (4.8 mm)
Pos. K—UP
Pos. M—DOWN

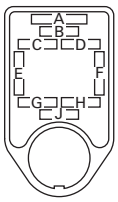
Two-Position

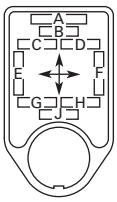




Catalogue Number	Catalogue Number
Blank Plate	
10250TJS3	**10250TJS4**
Engraved Plate	
10250TJS3STAMP	**10250TJS4STAMP**

Four-Position





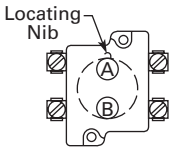
Catalogue Number	Catalogue Number
Blank Plate	
10250TJS1	**10250TJS2**
Engraved Plate	
10250TJS1STAMP	**10250TJS2STAMP**

Roto-Push Units

Two-Position Momentary

Complete assembled two-position Roto-Push® Units are listed below. These operators have black flush buttons and are arranged for vertical mounting. Order legend plates separately.

Mounting Location



Roto-Push—Black Flush Button

Roto-Push Units—UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Typical Applications (Most Common Examples)	Operator Position ① Collar Left Normal	Collar Left Depressed	Collar Right Normal	Collar Right Depressed	Contact Type	Mounting Location A	Mounting Location B	Catalogue Number ②
Two-Position								
FORWARD/REVERSE; HIGH/LOW; OPEN/CLOSE; UP/DOWN; etc.	0 0	0 X	0 0	X 0	1NO 1NO			**10250T2411-2**
JOG/RUN; MAN./AUTO; etc.	0 0	X 0	0 X	X X	1NO 1NO			**10250T24111-2**
RUN/JOG; START/JOG; etc.	0 X	X X	0 0	X 0	1NO 1NC			**10250T24111-1**
SAFE/RUN; etc.	0 0	0 0	0 X	X X	1NO 1NO			**10250T2415-2**

Two-Position Latched

The two-position Roto-Push Latch Unit is fully assembled and only requires a legend plate for a great variety of applications. When the selector collar is in the extreme left position, the button is in the free or normal position and can be operated as a standard pushbutton. Rotating the collar to the extreme right position automatically depresses and latches the button in the depressed position. The white filled groove in the button indicates the selector collar position. The selector collar has spring return to the left position except when in the extreme right latched position.

Red Long

Rotates to a Latch-Out Mode

Colour and Type of Button	Contact Block	Vertical Mounting Catalogue Number
Red long	1NC	**10250T72**
	2NC	**10250T73**

Notes

① X = closed circuit, 0 = open circuit.

② Roto-Push assembled with contact blocks.

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Roto-Push Operators

Roto-Push Components

A Roto-Push control unit combines the function of a pushbutton and a selector switch. The contacts are operated by the combined action of rotating the outer collar and pushing a button contained in the collar.

In selecting the cam and contact blocks for the listed function, the analysis involves considering the function with the collar rotated to the given position with the button free (designated as "N") and then in that same position with the button depressed (designated "D"). This is done for each rotational position of the collar.

When Ordering Specify

- Catalogue number of operator with cam code suffix from tables below and on following pages, Example: 10250T241**1**.
- Catalogue number(s) for contact blocks and legend plates if required.
- To select the cam and contact blocks needed for two-position and three-position switches, use the tables on following pages.

Operator and Cam

Operator and Cam

Colour and Type of Button	Cam Code No. Select from Tables	Vertical Mounting Catalogue and Code Number	Horizontal Mounting Catalogue and Code Number
Black flush	+1 to 18	**10250T241_**	**10250T251_**
Red flush ①		**10250T242_**	**10250T252_**
Green flush		**10250T243_**	**10250T253_**
Black long		**10250T261_**	**10250T271_**
Red long ①		**10250T262_**	**10250T272_**
Green long		**10250T263_**	**10250T273_**

Two-Position Roto-Push Operator—Rotates to a Latch-Out Mode

Special Rotor Latch

This differs from the other Roto-Push operators in that as the collar is rotated to the right it depresses the button and releases the button when rotated left. But the button in the released position can be momentarily pushed independent of the collar or its position. As the button is depressed by rotating the collar, the button also rotates and indicates its mode by a white line on the button face. This button can be used as an emergency stop or latched stop.

Special Roto Latch—Red Long Button

Special Rotor Latch—UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Colour and Type of Button	Vertical Mounting Catalogue Number
Red long	**10250T3213**
Black long	**10250T3214**

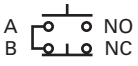
Note

① Not to be used for emergency stop application.

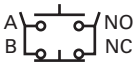
Cam and Contact Block Selection for Two-Position Roto-Push

Combination Number	Collar Position / Circuit Sequence ① N	D	N	D	Cam Code 1	Cam Code 2	Cam Code 3	Cam Code 4	Cam Code 5	Cam Code 6
1	0	0	0	X	A NO	A NO	—	—	A NO	—
2	0	0	X	0	—	—	—	A NC B NO	A NC B NO	—
3	0	0	X	X	—	—	—	—	B NO	A NO
4	0	X	0	0	B NO	A NC B NO	—	—	—	A NC B NO
5	0	X	0	X	A NO B NO	B NO	—	A NO	—	—
6	0	X	X	0	—	—	—	—	—	—
7	0	X	X	X	—	—	A or B NO	B NO	—	B NO
8	X	0	0	0	—	—	A or B NC	B NC	—	B NC
9	X	0	0	X	—	—	—	—	—	—
10	X	0	X	0	A NC B NC	B NC	—	A NC	—	—
11	X	0	X	X	B NC	A NO B NC	—	—	—	A NO B NC
12	X	X	0	0	—	—	—	—	B NC	A NC
13	X	X	0	0	—	—	—	A NO B NC	A NO B NC	—
14	X	X	X	0	A NC	A NC	—	—	A NC	—

Series and Parallel Connections



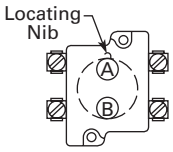
Series Connection



Parallel Connection

The connections are not made at the factory. They are illustrated in the selection table as requirements, but must be made on the job.

Circuit Location



Letters "A" and "B" represent the locations which the two circuits of a contact block will occupy in relation to the locating nib of the operator.

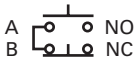
Note

① N = Button in free or normal position. D = Button depressed.

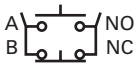
Cam and Contact Block Selection for Two-Position Roto-Push, continued

Combination Number	Collar Position / Circuit Sequence ① N	D	N	D	Cam Code 10	Cam Code 11	Cam Code 12	Cam Code 13	Cam Code 14
15	0	0	0	X	—	A NO B NO	—	—	—
16	0	0	X	0	—	A NC B NO	A NC	A or B NC	A NC
17	0	0	X	X	B NO	B NO	—	—	—
18	0	X	0	0	A NO	A NO B NC	—	—	B NO
19	0	X	0	X	—	A NO	B NO	—	—
20	0	X	X	0	—	—	—	—	A NC B NO
21	0	X	X	X	A NO B NO	A NO B NO	A NC B NO	—	—
22	X	0	0	0	A NC B NC	A NC B NC	A NO B NC	—	—
23	X	0	0	X	—	—	—	—	A NO B NC
24	X	0	X	0	—	A NC	B NC	—	—
25	X	0	X	X	A NC	A NO B NO	—	—	B NC
26	X	X	0	0	B NC	B NC	—	—	—
27	X	X	0	0	—	A NO B NC	A NO	A or B NO	A NO
28	X	X	X	0	—	A NC B NC	—	—	—

Series and Parallel Connections



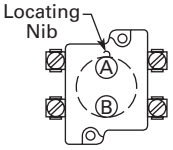
Series Connection



Parallel Connection

The connections are not made at the factory. They are illustrated in the selection table as requirements, but must be made on the job.

Circuit Location



Letters "A" and "B" represent the locations which the two circuits of a contact block will occupy in relation to the locating nib of the operator.

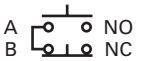
Note

① N = Button in free or normal position. D = Button depressed.

Cam and Contact Block Selection for Three-Position Roto-Push

Combination Number	Collar Position / Circuit Sequence ① N	D	N	D	N	D	Cam Code 7	Cam Code 8	Cam Code 9	Cam Code 15 ②	Cam Code 16	Cam Code 17	Cam Code 18
1	0	0	0	0	0	X	A NO, B NO	A NC, B NO	—	B NO ②	B NO	—	A NC, B NO
2	0	0	0	0	X	X	—	—	B NO	—	—	A NO	—
3	0	0	0	X	0	0	—	—	A NO, B NC	—	—	—	A NO, B NO
4	0	0	0	X	0	X	—	—	—	—	—	—	B NO
5	0	0	0	X	X	X	—	—	A NO ②	—	—	—	—
6	0	0	X	X	0	0	—	A NO, B NO	—	—	—	—	—
7	0	0	X	X	0	X	—	B NO	—	—	—	—	—
8	0	0	X	X	X	0	A NC, B NO	—	—	—	—	—	—
9	0	0	X	X	X	X	B NO	—	—	—	—	—	—
10	0	X	0	0	0	0	A NO, B NC	A NO, B NC	—	A NO ②	A NO	B NO	A NO, B NC
11	0	X	0	0	0	X	A NO	—	—	A NO, B NO	A NO, B NO	—	—
12	0	X	0	0	X	X	—	—	—	—	—	A NO, B NO	—
13	0	X	0	X	0	0	—	—	—	—	—	—	A NO
14	0	X	0	X	0	X	—	—	—	—	—	—	A NO, B NO
15	0	X	X	X	0	0	—	A NO	—	—	—	—	—
16	0	X	X	X	0	X	—	A NO, B NO	—	—	—	—	—
17	0	X	X	X	X	X	A NO, B NO	—	—	—	—	—	—

Series and Parallel Connections

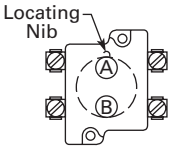


Series Connection

Parallel Connection

The connections are not made at the factory. They are illustrated in the selection table as requirements, but must be made on the job.

Circuit Location



Letters "A" and "B" represent the locations which the two circuits of a contact block will occupy in relation to the locating nib of the operator.

Notes

① N = Button in free or normal position. D = Button depressed.

② Limited to 4 contact blocks. See Note on **Page T37-222**.

Cam and Contact Block Selection for Three-Position Roto-Push, continued

Combination Number	Collar Position / Circuit Sequence ① N	D	N	D	N	D	Cam Code 7	Cam Code 8 ②	Cam Code 9	Cam Code 15	Cam Code 16	Cam Code 17	Cam Code 18
18	X	0	0	0	0	0	A NC B NC	—	—	—	—	—	—
19	X	0	0	0	X	X	—	A NC	—	—	—	—	—
20	X	0	0	0	X	0	—	A NC B NC	—	—	—	—	—
21	X	0	X	X	0	0	—	—	—	—	—	A NC B NC	—
22	X	0	X	X	X	X	A NC B NO	A NC B NO	—	—	A NC	B NC	A NC B NO
23	X	0	X	X	X	0	A NC	—	—	—	A NC B NC	—	—
24	X	0	X	0	X	0	—	—	—	A NC B NC	—	—	A NC B NC
25	X	0	X	0	X	X	—	—	—	A NC ③	—	—	A NC
26	X	X	0	0	0	0	B NC	—	A NC ③	—	—	—	—
27	X	X	0	0	0	X	A NO B NC	—	—	—	—	—	—
28	X	X	0	0	X	0	—	B NC	—	—	—	—	—
29	X	X	0	0	X	X	—	A NC B NO	A NC B NO	—	—	—	—
30	X	X	X	X	0	0	—	—	B NC	—	—	A NC	—
31	X	X	X	X	X	0	A NC B NC	A NO B NC	—	—	B NC	—	A NO B NC
32	X	X	X	0	X	0	—	—	—	B NC ②	—	—	B NC
33	X	X	X	0	X	X	—	—	—	A NO B NC	—	—	A NC B NC

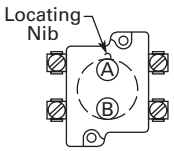
Series and Parallel Connections

A NO
B NC
Series Connection

A NO
B NC
Parallel Connection

The connections are not made at the factory. They are illustrated in the selection table as requirements, but must be made on the job.

Circuit Location



Letters "A" and "B" represent the locations which the two circuits of a contact block will occupy in relation to the locating nib of the operator.

Notes

① N = Button in free or normal position. D = Button depressed.

② Limited to 4 contact blocks. See Note on **Page T37-222.**

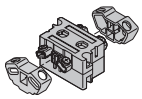
Accessories

Padlocks not included with padlocking attachments. For operators with built-in padlock attachment, see **Page T37-176**.

Accessories

	Description	Catalogue Number
	Padlock Attachments	
10250TA2	**Padlocking Attachment for Flush Pushbutton Operators** Permits locking NC contacts in open position with 1/4 in padlock. Will not lock NO contact.	**10250TA2**
10250TA26	**Padlocking Attachment for Use with Extended Pushbutton** Permits locking NC contacts in open position with 1/4 in padlock.	**10250TA26**
10250TA36	**Padlocking Cover Guard** Cover locked over flush button makes it unaccessible or on extended button locks NC contacts open. Takes 1/4 in shank size padlock.	**10250TA36**
10250TA38	**Padlock Hasp or Flip-Up Guard** When used with a 1/4 in padlock, makes flush and long button and knob selector switch unaccessible, but not locked down. Without the padlock, it is a flip-up guard. Padlock hasp can be removed before assembly.	**10250TA38**
10250TA63	**Padlocking Attachment for Use with Flexible Weather Resistant Boot** Used on long button operators. Stainless steel. Use only for locking NC contacts open.	**10250TA63**
10250TA64	**Padlock Attachment** For use with illuminated pushbuttons and maintained push-pull operators having standard button or lens only. Use 1/4 in padlock. Locks in down position only.	**10250TA64**
10250TA11	**Padlocking Attachment for Non-Illuminated Knob Selector Switches** Provision for up to 5, 1/4 in padlocks.	**10250TA11**

Accessories, continued

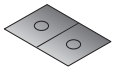
	Description	Catalogue Number
	Shrouds and Guards	
10250TA6	**Shroud for Mushroom Head Operator** Prevents accidental operation. (Not for push-pull operators.)	**10250TA6**
10250TA12	**Extended Retaining Nut** Replaces standard nut and provides guard for flush head pushbutton operators.	**10250TA12**
10250TA15	**Guard for Illuminated Pushbutton**	**10250TA15**
10250TA56_	**Shroud** For jumbo mushroom head operator.	
	Gray	**10250TA56**
	Yellow	**10250TA56Y**
10250ED1241	**Half Shroud**—Yellow For jumbo mushroom head operator.	**10250ED1241**
10250TA101 	**Fingerproof Shroud**—10 per package Fits new style contact blocks and light units.	**10250TA101**
	Boots	
10250TA_	**Flexible Weather Resistant Boot** For use with button operators (extended buttons preferred). Temperature to –25°F (–32°C). (See **Page T37-215** for 10250TA96 Tightening Tool.)	
	Black	**10250TA3**
	Red	**10250TA4** ①
	Green	**10250TA10**
10250TA25	**Transparent Boot** For regular illuminated pushbutton operators and PresTest— Temperature to –38°F (–39°C). ②	**10250TA25**
10250TA4_	**Boot for Flush Pushbutton**	
	Clear	**10250TA46**
	Black	**10250TA47**
	Red	**10250TA48**
	Green	**10250TA49**

Notes

① Should not be used on flush button for STOP function.

② Not suitable for single contact block depth cast enclosure. Cover is too thick.

Accessories, continued

	Description	Catalogue Number
	Hardware and Kits	
10250TK3	**Thrust Washers**— To meet Ford Motor Co. mounting specifications.	**10250TK3**
10250TK5 	**Contact Block Tape Seal**— Seals plunger openings on last contact block. Order in multiples of 10 pieces.	**10250TK5**
56-9337	**Selector Switch Operator Gasket**— Seals out dust from getting in-between the cam and contact block plungers. Supplied as standard with all selector switches.	**56-9337**
10250TA3_	**Special Retaining Nut**— To accommodate thick panel:	
	Indicating lights	**10250TA30**
	PresTest, pushbuttons and selector switches	**10250TA31**
10250TA62	**Terminal Block**— Two terminals, each will accommodate two wire terminations.	**10250TA62**
10250TA8	**Spacer Ring**— Used when legend plate is not required.	**10250TA8**
10250TA79	**Stacking Screw**— Replaces transformer mounting screws on indicating light so terminal block 10250TA62 can be mounted to light to support and connect a series resistor. This screw also fits all contact blocks. Order in multiples of 10.	**10250TA79**
10250TA2_	**Base Mounting Spacers** ①	
	Equivalent to contact block in depth (one block deep).	**10250TA22**
	Complete with screws, washers, etc. (two block deep).	**10250TA23**
10250TKG_	**Grounding Kits**— Kits consist of a ring connector and a #6 screw for mounting connector to rear of contact block mounting screw.	
	All components except standard indicating lights and PresTest indicating lights.	**10250TKG1**
	Standard indicating lights	**10250TKG2** ②
	PresTest indicating lights	**10250TKG3** ②
10250TA7_	**Contact Block Terminal Jumpers**— Available in multiples of 100 only.	
	Terminal to terminal—within block (short)	
	100 per pkg.	**10250TA70**
	1000 per pkg.	**10250TA70-2**
	Terminal to terminal—block to block (long)	
	100 per pkg.	**10250TA71**
	1000 per pkg.	**10250TA71-2**

Notes

① Component only. Not to be used for custom built (factory assembled) stations.

② Not suitable for single contact block depth cast enclosure. Cover is too thick.

Accessories, continued

	Description	Catalogue Number
	Special Operators and Attachments	
10250TA5	**Wobble Stick** Complete with retaining nut—fits standard button.	**10250TA5**
10250TA14	**Lever Operator** For use with two vertically mounted flush pushbuttons.	**10250TA14**
10250TA_	**Maintained Contact Attachment Release Button Assembly** ① Mechanically interlocks with another pushbutton and contact block (not included). Provides mode indication. Minimum hole centers 1.62 in (41.1 mm), maximum 2.313 in (58.8 mm).	
	Black	**10250TA17**
	Red	**10250TA18**
	Green	**10250TA19**
	Yellow	**10250TA20**
	Same with Long Button—Black	**10250TA39**
10250TA1	**Maintained Contact Attachment** ① Mechanically interlocks two buttons and provides position indication for one. Use with two pushbutton operators and one or more contact blocks.	**10250TA1**
10250TA13	**Roto-Push Lever Operator**— Used to provide lever operation for Roto-Push operators.	**10250TA13**
	Special Light Modules	
10250TA79	**Master Test (Dual Input) Module**— Internal Form C relay suitable for either AC or DC applications. Total electrical isolation between monitored and test circuit. Fits all illuminated 10250T, E22, E30 and E34 devices.	
	48 Vdc	**10250TMT8**
10250TFL_	**Flasher Module**— Changes any AC illuminated device to a controlled flashing light. Fits 10250T, E30 and E34 devices.	
	24V	**10250TFL2**
	120V	**10250TFL1**
10250ED986-4	**Flashing Incandescent Lamp**— For use with 120V transformer type or 6V full voltage type indicating lights including PresTest and most E29 devices.	**10250ED986-4**

Note

① Not suitable for single contact block depth cast enclosure. Cover is too thick.

Accessories, continued

	Description	Catalogue Number
	Hole Plugs	
10250TA7	**Plug**— For unused holes—steel, painted gray (stainless steel, use **E30KT5**, see **Page T37-160**)	**10250TA7**
	Tools	
10250TA95	Octagonal 10250T (notched to fit over selector switch lever), E29 and E30	**10250TA95**
E22CW	E22, E30, E34 and octagonal 10250T (will not fit over selector switch levers)	**E22CW**
10250TA96	**Tool for Tightening Boots**— Used to install boot Catalogue Numbers 10250TA3, A4, A10 and A25.	**10250TA96**
10250TA102	**10250T, E34 Allen Wrench**— Used for removal of jumbo mushroom head.	**10250TA102**
10250TA74	**Lamp Removal Tools**— For transformer type illuminated pushbuttons, push-pull and selector switches. Fits #12 lamp.	**10250TA74**
E30KV1	For full voltage and resistor type illuminated pushbuttons, push-pull and selector switches and E30.	**E30KV1**
E29KLT	Standard indicating lights. Fits #44, #755, #6S6 and #10S6.	**E29KLT**

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Options

Legend Plates

Legend Plates with Standard Markings

The legend plates listed below are sized for all standard commercial enclosures and Eaton's cast enclosures. For vertical spacing less than 1.75 in, replace the **S** in the catalogue number with **MS**, or the **M** with **P** (except push-pull). No change in price. The smaller size legend plates, "MS" or "P" size, have limited space for legend.

Square Legend Plate

1/2 Round Legend Plate

For Pushbutton Operators and Indicating Lights—Standard

Legend	Colour of Field	Square ① Catalogue Number	1/2 Round④ Catalogue Number	Legend	Colour of Field	Square ① Catalogue Number	1/2 Round④ Catalogue Number
Blank—see table on Page T37-218.							
Letters on Legend Plates Below are 3/16 in High							
CLAMP	Black	**10250TS90**	**10250TM90**	OFF	Red	**10250TS24**	**10250TM24**
CLOSE		**10250TS73**	**10250TM11**	ON	Black	**10250TS25**	**10250TM25**
DOWN		**10250TS74**	**10250TM12**	OPEN		**10250TS26**	**10250TM26**
EMERG. STOP	Red	**10250TS13**	**10250TM13**	OUT		**10250TS27**	**10250TM27**
FAST	Black	**10250TS75**	**10250TM14**	POWER ON		**10250TS80**	**10250TM80**
FASTER		**10250TS87**	**10250TM87**	RAISE		**10250TS28**	**10250TM28**
FEEDER ON		**10250TS94**	**10250TM94**	READY		**10250TS86**	**10250TM86**
FEEDER OFF		**10250TS95**	**10250TM95**	RESET		**10250TS29**	**10250TM29**
FORWARD		**10250TS15**	**10250TM15**	REVERSE		**10250TS30**	**10250TM30**
HIGH		**10250TS16**	**10250TM16**	RUN		**10250TS31**	**10250TM31**
IN		**10250TS17**	**10250TM17**	SAFE		**10250TS85**	**10250TM85**
INCH		**10250TS18**	**10250TM18**	SLOW		**10250TS32**	**10250TM32**
JOG		**10250TS19**	**10250TM19**	SLOWER		**10250TS88**	**10250TM88**
JOG FOR.		**10250TS20**	**10250TM20**	START		**10250TS33**	**10250TM33**
JOG REV.		**10250TS21**	**10250TM21**	STOP	Red	**10250TS34**	**10250TM34**
LOW		**10250TS22**	**10250TM22**	TEST	Black	**10250TS83**	**10250TM83**
LOWER		**10250TS23**	**10250TM23**	TRANSFER		**10250TS93**	**10250TM93**
LUBE-FAIL		**10250TS92**	**10250TM92**	TRIP		**10250TS84**	**10250TM84**
MOTOR RUN		**10250TS81**	**10250TM81**	UNCLAMP		**10250TS91**	**10250TM91**
MOTOR STOP		**10250TS82**	**10250TM82**	UP		**10250TS35**	**10250TM35**

Blank Plastic Legend Plates—Square

Colour Lettering	Field	Standard Catalogue Number	Jumbo ② Catalogue Number	Extra Large Catalogue Number
Black	White or silver ③	**10250TSP76**	**10250TLP76**	**10250TEP76**
White	Red or black ③	**10250TSP77**	**10250TLP77**	**10250TEP77**

Notes

① Square legend plates have a satin aluminum field. Colour is on lower portion.
② Cannot be used on cast enclosures except for top row. Suitable for most sheet metal enclosures.
③ If legend plate is to be engraved, specify field colour required.
④ See Appendix 4 for French engraving.

Square Legend Plate

1/2 Round Legend Plate

For Selector Switch and Roto-Push Operators—Standard Size

Legend	Colour of Field	Square ① Catalogue Number	1/2 Round④ Catalogue Number
Blank—see table on Page T37-218.			
2-Position—5/32 in High Lettering			
FOR. REV.	Black	**10250TS38**	**10250TM38**
HAND AUTO		**10250TS39**	**10250TM39**
HIGH LOW		**10250TS40**	**10250TM40**
JOG RUN		**10250TS41**	**10250TM41**
MAN. AUTO		**10250TS67**	**10250TM67**
OFF ON		**10250TS42**	**10250TM42**
OPEN CLOSE		**10250TS43**	**10250TM43**
RUN JOG		**10250TS44**	**10250TM44**
SAFE RUN		**10250TS45**	**10250TM45**
START JOG		**10250TS46**	**10250TM46**
START STOP		**10250TS47**	**10250TM47**
UP DOWN		**10250TS48**	**10250TM48**

Legend	Colour of Field	Square ① Catalogue Number	1/2 Round④ Catalogue Number
3-Position—1/8 in High Lettering			
AUTO OFF HAND	Black	**10250TS49**	**10250TM49**
FOR. OFF REV.		**10250TS50**	**10250TM50**
FOR. SAFE REV.		**10250TS69**	**10250TM69**
HAND OFF AUTO		**10250TS51**	**10250TM51**
MAN. OFF AUTO		**10250TS68**	**10250TM68**
OPEN OFF CLOSE		**10250TS53**	**10250TM53**
RUN SAFE JOG		**10250TS70**	**10250TM70**
UP OFF DOWN		**10250TS54**	**10250TM54**
ON STOP SAFE	Red	**10250TS71**	**10250TM71**

70 mm Round—Plastic Legend Plate

45 mm and 70 mm Plastic—Round

Lettering	Colour Field	Catalogue Number
45 mm		
Blank	Yellow or red ②	**10250TRP78**
70 mm		
Blank	Yellow or red ②	**10250TRP76**
Red EMERG. STOP	Yellow	**10250TRP79**

For Push-Pull Units ③

Legend	Colour of Field	Square ① Catalogue Number	1/2 Round④ Catalogue Number
Standard Size—Letters on Legend Plates Below are 3/32 in High			
PULL START/PUSH STOP	Green/red	**10250TPP2**	**10250TR2**
PUSH ON/PULL OFF	Black	**10250TPP5**	**10250TR5**
PULL OPEN/PUSH CLOSE	Black	**10250TPP8**	**10250TR8**
PULL UP/PUSH DOWN	Black	**10250TPP11**	**10250TR11**
Jumbo Size—Letters on Legend Plates Below are 1/8 in High			
PULL START/PUSH STOP	Green/red	**10250TPP3**	**10250TR3**
PULL ON/PUSH OFF	Black	**10250TPP6**	**10250TR6**
PULL OPEN/PUSH CLOSE	Black	**10250TPP9**	**10250TR9**
PULL UP/PUSH DOWN	Black	**10250TPP12**	**10250TR12**

Notes

① Square legend plates have a satin aluminum field. Colour is on lower portion.
② If legend plate is to be engraved, specify field colour required.
③ All push-pull legend plates include the symbols ≠ Ø in the centre of the plate.
④ See Appendix 4 for French engraving.

Legend Plates with Non-Standard Markings

When Ordering Specify

- Catalogue number of blank plate phase plus Suffix "STAMP."
- Insert the following into Order Notes: legend, letter size and locations (letters A–W)—combine letters for definitive locations as shown.

Ordering Example:

Catalogue No.:
10250TS36STAMP
Letter Size: 3/32 in (2.4 mm)
Pos. A—POWER HOUSE
Pos. B—START PUMP 1

Legend Characters Available

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z / - . ,
1 2 3 4 5 6 7 8 9 0

Legend characters on black and red plates are white—on satin aluminum plates, characters are black.

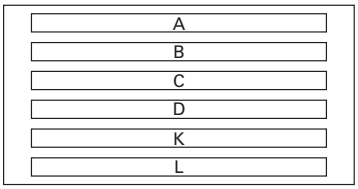
Blackening Kit

Solution blackens aluminum exposed by engraving process. Must be applied immediately after engraving. 0.3 oz. bottle—sufficient for approximately 1100 legend plates.

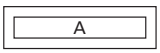
Catalogue Number:
10250TBK

Legend Positions

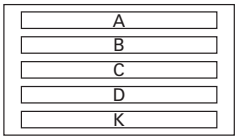
Extra Large Size
Cat. No. 10250TNP99



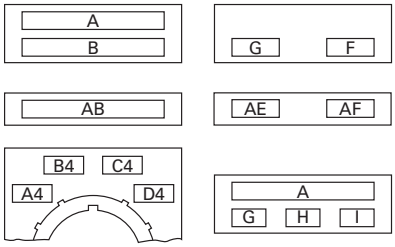
Small Size
10250TMS or TP Series



Jumbo Size
10250TL or TJ Series



Standard Size
10250TS or TM Series



Blank and Custom Engraved Legend Plates

Style	Colour	Small Catalogue Number	Standard Catalogue Number	Jumbo ② Catalogue Number	Extra Large ③ Catalogue Number	Four-Position Selector Switch Custom ④ Catalogue Number	Four-Position Selector Switch Standard Catalogue Number	Push-Pull with Symbols ① Standard Catalogue Number	Push-Pull with Symbols ① Jumbo ② Catalogue Number
Square ⑤	Black	**10250TMS36**	**10250TS36**	**10250TL36**	—	**10250TS76**	**10250TS72**	**10250TPP17**	**10250TPP18**
	Red	**10250TMS37**	**10250TS37**	**10250TL37**	—	—	—	—	—
	Green/red	—	—	—	—	—	—	**10250TPP20**	**10250TPP21**
	Satin alum.	—	—	—	**10250TNP99**	—	—	—	—
1/2 Round	Black	**10250TP36**	**10250TM36**	**10250TJ36**	—	—	**10250TM72**	**10250TR17**	**10250TR18**
	Red	**10250TP37**	**10250TM37**	**10250TJ37**	—	—	—	—	—
	Green/red	—	—	—	—	—	—	**10250TR20**	**10250TR21**
	Satin alum.	—	**10250TM89**	**10250TJ89**	—	—	—	—	—

Maximum Characters per Legend Plate and Approximate Dimensions

Top (Aluminum and Plastic)	Approximate Dimensions in Inches (mm) Width	Height	Style	Character Size 3/32 in High Number of Lines	3/32 in High Number of Characters	1/8 in High Number of Lines	1/8 in High Number of Characters	3/16 in High Number of Lines	3/16 in High Number of Characters
Small ⑥	1.59 (40.4)	1.59 (40.4)	Square	1	17	—	—	—	—
			1/2 Round	1	15	1	12	1	9
Standard and custom	1.75 (44.5)	1.75 (44.5)	Square	2	18	2	13	1	9
			1/2 Round	2	15	2	12	1	9
Jumbo ⑦	2.19 (55.6)	2.19 (55.6)	Square	5	23	3	18	2	12
			1/2 Round	5	19	4	15	2	11
Extra large ③	2.44 (62)	2.44 (62)	Square	6	25	3	18	3	12

Notes

① All push-pull legend plates include the symbols ≠ Ø in the centre of the plate.
② Cannot be used on cast enclosures except for top row. Suitable for most sheet metal enclosures.
③ When used to meet Ford Motor Co. specifications, specify engraved legend. Cannot be used on standard cast or sheet metal enclosures.
④ Slightly larger than standard size for legends requiring more space—fits cast enclosures.
⑤ Square legend plates have a satin aluminum field. Colour is on lower portion.
⑥ Recommended only when mounting on minimum centers (less than 1-3/4 in [44.5 mm] vertical centers).
⑦ Can be used on top row only of any enclosure.

Enclosures

Die Cast, Polyester and Stainless Steel Enclosures

Enclosures (Case and Cover)—Surface Mounting ①

	Number of Elements	One Contact Block Depth Catalogue Number	Two Contact Block Depth Catalogue Number
Die Cast Enclosure	**Die Cast Enclosure—In-Line ②③④ NEMA 4, 4X, 12, 13**		
	1	**10250TN1**	**10250TN11**
	2	**10250TN2**	**10250TN12**
	3	**10250TN3**	**10250TN13**
	4	—	**10250TN14**
Polyester Enclosure	**Polyester④—In-Line NEMA 3, 4X, 12**		
	1	—	**E34N51**
	2	—	**E34N52**
	3	—	**E34N53**
	4	—	**E34N54**
Stainless Steel Enclosure	**Stainless Steel ④⑤—In-Line NEMA 4, 4X, 12**		
	1	—	**10250TN33**
	2	—	**10250TN34**
	3	—	**10250TN35**
	4	—	**10250TN36**

Dimensions, see **Page T37-232**.

Mounting Instructions

Two-position joystick must be used with two contact block deep enclosures (maximum number of contact blocks = 1). Four-position joysticks cannot be used within these enclosures.

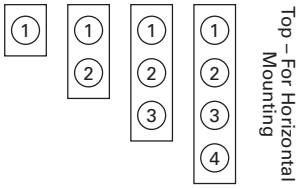
One and Two Contact Block Depth Enclosures

One Contact Block Depth Enclosure

Two Contact Block Depth Enclosure

Enclosure Layouts

Top – For Vertical Mounting



Top – For Horizontal Mounting

Notes

① For spacing increments, see **Page T37-220.**
② All die cast enclosures can be converted to base mounting of contact blocks, with spacers 10250TA22 or 10250TA23. See listing on **Page T37-213.**
③ When used with E30 pushbuttons, only the one element enclosure can be used.
④ When used with resistor light units, only the 2 contact block depth enclosure can be used.
⑤ 14 gauge, type 304.

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Die Cast and Stainless Steel—Flush Mount, Covers Only

Flush Mounting Covers

Covers Only—Flush Mounting

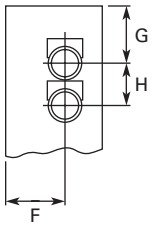
Number of Elements	Catalogue Number	Catalogue Number
Flush Die Cast Covers		
	In-Line Deep Cover	**In-Line Flat Cover**
1	**10250TF11**	**10250TF1**
2	**10250TF12**	**10250TF2**
3	**10250TF13**	**10250TF3**
4	**10250TF14**	**10250TF4**
In-Line Stainless Steel Flush Plates ①		
	With Pullbox	**Without Pullbox**
1	**10250TS10**	**10250TS1**
2	**10250TS11**	**10250TS2**
3	**10250TS12**	**10250TS3**
4	**10250TS14**	**10250TS4**
Dimensions, see **Page T37-233**.		

Spacing Increments

Approximate Dimensions in Inches (mm)

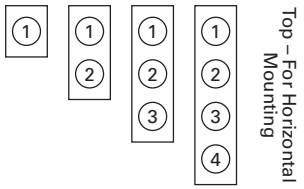
Type	F	G	H
Die cast	2.44 (62)	2.5 (63.5)	1.88 (47.8)
Polyester	1.88 (47.8)	Min. 2.13 (54.1)	2.25 (57.2)
Stainless steel	1.69 (42.9)	Min. 1.73 (43.9)	2.25 (57.2)

Spacing Increments for Enclosures



Enclosure Layouts

Top – For Vertical Mounting



Note

① Not oiltight. NEMA 1 applications only.

Contact Blocks

Standard Contact Blocks

- UL A600/P600 rated
- Colour-coded plungers—red/green for NC/NO circuits
- Silver contact tips with "reliability nibs"
- Gray (opaque) or amber (translucent) housings
- Pressure plate or spade terminals
- Fingerproof shrouds (for pressure terminals only)

Logic Level Contact Blocks

- UL A600/P600 rated
- Colour-coded plungers
- Inert palladium knife-blade contacts
- Gray (opaque) housings
- Pressure plate or spade terminals

Special Function Contact Blocks

- UL A600/P600 rated
- Colour-coded plungers
- Silver contact tips with "reliability nibs"
- Gray (opaque) housings
- Pressure plate terminals only

Special Purpose Contact Block

- Maximum 300V rated
- Black plungers
- Silver contact tips with "reliability nibs"
- Black (opaque) housings
- Pressure plate terminals only
- Fingerproof shrouds not available

Reliability Nibs

Reliability nibs are the hallmark of Eaton's contact blocks. A pointed silver nib on the contact tip ensures reliable switching from logic level (5V) up to 600V applications. Therefore standard contact blocks can be used for most logic level applications where the contacts are not exposed to any harsh environmental conditions.

Palladium Contacts

Palladium, which is more inert than gold, is well suited for voltages and currents approaching zero and is recommended for applications where environmental conditions are a factor.

Maximum Contact Block Mounting per Operator Type

Operator	Max. Stack
Pushbuttons	6
Push-pull operators	2
Roto-push operators	4
Two- or three-position selector switches	6
Four-position selector switches	4
Joysticks	4

10250T1

Contact Blocks

Symbol	Circuit	Description ①	Standard Pressure Terminal Catalogue Number	Standard Spade Terminal ② Catalogue Number	Logic Level Pressure Terminal Catalogue Number	Logic Level Spade Terminal ② Catalogue Number
Blank No Plunger	1NC	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T51**	**10250T59**	**10250T51E**	**10250T59E**
Blank No Plunger	1NO	Stack up to six blocks six circuits) unless otherwise noted.	**10250T53**	**10250T60**	**10250T53E**	**10250T60E**
	NO-NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T1**	**10250T40**	**10250T1E**	**10250T40E**
	2NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T3**	**10250T42**	**10250T3E**	**10250T42E**
	2NO	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T2**	**10250T41**	**10250T2E**	**10250T41E**
Special Function Blocks ③						
Blank No Plunger	LONC	Late opening NC. Stack up to six blocks (six circuits) unless otherwise noted.	**10250T71** ③	—	**10250T71E** ③	—
	ECNO-NC	Early closing NO and standard NC. Stack up to six blocks unless otherwise noted.	**10250T47** ③④	—	**10250T47E** ③	—
	ECNO-NO	Early closing NO and standard NO. Stack up to four blocks unless otherwise noted.	**10250T57** ③④	—	**10250T57E** ③	—
	2LONC	Two late opening NC contacts. Stack up to six blocks unless otherwise noted.	**10250T45** ③	—	**10250T45E** ③	—
	LONC-ECNO	Overlapping contacts. Stack up to four blocks unless otherwise noted.	**10250T55** ③④	—	**10250T55E** ③	—
Special Purpose Blocks ⑤						
	2NO-2NC	Four circuits in single block depth. Rated 300V max. Stack up to four blocks unless otherwise noted.	**10250T44** ⑤	—		

Notes

① All 10250T contact blocks shown are suitable for use on standard 10250T and E34 operators. These contact blocks are not suitable for Class I Division 2 type 10250T or E34 devices.

② Contact blocks with spade terminals are limited to a maximum of one contact block per operator and minimum spacing between devices is 2.5 in (63.5 mm). Not suitable for use in 10250T or E34 enclosures. Also available in amber housing. Not available with fingerproof shrouds.

③ Special function contact blocks are not suitable for use with roto-push operators, three-position push-pull operators, or four-position selector switches.

④ ECNO contact blocks are not suitable for use with two-position joysticks or when operators are used with padlock attachments.

⑤ Special purpose 10250T44 contact blocks are not suitable on selector switches or roto-push operators. Okay to use with three-position push-pull operators only on low voltage (30V or less) circuits. Fingerproof shrouds not available.

10250T1CP

Contact Blocks with Fingerproof Shrouds

Symbol	Circuit	Description ①	Standard Pressure Terminal ② Catalogue Number	Logic Level Pressure Terminal ② Catalogue Number
Blank No Plunger	1NC	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T51P**	**10250T51EP**
Blank No Plunger	1NO	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T53P**	**10250T53EP**
	NO-NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T1P**	**10250T1EP**
	2NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T3P**	**10250T3EP**
	2NO	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T2P**	**10250T2EP**
Special Function Blocks ③				
Blank No Plunger	LONC	Late opening NC. Stack up to six blocks (six circuits) unless otherwise noted.	**10250T71P** ④	**10250T71EP** ④
	ECNO-NC	Early closing NO and standard NC. Stack up to six blocks unless otherwise noted.	**10250T47P** ③④	**10250T47EP** ④
	ECNO-NO	Early closing NO and standard NO. Stack up to four blocks unless otherwise noted.	**10250T57P** ③④	**10250T57EP** ④
	2LONC	Two late opening NC contacts. Stack up to six blocks unless otherwise noted.	**10250T45P** ④	**10250T45EP** ④
	LONC-ECNO	Overlapping contacts. Stack up to four blocks unless otherwise noted.	**10250T55P** ③④	**10250T55EP** ④

Notes

① All 10250T contact blocks shown are suitable for use on standard 10250T and E34 operators. These contact blocks are not suitable for Class I Division 2 type 10250T or E34 devices.

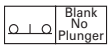
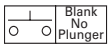
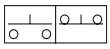
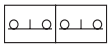
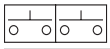
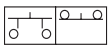
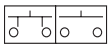
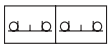
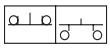
② To order contact blocks with translucent amber housing, change suffix P to **CP** in catalogue number e.g. 10250T51**CP**.

③ ECNO contact blocks are not suitable for use with two-position joysticks or when operators are used with padlock attachments.

④ Special function contact blocks are not suitable for use with roto-push operators, three-position push-pull operators, or four-position selector switches.

10250T1C

Amber Contact Blocks

Symbol	Circuit	Description ①	Standard Pressure Terminal ② Catalogue Number	Standard Spade Terminal ③ Catalogue Number	Logic Level Pressure Terminal ② Catalogue Number	Logic Level Spade Terminal ③ Catalogue Number
	1NC	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T51C**	**10250T59C**	**10250T51EC**	**10250T59EC**
	1NO	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T53C**	**10250T60C**	**10250T53EC**	**10250T60EC**
	NO-NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T1C**	**10250T40C**	**10250T1EC**	**10250T40EC**
	2NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T3C**	**10250T42C**	**10250T3EC**	**10250T42EC**
	2NO	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T2C**	**10250T41C**	**10250T2EC**	**10250T41EC**
Special Function Blocks ③						
	LONC	Late opening NC. Stack up to six blocks (six circuits) unless otherwise noted.	**10250T71C** ④	—	**10250T71EC** ④	—
	ECNO-NC	Early closing NO and standard NC. Stack up to six blocks unless otherwise noted.	**10250T47C** ④⑤	—	**10250T47EC** ④	—
	ECNO-NO	Early closing NO and standard NO. Stack up to four blocks unless otherwise noted.	**10250T57C** ④⑤	—	**10250T57EC** ④	—
	2LONC	Two late opening NC contacts. Stack up to six blocks unless otherwise noted.	**10250T45C** ④	—	**10250T45EC** ④	—
	LONC-ECNO	Overlapping contacts. Stack up to four blocks unless otherwise noted.	**10250T55C** ④⑤	—	**10250T55EC** ④	—

Notes

① All 10250T contact blocks shown are suitable for use on standard 10250T and E34 operators. These contact blocks are not suitable for Class I Division 2 type 10250T or E34 devices.

② To order amber contact blocks with fingerproof shrouds, change suffix to **CP** in the catalogue number e.g. 10250T51**CP**. Not available with spade terminals.

③ Contact blocks with spade terminals are limited to a maximum of one contact block per operator and minimum spacing between devices is 2.5 in (63.5 mm). Not suitable for use in 10250T or E34 enclosures. Also available in amber housing. Not available with fingerproof shrouds.

④ Special function contact blocks are not suitable for use with roto-push operators, three-position push-pull operators, or four-position selector switches.

⑤ ECNO contact blocks are not suitable for use with two-position joysticks or when operators are used with padlock attachments.

Replacement Parts

Replacement Lamps—For 10250T Illuminated Operators

Mfg. Lamp Type	Voltage	Base Style	Application	Part Number
120MB	120V	T 3-1/4 bayonet	10250T resistor indicating light	**28-3044**
#267	6.3V	T 3-1/4 bayonet	10250T flasher	**10250ED986-4**
#755	6.3V	T 3-1/4 bayonet	10250T transformer, PresTest and full voltage	**28-2202**
#756	12V	T 3-1/4 bayonet	10250T full voltage	**28-5184**
#757	24V	T 3-1/4 bayonet	10250T full voltage	**28-5185**
#1828	32V	T 3-1/4 bayonet	10250T full voltage	**28-5186**
#1835	55V	T 3-1/4 bayonet	10250T resistor	**28-5185**
NE48	120V	T 4-1/2 bayonet	10250T neon	**28-494**
NE51H-R22	120V	T 3-1/4 bayonet	10250T neon	**28-3754**
NE51H-R68	240V	T 3-1/4 bayonet	10250T neon	**28-3755**

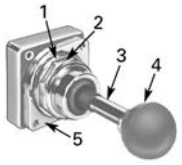
Standard LED Lamp

Replacement LED Lamps—For 10250T, E34 and E22 Units

Voltage	Colour	Continuous AC/DC Catalogue Number	Flashing AC Catalogue Number	Flashing DC Catalogue Number
6–12V	Red	**E22LED612RN**	**E22LED006RAF**	**E22LED006RDF**
	Orange	**E22LED612ON**	**E22LED006OAF**	**E22LED006ODF**
	Yellow	**E22LED612YN**	**E22LED006YAF**	**E22LED006YDF**
	Green	**E22LED612GN**	**E22LED006GAF**	**E22LED006GDF**
	Blue	**E22LED612BN**	**E22LED006BAF**	**E22LED006BDF**
	White	**E22LED612WN**	**E22LED006WAF**	**E22LED006WDF**
24V	Red	**E22LED024RN**	**E22LED024RAF**	**E22LED024RDF**
	Orange	**E22LED024ON**	**E22LED024OAF**	**E22LED024ODF**
	Yellow	**E22LED024YN**	**E22LED024YAF**	**E22LED024YDF**
	Green	**E22LED024GN**	**E22LED024GAF**	**E22LED024GDF**
	Blue	**E22LED024BN**	**E22LED024BAF**	**E22LED024BDF**
	White	**E22LED024WN**	**E22LED024WAF**	**E22LED024WDF**
48V	Red	**E22LED048RN**	**E22LED048RAF**	**E22LED048RDF**
	Orange	**E22LED048ON**	**E22LED048OAF**	**E22LED048ODF**
	Yellow	**E22LED048YN**	**E22LED048YAF**	**E22LED048YDF**
	Green	**E22LED048GN**	**E22LED048GAF**	**E22LED048GDF**
	Blue	**E22LED048BN**	**E22LED048BAF**	**E22LED048BDF**
	White	**E22LED048WN**	**E22LED048WAF**	**E22LED048WDF**
60V	Red	**E22LED060RN**	**E22LED060RAF**	**E22LED060RDF**
	Orange	**E22LED060ON**	**E22LED060OAF**	**E22LED060ODF**
	Yellow	**E22LED060YN**	**E22LED060YAF**	**E22LED060YDF**
	Green	**E22LED060GN**	**E22LED060GAF**	**E22LED060GDF**
	Blue	**E22LED060BN**	**E22LED060BAF**	**E22LED060BDF**
	White	**E22LED060WN**	**E22LED060WAF**	**E22LED060WDF**
120V	Red	**E22LED120RN**	**E22LED120RAF**	**E22LED120RDF**
	Orange	**E22LED120ON**	**E22LED120OAF**	**E22LED120ODF**
	Yellow	**E22LED120YN**	**E22LED120YAF**	**E22LED120YDF**
	Green	**E22LED120GN**	**E22LED120GAF**	**E22LED120GDF**
	Blue	**E22LED120BN**	**E22LED120BAF**	**E22LED120BDF**
	White	**E22LED120WN**	**E22LED120WAF**	**E22LED120WDF**

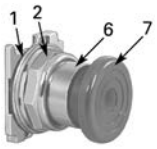
37.7 Pushbuttons and Indicating Lights

30.5 mm Heavy-Duty Watertight/Oiltight—10250T



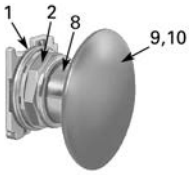
Two-Position Joystick Operator

Flush Head Pushbutton Operator



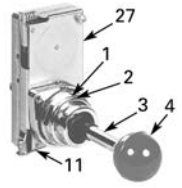
Mushroom Head Pushbutton Operator

Mushroom Head Operator with Padlock Attachment



Jumbo Mushroom Head Operator

Knob-Operated Selector Switch Operator

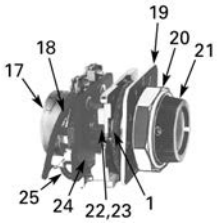


Four-Position Joystick Operator (without Latch)

Illuminated Pushbutton Operator

Full Voltage, Resistor and Transformer Type Illuminated Selector Switch

Transformer Type Indicating Light



Potentiometers

10250T Style Operator Replacement Parts

Item No.	Description	No. Req.	Part Number
1	Gasket	1	**16-1548**
2	Mounting nut	1	**15-1530**
3	Handle	1	**24-5045**
4	Knob	1	**53-3157**
	Knob (not shown) for joystick operator with latch	1	**53-3159**
5	Common gate (supplied with operator)	2	**16-3400**
6	Set screw (#6-32 x 0.250 in long hollow hex)	2	**11-2014**
7	Mushroom head button (includes [2] Item 6)	1	**As Req. Below**
	Black	—	**53-1317**
	Red	—	**53-1317-2**
	Yellow	—	**53-1317-3**
	Green	—	**53-1317-4**
	Blue	—	**53-1317-22**
8	Set screw (#10-32 x 0.250 in long hollow hex)	2	**11-544**
9	Jumbo mushroom head button (aluminum—includes [2] Item 8)	1	**As Req. Below**
	Red	—	**53-1317-9**
	Black	—	**53-1317-10**
	Yellow	—	**53-1317-11**
	Green	—	**53-1317-12**
10	Jumbo mushroom head button (aluminum—red EMERG. STOP) does not include Item 8	1	**53-1349-18**
11	Position gate:		
	Two-position	1	**54-7278**
	Three-position	1	**54-7173**
	Four-position	1	**54-12278**
	Eight-position	1	**54-12279**
12	Mounting screw (#6-32 x 0.710 in long)	2	**10250TA79**
	Washer	2	**16-2038**
13	Terminal screw and lug (captive)	Req.	**80-5502KIT**

Item No.	Description	No. Req.	Part Number
14	Gasket (supplied with basic unit)	1	**32-803**
15	Round head screw (#4-40 x 0.344 in long) (supplied with basic unit)	2	**11-4553**
16	Mounting screw	2	**11-1632**
17	Simple potentiometer (does not include items 18, 28 or 29)	1	**As Req. Below**
	1,000 ohms	—	**41-782-2**
	2,500 ohms	—	**41-782-3**
	5,000 ohms	—	**41-782-10**
	10,000 ohms	—	**41-782-4**
	25,000 ohms	—	**41-782-5**
	50,000 ohms	—	**41-782-6**
18	Connector (includes screw and lug)	2	**25-1851**
19	Indicating plate	1	**As Req. Above**
	Standard size (without legend)	—	**30-4460**
	Large size (specify legend)	—	**10250TR30**
20	Retaining nut	1	**15-1547**
21	Knob	1	**53-1314**
	Socket set screw (#6-32 x 0.250 in long)	2	**11-2014**
22	Coupling	1	**29-3749-2**
23	Set screw (#6-32 x 0.188 in long)	1	**11-1199**
24	Spacer	2	**56-1066-18**
25	Connector (includes screw and lug)	1	**25-1851-2**
26	Mounting nut	1	**15-1938**
27	Four-position joystick operating mechanism (complete)	1	**24-6565**
28	Four-position joystick operating mechanism (not shown) (with latch) complete	1	**24-6565-2**
29	Spring loaded latch	1	**52-1214-2**
30	Hand operated latch	1	**52-913-3**

Technical Data and Specifications

Mechanical Ratings

Description	Specification
Frequency of Operation	
All pushbuttons	6000 operations/hr.
Key and lever selection switches	3000 operations/hr.
Auto-latch devices	1200 operations/hr.
Life	
Pushbuttons	10 x 10^6 operations
Contact blocks	10 x 10^6 operations
PresTest units	10 x 10^6 operations
Lever and key selector switches	0.25 x 10^6 operations
Twist to release pushbuttons	0.3 x 10^6 operations
Shock Resistance	
Duration	20 ms ≥5g

General Specifications

Description	Specification
Climate Conditions	
Operating temperature	1° to 150°F (–17° to 66°C)
Storage temperature	–40° to 176°F (–40° to 80°C)
Altitude	6,562 ft (2,000m)
Humidity	Max. 95% RH at 60°C
Terminals	
Marking	NC-NO on the contact block to meet the NEMA requirements. Dual marking system 1–2 for normally closed, 3–4 for normally open to meet BS5472 (Cenelec EN50 005).
Clamps	Terminals are saddle clamp type for 1 x 22 AWG (0.34 mm^2) to 2 x 14 AWG (2.5 mm^2) conductors
Torque	7 lb-in (0.8 Nm)
Degree of protection against direct electrical contact	IP2X with fingerproof shroud
Light Units	
Transformers	Will withstand short-circuit for 1 hour per IEC 60997-5-1
Bulbs—average life:	
Transformer type	20,000 hrs.
Resistor/direct voltage type	2500 hrs. minimum at rated voltage
LED	60,000 to 100,000 hrs.

Electrical Ratings

Description	Specification
Insulation	U_i = 660 Vac or Vdc
Thermal	I_{th} = 10A
Short Circuit Coordination to IEC/EN 60947-5-1	
Rated conditional short circuit current	1 kA
Fuse type	GE power controls TIA 10, red spot type gG, 10A, 660 Vac, 460 Vdc, BS88-2, IEC 60269-2-1
UL rating	A600, P600
AC load life duty cycle 1200 operations/hour	
10A	110V pf 0.4—1 x 10^6 operations
5A	250V pf 0.4—1 x 10^6 operations
2A	600V pf 0.4—1 x 10^6 operations
Switching capacity	
AC 15 rated make/break (11 x I_e at 1.1 x U_e)	
6A	120V pf 0.3
4A	240V pf 0.3
2A	660V pf 0.3
DC13 rated make/break (1.1 x I_e at 1.1 x U_e)	
1.0A	125V L/R ≥0.95 at 300 ms
0.55A	250V L/R ≥0.95 at 300 ms
0.1A	660V L/R ≥0.95 at 300 ms
10A	110V pure resistive
Maximum ratings for logic level and hostile atmosphere application	
Maximum amperes	0.5A
Maximum volts	120 Vac/Vdc

Electrical Ratings—Contact Block

	50 Vac or 60 Hz				Vdc		
Description	**120**	**240**	**480**	**600**	**24/28**	**125**	**250**
Meet or Exceed NEMA Rating Designations A600, A300 and B300 for AC and P600 for DC							
Make and emerg. interrupting capacity (amp)	60	30	15	12	5.7	1.1	0.55
Normal load break (amp)	6	3	1.5	1.2	5.7	1.1	0.55
Thermal current (amp)	10	10	10	10	5.0	5.0	5.0
Voltamperes:							
Make and emerg. interrupting capacity	7200	7200	7200	7200	138	138	138
Normal load break	720	720	720	720	138	138	138

Mounting Options

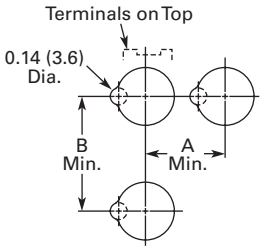
Panel Thickness

- Minimum: 0.06 in (1.6 mm)
- Maximum: 0.25 in (8 mm) including legend plate
- Maximum can be increased to 0.375 in (15.9 mm) using optional retaining nut
  - Indicating light: 10250TA30
  - Pushbutton/selector switch: 10250TA31

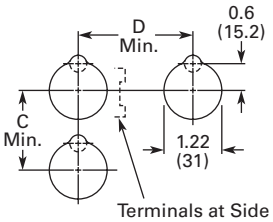
Mounting Matrix

Legend Plate	Dimensions in Inches (mm) A	B	C	D
Small	1.63 (41.3)	2.25 (57.2)	2.25 (57.2)	1.63 (41.3)
Medium	1.75 (44.5)	2.25 (57.2)	2.25 (57.2)	1.75 (44.5)
Large	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)

Mounting Options in Inches (mm)



Horizontal Mounting

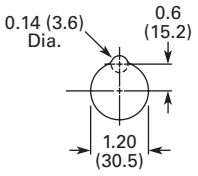


Vertical Mounting

Horizontal mounting means terminals are located top and bottom of contact block.
Vertical mounting means terminals are left and right of contact block.
This allows close spacing of adjacent operators with easy access to terminals.

Locating nib hole or notch is 0.14 in (3.6 mm) #29 drill.

Drilling Dimensions in Inches (mm)



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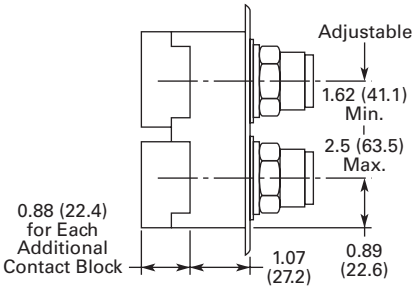
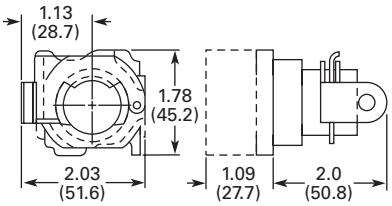
Dimensions

Approximate Dimensions in Inches (mm)

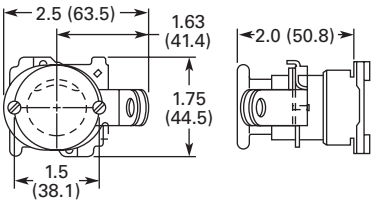
Mechanically Interlocked Pushbutton Operators



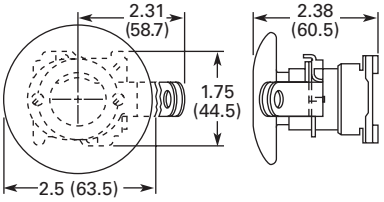
Lockout Pushbutton Operator Padlockable in the Down Position



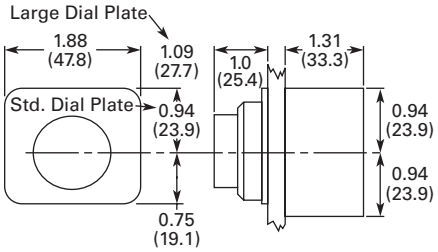
Lockout Pushbutton Operator Padlockable in the Up Position—Mushroom Head



Lockout Pushbutton Operator Padlockable in the Up Position—Jumbo Mushroom Head

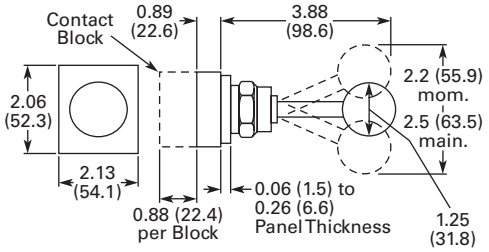


Potentiometer

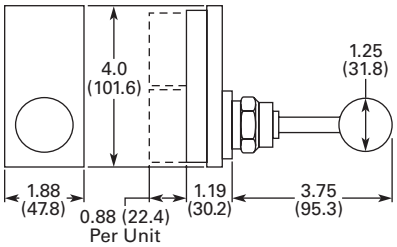


Potentiometer	A	B	C
2 watt single	1.31 (33.3)	0.94 (23.9)	0.94 (23.9)
25 watt—up to 25 mohms	2.38 (60.5)	1.19 (30.2)	0.81 (20.6)
50 mohms	2.56 (65)	1.69 (42.9)	1.25 (31.8)

Two-Position Joystick Operator

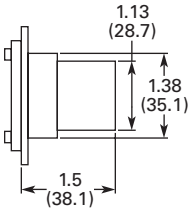


Four-Position Joystick Operator

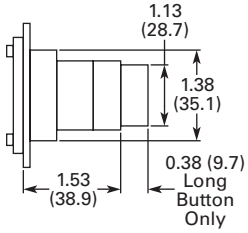


Approximate Dimensions in Inches (mm)

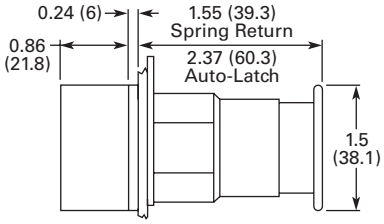
Key Operated Pushbutton Operator



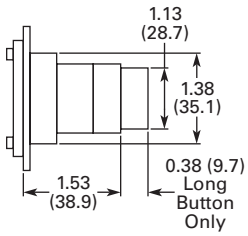
Operator and Cam



Latch-In, Twist-to-Release Operator Only with Button



Special Rotor Latch



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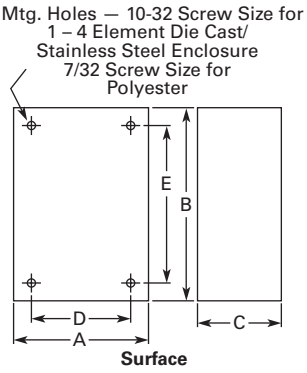
Approximate Dimensions in Inches (mm)

Surface Mounting

Die Cast, Polyester and Stainless Steel Enclosures



Number of Elements	Element Arrangement	Wide A	High B	Deep C	Mounting D	E	Conduit Entrance
Die Cast							
1	In-line	3.88 (98.6)	4.0 (101.6)	3.0 (76.3) ①	2.69 (68.3)	3.25 (82.6)	3/4
2		3.88 (98.6)	5.88 (149.4)	3.0 (76.3) ①	2.69 (68.3)	5.13 (130.3)	
3		3.88 (98.6)	7.75 (196.9)	3.0 (76.3) ①	2.69 (68.3)	7.0 (177.8)	1
4		3.88 (98.6)	9.63 (244.6)	3.0 (76.3) ①	2.69 (68.3)	8.88 (225.6)	
Polyester							
1	In-line	3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	②
2		3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	
3		3.81 (96.8)	8.88 (225.6)	3.38 (85.9)	2.94 (74.7)	7.13 (181.1)	
4		3.81 (96.8)	11.13 (282.7)	3.38 (85.9)	2.94 (74.7)	9.38 (238.3)	
Stainless Steel							
1	In-line	3.00 (76.2)	3.50 (88.9)	3.00 (76.2)	1.50 (38.1)	4.25 (108.0)	②
2		3.50 (88.9)	6.75 (171.5)	3.00 (76.2)	1.50 (38.1)	7.50 (190.5)	
3		3.50 (88.9)	9.00 (228.6)	3.00 (76.2)	1.50 (38.1)	9.00 (228.6)	
4		3.50 (88.9)	11.25 (285.8)	3.00 (76.2)	1.50 (38.1)	12.00 (304.8)	

Notes

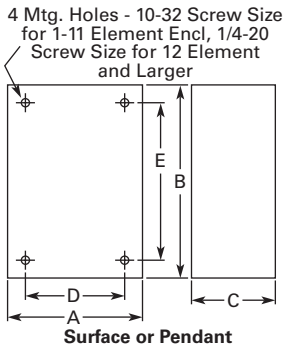
① Depth given is for two contact block deep stations. One contact block deep stations subtract 3/4 in (19.1 mm).

② No conduit entrance holes provided. Drill as required.

Approximate Dimensions in Inches (mm)

Flush Mounting

Die Case and Stainless Steel Covers Only



Surface or Pendant

Number of Elements	Wide A	High B	Deep C	Mounting D	E
Die Cast					
1	3.88 (98.6)	4.0 (101.6)	0.25 (6.4) ②	3.50 (88.9)	3.63 (92.2)
2	3.88 (98.6)	5.88 (149.4)	0.25 (6.4) ②	3.50 (88.9)	5.50 (139.7)
3	3.88 (98.6)	7.75 (196.9)	0.25 (6.4) ②	3.50 (88.9)	6.0 (152.4)
4	3.88 (98.6)	9.63 (244.6)	0.25 (6.4) ②	3.50 (88.9)	9.25 (235)
Stainless Steel					
1	5.00 (127)	5.0 (127	2.50 (63.5) ②	3.25 (82.6)	1.88 (47.8)
2	5.00 (127)	6.88 (174.8)	2.50 (63.5) ②	3.25 (82.6)	3.63 (92.2)
3	5.00 (127)	8.63 (219.2)	2.50 (63.5) ②	3.25 (82.6)	5.50 (139.7)
4	5.00 (127)	10.50 (266.7)	2.50 (63.5) ②	3.25 (82.6)	7.25 (184.2)

Notes

① Depth given includes pull box.

② Depth given is for flat cover. Deep cover is 3/4 in (19.1 mm) deeper.

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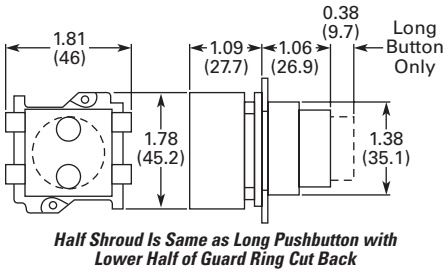
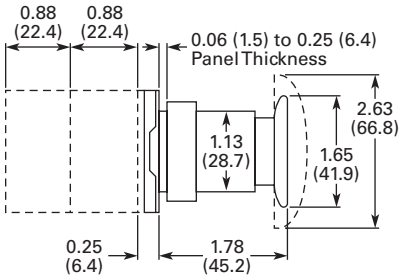
Approximate Dimensions in Inches (mm)

Flush and Long Pushbutton Half Shroud

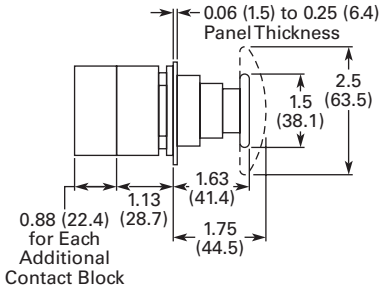


Half Shroud Is Same as Long Pushbutton with Lower Half of Guard Ring Cut Back

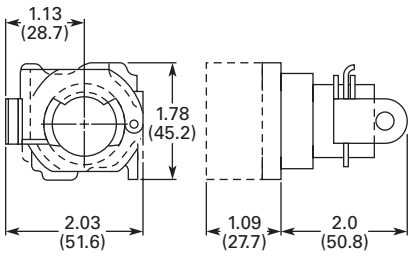
Push-Pull Switch



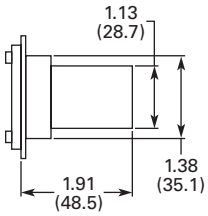
Mushroom and Jumbo Head Pushbutton



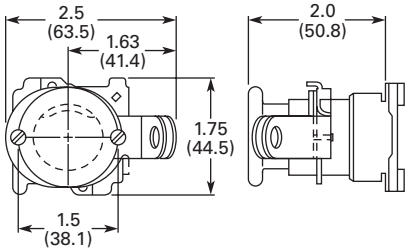
Flush Pushbutton Operator with Padlock Attachment



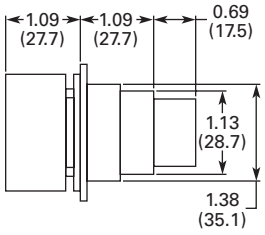
Pushbutton with Cylinder Lock



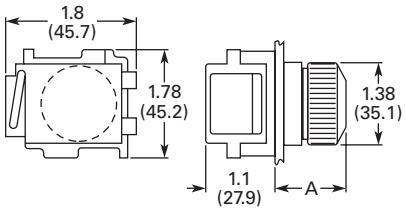
Mushroom Head Pushbutton Operator with Padlock Attachment



Illuminated Pushbutton

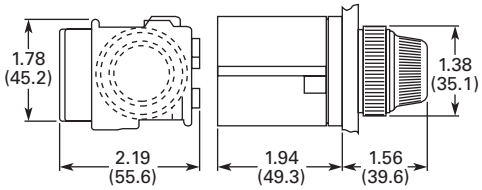


Indicating Light—Transformer Type

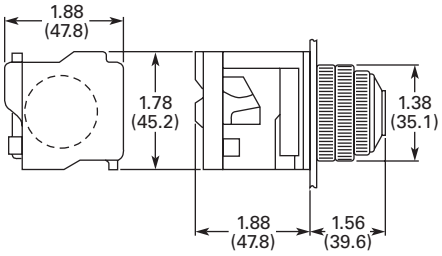


Approximate Dimensions in Inches (mm)

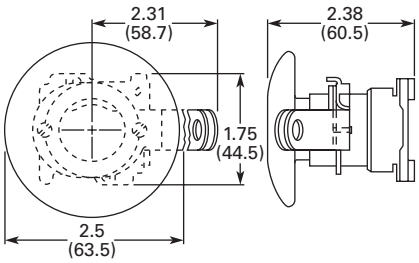
PresTest Indicating Light—Transformer Type



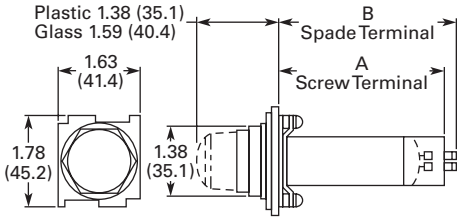
PresTest Indicating Light—Resistor Type



Jumbo Mushroom Head Pushbutton Operator with Padlock Attachment

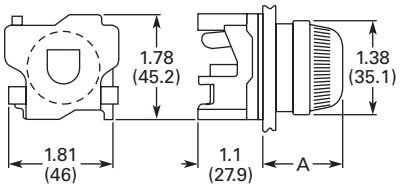


Master Test Indicating Light



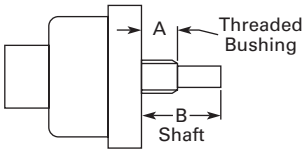
Description	B	C
Relay type	4.38 (111.2)	4.28 (108.7)
Solid-state type	2.94 (74.7)	2.88 (73.2)

Indicating Light—Resistor and Neon Type



Lens	A
Plastic	1.38 (35.1)
Glass	1.56 (39.6)

Potentiometer Shaft



Shaft Dimensions of Potentiometer That C-H Operator Will Accept

Operator Catalogue Number	A	B
10250T330	0.38 (9.7) dia. x 0.38 (9.7) long	0.25 (6.4) dia. x 0.63 (16) long

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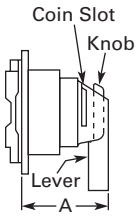
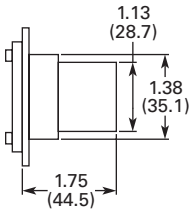
Approximate Dimensions in Inches (mm)

Coin Operated Selector Switch

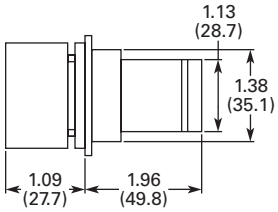


Operator	Dim. A
Knob	1.38 (35.1)
Lever	1.50 (38.1)
Coin slot	1.38 (35.1)

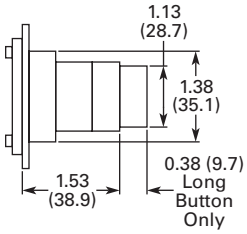
Key Operated Selector Switch



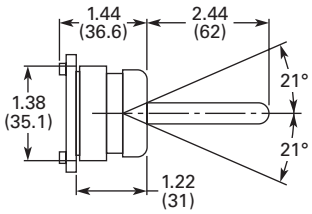
Illuminated Selector Switch



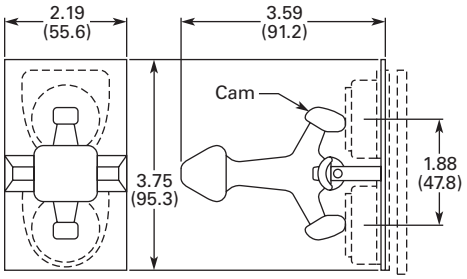
Roto-Push



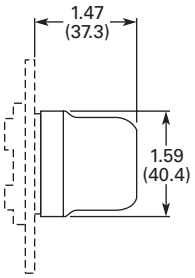
Wobble Stick Catalogue No. 10250TA5



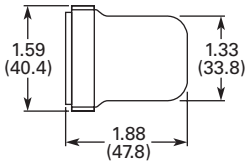
Lever Operator—For Use with Two Vertically Mounted Flush Pushbuttons Catalogue No. 10250TA14



Flexible Boot—For Protecting Flush or Long Pushbutton Catalogue No. 10250TA3 Typical

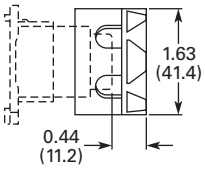


Transparent Flexible Boot—For Illuminated Pushbutton Catalogue No. 10250TA25

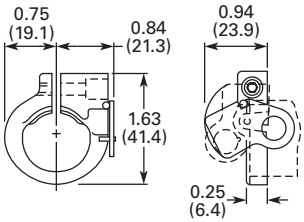


Approximate Dimensions in Inches (mm)

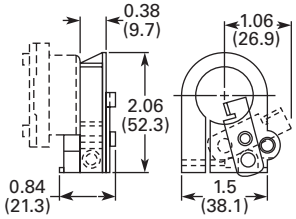
Padlock Attachment—For Knob Selector Switch Catalogue No. 10250TA11



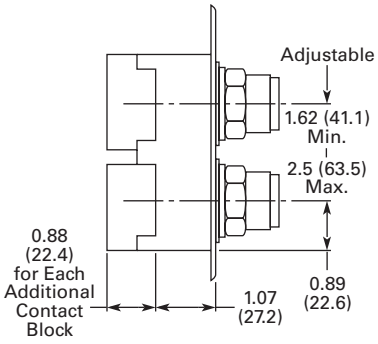
Padlock Attachment—For Flush Pushbutton Catalogue No. 10250TA2



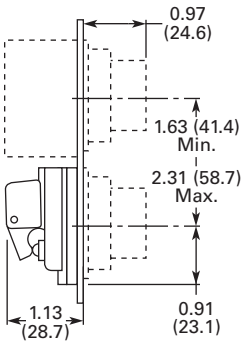
Padlock Attachment—For Extended Pushbutton Catalogue No. 10250TA26



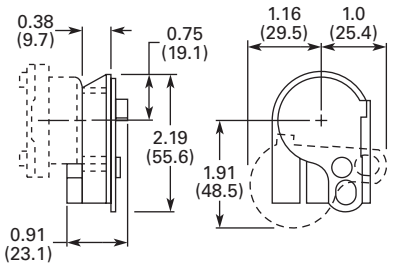
Maintained Pushbutton Catalogue No. 10250TA66 Typical



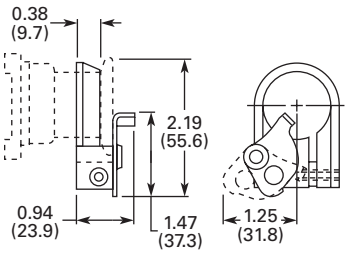
Maintained Contact Attachment Catalogue No. 10250TA17 Typical



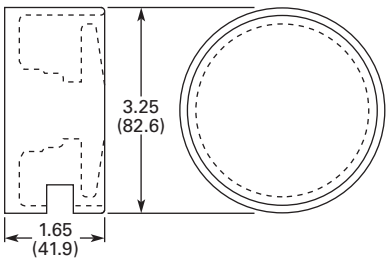
Padlock Cover Guard for Flush Pushbutton Catalogue No. 10250TA36



Padlock Attachment for Maintained Push-Pull Operator Catalogue No. 10250TA64



Protecting Shroud for Jumbo Mushroom Head Button Catalogue No. 10250TA56



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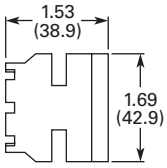
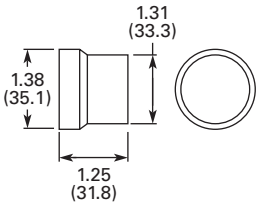
Approximate Dimensions in Inches (mm)

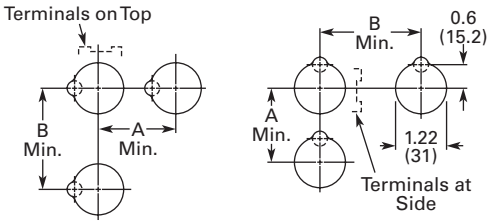
Protecting Shroud for Mushroom Head Button Catalogue No. 10250TA6



Extended Retaining Nut Catalogue No. 10250TA12

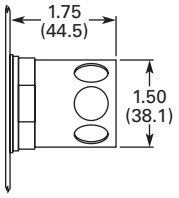


Panel Drilling and Minimum Spacing

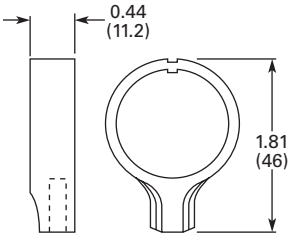


Horizontal Rows **Vertical Rows**

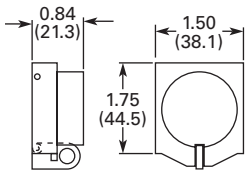
Protecting Shroud for Illuminated Pushbutton Catalogue No. 10250TA15



Lever for Roto-Push Operator Catalogue No. 10250TA13



Padlock Hasp or Flip-Up Guard Catalogue No. 10250TA38



Legend Plate	A Min.	B Min.
1 or 2 Circuit Contact Blocks		
Small or none	1.63 (41.4)	2.25 (57.2)
Standard	1.75 (44.5)	2.25 (57.2)
Jumbo ①	2.25 (57.2)	2.25 (57.2)
Extra large	2.50 (63.5)	2.60 (66)
4 Circuit Contact Block 10250T44		
Small or none	1.88 (47.8)	2.25 (57.2)
Standard	1.88 (47.8)	2.25 (57.2)
Jumbo ①	2.25 (57.2)	2.25 (57.2)
Extra large	2.50 (63.5)	2.60 (66)

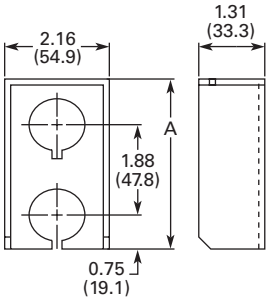
Notes

Locating nib hole or notch is 1.36–1.4 in (34.5–35.6 mm) #29 drill.

① If jumbo plates are to be placed one above the other vertically, add 0.13 (3.3) to minimum dimensions listed.

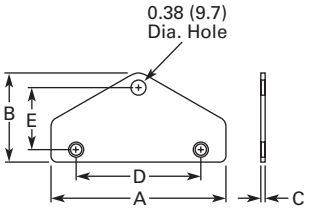
Approximate Dimensions in Inches (mm)

Multiple Button Guard



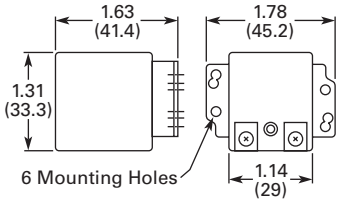
Number of Elements	A
2	4.0 (101.6)
3	5.88 (149.4)
4	7.88 (200.2)
7	13.38 (339.9)

Chain Hook Bracket

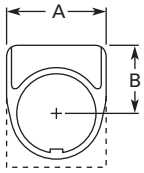


Enclosure Size (No. of Elements)	Wide A	High B	Deep C	Mounting D	E
2, 3 and 4	3.75 (95.3)	1.94 (49.3)	0.13 (3.3)	2.69 (68.3)	1.38 (35.1)
6 and 7	4.0 (101.6)	2.19 (55.6)	0.13 (3.3)	2.88 (73.2)	1.63 (41.4)

Master Test Module, Flasher Module and Legend Plate



Master Test Module, Flasher Module



Legend Plate

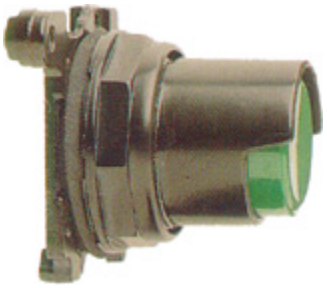
Legend Plate	A	B
1/2 Round Legend Plates		
Small	1.56 (39.6)	0.91 (23.1)
Standard	1.59 (40.4)	1.07 (27.2)
Jumbo	2.06 (52.3)	1.53 (38.9)
Square Legend Plates		
Small	1.59 (40.4) sq.	0.90 (22.9)
Standard	1.75 (44.5) sq.	1.06 (26.9) ①
Jumbo	2.19 (55.6) sq.	1.50 (38.1)
Extra large	2.44 (62.0) sq.	1.63 (41.4)

Notes

Locating nib hole or notch is 1.36–1.4 in (34.5–35.6 mm) #29 drill.

① For plastic legend plate, Dimension B is 1.12 (28.4).

30.5 mm Corrosion Resistant Watertight/Oiltight—E34



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Product Description

Eaton's E34 Series 30.5 mm pushbutton line features the same rugged die cast construction of our 10250T line with an additional two-layer 100% solid thermosetting cathodic epoxy coating. This coating provides a flat black smooth, consistent, corrosion resistant surface that has passed a demanding 600 hour salt spray test. (The industry standard for this 4X test requires only 200 hours.)

Features

- Epoxy-coated metal operators
- Corrosion resistant
- Integral ground screw terminal on operators
- FDA approved for sanitary chemical resistance requirements

Standards and Certifications

- CE EN60947-5-1 and 60947-5-5
- UL 508—File No. E131568
- CSA C22.2 No. 14—File No. LR68551
- FDA 3-A Sanitary Standards

Ingress Protection

When mounted in similarly rated enclosure—

- Standard indicating lights
  - UL (NEMA) Type 1, 2, 3, 3R, 3S, 4, 4X, 12, 13
  - IEC IP65
- All other operators
  - UL (NEMA) Type 1, 2, 3, 3R, 4, 4X, 12, 13
  - IEC IP65

Product Overview

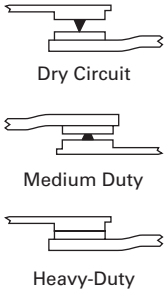
Ultraviolet Light

E34 cathodic coating is not recommended for use in applications where exposure to ultraviolet light exists—use NEMA 4X 10250T operators.

Reliability Nibs

Eaton's contact blocks feature enclosed silver contacts with pointed "reliability nibs" for reliable performance from logic level up to 600V. To ensure reliable switching, nibs bite through oxide which can form on silver contacts, eliminating the need for expensive logic level blocks for most applications.

Reliability Nibs

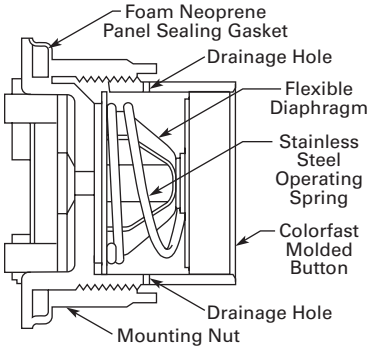


Diaphragm Seal with Drainage Holes

Liquid Drainage

Eaton's pushbutton operators offer front of panel drainage via holes in the operator bushing. Hidden from view by the mounting nut, these holes prevent buildup of liquid inside the operator, which can prevent operation in freezing environments. The holes also provide a route for escaping liquid in high pressure washdowns, effectively relieving pressure from the internal diaphragm seal, ensuring reliable sealing in applications even beyond NEMA 4.

Diaphragm Seal



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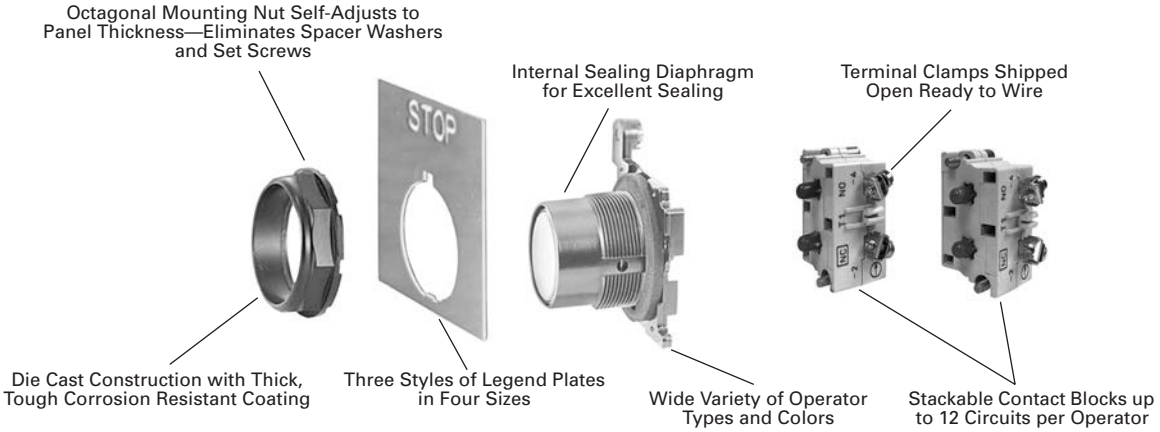
Product Identification

30.5 mm Corrosion Resistant Watertight/Oiltight—E34 Series



Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Non-Illuminated Pushbuttons

E34 PB 1 – 1 ①

Operator
PB = Flush
EB = Extended
LB = 40 mm mushroom
JB = 65 mm mushroom
EVB = 1/2 shroud vertical mount
EHB = 1/2 shroud horizontal mount

Button Colour	
1 = Black	**7** = Gray
2 = Red	**5** = White
3 = Green	**6** = Blue
4 = Yellow	**8** = Orange

Circuit
Blank = Operator only
1 = 1NO-1NC
2 = 2NO
3 = 2NC
51 = 1NC
53 = 1NO

Illuminated and Non-Illuminated Push-Pulls

E34 GDB 63 M2 ___ – 1 ①

Operator
GDB = Two-position maintained
GEB = Three-position mom push-mom pull
GFB = Three-position mt push-mom pull
GHB = Three-position mom push-mom pull

Incandescent Light Unit	LED Light Unit
Blank = Non-illuminated	**Blank** = Non-illuminated
89 = 24V/XFR	**89L** = 24V/XFR
63 = 120V/XFR	**63L** = 120V/XFR
64 = 208V/XFR	**64L** = 208V/XFR
65 = 240V/XFR	**65L** = 240V/XFR
82 = 277V/XFR	**82L** = 277V/XFR
66 = 380V/XFR	**66L** = 380V/XFR
67 = 480V/XFR	**67L** = 480V/XFR
68 = 600V/XFR	**68L** = 600V/XFR
69 = 6V/FV	**97L** = Full voltage
70 = 12V/FV	
79 = 24V/FV	
83 = 32V/FV	
80 = 120V/RES	
81 = 240V/RES	

LED Voltage
Blank = Non-illuminated
Blank = Incandescent
06 = 6 Vac/Vdc
12 = 12 Vac/Vdc
24 = 24 Vac/Vdc
48 = 48 Vac/Vdc
60 = 60 Vac/Vdc
2A = 120 Vac
2D = 120 Vdc

Circuit
Blank = Operator only
1 = 1NO-1NC
2 = 2NO
3 = 2NC
51 = 1NC
53 = 1NO

Non-Illuminated	Illuminated	
Button	Incandescent	LED Lens Type
C1 = Black 40 mm	**M2** =	**RD** = Red 40 mm
C2 = Red 40 mm	**M2N8** =	**ED** = Red 40 mm—"E" STOP
C2N8 = Red 40 mm—"E" STOP	**M3** =	**GD** = Green 40 mm
C3 = Green 40 mm	**M6** =	**LD** = Blue 40 mm
C6 = Blue 40 mm	**M9** =	**AD** = Amber 40 mm
— = Black 65 mm	**M5** =	**WD** = White 40 mm
J2 = Red 65 mm	**M0** =	— = Clear 40 mm
J2N8 = Red 65 mm—"E" STOP		
— = Green 65 mm		
— = Yellow 65 mm		

Note

① Add **X** at end of catalogue number to receive parts assembled from factory.

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Illuminated Pushbuttons

E34 XB 24 V2 ___ – 1 ①

Light Unit Type
- **XB** = Transformer
- **CB** = Full voltage
- **SB** = Resistor

Incandescent Light Unit	LED Light Unit
024 = 24V/XFR	**024L** = 24V/XFR
120 = 120V/XFR	**120L** = 120V/XFR
240 = 240V/XFR	**240L** = 240V/XFR
277 = 277V/XFR	**277L** = 277V/XFR
380 = 380V/XFR	**380L** = 380V/XFR
480 = 480V/XFR	**480L** = 480V/XFR
600 = 600V/XFR	**600L** = 600V/XFR
06 = 6V/FV	**397L** = Full voltage
12 = 12V/FV	
24 = 24V/FV	
32 = 32V/FV	
48 = 48V/FV	
120 = 120V/RES	
240 = 240V/RES	

Incandescent Lens Colour	LED Lens Colour
V2 = Red	**RD** = Red
V3 = Green	**GD** = Green
V4 = Yellow	**YD** = Yellow
V5 = White	**WD** = White
V6 = Blue	**LD** = Blue
V9 = Amber	**AD** = Amber
V0 = Clear	

LED Voltage

Blank = Incandescent	**48** = 48 Vac/Vdc
06 = 6 Vac/Vdc	**60** = 60 Vac/Vdc
12 = 12 Vac/Vdc	**2A** = 120 Vac
24 = 24 Vac/Vdc	**2D** = 120 Vdc

Circuit
- **Blank** = Operator only
- **1** = 1NO-1NC
- **2** = 2NO
- **3** = 2NC
- **51** = 1NC
- **53** = 1NO

Standard Indicating Lights, PresTest and Master Test

E34 FB06 H2 ___ ①

Light Unit Type

Standard—Incandescent	Standard—LED
TB120 = 120V/XFR	**TB120L** = 120V/XFR
TB240 = 240V/XFR	**TB240L** = 240V/XFR
TB277 = 277V/XFR	**TB277L** = 277V/XFR
TB380 = 380V/XFR	**TB380L** = 380V/XFR
TB480 = 480V/XFR	**TB480L** = 480V/XFR
TB600 = 600V/XFR	**TB600L** = 600V/XFR
FB06 = 6V/FV	**FB197L** = Full voltage
FB12 = 12V/FV	**PresTest—LED**
FB24 = 24V/FV	**TPB120L** = 120V/XFR
FB32 = 32V/FV	**TPB240L** = 240V/XFR
FB48 = 48V/FV	**TPB380L** = 380V/XFR
RB120 = 120V/RES	**TPB480L** = 480V/XFR
RB240 = 240V/RES	**TPB600L** = 600V/XFR
NB120 = 120V/neon	**FPB297L** = Full voltage
NB240 = 240V/neon	
PresTest—Incandescent	
TPB120 = 120V/XFR	
TPB240 = 240V/XFR	
TPB380 = 380V/XFR	
TPB480 = 480V/XFR	
TPB600 = 600V/XFR	
FPB06 = 6V/FV	
FPB12 = 12V/FV	
FPB24 = 24V/FV	
FPB32 = 32V/FV	
FPB48 = 48V/FV	
RPB120 = 120V/RES	
RPB240 = 240V/RES	

Plastic	Glass	Lens Colour	Plastic	Glass	Lens Colour
Standard/Master—Incandescent			**Standard/Master/PresTest—LED**		
H2 =	**G2** =	Red	**RP** =	**RG** =	Red
H3 =	**G3** =	Green	**GP** =	**GG** =	Green
H4 =	**G4** =	Yellow	**YP** =	**YG** =	Yellow
H5 =	**G5** =	White	**WP** =	**WG** =	White
H6 =	**G6** =	Blue	**LP** =	**LG** =	Blue
H9 =	**G9** =	Amber	**AP** =	**AG** =	Amber
H0 =	**G0** =	Clear			
PresTest—Incandescent					
V2 =	**P2** =	Red			
V3 =	**P3** =	Green			
V4 =	**P4** =	Yellow			
V5 =	**P5** =	White			
V6 =	**P6** =	Blue			
V9 =	**P9** =	Amber			
V0 =	**P0** =	Clear			

LED Voltage
- **Blank** = Incandescent
- **06** = 6 Vac/Vdc
- **12** = 12 Vac/Vdc
- **24** = 24 Vac/Vdc
- **48** = 48 Vac/Vdc
- **60** = 60 Vac/Vdc
- **2A** = 120 Vac
- **2D** = 120 Vdc

Note

① Add **X** at end of catalogue number to receive parts assembled from factory.

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Ordering Complete Devices

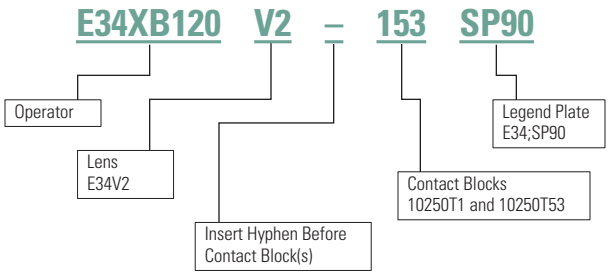
Complete E34 pushbuttons, indicating lights and/or selector switch operators including contact block(s) and legend plate can be ordered using a single composite catalogue number. The individually packaged components will be shipped unassembled in a single overpack carton marked with the composite catalogue number.

Ordering Example

Illuminated Pushbutton Device—Catalogue Number E34XB120V2-153SP90

For a complete Catalogue Number breakdown, see **Pages T37-243** to **T37-244.**

For Complete E34 Device Ordering



Product Selection

Non-Illuminated Momentary Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Flush Button

Extended Button

Mushroom Button

Jumbo Mushroom

Pushbutton Units

Contact Type	Button Colour	Flush Button Catalogue Number	Extended Button Catalogue Number	Mushroom Button Catalogue Number	Jumbo Mushroom ① Catalogue Number
1NO	Black	**E34PB1-53X**	**E34EB1-53X**	**E34LB1-53X**	**E34JB1-53X**
	Red	**E34PB2-53X**	**E34EB2-53X**	**E34LB2-53X**	**E34JB2-53X**
	Green	**E34PB3-53X**	**E34EB3-53X**	**E34LB3-53X**	**E34JB3-53X**
	Red—Engraved EMERG. STOP	—	—	—	**E34JB2N8-53X**
1NC	Black	**E34PB1-51X**	**E34EB1-51X**	**E34LB1-51X**	**E34JB1-51X**
	Red	**E34PB2-51X**	**E34EB2-51X**	**E34LB2-51X**	**E34JB2-51X**
	Green	**E34PB3-51X**	**E34EB3-51X**	**E34LB3-51X**	**E34JB3-51X**
	Red—Engraved EMERG. STOP	—	—	—	**E34JB2N8-51X**
1NO-1NC	Black	**E34PB1-1X**	**E34EB1-1X**	**E34LB1-1X**	**E34JB1-1X**
	Red	**E34PB2-1X**	**E34EB2-1X**	**E34LB2-1X**	**E34JB2-1X**
	Green	**E34PB3-1X**	**E34EB3-1X**	**E34LB3-1X**	**E34JB3-1X**
	Red—Engraved EMERG. STOP	—	—	—	**E34JB2N8-1X**

Plastic Lens Indicating Light Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

24V Full Voltage Indicating Light

Indicating Light Units

Type	Voltage	Colour	LED/Lamp Number	Indicating Light ① Catalogue Number
LED Lamp;				
Full voltage	24 Vac/Vdc	Red	Bayonet base	**E34FB197LRP24**
		Green		**E34FB197LGP24**
		Amber		**E34FB197LAP24**
	120 Vac	Red		**E34FB197LRP2A**
		Green		**E34FB197LGP2A**
		Amber		**E34FB197LAP2A**
Incandescent Lamp				
Full voltage	24 Vac/Vdc	Red	#757	**E34FB24H2X**
		Green		**E34FB24H3X**
		Amber		**E34FB24H9X**
Resistor	120 Vac/Vdc	Red	120MB	**E34RB120H2X**
		Green		**E34RB120H3X**
		Amber		**E34RB120H9X**
Transformer	120 Vac 50/60 Hz	Red	#755	**E34TB120H2X**
		Green		**E34TB120H3X**
		Amber		**E34TB120H9X**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages T37-167** to **T37-239**.

① Anodized aluminum head—may not be suitable for some corrosive environments.

Pushbuttons

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Momentary Pushbutton Operators, Non-Illuminated

	Button	Colour	Catalogue Number	
E34PB_	Flush button	Black	**E34PB1**	
		Red	**E34PB2**	
		Green	**E34PB3**	
		Yellow	**E34PB4**	
		White	**E34PB5**	
		Blue	**E34PB6**	
		Gray	**E34PB7**	
		Orange	**E34PB8**	
E34EB_	Extended button	Black	**E34EB1**	
		Red	**E34EB2**	
		Green	**E34EB3**	
		Yellow	**E34EB4**	
		White	**E34EB5**	
		Blue	**E34EB6**	
		Gray	**E34EB7**	
		Orange	**E34EB8**	
E34EHB_	Half shrouded button		**Vertical**	**Horizontal**
		Black	**E34EVB1**	**E34EHB1**
		Red	**E34EVB2**	**E34EHB2**
		Green	**E34EVB3**	**E34EHB3**
		Yellow	**E34EVB4**	**E34EHB4**
		White	**E34EVB5**	**E34EHB5**
		Blue	**E34EVB6**	**E34EHB6**
		Gray	**E34EVB7**	**E34EHB7**
		Orange	**E34EVB8**	**E34EHB8**
E34LB_	Mushroom button	Black	**E34LB1**	
		Red	**E34LB2**	
		Green	**E34LB3**	
		Yellow	**E34LB4**	
		Blue	**E34LB6**	
E34JB_	Anodized aluminum jumbo mushroom button ①	Black	**E34JB1**	
		Red	**E34JB2**	
		Red (Engraved EMERG. STOP)	**E34JB2N8**	
		Green	**E34JB3**	
		Yellow	**E34JB4**	

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages T37-167** to **T37-239**.

① Anodized aluminum head—may not be suitable for some corrosive environments.

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Illuminated Pushbuttons and Indicating Lights

Illuminated Pushbutton

Indicating Light

PresTest

Operators without Lens

Type	Voltage	Lamp Number	Illuminated Pushbutton Catalogue Number	Indicating Light Catalogue Number	PresTest Catalogue Number
LED Lamp (LEDs not included) ①					
Full voltage	—	Bayonet base	**E34CB497L**	**E34FB197L**	**E34FPB297L**
Transformer AC only	24		**E34XB024L**	—	—
	120		**E34XB120L**	**E34TB120L**	**E34TPB120L**
	240		**E34XB240L**	**E34TB240L**	**E34TPB240L**
	277		**E34XB277L**	**E34TB277L**	—
	380		**E34XB380L**	**E34TB380L**	**E34TPB380L**
	480		**E34XB480L**	**E34TB480L**	**E34TPB480L**
	600		**E34XB600L**	**E34TB600L**	**E34TPB600L**
Incandescent Lamp					
Full voltage AC/DC	6	#755	**E34CB06**	**E34FB06**	**E34FPB06**
	12	#756	**E34CB12**	**E34FB12**	**E34FPB12**
	24	#757	**E34CB24**	**E34FB24**	**E34FPB24**
	32	#1828	**E34CB32**	**E34FB32**	**E34FPB32**
	48	#1835	**E34CB48**	**E34FB48**	**E34FPB48**
Resistor AC/DC ②	120	120MB	**E34SB120**	**E34RB120**	**E34RPB120**
	240		**E34SB240**	**E34RB240**	**E34RPB240**
Transformer AC only	24	#755	**E34XB024**	—	—
	120		**E34XB120**	**E34TB120**	**E34TPB120**
	240		**E34XB240**	**E34TB240**	**E34TPB240**
	277		**E34XB277**	**E34TB277**	—
	380		**E34XB380**	**E34TB380**	**E34TPB380**
	480		**E34XB480**	**E34TB480**	**E34TPB480**
	600		**E34XB600**	**E34TB600**	**E34TPB600**
Neon AC/DC	120	NE51H-R-22	—	**E34NB120**	—
	240	NE51H-4-68	—	**E34NB240**	—

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages T37-167** to **T37-239**.

① These units do not include lamps. Order LED separately to match lens colour, see **Page T37-225** for LED Selection and **Pages T37-243** to **T37-244** for Catalogue Numbering Selection.

② Resistor units are not available for use with LEDs, choose either transformer or full voltage LED style.

Indicating Light Lens

Plastic

Glass

Colour	Plastic Catalogue Number	Glass ① Catalogue Number
Red	**E34H2**	**E34G2**
Green	**E34H3**	**E34G3**
Yellow	**E34H4**	**E34G4**
White	**E34H5**	**E34G5**
Blue	**E34H6**	**E34G6**
Ambler	**E34H9**	**E34G9**
Clear	**E34H0**	**E34G0**

Illuminated Pushbutton Lens

E34V_

Colour	Catalogue Number
Red	**E34V2**
Green	**E34V3**
Yellow	**E34V4**
White	**E34V5**
Blue	**E34V6**
Ambler	**E34V9**
Clear	**E34V0**

PresTest Lens

Plastic

Glass

Colour	Plastic Catalogue Number	Glass ① Catalogue Number
Red	**E34V2**	**E34P2**
Green	**E34V3**	**E34P3**
Yellow	**E34V4**	**E34P4**
White	**E34V5**	**E34P5**
Blue	**E34V6**	**E34P6**
Ambler	**E34V9**	**E34P9**
Clear	**E34V0**	**E34P0**

Note

① Glass lens has black anodized aluminum bezel.

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Push-Pull Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Two- and three-position
- Non-illuminated

Two-Position Push-Pull Unit

Two-Position Push-Pull Units, Non-Illuminated

Operator Position ① Pull	Push	Button Type/Colour ②	Contact Type	Mounting Location A	Mounting Location B	Catalogue Number
Maintained Push, Maintained Pull						
0	X	40 mm/red	1NO			**E34GDBC2-1X**
X	0	40 mm engraved EMERG. STOP/red	1NC			**E34GDBC2N8-1X**
		65 mm aluminum engraved EMERG. STOP/red				**E34GDBJ2N8-1X**

Three-Position Push-Pull Unit

Three-Position Push-Pull Units, Non-Illuminated

Operator Position ① Pull	Intermediate	Push	Button Type/Colour ②	Contact Type	Mounting Location A	Mounting Location B	Catalogue Number
Maintained Push, Momentary Pull							
X	0	0	40 mm/black	1NC			**E34GFBC1-3X**
X	X	0	40 mm/red	1NC			**E34GFBC2-3X**
			40 mm engraved EMERG. STOP/red				**E34GFBC2N8-3X**
Momentary Push, Momentary Pull							
X	0	0	40 mm/black	1NC			**E34GEBC1-3X**
X	X	0	40 mm/red	1NC			**E34GEBC2-3X**
0	0	X	40 mm/black	1NO			**E34GHBC1-1X**
X	0	0	40 mm/red	1NC			**E34GHBC2-1X**

Button and Colour Selection

Standard

Jumbo Mushroom Head

Colour	Suffix Code	Catalogue Number
Standard—40 mm		
Black	**C1**	**E34C1**
Red	**C2**	**E34C2**
Red (EMERG. STOP)	**C2N8**	**E34C2N8**
Green	**C3**	**E34C3**
Blue	**C6**	**E34C6**
Jumbo Mushroom Head ③ (Anodized) Aluminum—65 mm		
Red	**J2**	**E34J2**
Red (EMERG. STOP)	**J2N8**	**E34J2N8**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages T37-167** to **T37-239**.

① X = closed circuit, 0 = open circuit.

② To order different type or colour buttons, substitute the underlined characters with appropriate suffix code from the table. Example: E34GDB**C6**-1X.

③ Anodized aluminum may not be suitable for use on some corrosive applications.

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Illuminated Push-Pull Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Two-position maintained
- Illuminated

Illuminated Push-Pull Unit

Two-Position Illuminated Maintained Push, Maintained Pull

Operator Position ①

Maintained—Pull	Maintained—Intermediate	Lamp	Type	Voltage	Contact Type	Mounting Location A	Mounting Location B	LED/Lamp Number	Red Standard Push-Pull Catalogue Number ②
0	X	LED	Full voltage	24 Vac/Vdc	1NO			Bayonet base	**E34GDB97LRD24-1X**
X	0			120 Vac/Vdc	1NC				**E34GDB97LRD2A-1X**
			Transformer	24 Vac					**E34GDB89LRD06-1X**
				120 Vac					**E34GDB63LRD06-1X**
0	X	Incan-descent	Full voltage	24 Vac/Vdc	1NO			#757	**E34GDB79M2-1X**
X	0		Resistor	120 Vac/Vdc	1NC			120MB	**E34GDB80M2-1X**
			Transformer	24 Vac				#755	**E34GDB89M2-1X**
				120 Vac					**E34GDB63M2-1X**

Standard

Lens and Colour Selection

Colour	Incandescent Suffix Code	LED Suffix Code	Catalogue Number
Standard			
Red	**M2**	**RD**	**E34M2**
Red (EMER. STOP)	**M2N8**	**ED**	**E34M2N8**
Green	**M3**	**GD**	**E34M3**
Blue	**M6**	**LD**	**E34M6**
Amber	**M9**	**AD**	**E34M9**
White	**M5**	**WD**	**E34M5**
Clear	**M0**	**CD**	**E34M0**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages T37-167** to **T37-239**.

① X = closed circuit, 0 = open circuit.

② To order different type or colour lens, substitute the underlined characters with appropriate suffix code from Lens and Colour Selection table above. Example: E34GDB79**M3** -1X. For LEDs with different voltages see ordering example on **Page T37-257**.

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UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Three-position maintained
- Illuminated

Illuminated Push-Pull Unit

Three-Position Illuminated Momentary Push, Momentary Pull

Operator Position ①

Momentary—Pull	Maintained—Intermediate	Momentary—Push	Lamp	Type	Voltage	Contact Type	Mounting Location A	Mounting Location B	LED/Lamp Number	Red Standard Push-Pull Catalogue Number ②
0 X	0 0	X 0	LED	Full voltage	24 Vac/Vdc	1NO			Bayonet base	**E34GHB97LRD24-1X**
					120 Vac	1NC				**E34GHB97LRD2A-1X**
				Trans-former	24 Vac					**E34GHB89LRD06-1X**
					120 Vac					**E34GHB63LRD06-1X**
X X	0 X	0 0		Full voltage	24 Vac/Vdc	1NC			Bayonet base	**E34GEB97LRD24-3X**
					120 Vac	1NC				**E34GEB97LRD2A-3X**
				Trans-former	24 Vac					**E34GEB89LRD06-3X**
					120 Vac					**E34GEB63LRD06-3X**
0 X	0 0	X 0	Incan-descent	Full voltage	24 Vac/Vdc	1NO			#757	**E34GHB79M2-1X**
				Resistor	120 Vac	1NC			120MB	**E34GHB80M2-1X**
				Trans-former	24 Vac				#755	**E34GHB89M2-1X**
					120 Vac					**E34GHB63M2-1X**
X X	0 X	0 0		Full voltage	24 Vac/Vdc	1NC			#757	**E34GEB79M2-3X**
				Resistor	120 Vac	1NC			120MB	**E34GEB80M2-3X**
				Trans-former	24 Vac				#755	**E34GEB89M2-3X**
					120 Vac					**E34GEB63M2-3X**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages T37-167** to **T37-239**.

① X = closed circuit, 0 = open circuit.

② To order different type or colour lens, substitute the underlined characters with appropriate suffix code from Lens and Colour Selection table on the bottom of **Page T37-251.** Example: E34GEB79**M3**-3X. For LEDs with different voltages see ordering example on **Page T37-257**.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Three-position—maintained push, momentary pull
- Illuminated

Illuminated Push-Pull Unit

Three-Position Illuminated Maintained Push, Momentary Pull

Operator Position ①

Momentary—Pull	Maintained—Intermediate	Maintained—Push	Lamp	Type	Voltage	Contact Type	Mounting Location A	Mounting Location B	LED/Lamp Number	Red Standard Push-Pull Catalogue Number ②
X X	0 X	0 0	LED	Full voltage	24 Vac/Vdc	1NC	⊙ | ⊙		Bayonet base	**E34GFB97LRD24-3X**
					120 Vac	1NC		⊙ | ⊙		**E34GFB97LRD2A-3X**
				Trans-former	24 Vac					**E34GFB89LRD06-3X**
					120 Vac					**E34GFB63LRD06-3X**
X X	0 X	0 0	Incan-descent	Full voltage	24 Vac/Vdc	1NC	⊙ | ⊙		#757	**E34GFB79M2-3X**
				Resistor	120 Vac	1NC		⊙ | ⊙	120MB	**E34GFB80M2-3X**
				Trans-former	24 Vac				#755	**E34GFB89M2-3X**
					120 Vac					**E34GFB63M2-3X**

Vertical or Horizontal One-Hole Mounting ③

Potentiometers

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Potentiometer with Knob and Standard Dial Plate—Linear Type ±10%

Potentiometer Ohms	Catalogue Number
2 Watt (60V Max.) Single Potentiometer with Standard Aluminum Dial Plate ④⑤	
1000	**E34PDB1F1**
2500	**E34PDB1F2**
5000	**E34PDB1F5**
10000	**E34PDB1F10**
25000	**E34PDB1F25**
50000	**E34PDB1F50**
Operator only ⑥	**E34PDB1A0**
Alternative—black plastic large legend with standard markings	**E34LP99**

Dimensions, see **Page T37-278**.

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages T37-167** to **T37-239**.

① X = closed circuit, 0 = open circuit.

② To order different type or colour lens, substitute the underlined characters with appropriate suffix code from table on the bottom of **Page T37-251**.
Example: E34GFB79**M3**-3X. For LEDs with different voltages see ordering example on **Page T37-257**.

③ Shown with standard aluminum dial plate.

④ Large dial plate with space for legend is available at no charge. To order, add suffix **36** to catalogue number.
Example: E34PDB1F1**36**. To order separately, see footnote ⑤ below.

⑤ Large dial plate has space at top for 15 letters. 3/32 in high. For custom stamped legend plates, order legend plate as separate item **10250TR30** and specify stamping.

⑥ For use with commercially purchased potentiometers having shaft dimensions per dimension drawing on **Page T37-230**.

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Push-Pull Operators

An illuminated push-pull pushbutton unit, arranged for one-hole mounting, can replace two pushbuttons and a pilot light or the non-illuminated form can replace two pushbuttons. These units are available in three basic types:

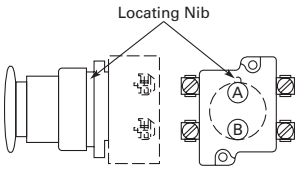
- **Maintained**—(Two-position). Maintains in the pulled or pushed position until manually actuated to the opposite mode.
- **Momentary**—(Three-position). Spring returns to an intermediate position when pulled or pushed and released.
- **Momentary Pull, Maintained Push**—(Three-position). Spring returns to intermediate position when pulled. Maintains in pushed position until manually returned to intermediate (ready to reset) position. Maintained stop holds circuit open and will prevent other series connected operators from starting the system.

The operators, buttons, contact blocks, etc., are offered as building block components that can be intermixed to satisfy many requirements. This minimizes the need for a varied and costly inventory.

Application Guide

To assist in the selection of contact blocks, the sketch below shows pictorially by symbols **A** and **B** locations of contact circuits after assembly of contact blocks and adapter to the operator. The table below shows the effect of the push and pull operations on either NO or NC contacts. (X = contact closed, O = contact open).

Contact Circuit Locations



Two-Position Maint. Push-Pull ①

Push-Pull Operator Components

Type of Operator	Operator Position and Circuit Arrangement: Out—Pull Contact Block Mounting Location A		B	Intermediate A		B	In—Push A		B	Contact Block ②	Catalogue Number
Two-Position Operator without Lens											
Maintained push-pull	0 X	or	0 X	No intermediate position			X 0	or	X 0	1NO 1NC	**E34GDB**
	0 X		0 X				X 0		X 0	2NO 2NC	
Three-Position Operator without Lens											
Momentary push-pull	0 X	or	0 X	0 0	or	0 X	X 0	or	0 0	1NO 1NC	**E34GEB** ②
	0 X		0 X	0 0		0 X	X 0		0 0	2NO 2NC	
Maintained push-momentary pull	0 X	or	0 X	0 0	or	0 X	X 0	or	0 0	1NO 1NC	**E34GFB** ②
	0 X		0 X	0 0		0 X	X 0		0 0	2NO 2NC	
Momentary push-pull	0 X	or	0 X	0 0	or	0 0	X 0	or	X 0	1NO 1NC	**E34GHB** ②
	0 X		0 X	0 0		0 0	X 0		X 0	2NO 2NC	

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages T37-167** to **T37-239**.

See Typical Applications on **Page T37-189**.

① Shown without button on lens.

② Maximum of two blocks, four circuits. Special function contact blocks shown on **Page T37-272** CANNOT be used with three-position push-pull operators E34GEB, E34GFB or E34GHB.

Push-Pull Light Units, Lenses and Buttons

Ordering Example with One Composite Number

Non-illuminated:
E34GDB + E34C2 + 10250T1 = **E34GDBC2-1X**

Incandescent:
E34GDB + 10250T79 + E34M2 + 10250T1 = **E34GDB79M2-1X**

LED:
E34GDB + 10250T97L + E34M2 + Voltage Code + 10250T1 = **E34GDB97LRD24-1X**

06—6 Vac/Vdc
12—12 Vac/Vdc
24—24 Vac/Vdc
48—48 Vac/Vdc
60—60 Vac/Vdc
2A—120 Vac
2D—120 Vdc

Light Units for Illuminated Push-Pull Devices

Light Unit Type	Type	Voltage	LED/Lamp Number	Catalogue Number
LED (LEDs not included) ①	Full voltage	—	Bayonet base	**10250T97L**
	Transformer AC only 50/60 Hz	24		**10250T89L**
		120		**10250T63L**
		208		**10250T64L**
		240		**10250T65L**
		277		**10250T82L**
		380		**10250T66L**
		480		**10250T67L**
		600		**10250T68L**
Incandescent	Full voltage AC or DC	6	#755 #756 #757 #1828	**10250T69**
		12		**10250T70**
		24/28		**10250T79**
		32		**10250T83**
	Resistor AC or DC	120	120MB	**10250T80**
		240		**10250T81**
	Transformer AC only 50/60 Hz	24	#755	**10250T89**
		120		**10250T63**
		208		**10250T64**
		240		**10250T65**
		277		**10250T82**
		380		**10250T66**
		480		**10250T67**
		600		**10250T68**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages T37-167** to **T37-239**.

① These units do not include lamps. Order LED separately to match lens colour from chart on **Page T37-257**.

Buttons for Non-Illuminated Push-Pull Devices

Standard

Jumbo Mushroom Head

Colour	Incandescent Suffix Code	Catalogue Number
Standard Button		
Black	**C1**	**E34C1**
Red	**C2**	**E34C2**
Red (EMERG. STOP)	**C2N8**	**E34C2N8**
Green	**C3**	**E34C3**
Blue	**C6**	**E34C6**
Jumbo Mushroom Head		
Red ①	**J2**	**E34J2**
Red (EMERG. STOP)	**J2N8**	**E34J2N8**

Alternate Lenses for Illuminated Push-Pull Devices

E34M_

Colour	Incandescent Suffix Code	LED Suffix Code ②	Catalogue Number
Red	**M2**	**RD**	**E34M2**
Red (EMERG. STOP)	**M2N8**	**ED**	**E34M2N8**
Green	**M3**	**GD**	**E34M3**
Blue	**M6**	**LD**	**E34M6**
Amber	**M9**	**AD**	**E34M9**
White	**M5**	**WD**	**E34M5**
Clear	**M0**	—	**E34M0**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages T37-167** to **T37-239**.

① Anodized aluminum may not be suitable for use on some corrosive applications.

② Suffix codes should only be used for assembling composite catalogue numbers. To order lens, order by catalogue number.

Standard LED Lamp

LED Selection

Voltage	Colour	Catalogue Number
6 Vac/Vdc suitable for use with transformers	Red	**E22LED006RN**
	Orange	**E22LED006ON**
	Yellow	**E22LED006YN**
	Green	**E22LED006GN**
	Blue	**E22LED006BN**
	White	**E22LED006WN**
12 Vac/Vdc	Red	**E22LED012RN**
	Orange	**E22LED012ON**
	Yellow	**E22LED012YN**
	Green	**E22LED012GN**
	Blue	**E22LED012BN**
	White	**E22LED012WN**
24 Vac/Vdc	Red	**E22LED024RN**
	Orange	**E22LED024ON**
	Yellow	**E22LED024YN**
	Green	**E22LED024GN**
	Blue	**E22LED024BN**
	White	**E22LED024WN**
48 Vac/Vdc	Red	**E22LED048RN**
	Orange	**E22LED048ON**
	Yellow	**E22LED048YN**
	Green	**E22LED048GN**
	Blue	**E22LED048BN**
	White	**E22LED048WN**
60 Vac/Vdc	Red	**E22LED060RN**
	Orange	**E22LED060ON**
	Yellow	**E22LED060YN**
	Green	**E22LED060GN**
	Blue	**E22LED060BN**
	White	**E22LED060WN**
120 Vac	Red	**E22LED120RA**
	Orange	**E22LED120OA**
	Yellow	**E22LED120YA**
	Green	**E22LED120GA**
	Blue	**E22LED120BA**
	White	**E22LED120WA**
120 Vdc	Red	**E22LED120RD**
	Orange	**E22LED120OD**
	Yellow	**E22LED120YD**
	Green	**E22LED120GD**
	Blue	**E22LED120BD**
	White	**E22LED120WD**

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Selector Switch Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

- Two-, three- and four-position—maintained
- Non-illuminated and illuminated

Two-Position Maint. Switch Knob

Two-Position Selector Switch

Operator Position ①		Operator Action ②	Contact Type	Mounting Location A	Mounting Location B	Cam Code	Non-Illuminated Black Knob Catalogue Number ③	Black Lever Catalogue Number ③	Illuminated—120V Transformer Red Knob Catalogue Number ③	Red Lever Catalogue Number ③
X	0	M M	1NC			1	**E34VFBK1-1X**	**E34VFBL1-1X**	**E34VFB120ER-1X**	**E34VFB120FR-1X**
0	X		1NO							

Three-Position Maint. Switch Knob

Three-Position Selector Switch

Operator Position ①			Operator Action ②	Contact Type	Mounting Location A	Mounting Location B	Cam Code	Non-Illuminated Black Knob Catalogue Number ③	Black Lever Catalogue Number ③	Illuminated—120V Transformer Red Knob Catalogue Number ③	Red Lever Catalogue Number ③
X	0	0	M M M	1NO			3	**E34VHBK1-2X**	**E34VHBL1-2X**	**E34VHB120TER-2X**	**E34VHB120TFR-2X**
0	0	X		1NO							
X	0	0		1NO			3	**E34VHBK1-23X**	**E34VHBL1-23X**	**E34VHB120TER-23X**	**E34VHB120TFR-23X**
0	X	0		2NC (Series)							
0	0	X		1NO							

Four-Position Maint. Switch Lever

Four-Position Selector Switch

Operator Position ①				Operator Action ②	Contact Type	Mounting Location A	Mounting Location B	Cam Code	Non-Illuminated Black Knob Catalogue Number ③	Black Lever Catalogue Number ③	Illuminated—120V Transformer Red Knob Catalogue Number ③	Red Lever Catalogue Number ③
X	0	0	0	M M M M	1NC			7	**E34VTBK1-23X**	**E34VTBL1-23X**	**E34VRB120TER-23X**	**E34VRB120TFR-23X**
0	X	0	0		1NO							
0	0	X	0		1NO							
0	0	0	X		1NC							

Colour Selection, Non-Illuminated

Colour	Code Letter	Colour	Code Letter
Black	**1**	White	**5**
Red	**2**	Blue	**6**
Green	**3**	Gray	**7**
Yellow	**4**	Orange	**8**

Notes

For Light Unit Voltage Suffix and Knobs, Levers tables, see **Page T37-264**.

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages T37-167** to **T37-239**.

① X = closed circuit, 0 = open circuit.

② M = Maintained.

③ To order different type or colour selector switch, substitute the underlined character with appropriate suffix code from the Colour Selection table. Example: E34VFBK**2**-X1.

Selector Switch Selection

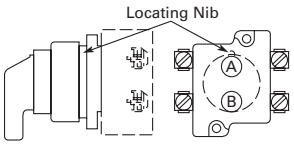
Cam and Contact Block Selection

Selector switches in their varied forms (two-position, three-position and four-position) are a big factor contributing to the great flexibility of control that a well rounded line of "pushbuttons" can achieve. Because of their flexibility, they tend to cause difficulty with product selection and application. The following systematic approach should simplify that task.

Cam and contact block selection is better understood if you:

- Work with each incoming and outgoing wire/circuit separately.
- Recognize the terms NO and NC only identify the type of contact by its mode before mounting to the operator. The "X-O" chart (**Page T37-261**) shows how that contact will act after assembly to the operator with the selected cam shape. X = closed circuit, O = open circuit.
- Up to six NO or NC contacts may be mounted behind each plunger location for a total of twelve contacts. Single circuit contact blocks have only one plunger with the other side of the block "open." Therefore, single circuit contact blocks transmit motion to blocks behind them only for the position containing the circuit.
- Each cam has two separate lobes, each of which operates one of the two contact block plungers independently of each other. Those are identified as position A (locating nib side) and position B (opposite of locating nib). The position designations give direction in selecting and mounting of the contact blocks.

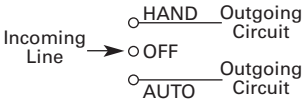
Contact Circuit Locations



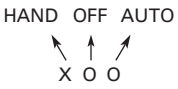
Systematic Approach

Application: **HAND-OFF-AUTO** selector switch. In this circuit, one incoming line is distributed to two other outgoing circuits by the switch. The two circuits can be looked at individually.

Step 1: Elementary Diagram.
Construct on paper, or in your mind, a simple elementary diagram of the switching scheme as follows:

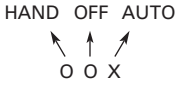


Step 2: "X-O" Pattern.
From the elementary diagram, you can construct an "X-O" diagram which describes when the contacts are to be closed (X) or open (O) in the various positions of the switch. The "X-O" for the **HAND** circuit looks like this:



In this circuit, you want a contact closed on the left (HAND) but open in the centre and right.

For the **AUTO** circuit, the "X-O" diagram would look like this:



Putting them together, the complete "X-O" diagram is:

X O O
O O X

Once the "X-O" diagram has been generated, the next step is to select the cam and contact block, or blocks, needed to perform the desired "X-O" functions. The selection tables on the following pages list the various types (shapes) of cams by number to choose from and the type of contact and position to achieve the function outlined in your "X-O" diagram.

Step 3: Cam Selection.
The cam you select determines the operation of all contact blocks mounted to the operator. It is selected on the basis that it provides the simplest circuitry for the desired "X-O" diagram. The selection tables show all the "X-O" combinations. For the purpose of this example, the applicable portion of those tables is shown on this page.

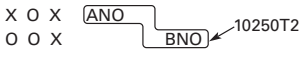
Now to make the cam selection, make a simple worksheet such as:

	Cam 2	Cam 3
X O O	(A)NO-(B)NC	**(A)NO**
O O X	(B)NO	**(B)NO**

It becomes immediately obvious that cam 3 is the better choice for two reasons, (1) the series combination can be avoided making it simpler to wire, (2) only two contacts are required, which is less expensive than the three contacts required by cam 2.

Step 4: Contact Block Selection.
Having selected the cam, contact block selection is simply a matter of gathering the A position and B position circuits into pairs which make up the most convenient contact block arrangement. If there is an imbalance in the number of circuits under A or B, then single circuit blocks must be selected for these leftover circuits.

Back to the worksheet, having selected cam 3 do this:



Step 5: Selector Switch Operator.
Lastly, you have to choose from the many types of operators—knob and lever in various colors or keyed. Also what combinations of maintained and spring return functions are required. Selection of these operators can be found on **Page T37-262**. For the example in step 4, you may want a three-position maintained black knob, cam 3—Catalogue Number E34VHBK1.

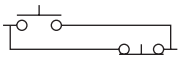
The Complete Switch:
E34VHBK1 with one 10250T2 or, for one composite catalogue number, E34VHBK1-Y1 found on **Page T37-259.**

Diagrams
Circuits shown illustrate connections to obtain a selector switch circuit combination and are shown with their appropriate line diagrams. Field wiring of jumper connections required as shown.

X = Closed circuit
O = Open circuit

Wiring of Jumper Connections

Series Connection


Parallel Connection

Four-position selector switches are limited to four contact blocks.

Contact Blocks
For selection and number of available contact blocks per operator, see **Page T37-271**.

Example Selection Table

No.	"X-0" Pattern			Cam Code #2 Top A	Cam Code #2 Bottom B	Cam Code #3 Top A	Cam Code #3 Bottom B
1	X	0	0	① NO	NC	NO	—
4	0	0	X	—	NO	—	NO

Two-Position Selector Switch Contact Block Selection

No.	Desired Circuit and Operator Position		Contact Blocks Required to Accomplish Circuit Function: Top Plunger A		Bottom Plunger B
1	X	0	NC	or	NC
2	0	X	NO	or	NO

Note
① Wired in series.

Three-Position Switch—Cam and Contact Block Selection

No.	Desired Circuit and Operator Position			Contact Blocks Required to Accomplish Circuit Function (Jumpers must be installed where indicated) Operator with Cam Code #2 Mounting Location Top Plunger A	Operator with Cam Code #2 Mounting Location Bottom Plunger B	Operator with Cam Code #3 Mounting Location Top Plunger A	Operator with Cam Code #3 Mounting Location Bottom Plunger B
1	X	0	0	NO	NC	NO	
2	X	X	0		NC		NC
3	X	0	X	NO		NO	NO
4	0	0	X		NO		NO
5	0	X	X	NC	NO	NC	
6	0	X	0	NC		NC	NC

Four-Position Switch—Contact Block Selection

No.	Desired Circuit and Operator Position				Contact Blocks Required to Accomplish Circuit Function Mounting Location Top Plunger A	Contact Blocks Required to Accomplish Circuit Function Mounting Location Bottom Plunger B
1	X	0	0	0	NC	
2	0	X	0	0		NO
3	0	0	X	0	NO	
4	0	0	0	X		NC
5	X	0	0	X	NC	NC
6	0	X	X	0	NO	NO
7	0	0	X	X	NO	NC
8	X	X	0	0	NC	NO
9	0	X	0	X		NO NC
10	X	0	X	0	NC NO	
11	X	X	X	0	NC NO	NO
12	0	X	X	X	NO	NC NO
13	X	0	X	X	NO NC	NC
14	X	X	0	X	NC	NO NC

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Selector Switch Operators

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Two-Position Knob Selector Switch

Operators with Knob Assembled

Positions	Operator Action ①	Black Knob Selector Switch—Vertical Mounting ② Cam Code ③	Catalogue Number ④
Two-position—60° throw	M M	1	**E34VFBK1**
	M S	1	**E34VEBK1**
Three-position—60° throw	M M M	2	**E34VGBK1**
		3	**E34VHBK1**
	S M M	2	**E34VJBK1**
		3	**E34VKBK1**
	S M S	2	**E34VLBK1**
		3	**E34VMBK1**
	M M S	2	**E34VNBK1**
		3	**E34VPBK1**
Four-position—40° throw	M M M M	7	**E34VTBK1**

Key Operators

Three-Position Keyed Selector Switch

Key Operators with Cam and Cap

Positions	Operator Action ①	Cam Code ③	Key Removal Positions ⑤	Vertical Mounting Catalogue Number	Horiz. Mounting Catalogue Number
Two-position—60° throw	M M	1	1, 2, 3	**E34KFB_**	**E34KFHB_**
	M S	1	2	**E34KEB_**	**E34KEHB_**
Three-position—60° throw	M M M	2	1–7	**E34KGB_**	**E34KGHB_**
		3		**E34KHB_**	**E34KHHB_**
	S M M	2	1, 4, 5	**E34KJB_**	**E34KJHB_**
		3		**E34KKB_**	**E34KKHB_**
	S M S	2	4	**E34KLB_**	**E34KLHB_**
		3		**E34KMB_**	**E34KMHB_**
	M M S	2	2, 4, 6	**E34KNB_**	**E34KNHB_**
		3		**E34KPB_**	**E34KPHB_**
Four-position—40° throw	M M M M	7	7	**E34KTB_**	**E34KTHB_**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages T37-167** to **T37-239**.

① M = Maintained. S = Spring return in direction of arrow (R).

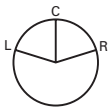
② Field convertible to horizontal mounting.

③ For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and tables on **Pages T37-259** to **T37-261**.

④ For other colors of either the knob or lever, replace the underlined characters of the catalogue number with the appropriate suffix code from Alternate Knob and Lever table on **Page T37-263**. Example: E34VFB**L2**.

⑤ Choose key removal position required for application from table on **Page T37-263**. Add key removal code number to listed catalogue number. Example: E34KFB**2**.

Key Removal Positions ①



Code Suffix	Key Removal Position
1	Right only
2	Left only
3	Right and left
4	Centre only
6	Left and centre
7	All positions

Dissimilar Locks and Keys

Listed operators have identical locks and keys (Key Code H661), Catalogue Number **10250ED824**. For dissimilar lock and key combinations, see **Page T37-198**.

E34K_

E34L_

E34A_

Alternate Knobs and Levers for Operators ②

Colour	Knob Suffix Code	Knob Catalogue Number	Lever Suffix Code	Lever Catalogue Number	Lever Designed for Added Ingress Protection ③ Suffix Code	Lever Designed for Added Ingress Protection ③ Catalogue Number
Black	**K1**	**E34K1**	**L1**	**E34L1**	**A1**	**E34A1**
Red	**K2**	**E34K2**	**L2**	**E34L2**	**A2**	**E34A2**
Green	**K3**	**E34K3**	**L3**	**E34L3**	**A3**	**E34A3**
Yellow	**K4**	**E34K4**	**L4**	**E34L4**	**A4**	**E34A4**
White	**K5**	**E34K5**	**L5**	**E34L5**	**A5**	**E34A5**
Blue	**K6**	**E34K6**	**L6**	**E34L6**	**A6**	**E34A6**
Gray	**K7**	**E34K7**	**L7**	**E34L7**	**A7**	**E34A7**
Orange	**K8**	**E34K8**	**L8**	**E34L8**	**A8**	**E34A8**

Notes

① Key removal in "spring return from" positions not recommended.
② See operators on **Page T37-262**.
③ For use on maintained operators only.

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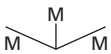
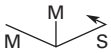
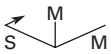
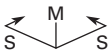
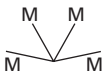
Illuminated Selector Switch Operators

120 Vac Transformer Selector Switch, Cam 1

Operator without Knob or Lever

Positions	Operator Action	Transformer Type—50/60 Hz 6V #755 Lamp Catalogue Number ③④		Full Voltage Type—AC or DC ① Lamps—#755, #757, #1835, 120MB ② Catalogue Number ④	
Two-position—60° throw		**Cam Code 1** ⑤		**Cam Code 1** ⑤	
		E34VFB_		**E34SFB_**	
Three-position—60° throw		**Cam Code 2** ⑤	**Cam Code 3** ⑤	**Cam Code 2** ⑤	**Cam Code 3** ⑤
		E34VGB_	**E34VHB_**	**E34SGB_**	**E34SHB_**
		**E34VNB_** ⑥	**E34VPB_** ⑥	**E34SNB_** ⑦	**E34SPB_** ⑦
		**E34VJB_** ⑥	**E34VKB_** ⑥	**E34SJB_** ⑦	**E34SKB_** ⑦
		**E34VLB_**	**E34VMB_**	**E34SLB_**	**E34SMB_**
Four-position—40° throw		**E34VRB_**	—	**E34SRB_**	—

Knob

Lever

Knobs and Levers

Colour ⑨	Knob Catalogue Number and Code Number	Lever Catalogue Number and Code Number
Red	**10250TER**	**10250TFR**
Green	**10250TEG**	**10250TFG**
Yellow	**10250TEA**	**10250TFA**
Blue	**10250TEL**	**10250TFL**
Clear	**10250TEC**	**10250TFC**
White	**10250TEW**	**10250TFW**
Amber	**10250TEM**	**10250TFM**

Light Unit Voltage Suffix

Add to operator Catalogue Number listed in table above.

Type of Light Unit			
Transformer Type 50/60 Hz		Full Voltage Type AC or DC ①	
Voltage	Suffix Code	Voltage	Suffix Code
24	**024**	6	**06**
120	**120**	12	**12**
208	**208**	24	**24**
240	**240**	48	**48**
380	**380**	120	**120**
480	**480**	240 ⑧	**240**
600	**600**		

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Pages T37-167** to **T37-239**.

① Full voltage light units can be used at other than listed voltages by changing lamp. Replacement lamps are listed on **Page T37-225**.
② 120MB lamps are used on both 120V and 240V operators.
③ Operator includes lens gasket and lens attachment screws.
④ Add suffix code for light unit voltage to listed catalogue number from Light Unit Voltage Suffix table above.
Example: For 24V transformer type light unit, order E34VFB**024**.
⑤ For selection of the proper cam and contact block required to obtain a specific circuit sequence, see selection tables on **Pages T37-259** to **T37-261**.
⑥ 120 and 240V transformer only.
⑦ 120 full voltage only.
⑧ Resistor type. May generate excess heat if used in high density.
⑨ Amber, clear and white lenses have a black arrow (R). Red, green and blue lenses have a white arrow (R).

Accessories

Accessories

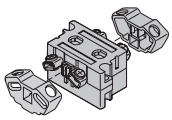
	Description	Catalogue Number
E34TA2	**Padlocking Attachment for Flush Pushbutton Operators.** Permits locking NC contacts in open position with 1/4 in padlock. Will not lock NO contact.	**E34TA2**
10250TA_	**Flexible Weather Resistant Boot** for use with flush pushbutton operators.	
	Clear	**10250TA46**
	Black	**10250TA47**
	Red	**10250TA48**
	Green	**10250TA49**
	Flexible Weather Resistant Boot for use with button operators (extended buttons preferred).	
	Black	**10250TA3**
	Red	**10250TA4** ①
	Green	**10250TA10**
	Clear	**10250TA85**
	Transparent Boot for regular, illuminated pushbutton operators and PresTest.	**10250TA25** ②
E34TA3_	**Special Retaining Nut**—to accommodate thick panel.	
	Indicating light	**E34TA30**
	PresTest, pushbuttons and selector switches	**E34TA31**
E34TA6	**Shroud for Mushroom Head Operator**—prevents accidental operation. (Not for push-pull operators.)	**E34TA6**
E34TA12	**Extended Retaining Nut**—replaces standard nut and provides guard for flush type pushbutton operators.	**E34TA12**
E34TA15	**Guard for illuminated pushbutton**	**E34TA15**
E34TA11	**Padlocking Attachment** for non-illuminated knob selector switches—accommodates up to five, 1/4 in padlocks.	**E34TA11**

Notes

① Should not be used on flush button for STOP function.

② Not suitable for single contact block depth cast enclosure. Cover is too thick.

Accessories, continued

	Description	Catalogue Number
E34TK3	**Thrust Washer**—To meet Ford Motor Company mounting specifications.	**E34TK3**
10250TA7_	**Contact Block Terminal Jumps**—Available in multiples of 100 only.	
	Terminal to terminal—within block (short):	
	100 per package	**10250TA70**
	1000 per package	**10250TA70-2**
	Terminal to terminal—block to block (long):	
	100 per package	**10250TA71**
	1000 per package	**10250TA71-2**
10250TMT8	**Master Test (Dual Input) Module**—Internal Form C relay suitable for either AC or DC applications. Total electrical isolation between monitored and test circuit. Fits all illuminated 10250T, E22, E30 and E34 devices.	
	48 Vdc	**10250TMT8**
10250TFL_	**Flasher Module**—Internal Form C relay suitable for AC applications. One unit required for each operator in master test circuit.	
	24 Vac	**10250TFL2**
	120 Vac	**10250TFL1**
E22CW	**Panel Mounting Nut Wrench**—E22, E30, E34 and octagonal 10250T.	**E22CW**
10250TA101 	**Fingerproof Shroud**—10 per package Fits new style contact blocks and light units.	**10250TA101**

Options

Legend Plates ①

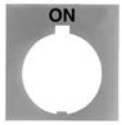
Field Colour

Legend plates can be supplied printed on black, red, silver or white field. To order legend printed on a colour other than indicated—add suffix code to the end of the catalogue number as follows:

"R" for Red field;
"W" for White field; or
"S" for Silver field.

Example: E34SP26**R**—Standard plate with red field marked OPEN.

Standard



Jumbo

For Pushbutton Operators and Indicating Lights

Legend	Colour of Field	Standard ②④ Catalogue Number	Jumbo Catalogue Number	Legend	Colour of Field	Standard ②④ Catalogue Number	Jumbo Catalogue Number
Letters on Legend Plates Below are 3/16 in High							
CLAMP	Black	**E34SP90**	**E34LP90**	OFF	Red	**E34SP24**	**E34LP24**
CLOSE		**E34SP73**	**E34LP73**	ON	Black	**E34SP25**	**E34LP25**
DOWN		**E34SP74**	**E34LP74**	OPEN		**E34SP26**	**E34LP26**
EMERG. STOP	Red	**E34SP13**	**E34LP13**	OUT		**E34SP27**	**E34LP27**
FAST	Black	**E34SP75**	**E34LP75**	POWER ON		**E34SP80**	**E34LP80**
FASTER		**E34SP87**	**E34LP87**	RAISE		**E34SP28**	**E34LP28**
FEEDER ON		**E34SP94**	**E34LP94**	READY		**E34SP86**	**E34LP86**
FEEDER OFF		**E34SP95**	**E34LP95**	RESET		**E34SP29**	**E34LP29**
FORWARD		**E34SP15**	**E34LP15**	REVERSE		**E34SP30**	**E34LP30**
HIGH		**E34SP16**	**E34LP16**	RUN		**E34SP31**	**E34LP31**
IN		**E34SP17**	**E34LP17**	SAFE		**E34SP85**	**E34LP85**
INCH		**E34SP18**	**E34LP18**	SLOW		**E34SP32**	**E34LP32**
JOG		**E34SP19**	**E34LP19**	SLOWER		**E34SP88**	**E34LP88**
JOG FOR.		**E34SP20**	**E34LP20**	START		**E34SP33**	**E34LP33**
JOG REV.		**E34SP21**	**E34LP21**	STOP	Red	**E34SP34**	**E34LP34**
LOW		**E34SP22**	**E34LP22**	TEST	Black	**E34SP83**	**E34LP83**
LOWER		**E34SP23**	**E34LP23**	TRANSFER		**E34SP93**	**E34LP93**
LUBE-FAIL		**E34SP92**	**E34LP92**	TRIP		**E34SP84**	**E34LP84**
MOTOR RUN		**E34SP81**	**E34LP81**	UNCLAMP		**E34SP91**	**E34LP91**
MOTOR STOP		**E34SP82**	**E34LP82**	UP		**E34SP35**	**E34LP35**

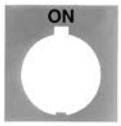
Blank Plastic Legend Plates—Square ③

Colour Lettering	Field Side 1	Side 2	Standard ④ Catalogue Number	Jumbo Catalogue Number	Extra Large Catalogue Number
Black	White	Silver	**10250TSP76**	**10250TLP76**	**10250TEP76**
White	Red	Black	**10250TSP77**	**10250TLP77**	**10250TEP77**

Notes

① For dimensions, see **Page T37-244**.
② 3/32 in high lettering.
③ Legend plates with non-standard markings or aluminum legend plates see 10250T listing on **Page T37-218**.
④ See Appendix 4 for French engraving.

Standard



Jumbo

For Selector Switch Operators

Legend	Colour of Field	Standard ③ Catalogue Number	Jumbo Catalogue Number
Two-Position—3/16 in High Lettering			
FOR. REV.	Black	**E34SP38**	**E34LP38**
HAND AUTO		**E34SP39**	**E34LP39**
HIGH LOW		**E34SP40**	**E34LP40**
JOG RUN		**E34SP41**	**E34LP41**
MAN. AUTO		**E34SP67**	**E34LP67**
OFF ON		**E34SP42**	**E34LP42**
OPEN CLOSE		**E34SP43**	**E34LP43**
RUN JOG		**E34SP44**	**E34LP44**
SAFE RUN		**E34SP45**	**E34LP45**
START JOG		**E34SP46**	**E34LP46**
START STOP		**E34SP47**	**E34LP47**
UP DOWN		**E34SP48**	**E34LP48**

Legend	Colour of Field	Standard ③ Catalogue Number	Jumbo Catalogue Number
Three-Position—3/16 in High Lettering			
AUTO OFF HAND	Black	**E34SP49**	**E34LP49**
FOR. OFF REV.		**E34SP50**	**E34LP50**
FOR. SAFE REV.		**E34SP69**	**E34LP69**
HAND OFF AUTO		**E34SP51**	**E34LP51**
MAN. OFF AUTO		**E34SP68**	**E34LP68**
OPEN OFF CLOSE		**E34SP53**	**E34LP53**
RUN SAFE JOG		**E34SP70**	**E34LP70**
UP OFF DOWN		**E34SP54**	**E34LP54**
ON STOP SAFE		**E34SP71**	**E34LP71**

For Push-Pull Units

Legend	Colour of Field	Standard ① ③ Catalogue Number	Jumbo ② Catalogue Number
PULL ON/PUSH OFF	Black	**E34PP5**	**E34R5**
PULL OPEN/PUSH CLOSE	Black	**E34PP8**	**E34R8**
PULL UP/PUSH DOWN	Black	**E34PP11**	**E34R11**

Notes

① 3/32 in (2.4 mm) high lettering.
② 1/8 in (3.2 mm) high lettering.
③ See Appendix 4 for French engraving.

Enclosures

Die Cast, Polyester and Stainless Steel Enclosures

Enclosures (Case and Cover)—Surface Mounting ①

	Number of Elements	One Contact Block Depth Catalogue Number	Two Contact Block Depth Catalogue Number
Die Cast Enclosure	**Die Cast Enclosure—In-Line ②③ NEMA 4, 4X, 12, 13**		
	1	**E34N1**	**E34N11**
	2	**E34N2**	**E34N12**
	3	**E34N3**	**E34N13**
	4	—	**E34N14**
Polyester Enclosure	**Polyester—In-Line NEMA 3, 4X, 12**		
	1	—	**E34N51**
	2	—	**E34N52**
	3	—	**E34N53**
	4	—	**E34N54**
Stainless Steel Enclosure	**Stainless Steel ④—In-Line NEMA 4, 4X, 12**		
	1	—	**10250TN33**
	2	—	**10250TN34**
	3	—	**10250TN35**
	4	—	**10250TN36**

Dimensions, see **Page T37-278**.

Mounting Instructions

These E34 Die Cast Enclosures feature a corrosion resistant coating identical to finish on the E34 operators except gray in colour. Not for use in ultraviolet light applications.

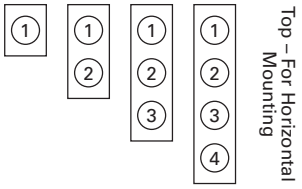
One and Two Contact Block Depth Enclosures

One Contact Block Depth Enclosure

Two Contact Block Depth Enclosure

Enclosure Layouts

Top – For Vertical Mounting



Top – For Horizontal Mounting

Notes

① For spacing increments, see **Page T37-270**.
② All die cast enclosures can be converted to base mounting of contact blocks with spacers 10250TA22 or 10250TA23. See listing on **Page T37-213.**
③ When used with E30 pushbuttons, only the one element enclosure can be used.
④ 14 gauge, type 304.

Die Cast and Stainless Steel—Flush Mount, Covers Only ①

Flush Mounting Covers

Covers Only—Flush Mounting

Number of Elements	Catalogue Number	Catalogue Number
Flush Die Cast Covers		
	In-Line Deep Cover	**In-Line Flat Cover**
1	**E34F11**	**E34F1**
2	**E34F12**	**E34F2**
3	**E34F13**	**E34F3**
4	**E34F14**	**E34F4**
In-Line Stainless Steel Flush Plates ②		
	With Pullbox	**Without Pullbox**
1	**10250TS10**	**10250TS1**
2	**10250TS11**	**10250TS2**
3	**10250TS12**	**10250TS3**
4	**10250TS14**	**10250TS4**

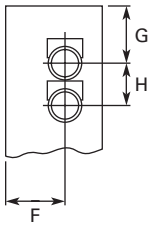
Dimensions, see **Page T37-279**.

Spacing Increments

Approximate Dimensions in Inches (mm)

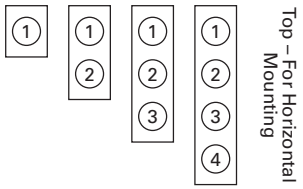
Type	F	G	H
Die cast	2.44 (62)	2.5 (63.5)	1.88 (47.8)
Polyester	1.88 (47.8)	Min. 2.13 (54.1)	2.25 (57.2)
Stainless steel	1.69 (42.9)	Min. 1.73 (43.9)	2.25 (57.2)

Spacing Increments for Enclosures



Enclosure Layouts

Top – For Vertical Mounting



Notes

① These E34 die cast covers feature a corrosion resistant coating identical to the finish on the E34 operators except gray in colour.

② Not oiltight. NEMA 1 applications only.

Contact Blocks

Standard Contact Blocks

- UL A600/P600 rated
- Colour-coded plungers—red/green for NC/NO circuits
- Silver contact tips with "reliability nibs"
- Black (opaque) or amber (translucent) housings
- Pressure plate or spade terminals
- Fingerproof shrouds (for pressure terminals only)

Logic Level Contact Blocks

- UL A600/P600 rated
- Black plungers
- Inert palladium knife-blade contacts
- Black (opaque) housings
- Pressure plate or spade terminals
- Fingerproof shrouds not available

Special Function Contact Blocks

- UL A600/P600 rated
- Black plungers
- Silver contact tips with "reliability nibs"
- Black (opaque) housings
- Pressure plate terminals only
- Fingerproof shrouds not available

Special Purpose Contact Block

- Maximum 300V rated
- Black plungers
- Silver contact tips with "reliability nibs"
- Black (opaque) housings
- Pressure plate terminals only
- Fingerproof shrouds not available

Reliability Nibs

Reliability nibs are the hallmark of Eaton's contact blocks. A pointed silver nib on the contact tip ensures reliable switching from logic level (5V) up to 600V applications. Therefore standard contact blocks can be used for most logic level applications where the contacts are not exposed to any harsh environmental conditions.

Palladium Contacts

Palladium, which is more inert than gold, is well suited for voltages and currents approaching zero and is recommended for applications where environmental conditions are a factor.

Maximum Contact Block Mounting per Operator Type

Operator	Max. Stack
Pushbuttons	6
Push-pull operators	2
Roto-push operators	4
Two- or three-position selector switches	6
Four-position selector switches	4
Joysticks	4

10250T1

Contact Blocks

Symbol	Circuit	Description ①	Standard Pressure Terminal Catalogue Number	Standard Spade Terminal ② Catalogue Number	Logic Level Pressure Terminal Catalogue Number	Logic Level Spade Terminal ② Catalogue Number
Blank No Plunger	1NC	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T51**	**10250T59**	**10250T51E**	**10250T59E**
Blank No Plunger	1NO	Stack up to six blocks six circuits) unless otherwise noted.	**10250T53**	**10250T60**	**10250T53E**	**10250T60E**
	NO-NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T1**	**10250T40**	**10250T1E**	**10250T40E**
	2NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T3**	**10250T42**	**10250T3E**	**10250T42E**
	2NO	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T2**	**10250T41**	**10250T2E**	**10250T41E**
Special Function Blocks ③						
Blank No Plunger	LONC	Late opening NC. Stack up to six blocks (six circuits) unless otherwise noted.	**10250T71** ③	—	**10250T71E** ③	—
	ECNO-NC	Early closing NO and standard NC. Stack up to six blocks unless otherwise noted.	**10250T47** ③④	—	**10250T47E** ③	—
	ECNO-NO	Early closing NO and standard NO. Stack up to four blocks unless otherwise noted.	**10250T57** ③④	—	**10250T57E** ③	—
	2LONC	Two late opening NC contacts. Stack up to six blocks unless otherwise noted.	**10250T45** ③	—	**10250T45E** ③	—
	LONC-ECNO	Overlapping contacts. Stack up to four blocks unless otherwise noted.	**10250T55** ③④	—	**10250T55E** ③	—
Special Purpose Blocks ⑤						
	2NO-2NC	Four circuits in single block depth. Rated 300V max. Stack up to four blocks unless otherwise noted.	**10250T44** ⑤	—		

Notes

① All 10250T contact blocks shown are suitable for use on standard 10250T and E34 operators. These contact blocks are not suitable for Class I Division 2 type 10250T or E34 devices.

② Contact blocks with spade terminals are limited to a maximum of one contact block per operator and minimum spacing between devices is 2.5 in (63.5 mm). Not suitable for use in 10250T or E34 enclosures. Also available in amber housing. Not available with fingerproof shrouds.

③ Special function contact blocks are not suitable for use with roto-push operators, three-position push-pull operators, or four-position selector switches.

④ ECNO contact blocks are not suitable for use with two-position joysticks or when operators are used with padlock attachments.

⑤ Special purpose 10250T44 contact blocks are not suitable on selector switches or roto-push operators. Okay to use with three-position push-pull operators only on low voltage (30V or less) circuits.

10250T1CP

Contact Blocks with Fingerproof Shrouds

Symbol	Circuit	Description ①	Standard Pressure Terminal ② Catalogue Number	Logic Level Pressure Terminal ② Catalogue Number
Blank No Plunger	1NC	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T51P**	**10250T51EP**
Blank No Plunger	1NO	Stack up to six blocks (six circuits) unless otherwise noted.	**10250T53P**	**10250T53EP**
	NO-NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T1P**	**10250T1EP**
	2NC	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T3P**	**10250T3EP**
	2NO	Stack up to six blocks (12 circuits) unless otherwise noted.	**10250T2P**	**10250T2EP**
Special Function Blocks ③				
Blank No Plunger	LONC	Late opening NC. Stack up to six blocks (six circuits) unless otherwise noted.	**10250T71P** ④	**10250T71EP** ④
	ECNO-NC	Early closing NO and standard NC. Stack up to six blocks unless otherwise noted.	**10250T47P** ③④	**10250T47EP** ④
	ECNO-NO	Early closing NO and standard NO. Stack up to four blocks unless otherwise noted.	**10250T57P** ③④	**10250T57EP** ④
	2LONC	Two late opening NC contacts. Stack up to six blocks unless otherwise noted.	**10250T45P** ④	**10250T45EP** ④
	LONC-ECNO	Overlapping contacts. Stack up to four blocks unless otherwise noted.	**10250T55P** ③④	**10250T55EP** ④

Replacement Parts

Replacement Lamps—For E34 Illuminated Operators

Mfg. Lamp Type	Voltage	Base Style	Application	Part Number
120MB	120V	T 3-1/4 bayonet	10250T resistor indicating light	**28-3044**
#267	6.3V	T 3-1/4 bayonet	10250T flasher	**10250ED986-4**
#755	6.3V	T 3-1/4 bayonet	10250T transformer, PresTest and full voltage	**28-2202**
#756	12V	T 3-1/4 bayonet	10250T full voltage	**28-5184**
#757	24V	T 3-1/4 bayonet	10250T full voltage	**28-5185**
#1828	32V	T 3-1/4 bayonet	10250T full voltage	**28-5186**
#1835	55V	T 3-1/4 bayonet	10250T resistor	**28-5187**
NE48	120V	T 4-1/2 bayonet	10250T neon	**28-494**
NE51H-R22	120V	T 3-1/4 bayonet	10250T neon	**28-3754**
NE51H-R68	240V	T 3-1/4 bayonet	10250T neon	**28-3755**

Notes

① All 10250T contact blocks shown are suitable for use on standard 10250T and E34 operators. These contact blocks are not suitable for Class I Division 2 type 10250T or E34 devices.

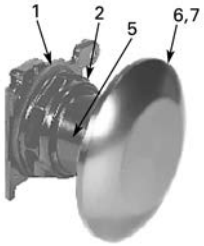
② To order contact blocks with translucent amber housing, change suffix P to **CP** in catalogue number e.g. 10250T51**CP**.

③ ECNO contact blocks are not suitable for use with two-position joysticks or when operators are used with padlock attachments.

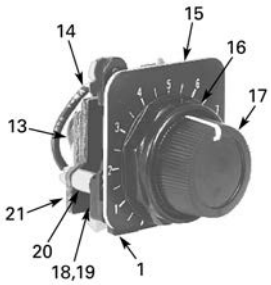
④ Special function contact blocks are not suitable for use with roto-push operators, three-position push-pull operators, or four-position selector switches.

Flush Head Pushbutton Operator

Mushroom Head Pushbutton Operator

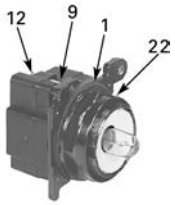


Jumbo Mushroom Head Operator



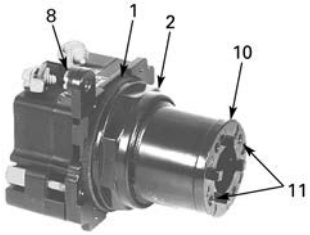
Potentiometers

Illuminated Pushbutton Operator



Transformer Type Indicating Light

Knob-Operated Selector Switch Operator



Full Voltage, Resistor and Transformer Type Illuminated Selector Switch

E34 Style Operator Replacement Parts

Item No.	Description	No. Req.	Part Number
1	Gasket	1	**16-1548**
2	Mounting nut	1	**15-1530-4**
3	Set screw (#6-32 x 0.250 in long hollow hex)	2	**11-2014**
4	Mushroom head button (includes [2] item 5)	1	**As Req. Below**
	Black	—	**53-1317**
	Red	—	**53-1317-2**
	Yellow	—	**53-1317-3**
	Green	—	**53-1317-4**
	Blue	—	**53-1317-22**
5	Set screw (#10-32 x 0.250 in long hollow hex)	2	**11-544**
6	Jumbo mushroom head button (aluminum—includes [2] item 5)	1	**As Req. Below**
	Red	—	**53-1317-9**
	Black	—	**53-1317-10**
	Yellow	—	**53-1317-11**
	Green	—	**53-1317-12**
7	Jumbo mushroom head button (aluminum—red EMERG. STOP) does not include item 5	1	**53-1349-18**
8	Mounting screw (#6-32 x 0.710 in long)	2	**10250TA79**
	Washer	2	**16-2038**
9	Terminal screw and lug (captive)	Req.	**80-5502**
10	Gasket (supplied with basic unit)	1	**32-803**
11	Round head screw (#4-40 x 0.344 in long) (supplied with basic unit)	2	**11-4553**

Item No.	Description	No. Req.	Part Number
12	Mounting screw	2	**11-1632**
13	Simple potentiometer (does not include items 18, 28 or 29)	1	**As Req. Below**
	1,000 ohms	—	**41-782-2**
	2,500 ohms	—	**41-782-3**
	5,000 ohms	—	**41-782-10**
	10,000 ohms	—	**41-782-4**
	25,000 ohms	—	**41-782-5**
	50,000 ohms	—	**41-782-6**
14	Connector (includes screw and lug)	2	**25-1851**
15	Indicating plate	1	**As Req. Above**
	Standard size (without legend)	—	**30-4460**
	Large size (specify legend)	—	**10250TR30**
16	Retaining nut	1	**15-1547-3**
17	Knob	1	**53-1314**
	Socket set screw (#6-32 x 0.250 in long)	1	**11-2014**
18	Coupling	1	**11-2014**
			29-3749-2
19	Set screw (#6-32 x 0.188 in long)	1	**11-1199**
20	Spacer	2	**56-1066-18**
21	Connector (includes screw and lug)	1	**25-1851-2**
22	Mounting nut	1	**15-1938-2**

Technical Data and Specifications

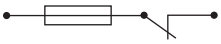
Mechanical Ratings

Description	Specification
Frequency of Operation	
All pushbuttons	6000 operations/hr.
Key and lever selector switches	3000 operations/hr.
Auto-latch devices	1200 operations/hr.
Life	
Pushbuttons	10 x 10^6 operations
Contact blocks	10 x 10^6 operations
PresTest units	10 x 10^6 operations
Lever and key selector switches	0.25 x 10^6 operations
Twist to release pushbuttons	0.3 x 10^6 operations
Shock Resistance	
Duration	210 ms ≥5g

General Specifications

Description	Specification
Climate Conditions	
Operating temperature	1° to 150°F (–17° to 66°C)
Storage temperature	–40° to 176°F (–40° to 80°C)
Altitude	6,562 ft (2,000m)
Humidity	Max. 95% RH at 60°C
Terminals	
Marking	NC-NO on the contact block to meet the NEMA requirements. Dual marking system 1–2 for normally closed, 3–4 for normally open to meet BS5472 (Cenelec EN50 005).
Clamps	Terminals are saddle clamp type for 1 x 22 AWG (0.34 mm^2) to 2 x 14 AWG (2.5 mm^2) conductors
Torque	7 lb-in (0.8 Nm)
Degree of protection against direct electrical contact	IP2X with fingerproof shroud
Light Units	
Transformers	Will withstand short-circuit for 1 hour per IEC 60947-5-1
Bulbs—average life:	
Transformer type	20,000 hrs.
Resistor/direct voltage type	2500 hrs. minimum at rated V
LED	60,000 to 100,000 hrs.

Electrical Ratings

Description	Specification
Insulation	U_i = 660 Vac or Vdc
Thermal	I_{th} = 10A
Short Circuit Coordination to IEC/EN 60947-5-1	
Rated conditional short circuit current	1 kA
Fuse type 	GE power controls TIA 10, red spot type gG, 10A, 660 Vac, 460 Vdc, BS88-2, IEC 60269-2-1
UL rating	A600, P600
AC load life duty cycle 1200 operations/hour	
10A	110V pf 0.4—1 x 10^6 operations
5A	250V pf 0.4—1 x 10^6 operations
2A	600V pf 0.4—1 x 10^6 operations
Switching capacity	
AC 15 rated make/break (11 x I_e at 1.1 x U_e)	
6A	120V pf 0.3
4A	240V pf 0.3
2A	660V pf 0.3
DC13 rated make/break (1.1 x I_e at 1.1 x U_e)	
1.0A	125V L/R ≥0.95 at 300 ms
0.55A	250V L/R ≥0.95 at 300 ms
0.1A	660V L/R ≥0.95 at 300 ms
10A	110V pure resistive
Maximum ratings for logic level and hostile atmosphere application	
Maximum amperes	0.5A
Maximum volts	120 Vac/Vdc
Low voltage switching	Conical shaped points or "reliability nibs" improve performance in dry circuit, corrosive, fine dust and other contaminated atmospheres. Under normal environmental conditions, the minimum operational voltage is 5V and the minimum operational current is 1 mA, Vac/Vdc.
Contact operation	Slow make and break. All normally closed contacts have positive opening operation, i.e., normally closed contacts are forced open in the event of contact weld or spring breakage.

Electrical Ratings—Contact Block

Meet or Exceed NEMA Rating Designations A600, A300 and B300 for AC and P600 for DC

	50 Vac or 60 H				Vdc		
Description	**120**	**240**	**480**	**600**	**24/28**	**125**	**250**
Meet or Exceed NEMA Rating Designations A600, A300 and B300 for AC and P600 for DC							
Make and emerg. interrupting capacity (amp)	60	30	15	12	5.7	1.1	0.55
Normal load break (amp)	6	3	1.5	1.2	5.7	1.1	0.55
Thermal current (amp)	10	10	10	10	5.0	5.0	5.0
Voltamperes:							
Make and emerg. interrupting capacity	7200	7200	7200	7200	138	138	138
Normal load break	720	720	720	720	138	138	138

Mounting Options

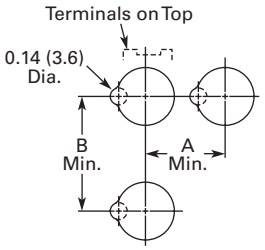
Panel Thickness

- Minimum: 0.06 in (1.6 mm)
- Maximum: 0.25 in (8 mm) including legend plate
- Maximum can be increased to 0.375 in (15.9 mm) using optional retaining nut
  - Indicating light: 10250TA30
  - Pushbutton/selector switch: 10250TA31

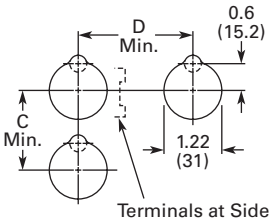
Mounting Matrix

Legend Plate	Dimensions in Inches (mm) A	B	C	D
Small	1.63 (41.3)	2.25 (57.2)	2.25 (57.2)	1.63 (41.3)
Medium	1.75 (44.5)	2.25 (57.2)	2.25 (57.2)	1.75 (44.5)
Large	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)

Mounting Options in Inches (mm)



Horizontal Mounting

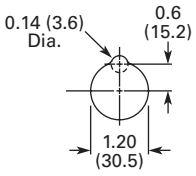


Vertical Mounting

Horizontal mounting means terminals are located top and bottom of contact block.
Vertical mounting means terminals are left and right of contact block.
This allows close spacing of adjacent operators with easy access to terminals.

Locating nib hole or notch is 0.14 in (3.6 mm) #29 drill.

Drilling Dimensions in Inches (mm)

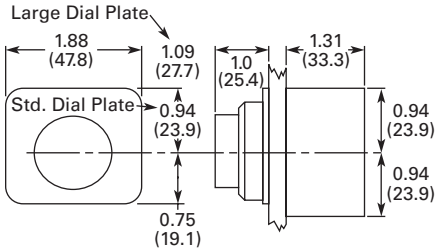


37

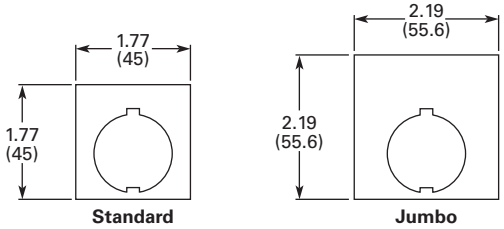
Dimensions

Approximate Dimensions in Inches (mm)

Potentiometer

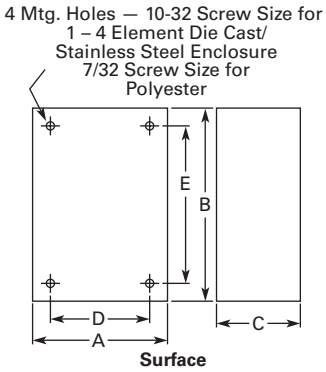


Legend Plates



Surface Mounting

Die Cast, Polyester and Stainless Steel Enclosures



Number of Elements	Element Arrangement	Wide A	High B	Deep C	Mounting D	E	Conduit Entrance
Die Cast							
1	In-line	3.88 (98.6)	4.0 (101.6)	3.0 (76.3) ①	2.69 (68.3)	3.25 (82.6)	3/4
2		3.88 (98.6)	5.88 (149.4)	3.0 (76.3) ①	2.69 (68.3)	5.13 (130.3)	
3		3.88 (98.6)	7.75 (196.9)	3.0 (76.3) ①	2.69 (68.3)	7.0 (177.8)	1
4		3.88 (98.6)	9.63 (244.6)	3.0 (76.3) ①	2.69 (68.3)	8.88 (225.6)	
Polyester							
1	In-line	3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	②
2		3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	
3		3.81 (96.8)	8.88 (225.6)	3.38 (85.9)	2.94 (74.7)	7.13 (181.1)	
4		3.81 (96.8)	11.13 (282.7)	3.38 (85.9)	2.94 (74.7)	9.38 (238.3)	
Stainless Steel							
1	In-line	3.00 (76.2)	3.50 (88.9)	3.00 (76.2)	1.50 (38.1)	4.25 (108.0)	②
2		3.50 (88.9)	6.75 (171.5)	3.00 (76.2)	1.50 (38.1)	7.50 (190.5)	
3		3.50 (88.9)	9.00 (228.6)	3.00 (76.2)	1.50 (38.1)	9.00 (228.6)	
4		3.50 (88.9)	11.25 (285.8)	3.00 (76.2)	1.50 (38.1)	12.00 (304.8)	

Notes

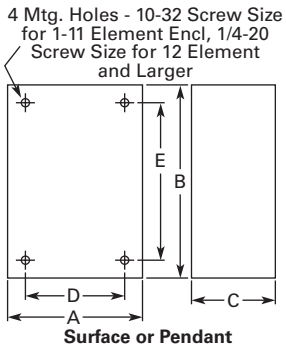
① Depth given is for two contact block deep stations. One contact block deep stations subtract 3/4 in (19.1 mm).

② No conduit entrance holes provided. Drill as required.

Approximate Dimensions in Inches (mm)

Flush Mounting

Die Case and Stainless Steel Covers Only



Surface or Pendant

Number of Elements	Wide A	High B	Deep C	Mounting D	E
Die Cast					
1	3.88 (98.6)	4.0 (101.6)	0.25 (6.4) ①	3.50 (88.9)	3.63 (92.2)
2	3.88 (98.6)	5.88 (149.4)	0.25 (6.4) ①	3.50 (88.9)	5.50 (139.7)
3	3.88 (98.6)	7.75 (196.9)	0.25 (6.4) ①	3.50 (88.9)	6.0 (152.4)
4	3.88 (98.6)	9.63 (244.6)	0.25 (6.4) ①	3.50 (88.9)	9.25 (235)
Stainless Steel					
1	5.00 (127)	5.0 (127	2.50 (63.5) ②	3.25 (82.6)	1.88 (47.8)
2	5.00 (127)	6.88 (174.8)	2.50 (63.5) ②	3.25 (82.6)	3.63 (92.2)
3	5.00 (127)	8.63 (219.2)	2.50 (63.5) ②	3.25 (82.6)	5.50 (139.7)
4	5.00 (127)	10.50 (266.7)	2.50 (63.5) ②	3.25 (82.6)	7.25 (184.2)

Notes

① Depth given is for flat cover. Deep cover is 3/4 in (19.1 mm) deeper.

② Depth given includes pull box.

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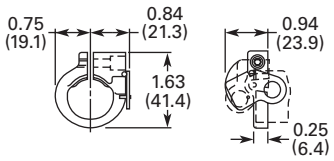
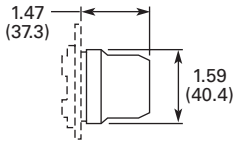
Approximate Dimensions in Inches (mm)

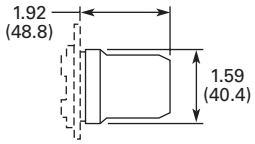
Padlocking Attachment for Flush Pushbutton Operators



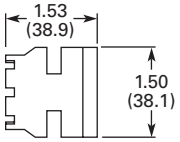
Flexible Weather Resistant Boot



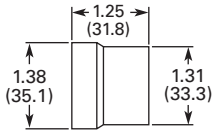
Transparent Boot



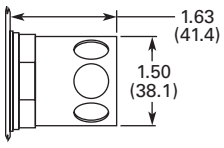
Shroud for Mushroom Head Operator



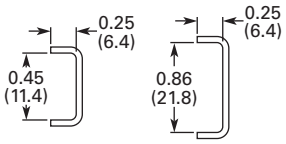
Extended Retaining Nut



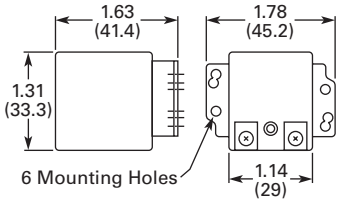
Guard for Illuminated Pushbutton



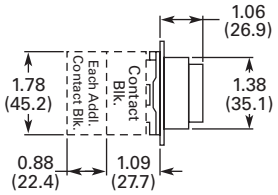
Contact Block Terminal Jumps



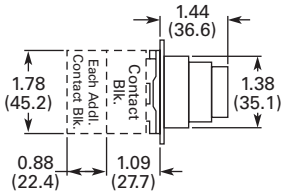
Master Test Module and Flasher Module



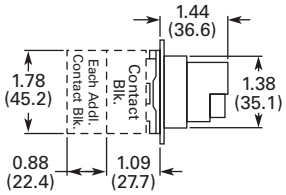
Flush Pushbutton



Extended Pushbutton

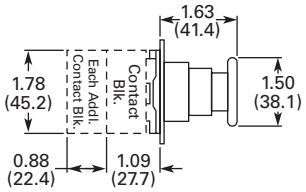


Half Shroud Pushbutton

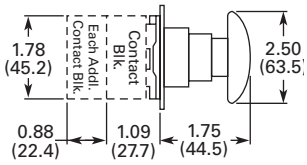


Approximate Dimensions in Inches (mm)

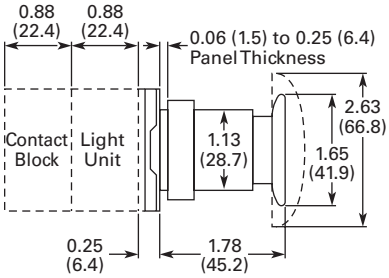
Mushroom Pushbutton



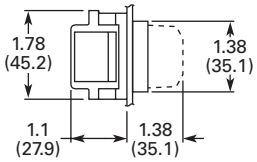
Jumbo Mushroom Pushbutton



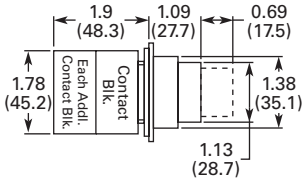
Push-Pull Switch



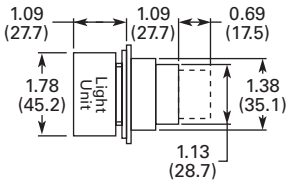
Indicating Light



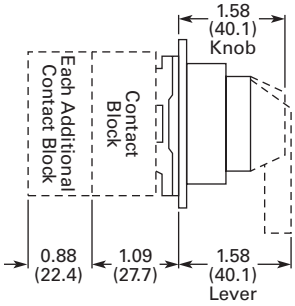
PresTest Indicating Light



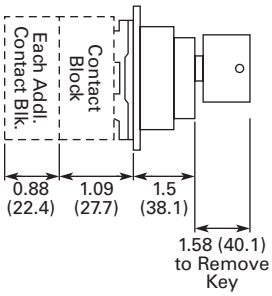
Illuminated Pushbutton



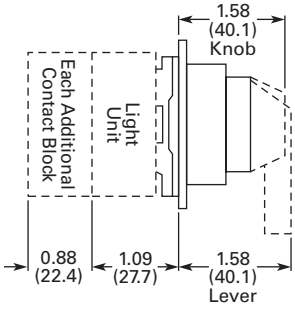
Selector Switch



Key Selector Switch



Illuminated Selector Switch



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30.5 mm Class I Division 2 Hazardous Locations—10250T/E34

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Product Description

All the Industry-Proven Quality of Eaton's 10250T and E34 Series of Logic Devices, plus Class I Division 2 Certification

The **10250T1H** consists of a normally open-normally closed factory sealed contact block that is UL Listed for use in Class I, Division 2, Groups B, C and D (NEC 500–503)—Class I, Zone 2, IIB + H2 (NEC 505) hazardous locations and is rated for both NEMA A600 and NEMA Q300. 10250T and E34 illuminated components have also been UL Listed for use in Class I, Division 2, Groups B, C and D (NEC 500–503)—Class I, Zone 2, IIB + H2 (NEC 505).

This, combined with the industry-proven Eaton 10250T 30.5 mm pushbutton line, offers a complete solution to Division 2 hazardous location requirements.

Single composite catalogue numbers for complete assembled stations and operators for use in Division 2 hazardous locations are featured throughout this section.

Features

- Factory sealed contact blocks
- Heavy-duty zinc die cast construction
- NEMA rated 1, 2, 3, 3R, 4, 4X, 12, 13
- Front-of-panel drainage holes
- Grounding nibs on the operator casing
- Solid thermosetting cathodic epoxy coating on E34
- Corrosion resistance in E34

Benefits

- Pushbutton for hazardous locations
- Drainage holes prevent buildup of liquid inside the operator which can prevent operation in freezing environments
- Grounding nibs bite through paint and other coatings to provide secure ground
- Suitable for corrosive environments (E34 only)
- Earth terminal provides additional grounding point and allows for daisy chain grounding (E34 line)

Standards and Certifications

- UL 508—File No. E131568
- UL 1604—File No. E10323
- CSA Certified C22.2 No.14—File No. LR 68551
- CSA Certified C22.2 No. 213-M1987—File No. LR 20713

Ingress Protection

- Standard indicating lights
  - UL (NEMA) Type 3, 3R, 3S, 4, 4X, 12, 13
  - IEC IP65
- All other operators
  - UL (NEMA) Type 3, 3R, 4, 4X, 12, 13
  - IEC IP65

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Product Overview

Operator

The 30.5 mm 10250T pushbutton line features a zinc die cast construction with chrome-plated housing and mounting nut.

Eaton's E34 Series 30.5 mm pushbutton line features the same rugged die cast construction of our 10250T line with an additional two-layer 100% solid thermosetting cathodic epoxy coating. This coating provides a flat black smooth, consistent, corrosion resistant surface that has passed a demanding 600 hour salt spray test. (The industry standard for this 4X test requires only 200 hours.)

Ultraviolet Light

E34 epoxy coating is not recommended for use in applications where exposure to ultraviolet light exists—use NEMA 4X 10250T operators.

Ratings

Our Class I Division 2 line of pushbuttons are UL Listed (NEMA type) 1, 2, 3, 3R, 4, 4X, 12 and 13. Our Class I Division 2 E34 line meets IEC 947-1 IP66 standards and the cathodic coating meets FDA 3A sanitary chemical resistance requirements. For a complete listing of all applicable ratings see **Pages T37-319** to **T37-320.**

10250T Grounding Nibs

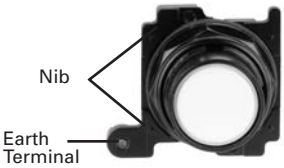
10250T line operators have "grounding nibs"—four metal points on the operator casting designed to bite through most paints and other coatings on metal panels to enhance the grounding connection when the operator is securely tightened.

10250T Grounding Nibs

E34 Grounding Nibs

E34 line of operators is equipped with a ground screw terminal as part of its die cast construction. This earthing terminal provides an easily accessible point for grounding operators when used in a painted or nonmetallic enclosure and eliminates the need for extra kits when daisy chain grounding is required.

E34 Grounding Nibs

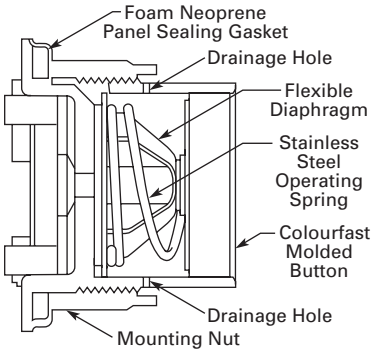


Diaphragm Seal with Drainage Holes

Liquid Drainage

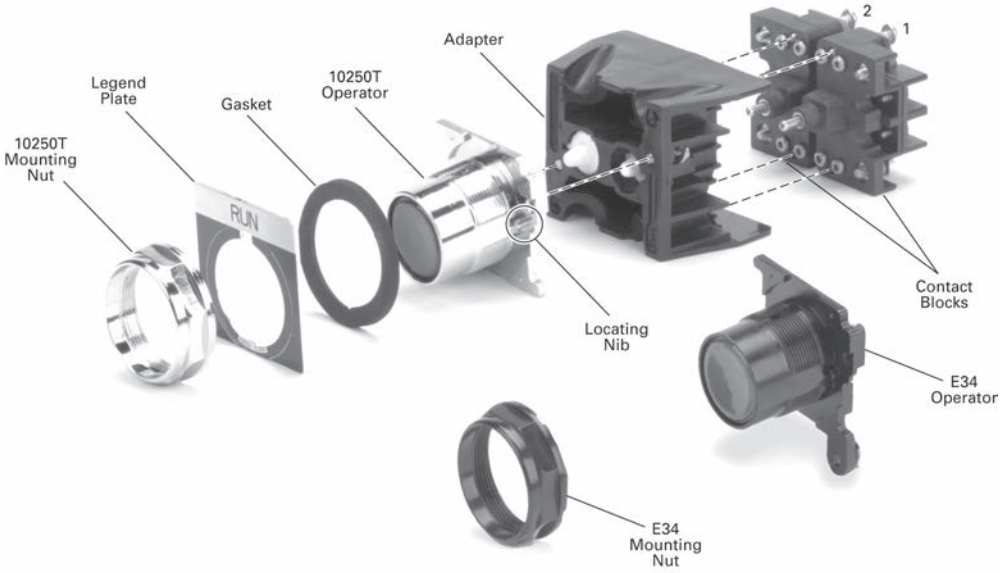
Eaton's pushbutton operators offer front of panel drainage via holes in the operator bushing. Hidden from view by the mounting nut, these holes prevent buildup of liquid inside the operator, which can prevent operation in freezing environments. The holes also provide a route for escaping liquid in high pressure washdowns, effectively relieving pressure from the internal diaphragm seal, ensuring reliable sealing in applications even beyond NEMA 4.

Diaphragm Seal



Product Identification

30.5 mm Class I Division 2 Hazardous Locations



Catalogue Number Selection

Catalogue Number Selection is for illustrative purposes only and not to be used to create new catalogue numbers.

Non-Illuminated Assembled Operators

10250T 718 E J

Operator Type

10250T = Heavy-duty oiltight
E34EX = Corrosion resistant oiltight

Operator and Contact Block

706 = Flush 1NO-1NC	**722** = 2P SS MT XO,OX-CAM1
707 = Flush 2NO-2NC	**723** = 2P SS MT XO,OX,XO,OX-CAM1
708 = Extended 1NO-1NC	**724** = 2P SS SPR-R XO,OX-CAM1
709 = Extended 2NO-2NC	**725** = 2P SS SPR-R XO,OX,XO,OX-CAM1
710 = Mushroom 1NO-1NC	**726** = 3P SS MT XOO,OOX-CAM3
711 = Mushroom 2NO-2NC	**727** = 3P SS MT XOO,OXO,OOX-CAM3
712 = JMB mushroom 1NO-1NC	**728** = 3P SS SPR-L XOO,OOX-CAM3
713 = JMB mushroom 2NO-2NC	**729** = 3P SS SPR-L XOO,OXO,OOX-CAM3
714 = 2P MT push-pull 1NO-1NC	**730** = 3P SS SPR-L&R XOO,OOX-CAM3
715 = 2P MT push-pull 2NO-2NC	**731** = 3P SS SPR-L&R XOO,OXO,OOX-CAM3
716 = 3P MT push-mom pull 1NO-1NC	**732** = 3P SS SPR-R XOO,OOX-CAM3
717 = 3P MT push-mom pull 2NO-2NC	**733** = 3P SS SPR-R XOO,OXO,OOX-CAM3
718 = 3P mom push-pull 1NO-1NC	**743** = 4P SS MT XOOO,OXOO,OOXO,OOOX-CAM7
721 = 3P mom push-pull 2NO-2NC	

Button Colour

B = Black
R = Red
G = Green
Y = Yellow
W = White
L = Blue
N = Orange
E = Red EMERG. STOP
T = Keyed-SS

ACC/SS Type

Blank = None
J = JMB push-pull
B = Booted-FL/EXT
G = Guarded-FL
K = Knob-SS
L = Lever-SS
A = Lever W/IP-SS
C = Coin-SS
Keyed-SS

Cam

1
2
3
7

Key Removal

1 = RT only
2 = LT only
3 = RT and LT
4 = CT only
5 = RT and CT
6 = LT and CT
7 = All

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Product Selection

Momentary Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

10250T Flush Button

E34 Flush Button

10250T Extended Button

E34 Extended Button

Non-Illuminated Flush and Extended Pushbuttons

Contact Type	Button Colour ①	Flush Button 10250T Catalogue Number	Flush Button E34 Catalogue Number	Extended Button 10250T Catalogue Number	Extended Button E34 Catalogue Number
1NO-1NC	Black	**10250T706B**	**E34EX706B**	**10250T708B**	**E34EX708B**
	Red	**10250T706R**	**E34EX706R**	**10250T708R**	**E34EX708R**
	Green	**10250T706G**	**E34EX706G**	**10250T708G**	**E34EX708G**
2NO-2NC	Black	**10250T707B**	**E34EX707B**	**10250T709B**	**E34EX709B**
	Red	**10250T707R**	**E34EX707R**	**10250T709R**	**E34EX709R**
	Green	**10250T707G**	**E34EX707G**	**10250T709G**	**E34EX709G**

Colour Selection

Colour	Suffix Code	Colour	Suffix Code
Black	**B**	White	**W**
Red	**R**	Blue	**L** ②
Green	**G**	Orange ③	**N**
Yellow	**Y**	Red (EMERG. STOP) ④	**E**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① To order different colour guarded button, simply substitute the underlined character in catalogue number with appropriate suffix code from Colour Selection table above. Example: 10250T710**Y**.

② Blue not available on jumbo mushroom pushbutton.

③ Orange is only available on flush or extended pushbuttons.

④ Red with EMERG. STOP engraved on button head for jumbo mushroom pushbutton only.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

10250T Mushroom Button

E34 Mushroom Button

10250T Jumbo Mushroom Button

E34 Jumbo Mushroom Button

Non-Illuminated Mushroom and Jumbo Mushroom Pushbuttons

		Mushroom Button		Jumbo Mushroom Button	
Contact Type	Button Colour ①	10250T Catalogue Number	E34 Catalogue Number	10250T ② Catalogue Number	E34 ② Catalogue Number
1NO-1NC	Black	**10250T710B**	**E34EX710B**	**10250T712B**	**E34EX712B**
	Red	**10250T710R**	**E34EX710R**	**10250T712R**	**E34EX712R**
	Green	**10250T710G**	**E34EX710G**	**10250T712G**	**E34EX712G**
2NO-2NC	Black	**10250T711B**	**E34EX711B**	**10250T713B**	**E34EX713B**
	Red	**10250T711R**	**E34EX711R**	**10250T713R**	**E34EX713R**
	Green	**10250T711G**	**E34EX711G**	**10250T713G**	**E34EX713G**

Colour Selection

Colour	Suffix Code	Colour	Suffix Code
Black	**B**	White	**W**
Red	**R**	Blue	**L** ③
Green	**G**	Orange ④	**N**
Yellow	**Y**	Red (EMERG. STOP) ⑤	**E**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① To order different colour guarded button, simply substitute the underlined character in catalogue number with appropriate suffix code from Colour Selection table above. Example: 10250T710**Y**.

② Anodized aluminum head is not suitable for use in ultraviolet applications.

③ Blue not available on jumbo mushroom pushbutton.

④ Orange is only available on flush or extended pushbuttons.

⑤ Red with EMERG. STOP engraved on button head for jumbo mushroom pushbutton only.

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UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Momentary contact
- Non-illuminated
- Booted or guarded

Booted Flush Button

Booted Extended Button

Guarded Extended Button

10250T Pushbuttons Booted and Guarded

Contact Type	Button Colour	Booted Flush Button Catalogue Number	Booted Extended Button Catalogue Number	Guarded Extended Button ① Catalogue Number
1NO-1NC	Black	**10250T706BB**	**10250T708BB**	**10250T706BG**
	Red	**10250T706RB** ②	**10250T708RB**	**10250T706RG**
	Green	**10250T706GB**	**10250T708GB**	**10250T706GG**
2NO-2NC	Black	**10250T707BB**	**10250T709BB**	**10250T707BG**
	Red	**10250T707RB** ②	**10250T709RB**	**10250T707RG**
	Green	**10250T707GB**	**10250T709GB**	**10250T707GG**

Colour Selection

Colour	Suffix Code	Colour	Suffix Code
Black	**B**	White	**W**
Red	**R**	Blue	**L**
Green	**G**	Orange	**N**
Yellow	**Y**		

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① To order different colour guarded button, simply substitute the underlined character in catalogue number with appropriate suffix code from Colour Selection table above. Example: 10250T706**Y**G.

② Red booted flush pushbutton is not recommended for STOP function.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Momentary contact
- Non-illuminated
- Booted or guarded

Booted Flush Button

Booted Extended Button

Guarded Extended Button

E34 Pushbuttons Booted and Guarded

Contact Type	Button Colour	Booted Flush Button Catalogue Number	Booted Extended Button Catalogue Number	Guarded Extended Button ① Catalogue Number
1NO-1NC	Black	**E34EX706BB**	**E34EX708BB**	**E34EX706BG**
	Red	**E34EX706RB** ②	**E34EX708RB**	**E34EX706RG**
	Green	**E34EX706GB**	**E34EX708GB**	**E34EX706GG**
2NO-2NC	Black	**E34EX707BB**	**E34EX709BB**	**E34EX707BG**
	Red	**E34EX707RB** ②	**E34EX709RB**	**E34EX707RG**
	Green	**E34EX707GB**	**E34EX709GB**	**E34EX707GG**

Colour Selection

Colour	Suffix Code	Colour	Suffix Code
Black	**B**	White	**W**
Red	**R**	Blue	**L**
Green	**G**	Orange	**N**
Yellow	**Y**		

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① To order different colour guarded button, simply substitute the underlined character in catalogue number with appropriate suffix code from Colour Selection table above. Example: 10250T706**Y**G.

② Red booted flush pushbutton is not recommended for STOP function.

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Non-Illuminated Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, and 13

10250T Flush Button

E34 Flush Button

10250T Extended Button

E34 Extended Button

10250T Half Shrouded Button

E34 Half Shrouded Button

Non-Illuminated Pushbuttons, Momentary Contact

Colour	Flush Button 10250T ① Catalogue Number	Flush Button E34 Catalogue Number	Extended Button 10250T Catalogue Number	Extended Button E34 Catalogue Number	Half Shrouded Button 10250T Vertical Catalogue Number	Half Shrouded Button 10250T Horizontal Catalogue Number	Half Shrouded Button E34 Vertical Catalogue Number	Half Shrouded Button E34 Horizontal Catalogue Number
Black	**10250T101**	**E34PB1**	**10250T111**	**E34EB1**	**10250T501**	**10250T511**	**E34EVB1**	**E34EHB1**
Red	**10250T102**	**E34PB2**	**10250T112**	**E34EB2**	**10250T502**	**10250T512**	**E34EVB2**	**E34EHB2**
Green	**10250T103**	**E34PB3**	**10250T113**	**E34EB3**	**10250T503**	**10250T513**	**E34EVB3**	**E34EHB3**
Yellow	**10250T104**	**E34PB4**	**10250T120**	**E34EB4**	**10250T504**	**10250T514**	**E34EVB4**	**E34EHB4**
Gray	**10250T105**	**E34PB5**	—	**E34EB5**	**10250T505**	**10250T515**	**E34EVB5**	**E34EHB5**
White	**10250T106**	**E34PB6**	**10250T116**	**E34EB6**	**10250T506**	**10250T516**	**E34EVB6**	**E34EHB6**
Blue	**10250T108**	**E34PB7**	**10250T118**	**E34EB7**	**10250T508**	**10250T518**	**E34EVB7**	**E34EHB7**
Orange	**10250T109**	**E34PB8**	**10250T119**	**E34EB8**	**10250T509**	**10250T519**	**E34EVB8**	**E34EHB8**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① To order operator with factory assembled extended retaining nut, 10250TA12, for thick panel applications, add suffix letter **E** to listed catalogue number.

UL (NEMA) Type 3, 3R, 4, 4X, 12, and 13

10250T Mushroom Button

E34 Mushroom Button

10250T Jumbo Mushroom Button

E34 Jumbo Mushroom Button

Mushroom Head Non-Illuminated Pushbuttons, Momentary Contact

	Mushroom Button		Anodized Aluminum Jumbo Mushroom Button	
Colour	10250T Catalogue Number	E34 Catalogue Number	10250T ① Catalogue Number	E34 ② Catalogue Number
Black	**10250T121**	**E34LB1**	**10250T171**	**E34JB1**
Red	**10250T122**	**E34LB2**	**10250T172**	**E34JB2**
Red (EMERG. STOP)	—	—	**10250T17213**	**E34JB2N8**
Green	**10250T123**	**E34LB3**	**10250T173**	**E34JB3**
Yellow	**10250T124**	**E34LB4**	**10250T174**	**E34JB4**
Blue	**10250T129**	**E34LB6**	—	—

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① Anodized aluminum head is not suitable for use in ultraviolet light applications.

② Anodized aluminum head may not be suitable for some corrosive environments.

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Illuminated Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Momentary contact
- Illuminated
- Plastic lenses

10250T8_

E34EX8_

Illuminated Pushbuttons

Type	Voltage	Colour	Contact	10250T LED/Lamp Number	10250T Catalogue Number ①	E34 LED/Lamp Number	E34 Catalogue Number ①
LED Lamp							
Full voltage	24 Vac/Vdc	Red	1NO-1NC	Bayonet base	**10250T828RD24**	Bayonet base	**E34EX828RD24**
		Green			**10250T828GD24**		**E34EX828GD24**
		Amber			**10250T828AD24**		**E34EX828AD24**
	120 Vac	Red	1NO-1NC		**10250T828RD2A**		**E34EX828RD2A**
		Green			**10250T828GD2A**		**E34EX828GD2A**
		Amber			**10250T828AD2A**		**E34EX828AD2A**
Transformer	120 Vac	Red	1NO-1NC		**10250T802RD06**	Bayonet base 6 Vac	**E34EX802RD06**
		Green			**10250T802GD06**		**E34EX802GD06**
		Amber			**10250T802AD06**		**E34EX802AD06**
Incandescent Lamp							
Full voltage	24 Vac/Vdc	Red	1NO-1NC	#757	**10250T818RD**	#757	**E34EX818RD**
		Green			**10250T818GD**		**E34EX818GD**
		Amber			**10250T818AD**		**E34EX818AD**
Resistor	120 Vac/Vdc	Red	1NO-1NC	120MB	**10250T824RD**	120MB	**E34EX824RD**
		Green			**10250T824GD**		**E34EX824GD**
		Amber			**10250T824AD**		**E34EX824AD**
Transformer	120 Vac	Red	1NO-1NC	#755	**10250T802RD**	#755 6 Vac	**E34EX802RD**
		Green			**10250T802GD**		**E34EX802GD**
		Amber			**10250T802AD**		**E34EX802AD**

10250TC_

E34V _

Lens Selection

Colour	Suffix Code	Catalogue Number	Colour	Suffix Code	Catalogue Number
10250T			**E34**		
Red	**R**	**10250TC21**	Red	**R**	**E34V2**
Green	**G**	**10250TC22**	Green	**G**	**E34V3**
Yellow	**Y**	**10250TC23**	Yellow	**Y**	**E34V4**
Amber	**A**	**10250TC43**	Amber	**A**	**E34V9**
Blue	**L**	**10250TC24**	Blue	**L**	**E34V6**
Clear	**C**	**10250TC25**	Clear	**C**	**E34V0**
White	**W**	**10250TC26**	White	**W**	**E34V5**

Note

① To order different colour lens, simply substitute the underlined character in the catalogue number with appropriate suffix code from Lens Selection table above. Example: 10250T828**Y**D24.

Guarded Illuminated Pushbutton Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Momentary contact
- Guarded illuminated
- Plastic lenses

10250T8_

E34EX8_

Guarded Illuminated Pushbuttons

Type	Voltage	Colour	Contact	10250T LED/Lamp Number	10250T Catalogue Number ①	E34 LED/Lamp Number	E34 Catalogue Number ①
LED Lamp							
Full voltage	24 Vac/Vdc	Red	1NO-1NC	Bayonet base	**10250T828RG24**	Bayonet base	**E34EX828RG24**
		Green			**10250T828GG24**		**E34EX828GG24**
		Amber			**10250T828AG24**		**E34EX828AG24**
	120 Vac	Red	1NO-1NC		**10250T828RG2A**		**E34EX828RG2A**
		Green			**10250T828GG2A**		**E34EX828GG2A**
		Amber			**10250T828AG2A**		**E34EX828AG2A**
Transformer	120 Vac	Red	1NO-1NC		**10250T802RG06**		**E34EX802RG06**
		Green			**10250T802GG06**		**E34EX802GG06**
		Amber			**10250T802AG06**		**E34EX802AG06**
Incandescent Lamp							
Full voltage	24 Vac/Vdc	Red	1NO-1NC	#757	**10250T818RG**	#757	**E34EX818RG**
		Green			**10250T818GG**		**E34EX818GG**
		Amber			**10250T818AG**		**E34EX818AG**
Resistor	120 Vac/Vdc	Red	1NO-1NC	120MB	**10250T824RG**	120MB	**E34EX824RG**
		Green			**10250T824GG**		**E34EX824GG**
		Amber			**10250T824AG**		**E34EX824AG**
Transformer	120 Vac	Red	1NO-1NC	#755	**10250T802RG**	#755 6 Vac	**E34EX802RG**
		Green			**10250T802GG**		**E34EX802GG**
		Amber			**10250T802AG**		**E34EX802AG**

10250TC2_

E34V_

Lens Selection

Colour	Suffix Code	Catalogue Number	Colour	Suffix Code	Catalogue Number
10250T			**E34**		
Red	**R**	**10250TC21**	Red	**R**	**E34V2**
Green	**G**	**10250TC22**	Green	**G**	**E34V3**
Yellow	**Y**	**10250TC23**	Yellow	**Y**	**E34V4**
Amber	**A**	**10250TC43**	Amber	**A**	**E34V9**
Blue	**L**	**10250TC24**	Blue	**L**	**E34V6**
Clear	**C**	**10250TC25**	Clear	**C**	**E34V0**
White	**W**	**10250TC26**	White	**W**	**E34V5**

Note

① To order different colour lens, simply substitute the underlined character in the catalogue number with appropriate suffix code from Lens Selection table above. Example: 10250T828**Y**D24.

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Indicating Light Units

UL (NEMA) Type 3, 3R, 3S, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Standard
- Plastic lenses

10250T_

E34_

Indicating Lights

Type	Voltage	Colour	LED/Lamp Number	10250T Catalogue Number ①	E34 Catalogue Number ①
LED Lamp					
Full voltage	24 Vac/Vdc	Red	Bayonet base	**10250T197HLRP24**	**E34FB197HLRP24**
		Green		**10250T197HLGP24**	**E34FB197HLGP24**
		Amber		**10250T197HLAP24**	**E34FB197HLAP24**
	120 Vac	Red		**10250T197HLRP2A**	**E34FB197HLRP2A**
		Green		**10250T197HLGP2A**	**E34FB197HLGP2A**
		Amber		**10250T197HLAP2A**	**E34FB197HLAP2A**
Transformer	120 Vac	Red		**10250T181HLRP06**	**E34TB120HLRP06**
		Green		**10250T181HLGP06**	**E34TB120HLGP06**
		Amber		**10250T181HLAP06**	**E34TB120HLAP06**
Incandescent Lamp					
Full voltage	24 Vac/Vdc	Red	#757	**10250T206HRP**	**E34FB24HRP**
		Green		**10250T206HGP**	**E34FB24HGP**
		Amber		**10250T206HAP**	**E34FB24HAP**
Resistor	120 Vac/Vdc	Red	120MB	**10250T201HRP**	**E34RB120HRP**
		Green		**10250T201HGP**	**E34RB120HGP**
		Amber		**10250T201HAP**	**E34RB120HAP**
Transformer	120 Vac	Red	#755	**10250T181HRP**	**E34HB120HRP**
		Green		**10250T181HGP**	**E34HB120HGP**
		Amber		**10250T181HAP**	**E34HB120HAP**

Plastic

Glass

Lens Selection

Colour	Plastic Suffix Code	Plastic Catalogue Number	Glass Suffix Code	Glass Catalogue Number	Colour	Plastic Suffix Code	Plastic Catalogue Number	Glass Suffix Code	Glass Catalogue Number
10250T					**E34**				
Red	**RP**	**10250TC1N**	**RG**	**10250TC7N**	Red	**RP**	**E34H2**	**RG**	**E34G2**
Green	**GP**	**10250TC2N**	**GG**	**10250TC8N**	Green	**GP**	**E34H3**	**GG**	**E34G3**
Amber	**AP**	**10250TC19N**	**AG**	**10250TC9N**	Amber	**AP**	**E34H9**	**AG**	**E34G9**
Yellow	**YP**	**10250TC3N**	—	—	Yellow	**YP**	**E34H4**	**YG**	**E34G4**
Blue	**LP**	**10250TC4N**	**LG**	**10250TC10N**	Blue	**LP**	**E34H6**	**LG**	**E34G6**
Clear	**CP**	**10250TC5N**	**CG**	**10250TC11N**	Clear	**CP**	**E34H0**	**CG**	**E34G0**
White	**WP**	**10250TC6N**	**WG**	**10250TC12N**	White	**WP**	**E34H5**	**WG**	**E34G5**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① To order different colour lens, simply substitute the underlined characters in the catalogue number with appropriate suffix code from the Lens Selection table above. Example: 10250T201HYP.

Illuminated Pushbuttons and Indicating Lights

NEC Class I Division 2, Groups B, C and D

10250T Illuminated Pushbutton

E34 Illuminated Pushbutton

10250T Indicating Light

E34 Indicating Light

Operators without Lenses

Type	Voltage	LED/Lamp Number	Illuminated Pushbutton 10250T Catalogue Number	Illuminated Pushbutton E34 Catalogue Number	Indicating Light 10250T Catalogue Number	Indicating Light E34 Catalogue Number
LED Light Unit Type (LEDs not included) ①						
Full voltage	—	Bayonet base	**10250T397HL**	**E34CB497HL**	**10250T197HL**	**E34FB197HL**
Transformer AC only	24		**10250T416HL**	**E34XB024HL**	—	—
	120		**10250T411HL**	**E34XB120HL**	**10250T181HL**	**E34TB120HL**
	240		**10250T412HL**	**E34XB240HL**	**10250T182HL**	**E34TB240HL**
	277		**10250T419HL**	**E34XB277HL**	**10250T198HL**	**E34TB277HL**
	380		**10250T413HL**	**E34XB380HL**	**10250T183HL**	**E34TB380HL**
	480		**10250T414HL**	**E34XB480HL**	**10250T184HL**	**E34TB480HL**
	600		**10250T415HL**	**E34XB600HL**	**10250T185HL**	**E34TB600HL**
Incandescent Light Unit Type						
Full voltage AC/DC	6	#755	**10250T473H**	**E34CB06H**	**10250T203H**	**E34FB06H**
	12	#756	**10250T474H**	**E34CB12H**	**10250T204H**	**E34FB12H**
	24	#757	**10250T476H**	**E34CB24H**	**10250T206H**	**E34FB24H**
	32	#1828	**10250T477H**	**E34CB32H**	**10250T207H**	**E34FB32H**
	48	#1835	**10250T478H**	**E34CB48H**	**10250T208H**	**E34FB48H**
Resistor ② AC/DC	120	120MB	**10250T471H**	**E34SB120H**	**10250T201H**	**E34RB120H**
	240	120MB	**10250T472H**	**E34SB240H**	**10250T202H**	**E34RB240H**
Transformer AC only	24	#755	**10250T416H**	**E34XB024H**	—	—
	120		**10250T411H**	**E34XB120H**	**10250T181H**	**E34TB120H**
	240		**10250T412H**	**E34XB240H**	**10250T182H**	**E34TB240H**
	277		**10250T419H**	**E34XB277H**	**10250T198H**	**E34TB277H**
	380		**10250T413H**	**E34XB380H**	**10250T183H**	**E34TB380H**
	480		**10250T414H**	**E34XB480H**	**10250T184H**	**E34TB480H**
	600		**10250T415H**	**E34XB600H**	**10250T185H**	**E34TB600H**
Neon AC/DC	120	NE51H-R-22	—	—	**10250T226H**	**E34NB120H**
	240	NE51H-4-68	—	—	**10250T227H**	**E34NB240H**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① These units do not include lamps. Order LED separately to match lens colour from the LED Selection table on **Page T37-305.**

② Resister units are not available for use with LEDs, choose either transformer or full voltage LED style.

Indicating Light Lenses

Plastic

*10250TC_*

*E34H_*

Glass

*10250TC_*

*E34G_*

Colour	10250T Catalogue Number	E34 Catalogue Number
Plastic		
Red	**10250TC1N**	**E34H2**
Green	**10250TC2N**	**E34H3**
Amber	**10250TC19N**	**E34H9**
Yellow	**10250TC3N**	**E34H4**
Blue	**10250TC4N**	**E34H6**
Clear	**10250TC5N**	**E34H0**
White	**10250TC6N**	**E34H5**
Glass		
Red	**10250TC7N**	**E34G2**
Green	**10250TC8N**	**E34G3**
Amber	**10250TC9N**	**E34G9**
Yellow	—	**E34G4**
Blue	**10250TC10N**	**E34G6**
Clear	**10250TC11N**	**E34G0**
White	**10250TC12N**	**E34G5**

Illuminated Pushbutton Lenses

10250TC_

E34V_

Colour	10250T Catalogue Number	E34 Catalogue Number
Red	**10250TC21**	**E34V2**
Green	**10250TC22**	**E34V3**
Yellow	**10250TC23**	**E34V4**
Amber	**10250TC43**	**E34V9**
Blue	**10250TC24**	**E34V6**
Clear	**10250TC25**	**E34V0**
White	**10250TC26**	**E34V5**

Push-Pull Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Two- and three-position
- Non-illuminated

10250T71_

E34EX71_

Two-Position Maintained Push, Maintained Pull

Operator Function (Position) ①

Maintained—Pull	Maintained—Push	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Red Standard Push-Pull ② 10250T Catalogue Number	Red Standard Push-Pull ② E34 Catalogue Number
0 X	X 0	1NO 1NC			**10250T714R**	**E34EX714R**
0 X 0 X	X 0 X 0	2NO 2NC			**10250T715R**	**E34EX715R**

10250T71_

E34EX71_

Three-Position Maintained Push, Momentary Pull

Operator Function (Position) ①

Momentary—Pull	Maintained—Intermediate	Maintained—Push	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Red Standard Push-Pull ③ 10250T Catalogue Number	Red Standard Push-Pull ③ E34 Catalogue Number
0 X	0 0	X 0	1NO 1NC			**10250T716R**	**E34EX716R**
X X	0 X	0 0	1NC 1NC			**10250T717R**	**E34EX717R**

Notes

① Bolded circuit corresponds to "X-O" circuit selection. X = closed circuit, O = open circuit.

② To order different type or colour buttons, simply substitute underlined character with appropriate suffix code from the Button and Colour Selection table on **Page T37-298**. Example: 10250T714**G**.

③ To order different type or colour buttons, simply substitute underlined character with appropriate suffix code from the Button and Colour Selection table on **Page T37-298**. Example: 10250T716**G**.

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UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Two- and three-position
- Non-illuminated

10250T7_

E34EX7_

Three-Position Momentary Push, Momentary Pull

Operator Function (Position) ①

Momentary—Pull	Maintained—Intermediate	Momentary—Push	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Red Standard Push-Pull ② 10250T Catalogue Number	Red Standard Push-Pull ② E34 Catalogue Number
0	0	X	1NO			10250T718R	E34EX718R
X	0	0	1NC				
X	0	0	1NC			10250T721R	E34EX721R
X	X	0	1NC				

Button and Colour Selection

Standard

Jumbo Mushroom Head

Colour	Suffix Code	10250T Catalogue Number	E34 Catalogue Number
Standard			
Red	**R**	**10250TB62**	**E34C2**
Red (EMERG. STOP)	**E**	**10250TB63**	**E34C2N8**
Green	**G**	**10250TB61**	**E34C3**
Black	**B**	**10250TB60**	**E34C1**
Blue	**L**	**10250TB64**	**E34C6**
Jumbo Mushroom Head (Anodized) Aluminum			
Red	**RJ**	**10250TJ62**	**E34J2**
Red (EMERG. STOP)	**EJ**	**10250TJ63**	**E34J2N8**
Green	**GJ**	**10250TJ61**	—
Black	**BJ**	**10250TJ60**	—
Yellow	**YJ**	**10250TJ64**	—

Notes

① Bolded circuit corresponds to "X-0" circuit selection. X = closed circuit, 0 = open circuit.

② To order different type or colour buttons, simply substitute underlined character with appropriate suffix code from the Button and Colour Selection table above. Example: 10250T718**G**.

Illuminated Push-Pull Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Two-position maintained
- Illuminated

10250T8_

E34EX8_

Two-Position Illuminated Maintained Push, Maintained Pull

Operator Function (Position) ①

Maintained—Pull	Maintained—Push	Type	Voltage	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Red Standard Push-Pull ② 10250T Catalogue Number	Red Standard Push-Pull ② E34 Catalogue Number
LED Lamp								
0	X	Full voltage	24 Vac/Vdc	1NO 1NC			**10250T853RD24**	**E34EX853RD24**
X	0		120 Vac				**10250T853RD2A**	**E34EX853RD2A**
		Transformer	24 Vac				**10250T843RD06**	**E34EX843RD06**
			120 Vac				**10250T844RD06**	**E34EX844RD06**
Incandescent Lamp								
0	X	Full voltage	24 Vac/Vdc	1NO 1NC			**10250T849RD**	**E34EX849RD**
X	0	Resistor	120 Vac/Vdc				**10250T851RD**	**E34EX851RD**
		Transformer	24 Vac				**10250T843RD**	**E34EX843RD**
			120 Vac				**10250T844RD**	**E34EX844RD**

Lens and Colour Selection

Standard

Side-Lighted (Anodized) Aluminum

HD Aluminum with Transparent Centre

Colour	10250T Suffix Code	10250T Catalogue Number	E34 Suffix Code	E34 Catalogue Number
Standard				
Red	**RD**	**10250TC47**	**RD**	**E34M2**
Red (EMERG. STOP)	**ED**	**10250TC53**	**ED**	**E34M2N8**
Green	**GD**	**10250TC48**	**GD**	**E34M3**
Blue	**LD**	**10250TC49**	**LD**	**E34M6**
Amber	**AD**	**10250TC50**	**AD**	**E34M9**
White	**WD**	**10250TC51**	**WD**	**E34M5**
Clear	**CD**	**10250TC52**	**CD**	**E34M0**
Side-Lighted (Anodized) Aluminum				
Red	**RS**	**10250TC57**	—	—
Red (EMERG. STOP)	**ES**	**10250TC63**	—	—
Green	**GS**	**10250TC58**	—	—
Blue	**LS**	**10250TC59**	—	—
Amber	**AS**	**10250TC64**	—	—
Yellow	**YS**	**10250TC60**		
White	**WS**	**10250TC61**	—	—
Clear	**CS**	**10250TC62**	—	—
Heavy-Duty Aluminum with Transparent Centre				
Red	**RH**	**10250TC65**	—	—
Green	**GH**	**10250TC66**	—	—
Amber	**AH**	**10250TC67**	—	—

Notes

① Bolded circuit corresponds to "X-O" circuit selection. X = closed circuit, O = open circuit.

② To order different type or colour lens, simply substitute the underlined characters with appropriate suffix code from the Lens and Colour Selection table above. Example: 10250T851**GS**.

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UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Three-position—maintained push, momentary pull
- Illuminated

10250T8_

E34EX8_

Three-Position Illuminated Maintained Push, Momentary Pull

Operator Function (Position) ①									
Momentary—Pull	Maintained—Intermediate	Maintained—Push	Type	Voltage	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Red Standard Push-Pull ② 10250T Catalogue Number	Red Standard Push-Pull ② E34 Catalogue Number
LED Lamp									
0 X	0 0	X 0	Full voltage	24 Vac/Vdc	1NO 1NC			**10250T864RD24**	**E34EX864RD24**
				120 Vac				**10250T864RD2A**	**E34EX864RD2A**
			Transformer	24 Vac				**10250T854RD06**	**E34EX854RD06**
				120 Vac				**10250T855RD06**	**E34EX855RD06**
X X	0 X	0 0	Full voltage	24 Vac/Vdc	1NC 1NC			**10250T875RD24**	**E34EX875RD24**
				120 Vac				**10250T875RD2A**	**E34EX875RD2A**
			Transformer	24 Vac				**10250T865RD06**	**E34EX865RD06**
				120 Vac				**10250T866RD06**	**E34EX866RD06**
Incandescent Lamp									
0 X	0 0	X 0	Full voltage	24 Vac/Vdc	1NO 1NC			**10250T860RD**	**E34EX860RD**
			Resistor	120 Vac				**10250T862RD**	**E34EX862RD**
			Transformer	24 Vac				**10250T854RD**	**E34EX854RD**
				120 Vac				**10250T855RD**	**E34EX855RD**
X X	0 X	0 0	Full voltage	24 Vac/Vdc	1NC 1NC			**10250T871RD**	**E34EX871RD**
			Resistor	120 Vac				**10250T873RD**	**E34EX873RD**
			Transformer	24 Vac				**10250T865RD**	**E34EX865RD**
				120 Vac				**10250T866RD**	**E34EX866RD**

Notes

① Bolded circuit corresponds to "X-O" circuit selection. X = closed circuit, O = open circuit.

② To order different type or colour lens, simply substitute the underlined characters with appropriate suffix code from the Lens and Colour Selection table on the bottom of **Page T37-299.** Example: 10250T862**AS**.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Three-position—momentary
- Illuminated

10250T8_

E34EX8_

Three-Position Illuminated Momentary Push, Momentary Pull

Operator Function (Position) ①

Momentary—Pull	Maintained—Intermediate	Maintained—Push	Type	Voltage	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Red Standard Push-Pull ② 10250T Catalogue Number	Red Standard Push-Pull ② E34 Catalogue Number
LED Lamp									
0 X	0 0	X 0	Full voltage	24 Vac/Vdc	1NO 1NC			**10250T886RD24**	**E34EX886RD24**
				120 Vac				**10250T886RD2A**	**E34EX886RD2A**
			Transformer	24 Vac				**10250T876RD06**	**E34EX876RD06**
				120 Vac				**10250T877RD06**	**E34EX877RD06**
X X	0 X	0 0	Full voltage	24 Vac/Vdc	1NC 1NC			**10250T897RD24**	**E34EX897RD24**
				120 Vac				**10250T897RD2A**	**E34EX897RD2A**
			Transformer	24 Vac				**10250T887RD06**	**E34EX887RD06**
				120 Vac				**10250T888RD06**	**E34EX888RD06**
Incandescent Lamp									
0 X	0 0	X 0	Full voltage	24 Vac/Vdc	1NO 1NC			**10250T882RD**	**E34EX882RD**
			Resistor	120 Vac				**10250T884RD**	**E34EX884RD**
			Transformer	24 Vac				**10250T876RD**	**E34EX876RD**
				120 Vac				**10250T877RD**	**E34EX877RD**
X X	0 X	0 0	Full voltage	24 Vac/Vdc	1NC 1NC			**10250T893RD**	**E34EX893RD**
			Resistor	120 Vac				**10250T895RD**	**E34EX895RD**
			Transformer	24 Vac				**10250T887RD**	**E34EX887RD**
				120 Vac				**10250T888RD**	**E34EX888RD**

Notes

① Bolded circuit corresponds to "X-0" circuit selection. X = closed circuit, 0 = open circuit.

② To order different type or colour lens, simply substitute the underlined characters with appropriate suffix code from the Lens and Colour Selection table on the bottom of **Page T37-299.** Example: 10250T862**AS**.

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Push-Pull Operators

An illuminated push-pull pushbutton unit, arranged for one-hole mounting, can replace two pushbuttons and a pilot light or the non-illuminated form can replace two pushbuttons. These units are available in three basic types:

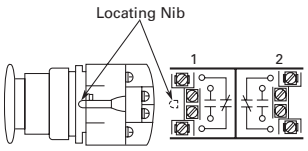
- **Maintained**—(Two-position). Maintains in the pulled or pushed position until manually actuated to the opposite mode.
- **Momentary**—(Three-position). Spring returns to an intermediate position when pulled or pushed and released.
- **Momentary Pull, Maintained Push**—(Three-position). Spring returns to intermediate position when pulled. Maintains in pushed position until manually returned to intermediate (ready to reset) position. Maintained stop holds circuit open and will prevent other series connected operators from starting the system.

The operators, buttons, contact blocks, etc., are offered as building block components that can be intermixed to satisfy many requirements. This minimizes the need for a varied and costly inventory.

Application Guide

To assist in the selection of contact blocks, the sketch below shows pictorially by symbols **1** and **2** locations of contact circuits after assembly of contact blocks and adapter to the operator. The table below shows the effect of the push and pull operations on either NO or NC contacts. (X = contact closed, O = contact open).

Locating Nibs



10250T_

E34G_

Push-Pull Operator Components

Type of Operator	Contact Block	Operator Position and Circuit Arrangement: Out—Pull — Contact Block Mounting Location 1	2	Intermediate 1	2	In—Push 1	2	10250T Catalogue Number	E34 Catalogue Number
Two-Position Operator without Lens									
Maintained push-pull	1NO 1NC	0 X	or 0 X	No intermediate position		X 0	or X 0	**10250T5**	**E34GDB**
	2NO 2NC	0 X	0 X			X 0	X 0		
Three-Position Operator without Lens									
Momentary push-pull	1NO 1NC	0 X	or 0 X	0 0	or 0 X	X 0	or 0 0	**10250T4**	**E34GEB**
Maintained push-momentary pull	2NO 2NC	0 X	0 X	0 0	0 X	X 0	0 0	**10250T9**	**E34GFB**
Momentary push-pull	1NO 1NC	0 X	or 0 X	0 0	or 0 0	X 0	or X 0	**10250T10**	**E34GHB**
	2NO 2NC	0 X	0 X	0 0	0 0	X 0	X 0		

Note

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

Push-Pull Light Units, Lenses and Buttons
NEC Class I Division 2 Groups B, C and D

Light Units for Illuminated Push-Pull Devices

Light Unit Type	Type	Voltage	LED/Lamp Number	Catalogue Number
LED (LEDs not included) ①	Full voltage	—	Bayonet base	**10250T97HL**
	Transformer AC only 50/60 Hz	24		**10250T89HL**
		120		**10250T63HL**
		208		**10250T64HL**
		240		**10250T65HL**
		277		**10250T82HL**
		380		**10250T66HL**
		480		**10250T67HL**
		600		**10250T68HL**
Incandescent	Full voltage AC or DC	6	#755 #756 #757 #1828	**10250T69H**
		12		**10250T70H**
		24/28		**10250T79H**
		32		**10250T83H**
	Resistor AC or DC	120	120MB	**10250T80H**
		240		**10250T81H**
	Transformer AC only 50/60 Hz	24	#755	**10250T89H**
		120		**10250T63H**
		208		**10250T64H**
		240		**10250T65H**
		277		**10250T82H**
		380		**10250T66H**
		480		**10250T67H**
		600		**10250T68H**

Note
① These units do not include lamps. Order LED separately to match lens colour from table on **Page T37-305**.

Alternate Lenses for Illuminated Push-Pull Devices

Standard

Colour	10250T Catalogue Number	E34 Catalogue Number
Standard		
Red	**10250TC47**	**E34M2**
Red (EMERG. STOP)	**10250TC53**	**E34M2N8**
Green	**10250TC48**	**E34M3**
Blue	**10250TC49**	**E34M6**
Amber	**10250TC50**	**E34M9**
White	**10250TC51**	**E34M5**
Clear	**10250TC52**	**E34M0**

Side-Lighted (Anodized) Aluminum

Side-Lighted Anodized Aluminum Ring		
Red	**10250TC57**	—
Red (EMERG. STOP)	**10250TC63**	—
Green	**10250TC58**	—
Blue	**10250TC59**	—
Amber	**10250TC64**	—
Yellow	**10250TC60**	—
White	**10250TC61**	—
Clear	**10250TC62**	—

HD Aluminum with Transparent Centre

Heavy-Duty Aluminum with Transparent Centre		
Red	**10250TC65**	—
Green	**10250TC66**	—
Amber	**10250TC67**	—

Buttons for Non-Illuminated Push-Pull Devices

Standard

Colour	10250T Catalogue Number	E34 Catalogue Number
Standard		
Red	**10250TB62**	**E34C2**
Red (EMERG. STOP)	**10250TB63**	**E34C2N8**
Green	**10250TB61**	**E34C3**
Black	**10250TB60**	**E34C1**
Blue	**10250TB64**	**E34C6**

Jumbo Mushroom Head

Jumbo Mushroom Head (Anodized) Aluminum ①		
Red	**10250TJ62**	**E34J2**
Red (EMERG. STOP)	**10250TJ63**	**E34J2N8**
Green	**10250TJ61**	—
Black	**10250TJ60**	—
Yellow	**10250TJ64**	—

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light.

① Anodized aluminum head is not suitable for use with ultraviolet light applications.

Standard LED Lamp

LED Selection

Voltage	Colour	Catalogue Number
6 Vac/Vdc suitable for use with transformers	Red	**E22LED006RN**
	Orange	**E22LED006ON**
	Yellow	**E22LED006YN**
	Green	**E22LED006GN**
	Blue	**E22LED006BN**
	White	**E22LED006WN**
12 Vac/Vdc	Red	**E22LED012RN**
	Orange	**E22LED012ON**
	Yellow	**E22LED012YN**
	Green	**E22LED012GN**
	Blue	**E22LED012BN**
	White	**E22LED012WN**
24 Vac/Vdc	Red	**E22LED024RN**
	Orange	**E22LED024ON**
	Yellow	**E22LED024YN**
	Green	**E22LED024GN**
	Blue	**E22LED024BN**
	White	**E22LED024WN**
48 Vac/Vdc	Red	**E22LED048RN**
	Orange	**E22LED048ON**
	Yellow	**E22LED048YN**
	Green	**E22LED048GN**
	Blue	**E22LED048BN**
	White	**E22LED048WN**
60 Vac/Vdc	Red	**E22LED060RN**
	Orange	**E22LED060ON**
	Yellow	**E22LED060YN**
	Green	**E22LED060GN**
	Blue	**E22LED060BN**
	White	**E22LED060WN**
120 Vac	Red	**E22LED120RA**
	Orange	**E22LED120OA**
	Yellow	**E22LED120YA**
	Green	**E22LED120GA**
	Blue	**E22LED120BA**
	White	**E22LED120WA**
120 Vdc	Red	**E22LED120RD**
	Orange	**E22LED120OD**
	Yellow	**E22LED120YD**
	Green	**E22LED120GD**
	Blue	**E22LED120BD**
	White	**E22LED120WD**

Note

For a complete listing of all LEDs available, see **Page T37-225**.

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Selector Switch Units

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Two- and three-position
- Non-illuminated

Two-Position Selector Switch—Non-Illuminated

10250T72_

E34EX72_

Operator Position ①		Operator Action ②	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Cam Code	Black Knob—Selector Switch ③ 10250T Catalogue Number	Black Knob—Selector Switch ③ E34 Catalogue Number
X	0	M M	1NC			1	10250T722BK	E34EX722BK
0	X		1NO					
		M S					10250T724BK	E34EX724BK
X	0	M M	1NC			1	10250T723BK	E34EX723BK
0	X		1NO					
X	0		1NC					
0	X	M S	1NO				10250T725BK	E34EX725BK

Three-Position Selector Switch—Non-Illuminated

10250T_

Operator Position ①			Operator Action ②	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Cam Code	Black Knob—Selector Switch ④ 10250T Catalogue Number	Black Knob—Selector Switch ④ E34 Catalogue Number
X	0	0	M M M	1NO			3	10250T726BK	E34EX726BK
0	0	X		1NO					
			M S M					10250T728BK	E34EX728BK
			M S S					10250T730BK	E34EX730BK
			M M S					10250T732BK	E34EX732BK
X	0	0	M M M	1NO			3	10250T727BK	E34EX727BK
0	X	0		1NC-1NC (Series)					
0	0	X		1NO					
			M S M					10250T729BK	E34EX729BK
			M S S					10250T731BK	E34EX731BK
			M M S					10250T733BK	E34EX733BK

Notes

① Bolded circuit corresponds to "X-O" circuit selection. X = closed circuit, O = open circuit.

② M = Maintained. S = Spring return in direction of arrow (→).

③ To order different type or colour selector switch, simply substitute the underlined characters with appropriate suffix code from the table on **Page T37-307.**
Example: 10250T722**LL**. For keyed selector switch, substitute the underlined characters with **T_ (cam)+_ (key removal position)**. Example: 10250T722**T13**.

④ To order different type or colour selector switch, simply substitute the underlined characters with appropriate suffix code from the Switch and Colour Selection table on **Page T37-307**.
Example: 10250T726**LL**. For keyed selector switch, substitute the underlined characters with **T_ (cam)+_ (key removal position).** Example: 10250T726**T13**.

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13, NEC Class I Division 2, Groups B, C and D

- Four-position maintained
- Non-illuminated

10250T743_

E34EX743_

Four-Position Selector Switch—Non-Illuminated

Operator Position ①				Operator Action ②	Contact Type	Mounting Location ① 1	Mounting Location ① 2	Cam Code	Black Knob—Selector Switch ③ 10250T Catalogue Number	Black Knob—Selector Switch ③ E34 Catalogue Number
X	0	0	0	M M	1NC			7	**10250T743BK**	**E34EX743BK**
0	X	0	0		1NO					
0	0	X	0		1NO					
0	0	0	X	M M	1NC					

Knob

Lever

Coin Slot ⑤

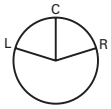
Switch and Colour Selection

Colour	Knob Suffix Code	Lever Suffix Code	Lever ④ Suffix Code	Coin Slot ⑤ Suffix Code
Black	**BK**	**BL**	**BA**	**BC**
Red	**RK**	**RL**	**RA**	**RC**
Green	**GK**	**GL**	**GA**	**GC**
Yellow	**YK**	**YL**	**YA**	**YC**
White	**WK**	**WL**	**WA**	**WC**
Gray	**AK**	**AL**	**AA**	**AC**
Blue	**LK**	**LL**	**LA**	**LC**
Orange	**NK**	**NL**	**NA**	**NC**

Key Operated Selection

Number of Position	Operator Action ⑥	Suffix and Removal Position
2	M M	T1 + 1, 2, 3
	M ← S	T1 + 2
3	M M M	T3 + 1–7
	S → M M	T3 + 1, 4, 5
	S → M ← S	T3 + 4
	M M ← S	T3 + 2, 4, 6
4	MMMM	T7 + 7

Key Removal Positions ⑦



Code Suffix	Key Removal Position
1	Right only
2	Left only
3	Right and left
4	Centre only
6	Left and centre
7	All positions

Notes

① Bolded circuit corresponds to "X-0" circuit selection. X = closed circuit, 0 = open circuit.
② M = Maintained.
③ To order different type or colour selector switch, simply substitute the underlined characters with appropriate suffix code from the Switch and Colour Selection table above**.** Example: 10250T743**LL**. For keyed selector switch, substitute the underlined characters with **T_ (cam) + _ (key removal position).** Example: 10250T743**T77**.
④ Designed for added ingress protection. For use in maintained operators only.
⑤ 10250T only.
⑥ M = Maintained. S = Spring return in direction of arrow (→).
⑦ Key removal in "spring return from" positions not recommended.

Selector Switch Selection

10250T

E34

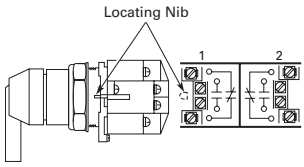
Cam and Contact Block Selection

Selector switches in their varied forms (two-position, three-position, and four-position) are a big factor contributing to the great flexibility of control that a well rounded line of "pushbuttons" can achieve. Because of their flexibility, they tend to cause difficulty with product selection and application. The following systematic approach should simplify that task.

Cam and contact block selection is better understood if you:

- Work with each incoming and outgoing wire/circuit separately.
- Recognize the terms NO and NC only identify the type of contact by its mode before mounting to the operator. The "X-O" table (**Page T37-310**) shows how that contact will act after assembly to the operator with the selected cam shape. X = closed circuit, O = open circuit.
- One NO-NC contact block may be mounted behind each plunger of the mounting adapter for a total of four circuits.
- Each cam has two separate lobes, each of which operates one of the two contact block plungers independently of each other. Those are identified as position 1 (locating nib side) and position 2 (opposite of locating nib). The position designations give direction in selecting and mounting of the contact blocks.

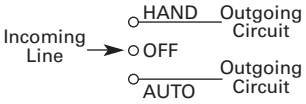
Contact Circuit Locations



Systematic Approach

Application: **HAND-OFF-AUTO** selector switch. In this circuit, one incoming line is distributed to two other outgoing circuits by the switch. The two circuits can be looked at individually.

Step 1: Elementary Diagram.
Construct on paper, or in your mind, a simple elementary diagram of the switching scheme as follows:



Step 2: "X-O" Pattern.
From the elementary diagram, you can construct an "X-O" diagram which describes when the contacts are to be closed (X) or open (O) in the various positions of the switch. The "X-O" for the **HAND** circuit looks like this:

HAND OFF AUTO
X O O

In this circuit, you want a contact closed on the left (HAND) but open in the centre and right.

For the **AUTO** circuit, the "X-O" diagram would look like this:

HAND OFF AUTO
O O X

Putting them together, the complete "X-O" diagram is:

X O O
O O X

Once the "X-O" diagram has been generated, the next step is to select the cam and contact block, or blocks, needed to perform the desired "X-O" functions. The selection tables on the following pages list the various types (shapes) of cams by number to choose from and the type of contact and position to achieve the function outlined in your "X-O" diagram.

Step 3: Cam Selection.
The cam you select determines the operation of all contact blocks mounted to the operator. It is selected on the basis that it provides the simplest circuitry for the desired "X-O" diagram. The selection tables show all the "X-O" combinations. For the purpose of this example, the applicable portion of those tables is shown on this page.

Now to make the cam selection, make a simple worksheet such as below. (1) or (2) = mounting location from chart above:

	Cam 2	Cam 3
X O O	(1)NO-(2)NC ①	**(1)NO**
O O X	(2)NO	**(2)NO**

It becomes obvious that cam 3 is the better choice because the series connection can be avoided, making it simpler to wire.

Step 4: Contact Block Selection.
Having selected the cam, contact block selection is simply a matter of determining if you require one NO-NC contact block (Cat. No 10250T1H) or two. Given the limitations of the factory sealed contact block and the desired "X-O" application, you may have circuits that will not be needed—as seen here with the two additional NC circuits. (1) or (2) = mounting location from chart above.

Qty	Catalogue No.	Cam 3	
2	10250TIH	**(1)NO**	(2)NC
		(1)NC	**(2)NO**

Step 5: Selector Switch Operator.
Lastly, you have to choose from the many types of operators—knob and lever in various colors or keyed. Also what combinations of maintained and spring return functions are required. Selection of these operators can be found on **Page T37-311**. For the example in step 4, you may want a three-position maintained black knob, cam 3—Catalogue Number 10250T1323 (or 34VHBK1).

The Complete Switch:
10250T1323 (or 34VHBK1) with two 10250T1H or for one composite catalogue number—10250T726BK (or E34EX726BK) found on **Page T37-306.**

Diagrams
Circuits shown illustrate connections to obtain a selector circuit combination and are shown with their appropriate line diagrams in **BOLD.** Field wiring of jumper connections required as shown.

X = Closed circuit
O = Open circuit

Example Selection Table

No.	Desired Circuit and Operator Position			Cam Code #2 Contact Blocks and Mounting Location		Cam Code #3 Contact Blocks and Mounting Location	
				1	2	1	2
1	X	O	O	NO	NC ①	NO	—
4	O	O	X	—	NO	—	NO

Note
① Wired in series.

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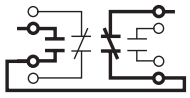
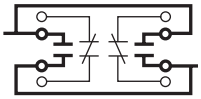
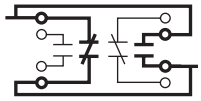
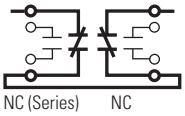
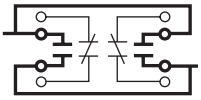
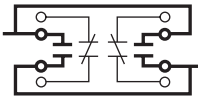
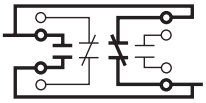
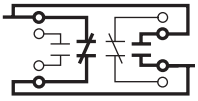
Two-Position Selector Switch

Number	Desired Circuit and Operator Position		Cam Code #1 Contact Blocks and Mounting Location 1	2
1	X	0	NC	NC
2	0	X	NO	NO

Three-Position Selector Switch

No.	Desired Circuit and Operator Position			Cam Code #2 Contact Blocks and Mounting Location 1	2	Cam Code #3 Contact Blocks and Mounting Location 1	2
1	X	0	0	 NO (Series)	NC	NO	—
2	X	X	0	—	NC	—	NC
3	X	0	X	NO	—	 NO (Parallel)	NO
4	0	0	X	—	NO	—	NO
5	0	X	X	 NC (Parallel)	NO	NC	—
6	0	X	0	NC	—	 NC (Series)	NC

Four-Position Selector Switch

Number	Desired Circuit and Operator Position				Cam Code #7 Contact Blocks and Mounting Location 1	2
1	X	0	0	0	NC	—
2	0	X	0	0	—	NO
3	0	0	X	0	NO	—
4	0	0	0	X	—	NC
5	X	0	0	X	 NC (Parallel)	NC
6	0	X	X	0	 NO (Parallel)	NO
7	0	0	X	X	 NO (Parallel)	NC
8	X	X	0	0	 NC (Parallel)	NO
9	0	X	0	X	—	NO/NC (Parallel)
10	X	0	X	0	NO/NC (Parallel)	—

Selector Switch Operators

10250T Selector Switch Operators with Caps

UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Black Knob Selector Switch

Black Lever Selector Switch

10250T Selector Switch Operators with Caps

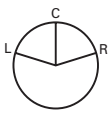
Positions	Operator Action ①	Black Knob Selector Switch—Vertical Mounting ② Cam Code ③	Black Knob Selector Switch—Vertical Mounting ② Catalogue Number	Black Lever Selector Switch—Vertical Mounting ② Cam Code ③	Black Lever Selector Switch—Vertical Mounting ② Catalogue Number
Two-position—60˚ throw	M M	1	**10250T1311**	1	**10250T3011**
	M S	1	**10250T1371**	1	**10250T3071**
Three-position—60˚ throw	M M M	2	**10250T1322**	2	**10250T3022**
		3	**10250T1323**	3	**10250T3023**
	S M M	2	**10250T1332**	2	**10250T3032**
		3	**10250T1333**	3	**10250T3033**
	S M S	2	**10250T1342**	2	**10250T3042**
		3	**10250T1343**	3	**10250T3043**
	M M S	2	**10250T1352**	2	**10250T3052**
		3	**10250T1353**	3	**10250T3053**
Four-position—40˚ throw	M M M M	7	**10250T1367**	7	**10250T3067**

Horizontal Mounting

10250T Key Operators with Cam

Positions	Operator Action ①	Cam Code ③	Optional Key Removal Positions ④	Vertical Mounting Catalogue Number ④	Horizontal Mounting Catalogue Number ④
Two-position—60˚ throw	M M	1	1, 2, 3	**10250T1511_**	**10250T1611_**
	M S	1	2	**10250T1571_**	**10250T1581_**
Three-position—60˚ throw	M M M	2	1–7	**10250T1522_**	**10250T1622_**
		3		**10250T1523_**	**10250T1623_**
	S M M	2	1, 4, 5	**10250T1532_**	**10250T1632_**
		3		**10250T1533_**	**10250T1633_**
	S M S	2	4	**10250T1542_**	**10250T1642_**
		3		**10250T1543_**	**10250T1643_**
	M M S	2	2, 4, 6	**10250T1652_**	**10250T1662_**
		3		**10250T1653_**	**10250T1663_**
Four-position—40˚ throw	M M M M	7	7	**10250T1677_**	**10250T1687_**

Key Removal Positions



Key Removal Positions ⑤

Code Suffix	Key Removal Position	Code Suffix	Key Removal Position
1	Right only	**5**	Right and centre
2	Left only	**6**	Left and centre
3	Right and left	**7**	All positions
4	Centre only		

Replacement Keys or Dissimilar Locks for Above Key Operators

Listed operators have identical locks and keys (Key Code H661) Catalogue Number 10250ED824.

Replacement Keys

Description	Catalogue Number
Replacement keys (code **H661**)	**10250ED824**

Notes

① M = Maintained. S = Spring return in direction of arrow (→).
② Field convertible to horizontal mounting or order operator only and separate operator cap.
③ For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and table on **Pages T37-308** to **T37-310**.
④ Choose key removal position required for application from table above. Add key removal code no. to listed catalogue number. Example: 10250T1511**2**.
⑤ Key removal in "spring return from" positions not recommended.

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UL (NEMA) Type 3, 3R, 4, 4X, 12, 13

Black Knob Selector Switch

E34 Selector Switch Operators with Knob Assembled

Positions	Operator Action ①	Black Knob Selector Switch—Vertical Mounting ② Cam Code ③	Catalogue Number ④
Two-position—60° throw	M M	1	**E34VFBK1**
	M S	1	**E34VEBK1**
Three-position—60° throw	M / M M	2	**E34VGBK1**
		3	**E34VHBK1**
	S M / M	2	**E34VJBK1**
		3	**E34VKBK1**
	S M / S	2	**E34VLBK1**
		3	**E34VMBK1**
	M M / S	2	**E34VNBK1**
		3	**E34VPBK1**
Four-position—40° throw	M M / M M	7	**E34VTBK1**

E34KFB_

E34 Key Operators with Cam and Cap

Positions	Operator Action ①	Cam Code ③	Key Removal Positions ⑤	Vertical Mounting Catalogue Number	Horizontal Mounting Catalogue Number
Two-position—60° throw	M M	1	1, 2, 3	**E34KFB_**	**E34KFHB_**
	M S	1	2	**E34KEB_**	**E34KEHB_**
Three-position—60° throw	M / M M	2	1–7	**E34KGB_**	**E34KGHB_**
		3		**E34KHB_**	**E34KHHB_**
	S M / M	2	1, 4, 5	**E34KJB_**	**E34KJHB_**
		3		**E34KKB_**	**E34KKHB_**
	S M / S	2	4	**E34KLB_**	**E34KLHB_**
		3		**E34KMB_**	**E34KMHB_**
	M / M S	2	2, 4, 6	**E34KNB_**	**E34KNHB_**
		3		**E34KPB_**	**E34KPHB_**
Four-position—40° throw	M M / M M	7	7	**E34KTB_**	**E34KTHB_**

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Page T37-311**.

① M = Maintained. S = Spring return in direction of arrow (→).

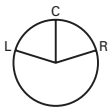
② Field convertible to horizontal mounting.

③ For selection of the proper cam and contact block to obtain the proper circuit sequence, see selection instructions and table on **Pages T37-308** to **T37-310**.

④ For other colors of either knob or lever, replace the underlined characters of the catalogue number with the appropriate suffix code from Alternate Knobs and Levers table on **Page T37-313**. Example: E34VFB**L2**.

⑤ Choose key removal position required for application from table on **Page T37-313**. Add key removal code no. to listed catalogue number. Example: E34KFB**2**.

Key Removal Positions



Key Removal Positions

Code Suffix	Key Removal Position	Code Suffix	Key Removal Position
1	Right only	**5**	Right and centre
2	Left only	**6**	Left and centre
3	Right and left	**7**	All positions
4	Centre only		

Knob

Lever

Lever for Added Ingress Protection

Alternate Knobs and Levers for Operators ①

Colour	Knob Suffix Code	Knob Catalogue Number	Lever Suffix Code	Lever Catalogue Number	Lever Designed for Added Ingress Protection ② Suffix Code	Lever Designed for Added Ingress Protection ② Catalogue Number
Black	**K1**	**E34K1**	**L1**	**E34L1**	**A1**	**E34A1**
Red	**K2**	**E34K2**	**L2**	**E34L2**	**A2**	**E34A2**
Green	**K3**	**E34K3**	**L3**	**E34L3**	**A3**	**E34A3**
Yellow	**K4**	**E34K4**	**L4**	**E34L4**	**A4**	**E34A4**
White	**K5**	**E34K5**	**L5**	**E34L5**	**A5**	**E34A5**
Blue	**K6**	**E34K6**	**L6**	**E34L6**	**A6**	**E34A6**
Gray	**K7**	**E34K7**	**L7**	**E34L7**	**A7**	**E34A7**
Orange	**K8**	**E34K8**	**L8**	**E34L8**	**A8**	**E34A8**

Notes

① Key removal in "spring return from" positions not recommended.
② For use on maintained operators only.

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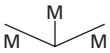
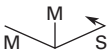
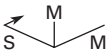
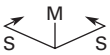
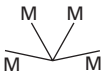
Illuminated Selector Switch Operators

Two-Position Maint. Selector Switch

10250T Illuminated Selector Switch Operator Only without Knob or Lever

Position	Operator Action ①	Transformer Type—50/60 Hz 6V #755 Lamp: Cam Code ③	Voltage	Catalogue and Code Number ②	Full Voltage Type—AC or DC ④ Lamps: 6V—#755, 12V—#756, 24V—#757, 48V—#1835, 120/240V—120MB: Cam Code ③	Voltage	Catalogue and Code Number ②
Two-position—60° throw		1	24	**10250T5961H**	1	6	**10250T6201H**
			120	**10250T5971H**		12	**10250T6211H**
			208	**10250T6511H**		24	**10250T6221H**
			240	**10250T5981H**		48	**10250T6231H**
			380	**10250T5991H**		120	**10250T6361H**
			480	**10250T6001H**		240 ⑤	**10250T6371H**
			600	**10250T6011H**			
Three-position—60° throw		+ 2 or 3	24	**10250T602_H**	+ 2 or 3	6	**10250T624_H**
			120	**10250T603_H**		12	**10250T625_H**
			208	**10250T652_H**		24	**10250T626_H**
			240	**10250T604_H**		48	**10250T627_H**
			380	**10250T605_H**		120	**10250T638_H**
			480	**10250T607_H**		240 ⑤	**10250T639_H**
			600	**10250T607_H**			
		+ 2 or 3	120	**10250T620_H**	+ 2 or 3	120	**10250T622_H**
			240	**10250T656_H**			
		+ 2 or 3	120	**10250T621_H**	+ 2 or 3	120	**10250T623_H**
			240	**10250T662_H**			
		+ 2 or 3	24	**10250T614_H**	+ 2 or 3	6	**10250T628_H**
			120	**10250T615_H**		12	**10250T629_H**
			208	**10250T653_H**		24	**10250T630_H**
			240	**10250T616_H**		48	**10250T631_H**
			380	**10250T617_H**		120	**10250T640_H**
			480	**10250T618_H**		240 ⑤	**10250T641_H**
			600	**10250T619_H**			
Four-position—40° throw		7	24	**10250T6087H**	7	6	**10250T6327H**
			120	**10250T6097H**		12	**10250T6337H**
			208	**10250T6547H**		24	**10250T6347H**
			240	**10250T6107H**		48	**10250T6357H**
			380	**10250T6117H**		120	**10250T6427H**
			480	**10250T6127H**		240 ⑤	**10250T6437H**
			600	**10250T6137H**			

Knob

Lever

Knobs and Levers

Colour ⑥	Knob Catalogue and Code Number	Lever Catalogue and Code Number	Colour ⑥	Knob Catalogue and Code Number	Lever Catalogue and Code Number
Red	**10250TER**	**10250TFR**	Clear	**10250TEC**	**10250TFC**
Green	**10250TEG**	**10250TFG**	White	**10250TEW**	**10250TFW**
Yellow	**10250TEA**	**10250TFA**	Amber	**10250TEM**	**10250TFM**
Blue	**10250TEL**	**10250TFL**			

Notes

① M = Maintained. S = Spring return in direction of arrow (→).
② For selection of the proper cam and contact block, to obtain the proper circuit sequence, see selection table on **Page T37-310**.
③ Operator includes lens gasket and lens attachment screws.
④ Full voltage light units can be used at other than listed voltages by changing lamp. Replacement lamps are listed on **Page T37-225**.
⑤ Resistor type. May generate excess heat if used in high density.
⑥ Amber, clear and white lenses have a black arrow (pointer), red, green and blue lenses have a white arrow (pointer).

120 Vac Transformer Selector Switch, Cam 1

Illuminated Selector Switch Operator Only without Knob or Lever

Positions	Operator Action	Transformer Type—50/60 Hz 6V #755 Lamp Catalogue Number ①②		Full Voltage Type—AC or DC ③ Lamps—#755, #757, #1835, 120MB ④ Catalogue Number ②	
Two-position—60˚ throw	M M	Cam Code 1 ⑤		Cam Code 1 ⑤	
		E34VFB_H		E34SFB_H	
Three-position—60˚ throw	M M M	Cam Code 2 ⑤	Cam Code 3 ⑤	Cam Code 2 ⑤	Cam Code 3 ⑤
		E34VGB_H	E34VHB_H	E34SGB_H	E34SHB_H
	M M S	E34VNB_H ⑥	E34VPB_H ⑥	E34SNB_H ⑦	E34SPB_H ⑦
	M S M	E34VJB_H ⑥	E34VKB_H ⑥	E34SJB_H ⑦	E34SKB_H ⑦
	M S S	E34VLB_H	E34VMB_H	E34SLB_H	E34SMB_H
Four-position—40˚ throw	M M M M	E34VRB_H	—	E34SRB_H	—

Knob

Lever

Knobs and Levers

Colour ⑨	Knob Catalogue Number and Code Number	Lever Catalogue Number and Code Number
Red	**10250TER**	**10250TFR**
Green	**10250TEG**	**10250TFG**
Yellow	**10250TEA**	**10250TFA**
Blue	**10250TEL**	**10250TFL**
Clear	**10250TEC**	**10250TFC**
White	**10250TEW**	**10250TFW**
Amber	**10250TEM**	**10250TFM**

Light Unit Voltage Suffix

Add to operator catalogue number listed in table above.

Type of Light Unit			
Transformer Type 50/60 Hz		Full Voltage Type AC or DC ③	
Voltage	Suffix Code	Voltage	Suffix Code
24	**024**	6	**06**
120	**120**	12	**12**
208	**208**	24	**24**
240	**240**	48	**48**
380	**380**	120	**120**
480	**480**	240 ⑧	**240**
600	**600**		

Notes

Use NEMA 4X 10250T operators where exposed to ultraviolet light, see **Page T37-314**.

① Operator includes lens gasket and lens attachment screws.

② Replace underscore with proper voltage suffix code from Light Unit Voltage Suffix table above. Example: three-position maintained with 120V transformer type light unit: E34VGB**120**H.

③ Full voltage light units can be used at other than listed voltages by changing lamp. Replacement lamps are listed on **Page T37-225**.

④ 120MB lamps are used on both 120V and 240V operators.

⑤ For selection of the proper cam and contact block required to obtain a specific circuit sequence, see selection table on **Page T37-310.**

⑥ 120 and 240V transformer only.

⑦ 120 full voltage only.

⑧ Resistor type. May generate excess heat if used in high density.

⑨ Amber, clear and white lenses have a black arrow (pointer). Red, green and blue lenses have a white arrow (pointer).

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Options

Contact Blocks and Mounting Adapters

NEC Class I Division 2, Groups B, C and D

Contact Block

Contact Block

Description	Catalogue Number
Class I Division 2 factory sealed contact block with 1NO-1NC	**10250T1H**

Dimensions, see **Page T37-321**.

Mounting Adapter

Mounting Adapter

Description	Catalogue Number
Mounting adapter for pushbuttons	**10250TD2**
Mounting adapter for selector switches	**10250TD3**

Dimensions, see **Page T37-321**.

Mounting Adapters with Contact Block(s)—Overpacked

Description	Catalogue Number
Pushbutton adapter with 1NO-1NC	**10250TD21H**
Pushbutton adapter with 2 (1NO-1NC)	**10250TD21H1H**
Selector switch adapter with 1NO-1NC	**10250TD31H**
Selector switch adapter with 2 (1NO-1NC)	**10250TD31H1H**

Mounting and Assembly

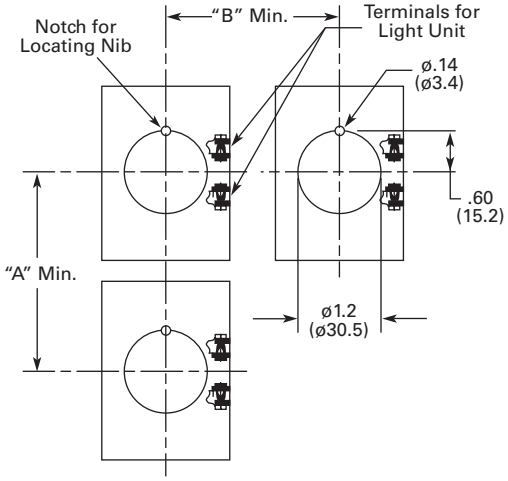
Panel Thickness

- Minimum: 0.06 in (1.6 mm)
- Maximum: 0.25 in (8 mm) including legend plate
- Maximum can be increased to 0.375 in (15.9 mm) using optional retaining nut
  - Indicating light: 10250TA30/E34TA30
  - Pushbutton/selector switch: 10250TA31/E34TA31

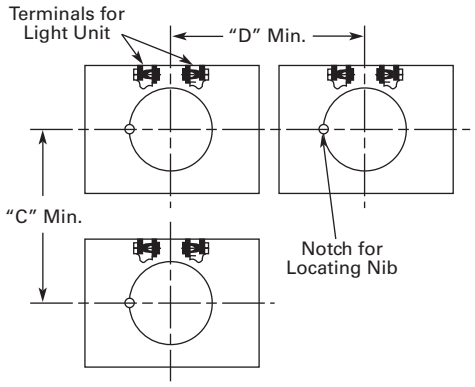
Mounting Matrix

Legend Plate	Dimensions in Inches (mm) A	B	C	D
Small	2.87 (72.6)	2.25 (57.2)	2.25 (57.2)	2.87 (72.6)
Jumbo	2.87 (72.6)	2.32 (58.6)	2.32 (58.6)	2.87 (72.6)
Extra large	2.87 (72.6)	2.56 (65.2)	2.52 (64.1)	2.87 (72.6)

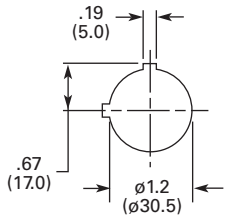
Panel Spacing and Drilling



Drilling for One Hole Mounting and Dimensions for Minimum Spacing in Vertical Rows.

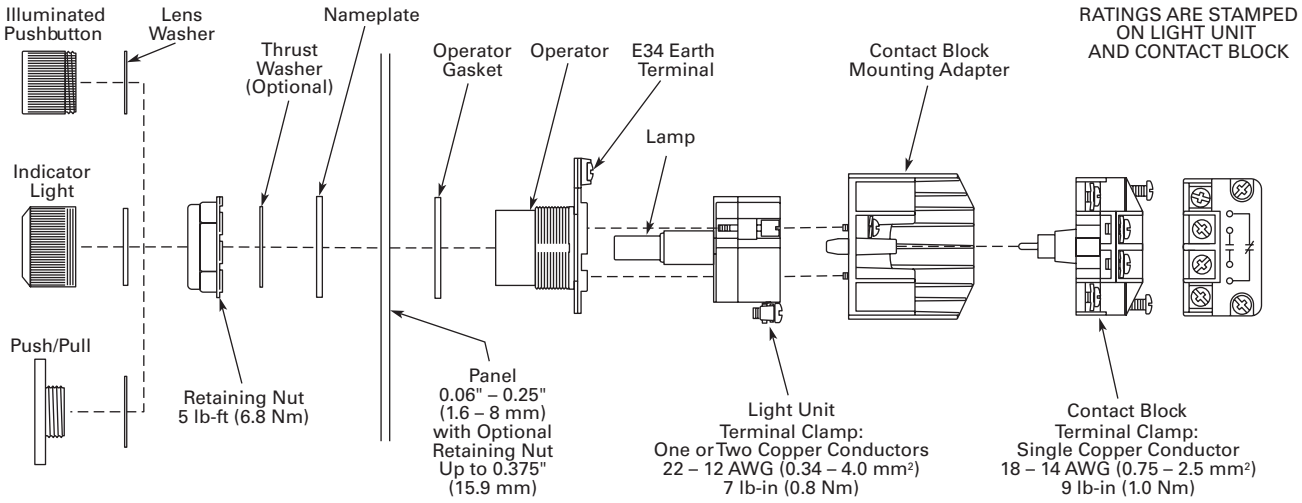


Drilling for One Hole Mounting and Dimensions for Minimum Spacing in Horizontal Rows.



NOTE: Suitable for Use in This Alternate Mounting Hole.

Operator Assembly



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Enclosures

Die Cast, Polyester and Stainless Steel Enclosures

Enclosures (Case and Cover)—Surface Mounting ①

	Number of Elements	10250T Catalogue Number	E34 Catalogue Number
Die Cast Enclosure	**Die Cast Enclosure—Deep Cover—In-Line NEMA 4, 4X, 12, 13**		
	1	**10250TN11**	**E34N11**
	2	**10250TN12**	**E34N12**
	3	**10250TN13**	**E34N13**
	4	**10250TN14**	**E34N14**
Polyester Enclosure	**Polyester—In-Line NEMA 3, 4X, 12**		
	1	—	**E34N51**
	2	—	**E34N52**
	3	—	**E34N53**
	4	—	**E34N54**
Stainless Steel Enclosure	**Stainless Steel ②—In-Line NEMA 4, 4X, 12**		
	1	—	**10250TN33**
	2	—	**10250TN34**
	3	—	**10250TN35**
	4	—	**10250TN36**

Dimensions, see **Page T37-321**.

Notes

① For spacing increments, see **Page T37-220**.

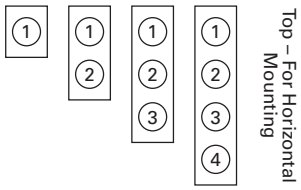
② 14 gauge, type 304.

Application Notes:

1. Operators need to be mounted in their horizontal orientation for all enclosures. For die cast enclosures remove locating nib on operators and use thrust washer (Catalogue Number 10250TK3).
2. Polyester enclosures must be used when mounting illuminated operators.

Enclosure Layouts

Top – For Vertical Mounting



Technical Data and Specifications

Mechanical Ratings

Description	Specification
Frequency of Operation	
All pushbuttons	6000 operations/hr.
Key and lever selector switches	3000 operations/hr.
Life	
Pushbuttons	10 x 10^6 operations
Contact block	10 x 10^6 operations
Key and lever selector switches	0.25 x 10^6 operations
Shock Resistance	
Duration/force	20 ms ≥5g

Climatic Conditions

Description	Specification
Operating temperature	32° to 140°F (0° to 66°C)
Storage temperature	–40° to 176°F (–40° to 80°C)
Altitude	6,562 ft (2,000m)
Humidity	Max. 95% RH at 60°C

Terminals

Description	Specification
Light Units	
Clamps	Terminals are saddle clamp type for 1 x 22 AWG (0.34 mm^2) to 2 x 14 AWG (4.0 mm^2) conductors
Torque	7 lb-in (0.8 Nm)
Degree of protection against direct electrical contact	IP2X with fingerproof shroud
Contact Blocks	
Clamps	Terminals are stainless steel saddle clamp type for 1 x 18–14 AWG (0.75–2.5 mm^2) solid or stranded copper conductor
Torque	9 lb-in (1.0 Nm) with size 2 Phillips screwdriver
Degree of protection against direct electrical contact	IP2X with fingerproof shroud

Electrical Ratings

Description	Specification
Light Units	
Bulbs—average life:	
Transformer type	20,000 hrs.
Resistor/direct voltage type	2500 hrs. minimum at rated voltage
LED	60,000 to 100,000 hrs.

Electrical Ratings—Contact Block

Meet or Exceed NEMA Contact Rating Designations A600 and Q300

	A600 (AC)				Q300 (DC)	
Description	**120V**	**240V**	**480V**	**600V**	**125V**	**250V**
Make and emerg. interrupting capacity (amps)	60	30	15	12	0.55	0.27
Normal load break (amps)	6	3	1.5	1.2	0.55	0.27
Thermal current (amps)	10	10	10	10	2.5	2.5
Voltamperes:						
Maximum make	7200	7200	7200	7200	69	69
Maximum break	720	720	720	720	69	69

Temperature Codes

All illuminated devices have operating temperatures below 100˚C except for the following catalogue numbers with temperature codes per NEC table 500-5(d) and UL 1604:

10250T	E34	Temp. Code
10250T201H	**E34RB120H**	**T3C**
10250T202H	**E34RB240H**	**T3A**
10250T471H	**E34SB120H**	**TC3**
10250T472H	**E34SB240H**	**T3B**
10250T80H	—	**T3C**
10250T81H	—	**T3B**
All selector switches w/120MB lamp		**T3C**
All illuminated devices with lamp 1835		**T4A**

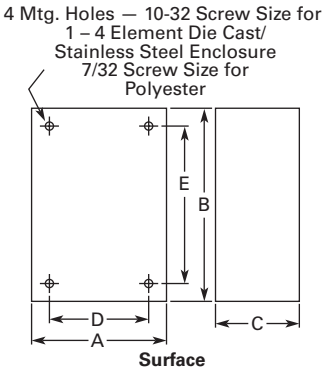
Note: For additional technical information, see Publication Number **TD.7.4.T.E.04**.

Dimensions

Approximate Dimensions in Inches (mm)

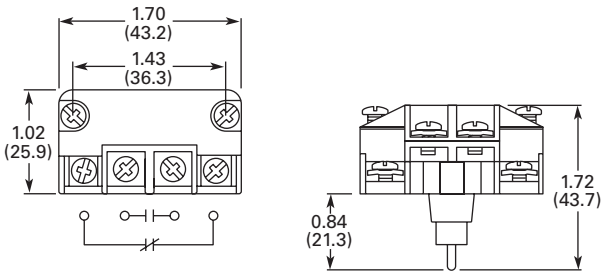
Surface Mounting

Die Cast, Polyester and Stainless Steel Enclosures

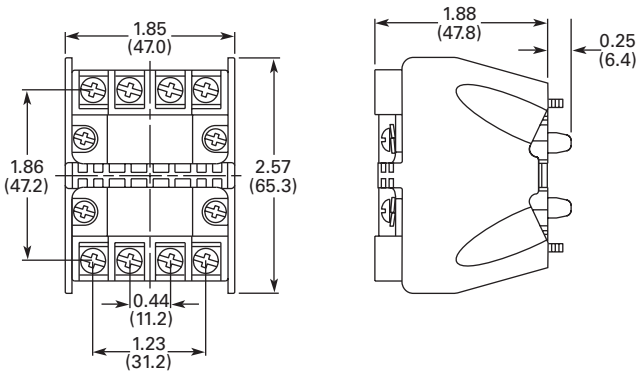


Number of Elements	Element Arrangement	Wide A	High B	Deep C	Mounting D	E	Conduit Entrance
Die Cast							
1	In-line	3.88 (98.6)	4.0 (101.6)	3.0 (76.3)	2.69 (68.3)	3.25 (82.6)	3/4
2		3.88 (98.6)	5.88 (149.4)	3.0 (76.3)	2.69 (68.3)	5.13 (130.3)	
3		3.88 (98.6)	7.75 (196.9)	3.0 (76.3)	2.69 (68.3)	7.0 (177.8)	1
4		3.88 (98.6)	9.63 (244.6)	3.0 (76.3)	2.69 (68.3)	8.88 (225.6)	
Polyester							
1	In-line	3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	①
2		3.81 (96.8)	6.63 (168.4)	3.38 (85.9)	2.94 (74.7)	4.88 (124.0)	
3		3.81 (96.8)	8.88 (225.6)	3.38 (85.9)	2.94 (74.7)	7.13 (181.1)	
4		3.81 (96.8)	11.13 (282.7)	3.38 (85.9)	2.94 (74.7)	9.38 (238.3)	
Stainless Steel							
1	In-line	3.00 (76.2)	3.50 (88.9)	3.00 (76.2)	1.50 (38.1)	4.25 (108.0)	①
2		3.50 (88.9)	6.75 (171.5)	3.00 (76.2)	1.50 (38.1)	7.50 (190.5)	
3		3.50 (88.9)	9.00 (228.6)	3.00 (76.2)	1.50 (38.1)	9.00 (228.6)	
4		3.50 (88.9)	11.25 (285.8)	3.00 (76.2)	1.50 (38.1)	12.00 (304.8)	

Contact Block



Mounting Adapter



Note

① No conduit entrance holes provided. Drill as required.

Ratings

Summary of NEC Article 500

The NEC Article 500 explains in great detail the requirements for the installation of wiring and electrical equipment in hazardous locations. The purpose of this summary is for general reference only, the National Electric Code along with other applicable authorities having jurisdiction over the site should be the installer's guidelines when wiring or installing electrical equipment in any hazardous or potentially hazardous location.

Class I, Division 2 Definition

Class I, Division 2 covers hazardous locations where flammable gases, vapors or volatile liquids are handled either in a closed system, or confined within suitable enclosures, or where hazardous concentrations are normally prevented by positive mechanical ventilation. Areas adjacent to Division 1 locations, into which gases might occasionally flow, would also belong to Division 2 (NEC (500-5[b])).

Hazardous Location

Any area where there is the possibility of explosion and fire resulting from the presence of flammable vapors, liquids or gas, or combustible dust or fibers.

Summary of NEC Article 505

The NEC also classifies hazardous locations for flammable gases and vapors into zones under NEC 505. This system is more in line with the European Standards, CENELEC and IEC, with the major difference being that NEC 505 only classifies gases and vapors while CENELEC and IEC also include dusts.

Summary of Classifications

NEC 500–503

Class	Division	Group
I. Gas	1. Hazard may exist—May exist in atmosphere under normal operating conditions	A. Acetylene
		B. Hydrogen and manufactured gases containing 30% hydrogen by volume (e.g. butadiene, ethylene oxide, propylene oxide)
		C. Petrochemicals (e.g. carbon monoxide, ether, ethylene, hydrogen sulfide, morpholine, cyclopropane)
		D. Petrochemicals (e.g. gasoline, benzene, butane, propane, acetone, ammonia, vinyl chloride)
	2. Potential hazard—May be present in atmosphere only under abnormal circumstances OR location adjacent to Class I, Division 1 location	A. Acetylene
		B. Hydrogen and manufactured gases containing 30% hydrogen by volume (e.g. butadiene, ethylene oxide, propylene oxide)
		C. Petrochemicals (e.g. carbon monoxide, ether, ethylene, hydrogen sulfide, morpholine, cyclopropane)
		D. Petrochemicals (e.g. gasoline, benzene, butane, propane, acetone, ammonia, vinyl chloride)
II. Dust	1. Hazard may exist—May exist in atmosphere under normal operating conditions	E. Conductive and combustible dust (resistivity $<10^5$ ohm/cm) (metal dusts)
		F. Carbonaceous dusts (resistivity $>10^2$ ohms/cm but $\leq 10^8$ ohms/cm) (e.g. carbon black, coke dust, coal)
		G. Non-conductive combustible dust (resistivity $\geq 10^5$ ohms/cm) (e.g. grain dust, flour, starch, sugar, plastics)
	2. Potential hazard—May be present in atmosphere only under abnormal circumstances	F. Carbonaceous dusts (resistivity $>10^2$ ohms/cm but $\leq 10^8$ ohms/cm) (e.g. carbon black, coke dust, coal)
		G. Non-conductive combustible dust (resistivity $\geq 10^5$ ohms/cm) (e.g. grain dust, flour, starch, sugar, plastics)
III. Fibers	1. Production areas	Easily ignitable fibers or flyings
	2. Handling and storage areas	Easily ignitable fibers or flyings

NEC 505

Class	Zone	Group
I. Gas	0. Continuously present or present for long periods of time	IIC. Acetylene, hydrogen or equivalent hazard
		IIB. Acetaldehyde, ethylene or equivalent hazard
		IIA. Acetone, ammonia, ethyl alcohol, gasoline, methane, propane or equivalent hazard
	1. Likely to exist under normal operating or maintenance conditions or adjacent to Zone 0	IIC. Acetylene, hydrogen or equivalent hazard
		IIB. Acetaldehyde, ethylene or equivalent hazard
		IIA. Acetone, ammonia, ethyl alcohol, gasoline, methane, propane or equivalent hazard
	2. Not likely to occur in normal operation and if they do occur will only exist for short period or adjacent to Zone 1	IIC. Acetylene, hydrogen or equivalent hazard
		IIB. Acetaldehyde, ethylene or equivalent hazard
		IIA. Acetone, ammonia, ethyl alcohol, gasoline, methane, propane or equivalent hazard

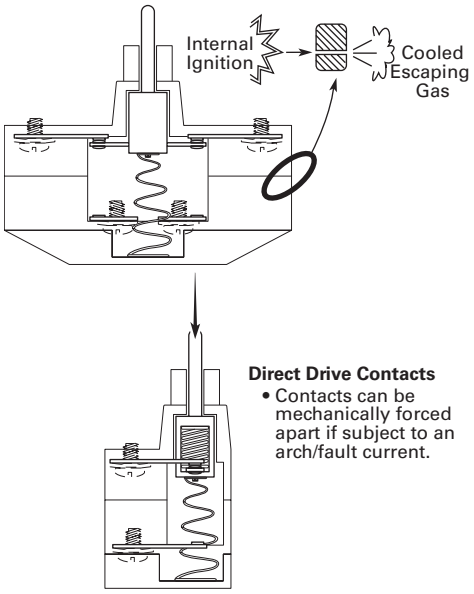
Note

For additional information on grouping of compounds, see NFPA 497M-1991 and NFPA 325-1994.

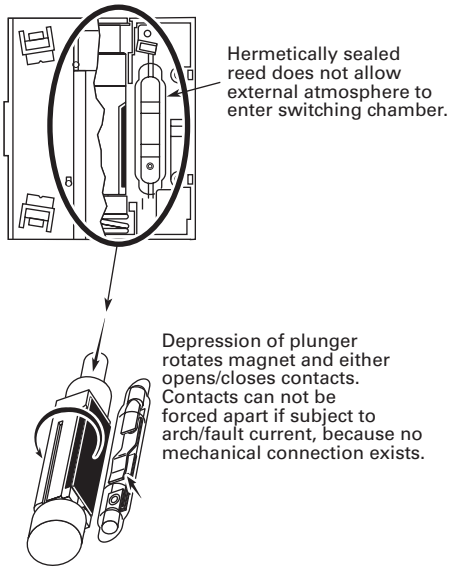
Summary of Basic Methods Available for Class I, Division 2 Locations

Method	Features Configuration	Advantages	Disadvantages
Factory sealed contact block	Closed-ended labyrinth contact block with an incendive circuit incapable of external ignition	Higher continuous carrying amperages—up to 10A Direct drive contacts—contacts can be forced open Suitable for use in all enclosures Best suited for motor control applications	May not be suitable for logic level circuits
Hermetically sealed block	Reed switch sealed against an external atmosphere	Suitable for low energy level circuits Suitable for use in all enclosures	Lower continuous carrying amperages are not suitable for motor control applications (typically 3A to 5A rated) Contacts cannot be forced open Permanent magnet attracts metallic dust and filings that can reduce the electrical creepage distance between live terminals
Explosion proof enclosures (Class I, Division 1 and 2)	Enclosures capable of withstanding an internal explosion while preventing external ignition. Enclosures designed for Class I, Division 1 can safely be used in Class I, Division 2	Higher level of protection than required for Class I Division 2	Higher material and installation costs Conduit sealing is still required Time consuming maintenance

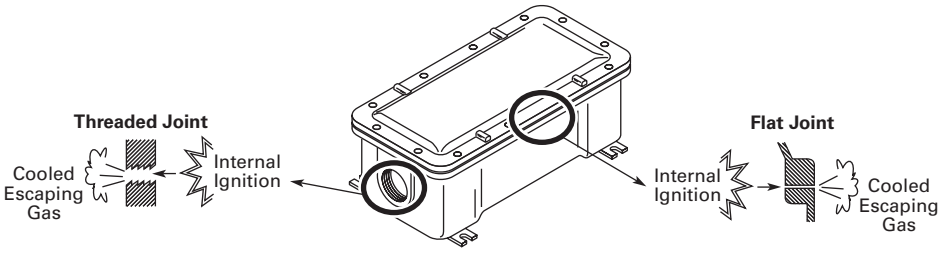
Factory Sealed Contact Blocks



Hermetically Sealed Reed Contact Block



Explosion Proof Enclosure



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Three-Light Unit Stacklight with 60 mm Extension

38.1 E26 Series

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Standards and Certifications T38-2
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Catalogue Number Selection	**T38-4**
Product Selection	**T38-5**
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Product Description

The E26 stacklight unit is a modular system that provides illuminated and audible status indication in all directions. Easily assembled plug-in modular units include constant, flashing and strobe light units, as well as mono-tonal, bi-tonal, intermittent audible alarms. Stacklights may be assembled in a variety of configurations, which are identified in the Maximum Configurations table on **Page T38-3**. Several lamp, colour and mounting options further enhance the stacklight's versatility.

Features

- Modular construction
- Six lens colours
- Variety of lamp types and voltages
- Mono-tonal, bi-tonal and intermittent audible alarms

Benefits

- Combination of visible and audible alarms
- Modular components reduce inventory requirements, increase flexibility
- Steady and flashing modes allow one light to signal multiple conditions
- No-tools assembly permits easy lamp replacement

Standards and Certifications

- CE 60947-5-1
- UL 508—File No. E131568
- cUL C22.2 No. 14—File No. E131568

Ingress Protection

- Stacklight base and light units: IP65, NEMA 4, 4X and 13
- Alarm units: IP20, NEMA 1

Electrical Shock Protection

- Stacklight base and light unit: IP2X
- Alarm units: IP0X

Product Identification

Standard Stacklight Base

For use with incandescent or standard LEDs for steady, non-flashing illumination or with flashing LEDs for flashing illumination. Bases include terminal block for wiring, stacklight cover and gasket. See **Page T38-8**.

Flashing Stacklight Base

Allows configuration of each light in the stack for either steady or 60 times per minute flashing illumination. Flashing circuit for use with incandescent lamps only. (Maximum allowable number of light modules is 2 at 12V, 4 at 24V and 6 at 48V and above.) See **Page T38-8.**

For flashing LEDs use standard base with flashing LED light module.

Light Modules

Available in a variety of colours for both incandescent lamps and LED lamps. To maximize illumination and light dispersion, incandescent units include an opal white diffuser while LED diffusers are clear. See **Page T38-6.**

Xenon Strobe

Sets are similar to standard lens/diffuser units, except each set consists of two lens units. The lower unit includes the electronics and is permanently fused to the upper unit which contains the Xenon lamp. Xenon units may be placed in any position in a complete stacklight unit. They will flash 60 times per minute when used with a standard or flashing base. See **Page T38-6.**

Alarms

May be fitted to the top of a complete stacklight unit or directly to the stacklight bases, if desired. Available in three versions, each with adjustable sound levels. See **Page T38-9.**

Complete Stacklight Modules

- Stacklights accept a maximum of six incandescent or LED light modules or two Xenon Flasher modules and can be mounted in any position on the stack.
- Alarm units are mounted in the top most position only.

Maximum Configurations

Incandescent or LED Modules	Xenon Modules	Alarm Modules	Max. Number of Modules
6	—	—	6
5	—	1	6
4	1	—	5
3	1	1	5
2	2	—	4
1	2	1	4

Catalogue Number Selection

Stacklight Catalogue Numbering System

E26X 9 KM L 39R W – V4

Mounting Base ①

Code	Description	Component Catalogue No.
W	None (base mount)	—
4	3/4 in NPT hub, chrome	E26S10**4**
8	Standard three-hole	E26S10**8**
9	Standard four-hole	E26S10**9**

Extension Tube ⑤

Code	Description	Component Catalogue No.
W	None (base mount)	—
Gray Aluminum		
HM	20 mm 3/4 in NPT	E26B**HM**
JM	160 mm 3/4 in NPT	E26B**JM**
KM	360 mm 3/4 in NPT	E26B**KM**
MM	760 mm 3/4 in NPT	E26B**MM**
Black Aluminum		
HU	20 mm 3/4 in NPT	E26B**HU**
JU	160 mm 3/4 in NPT	E26B**JU**
KU	360 mm 3/4 in NPT	E26B**KU**
MU	760 mm 3/4 in NPT	E26B**MU**
RU	Right angle 3/4 in NPT	E26B**RU**

Stacklight Base

Code	Description	Component Catalogue No. ②
L	Standard	E26B**L**
F	Flashing ⑥	E26B**F**_

Alarm

Code	Description	Component Catalogue No. ②
W	None	—
Q	Mono-tonal	E26B**Q**_
N	Bi-tonal	E26B**N**_
P	Intermittent	E26B**P**_

Voltage ③

Code	Description
V1	12V
V2	24V
V3	48V
V4	120V
V5 ④	240V

Light Module

Code	Description	Component Catalogue No. ②
0	Clear incandescent	E26B**0**_
2	Red incandescent	E26B**2**_
3	Green incandescent	E26B**3**_
4	Yellow incandescent	E26B**4**_
6	Blue incandescent	E26B**6**_
9	Amber incandescent	E26B**9**_
W	White cluster LED with clear lens	E26B**W**_
R	Red cluster LED with red lens	E26B**R**_
G	Green cluster LED with green lens	E26B**G**_
Y	Yellow cluster LED with yellow lens	E26B**Y**_
B	Blue cluster LED with blue lens	E26B**B**_
A	Amber cluster LED with amber lens	E26B**A**_
W1	White cylindrical LED with clear lens ④	E26B**W1**_
R1	Red cylindrical LED with red lens ④	E26B**R1**_
G1	Green cylindrical LED with green lens ④	E26B**G1**_
Y1	Yellow cylindrical LED with yellow lens ④	E26B**Y1**_
B1	Blue cylindrical LED with blue lens ④	E26B**B1**_
A1	Amber cylindrical LED with amber lens ④	E26B**A1**_
M	Flashing white cluster LED with clear lens	E26B**M**_
E	Flashing red cluster LED with red lens	E26B**E**_
U	Flashing green cluster LED with green lens	E26B**U**_
V	Flashing yellow cluster LED with yellow lens	E26B**V**_
K	Flashing blue cluster LED with blue lens	E26B**K**_
Z	Flashing amber cluster LED with amber lens	E26B**Z**_
X0	Xenon flasher with clear lens	E26B**X0**_
X2	Xenon flasher with red lens	E26B**X2**_
X3	Xenon flasher with green lens	E26B**X3**_
X4	Xenon flasher with yellow lens	E26B**X4**_
X6	Xenon flasher with blue lens	E26B**X6**_
X9	Xenon flasher with amber lens	E26B**X9**_

Voltage Codes

Voltage Code	Incandescent Lamp	Cluster LED	Cylindrical LED	Xenon Flasher	Flasher Base/Alarm
(Blank)	No lamp supplied	No LED supplied	No LED supplied	—	—
V1	12 Vac/Vdc	12 Vac/Vdc	12 Vac/Vdc	12 Vac/Vdc	12 Vac/Vdc
V2	24 Vac/Vdc	24 Vac/Vdc	24 Vac/Vdc	24 Vac/Vdc	24 Vac/Vdc
V3	48 Vac/Vdc	48 Vac/Vdc	48 Vac/Vdc	48 Vac/Vdc	48 Vac/Vdc
V4	120 Vac/Vdc	120 Vac	120 Vac	120 Vac	120 Vac/Vdc
V5	240 Vac/Vdc	240 Vac	—	240 Vac	240 Vac/Vdc

Notes

① Unless base mount is specified, an extension tube must be selected for a complete unit.
② Component catalogue numbers for flashing bases, alarm units and light modules are incomplete and require the addition of a suffix code to specify the required voltage rating. See table above.
③ If no voltage is specified, assembled stacklight will be supplied without lamps or LEDs.
④ 240V not available for cylindrical LEDs.
⑤ For complete length (extension tube and base), see **Page T38-9**.
⑥ Flashing base is for use with incandescent lamps.

Product Selection

Assembled Units

One-, Two- and Three-Light Assembled Stacklights

- Base mountable
- Incandescent or LED versions
- 24V and 120V versions

One-Light Unit Stacklight

Volts AC/DC	Alarm	First Level Colour	Illumination Type	Catalogue Number
24V	None	Red	Incandescent—steady	**E26XWWL2W-V2**
24V	None	Red	Cylindrical LED—steady	**E26XWWLR1W-V2**
24V	None	Green	Incandescent—steady	**E26XWWL3W-V2**
24V	None	Green	Cylindrical LED—steady	**E26XWWLG1W-V2**
24V	None	Amber	Incandescent—steady	**E26XWWL9W-V2**
24V	None	Amber	Cylindrical LED—steady	**E26XWWLA1W-V2**
120V	None	Red	Incandescent—steady	**E26XWWL2W-V4**
120V ①	None	Red	Cylindrical LED—steady	**E26XWWLR1W-V4**
120V	None	Green	Incandescent—steady	**E26XWWL3W-V4**
120V ①	None	Green	Cylindrical LED—steady	**E26XWWLG1W-V4**
120V	None	Amber	Incandescent—steady	**E26XWWL9W-V4**
120V ①	None	Amber	Cylindrical LED—steady	**E26XWWLA1W-V4**

Two-Light Unit Stacklight

Volts AC/DC	Alarm	First Level Colour	Illumination Type	Second Level Colour	Illumination Type	Catalogue Number
24V	None	Green	Incandescent—steady	Red	Incandescent—steady	**E26XWWL32W-V2**
24V	None	Green	Cylindrical LED—steady	Red	Cylindrical LED—steady	**E26XWWLG1R1W-V2**
120V	None	Green	Incandescent—steady	Red	Incandescent—steady	**E26XWWL32W-V4**
120V ①	None	Green	Cylindrical LED—steady	Red	Cylindrical LED—steady	**E26XWWLG1R1W-V4**

Three-Light Unit Stacklight

Volts AC/DC	Alarm	First Level Colour	Illumination Type	Second Level Colour	Illumination Type	Third Level Colour	Illumination Type	Catalogue Number
24V	None	Green	Incandescent—steady	Amber	Incandescent—steady	Red	Incandescent—steady	**E26XWWL392W-V2**
24V	None	Green	Cylindrical LED—steady	Amber	Cylindrical LED—steady	Red	Cylindrical LED—steady	**E26XWWLG1A1R1W-V2**
120V	None	Green	Incandescent—steady	Amber	Incandescent—steady	Red	Incandescent—steady	**E26XWWL392W-V4**
120V ①	None	Green	Cylindrical LED—steady	Amber	Cylindrical LED—steady	Red	Cylindrical LED—steady	**E26XWWLG1A1R1W-V4**

Note

① LED modules have very low current draw and should not be used with triac output devices like PLC triac output modules. It is recommended that dry contact outputs be used to switch 120 Vac modules.

Light and Xenon Strobe Modules

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- Light modules include lens diffusers which provide even illumination and eliminate hot spots.
- Xenon strobes emit a bright attention-getting white flashing light. Flash rate = 60/min.
- Xenon strobe modules occupy two positions in the stacklight assembly.

Light/LED Module

Xenon Strobe Module

Light and Xenon Strobe Modules ①

LED/Lamp Voltage	Lens Colour	Incandescent Steady or Flashing Catalogue Number	Cylindrical LED Steady Only Catalogue Number	Cluster LED Steady Catalogue Number	Cluster LED Flashing Catalogue Number	Xenon Flashing Catalogue Number
Without bulb or LED	Red	**E26B2**	**E26B**	**E26BR**	**E26BR**	—
	Green	**E26B3**	**E26BG**	**E26BG**	**E26BG**	—
	Yellow	**E26B4**	**E26BY**	**E26BY**	**E26BY**	—
	Blue	**E26B6**	**E26BB**	**E26BB**	**E26BB**	—
	Amber	**E26B9**	**E26BA**	**E26BA**	**E26BA**	—
	Clear	**E26B0**	**E26BW**	**E26BW**	**E26BW**	—
12 Vac/Vdc	Red	**E26B2V1**	**E26BR1V1**	**E26BRV1**	**E26BEV1**	**E26BX2V1**
	Green	**E26B3V1**	**E26BG1V1**	**E26BGV1**	**E26BUV1**	**E26BX3V1**
	Yellow	**E26B4V1**	**E26BY1V1**	**E26BYV1**	**E26BVV1**	**E26BX4V1**
	Blue	**E26B6V1**	**E26BB1V1**	**E26BBV1**	**E26BKV1**	**E26BX6V1**
	Amber	**E26B9V1**	**E26BA1V1**	**E26BAV1**	**E26BZV1**	**E26BX9V1**
	Clear	**E26B0V1**	**E26BW1V1**	**E26BWV1**	**E26BMV1**	**E26BX0V1**
24 Vac/Vdc	Red	**E26B2V2**	**E26BR1V2**	**E26BRV2**	**E26BEV2**	**E26BX2V2**
	Green	**E26B3V2**	**E26BG1V2**	**E26BGV2**	**E26BUV2**	**E26BX3V2**
	Yellow	**E26B4V2**	**E26BY1V2**	**E26BYV2**	**E26BVV2**	**E26BX4V2**
	Blue	**E26B6V2**	**E26BB1V2**	**E26BBV2**	**E26BKV2**	**E26BX6V2**
	Amber	**E26B9V2**	**E26BA1V2**	**E26BAV2**	**E26BZV2**	**E26BX9V2**
	Clear	**E26B0V2**	**E26BW1V2**	**E26BWV2**	**E26BMV2**	**E26BX0V2**
48 Vac/Vdc	Red	**E26B2V3**	**E26BR1V3**	**E26BRV3**	**E26BEV3**	**E26BX2V3**
	Green	**E26B3V3**	**E26BG1V3**	**E26BGV3**	**E26BUV3**	**E26BX3V3**
	Yellow	**E26B4V3**	**E26BY1V3**	**E26BYV3**	**E26BVV3**	**E26BX4V3**
	Blue	**E26B6V3**	**E26BB1V3**	**E26BBV3**	**E26BKV3**	**E26BX6V3**
	Amber	**E26B9V3**	**E26BA1V3**	**E26BAV3**	**E26BZV3**	**E26BX9V3**
	Clear	**E26B0V3**	**E26BW1V3**	**E26BWV3**	**E26BMV3**	**E26BX0V3**
120 Vac ②	Red	**E26B2V4**	**E26BR1V4**	**E26BRV4**	**E26BEV4**	**E26BX2V4**
	Green	**E26B3V4**	**E26BG1V4**	**E26BGV4**	**E26BUV4**	**E26BX3V4**
	Yellow	**E26B4V4**	**E26BY1V4**	**E26BYV4**	**E26BVV4**	**E26BX4V4**
	Blue	**E26B6V4**	**E26BB1V4**	**E26BBV4**	**E26BKV4**	**E26BX6V4**
	Amber	**E26B9V4**	**E26BA1V4**	**E26BAV4**	**E26BZV4**	**E26BX9V4**
	Clear	**E26B0V4**	**E26BW1V4**	**E26BWV4**	**E26BMV4**	**E26BX0V4**
240 Vac ②	Red	**E26B2V5**	—	**E26BRV5**	**E26BEV5**	**E26BX2V5**
	Green	**E26B3V5**	—	**E26BGV5**	**E26BUV5**	**E26BX3V5**
	Yellow	**E26B4V5**	—	**E26BYV5**	**E26BVV5**	**E26BX4V5**
	Blue	**E26B6V5**	—	**E26BBV5**	**E26BKV5**	**E26BX6V5**
	Amber	**E26B9V5**	—	**E26BAV5**	**E26BZV5**	**E26BX9V5**
	Clear	**E26B0V5**	—	**E26BWV5**	**E26BMV5**	**E26BX0V5**

Notes

① Include lens, diffusers and lamps unless otherwise noted.
② Incandescent bulbs are AC/DC rated, LEDs are AC rated only.

LEDs—Cylindrical or Cluster

Cylindrical Stacklight LED

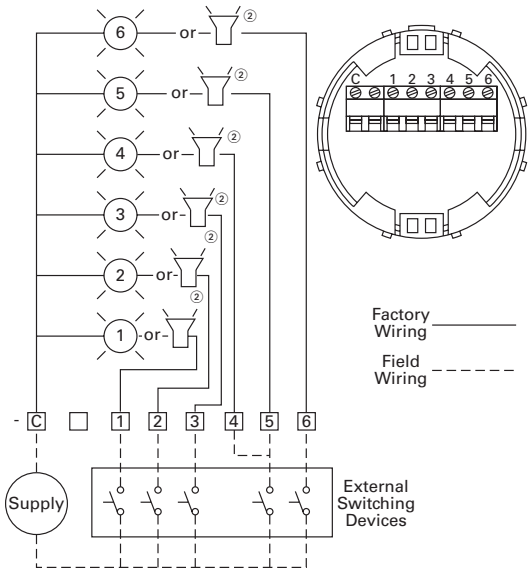
Cluster LED

Cylindrical or Cluster LEDs

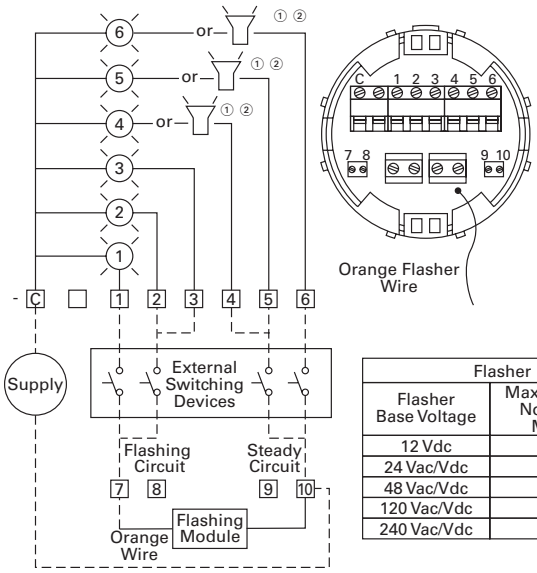
Voltage	Colour	Cylindrical LED Steady Only Catalogue Number	Cluster LED Steady Catalogue Number	Cluster LED Flashing Catalogue Number
12 Vac/Vdc	Red	**E26S110**	**E26S15**	**E26S48**
	Green	**E26S114**	**E26S19**	**E26S53**
	Yellow	**E26S112**	**E26S23**	**E26S58**
	Blue	**E26S115**	**E26S27**	**E26S63**
	White	**E26S116**	**E26S71**	**E26S75**
	Amber	**E26S111**	**E26S79**	**E26S84**
24 Vac/Vdc	Red	**E26S117**	**E26S16**	**E26S49**
	Green	**E26S121**	**E26S20**	**E26S54**
	Yellow	**E26S119**	**E26S24**	**E26S59**
	Blue	**E26S122**	**E26S28**	**E26S64**
	White	**E26S123**	**E26S72**	**E26S76**
	Amber	**E26S118**	**E26S80**	**E26S85**
48 Vac/Vdc	Red	**E26S124**	**E26S17**	**E26S50**
	Green	**E26S128**	**E26S21**	**E26S55**
	Yellow	**E26S126**	**E26S25**	**E26S60**
	Blue	**E26S129**	**E26S29**	**E26S65**
	White	**E26S130**	**E26S73**	**E26S77**
	Amber	**E26S125**	**E26S81**	**E26S86**
120 Vac/Vdc	Red	**E26S138**	**E26S18**	**E26S51**
	Green	**E26S142**	**E26S22**	**E26S56**
	Yellow	**E26S140**	**E26S26**	**E26S61**
	Blue	**E26S143**	**E26S30**	**E26S66**
	White	—	**E26S74**	**E26S78**
	Amber	**E26S139**	**E26S82**	**E26S87**
240 Vac/Vdc	Red	—	**E26S44**	**E26S52**
	Green	—	**E26S45**	**E26S57**
	Yellow	—	**E26S46**	**E26S62**
	Blue	—	**E26S47**	**E26S67**
	White	—	**E26S101**	**E26S102**
	Amber	—	**E26S83**	**E26S88**

Mounting Bases Components

Standard Base



Flashing Base



Flasher	
Flasher Base Voltage	Max. Allowable No. of Light Modules
12 Vdc	2
24 Vac/Vdc	4
48 Vac/Vdc	6
120 Vac/Vdc	6
240 Vac/Vdc	6

Description	Voltage	Catalogue Number
Standard Base		
For use with steady incandescent or steady/flashing LED	12 Vac/Vdc to 240 Vac/Vdc	**E26BL**
Flashing Base		
Enables configuration of incandescent light modules for steady or flashing operation	12 Vdc	**E26BFV1**
	24 Vac/Vdc	**E26BFV2**
	48 Vac/Vdc	**E26BFV3**
	120 Vac/Vdc	**E26BFV4**
	240 Vac/Vdc	**E26BFV5**

Mounting Bases and Hubs

	Description	Voltage	Catalogue Number
Standard Three-Hole Mounting Base	**Mounting Base**		
	Standard three-hole mounting base	—	**E26S108**
Standard Four-Hole Mounting Base	Standard four-hole mounting base	—	**E26S109**
Myers Type Hub	**Myers Type Hub**		
	3/4 in NPT threaded hub	—	**E26S104**

Notes

① Audible alarm units must be wired via the steady circuit on flashing base units.

② Audible alarm units can be wired in positions as shown but only one unit is permitted on each stack and unit must occupy the last or top mounting position.

Alarm Units and Extension Tubes Components

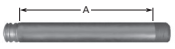
E26B_

Audible Alarm Units-NEMA Type 1 (IP20) ①

Description	Voltage	Catalogue Number
Mono-Tonal		
4.5 mA	12 Vac/Vdc	**E26BQV1**
12.6 mA	24 Vac/Vdc	**E26BQV2**
9.4 mA	48 Vac/Vdc	**E26BQV3**
11.5 mA	120 Vac/Vdc	**E26BQV4**
5.1 mA	240 Vac/Vdc	**E26BQV5**
Bi-Tonal		
4.5 mA	12 Vac/Vdc	**E26BNV1**
12.6 mA	24 Vac/Vdc	**E26BNV2**
9.4 mA	48 Vac/Vdc	**E26BNV3**
11.5 mA	120 Vac/Vdc	**E26BNV4**
5.1 mA	240 Vac/Vdc	**E26BNV5**
Intermittent		
4.5 mA	12 Vac/Vdc	**E26BPV1**
12.6 mA	24 Vac/Vdc	**E26BPV2**
9.4 mA	48 Vac/Vdc	**E26BPV3**
11.5 mA	120 Vac/Vdc	**E26BPV4**
5.1 mA	240 Vac/Vdc	**E26BPV5**

Extension Tubes

Extension Tube



Description	Voltage	Catalogue Number
Extension "A" ②		
0.79 in (20 mm) extension	—	**E26BHM**
6.30 in (160 mm) extension	—	**E26BJM**
14.17 in (360 mm) extension	—	**E26BKM**
29.92 in (760 mm) extension	—	**E26BMM**

Extension Tube

Extension "A" ③		
0.79 in (20 mm) extension	—	**E26BHU**
6.30 in (160 mm) extension	—	**E26BJU**
14.17 in (360 mm) extension	—	**E26BKU**
29.92 in (760 mm) extension	—	**E26BMU**

E26BRU

Right angle extension tube	—	**E26BRU**

Notes

① Volume adjustment range: 64 dB to 90 dB typical current draw (mA).
② For use with standard mounting base or 3/4 in NPT threaded hub—gray aluminum.
③ For use with standard mounting base or 3/4 in NPT threaded hub—black aluminum.

Replacement Parts

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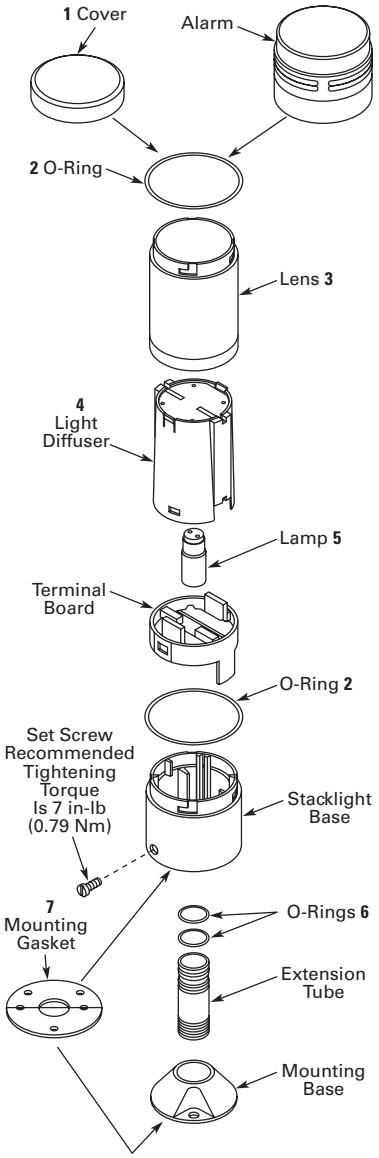
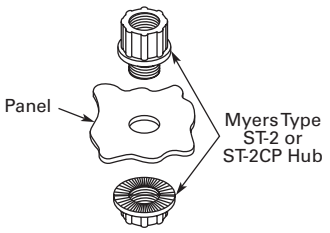
Stacklight Replacement Parts

Description	Notes	Number in Diagram	Catalogue Number
Replacement cover	Normally included with stacklight base	1	E26S68
Replacement lens O-ring	Normally included with light modules	2	E26S106 ①
Replacement lenses	Clear	3	E26S38
	Red		E26S39
	Green		E26S40
	Yellow		E26S41
	Blue		E26S42
	Amber		E26S43
Replacement Xenon strobe dual high (does not include lenses)	12 Vac/Vdc	4	E26S33
	24 Vac/Vdc		E26S34
	48 Vac/Vdc		E26S35
	120 Vac		E26S36
	240 Vac		E26S37
Replacement diffusers	White — normally supplied with incandescent light modules	4	E26S31
	Clear — normally supplied with LED light modules		E26S32
Replacement lamps ②	12V	5	E26S8
	24V		E26S9
	48V		E26S10
	120V		E26S11
	240V		E26S12
Replacement extension tube O-rings	Normally included with extension tubes	6	E26S107 ③
Replacement mounting gasket ④	Normally included with stacklight base	7	E26S105
Lamp removal tool	For E26 and E22 incandescent lamps		E22BA3

Typical Stacklight Assemblies



Typical Stacklight Assembly (Exploded View)



Alternate Conduit Hub

Notes

① Sold in packages of 5 pieces.
② For replacement LEDs, see table on **Page T38-7**.
③ Sold in packages of 10 pieces.
④ Mounting gaskets have two sets of mounting holes—one set with centre-to-centre spacing of 1.75 in (44.5 mm) and another set with centre-to-centre spacing of 1.65 in (42 mm).

Technical Data and Specifications

General Specifications

Description	Specification
Mechanical Ratings	
Shock (IEC 68-2-27)	11 ms, 15g
Vibration (IEC 68-2-6)	10 sweeps 10–150 Hz, 2g
Bump (IEC 68-2-29)	1000 pulses, 6 ms, 15g
Climate Conditions	
Operating	Maximum 104°F (40°C) at 95% RH, Temperature –4° to 140°F (–20° to 60°C)
Storage	Temperature –40° to 176°F (–40° to 80°C)
Materials	
Cover	Polycarbonate
Lenses	Polycarbonate
Stacklight base	Nylon
Extension tubes	Aluminum
Mounting base	Zinc die cast
Terminals	
Single conductor	14–30 AWG (2.5–0.05 mm^2)
Two conductors (same size))	18–26 AWG (0.75–0.14 mm^2) Do not mix solid and stranded wire in the same terminal
Recommended tightening torque	4.4–5.3 lb-in (0.5–0.6 Nm)
Electrical Ratings	
Insulation voltage (U_i)	690V
Operational voltage (U_e)	250V
Impulse withstand voltage (U_{imp})	1.5 kV
Bulb Specifications	
Incandescent lamp type	BA15d
Maximum lamp wattage	6W
Bulbs—average life	
Incandescent	7,000 to 12,000 hrs. (based on voltage)
Xenon flasher	20,000 hrs.
LED	60,000 to 100,000 hrs. (based on colours)
LED/Incandescent Comparison	
Incandescent lamps	Average operating life of 7,000 hours Each lamp can be used with any colour lens Low cost results in short term savings
LED lamps	Average operating life of 60,000 to 100,000 hours Low power consumption Extended life results in long-term savings

Ratings

Published theoretical lamp lives are based on ideal laboratory conditions and should be used for comparison only. Actual life may be shorter due to various application conditions.

Stacklight Incandescent Application Data

Type of Light	Lamp Used	Approximate Current, mA per Light	Theoretical Lamp Life, Hours as Applied
12V	BA15d	417	7,000
24V	BA15d	208	7,000
48V	BA15d	104	7,000
110–140V	BA15d	36–50	7,000
220–260V	BA15d	23–27	12,000

Xenon Flasher Application Data

Type of Light	Lamp Used	Approximate Current, mA per Light	Theoretical Lamp Life, Hours as Applied
12V	DC	460 mA	20,000
	AC	780 mA	20,000
24V	DC	190 mA	20,000
	AC	320 mA	20,000
48V	DC	100 mA	20,000
	AC	150 mA	20,000
120V	AC	60 mA ①	20,000
240V	AC	30 mA ①	20,000

LED Application Data

Type of Light	Colour	Cluster LED Approximate Current, mA at Rated Volts	Cylindrical LED Approximate Current, mA at Rated Volts	Theoretical Lamp Life, Hours as Applied
Continuous/Flashing Stacklight LED				
12 Vac/Vdc	Red	92	92	100,000
	Amber	92	92	100,000
	Yellow	92	92	100,000
	Green	60	60	80,000
	Blue	60	60	60,000
	White	60	60	60,000
24 Vac/Vdc	Red	47	47	100,000
	Amber	47	47	100,000
	Yellow	47	47	100,000
	Green	59	59	80,000
	Blue	59	59	60,000
	White	59	59	60,000
48 Vac/Vdc	Red	25	25	100,000
	Amber	25	25	100,000
	Yellow	25	25	100,000
	Green	18	18	80,000
	Blue	31	31	60,000
	White	31	31	60,000
60 Vac/Vdc	Red	25	25	100,000
	Amber	25	25	100,000
	Yellow	25	25	100,000
	Green	18	18	80,000
	Blue	17	17	60,000
	White	17	17	60,000
120 Vac/Vdc	Red	24	24	100,000
	Amber	24	24	100,000
	Yellow	24	24	100,000
	Green	17	17	80,000
	Blue	16	16	60,000
	White	16	16	60,000

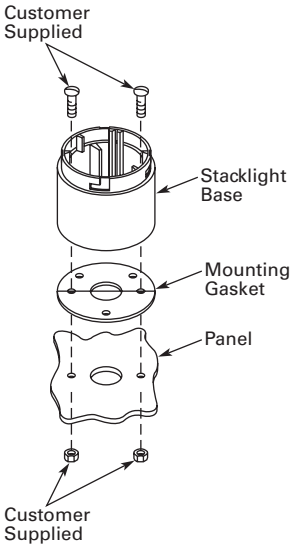
Note

① Represents average current draw, 1.6A peak for 120V and 0.8A peak at 240V.

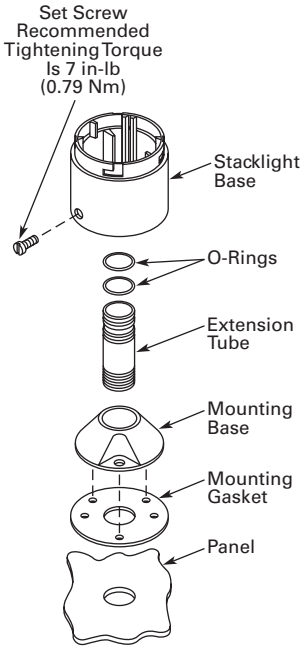
Mounting Instructions

Stacklight bases may be mounted without the use of an extension tube or mounting base. If additional height is required, choose 0.8–30 in (20–760 mm) extension tubes that fit between the mounting base and stacklight base. The extension tubes are threaded with 3/4 in NPT threads, allowing for direct connection to conduit fittings or threaded holes without the use of a mounting base.

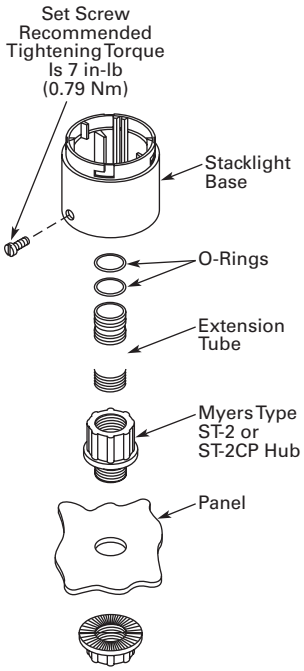
Base Mounting



Utilizing Extension Tube and Mounting Base



Utilizing Extension Tube and 3/4 In (19.1 mm) Conduit Hub

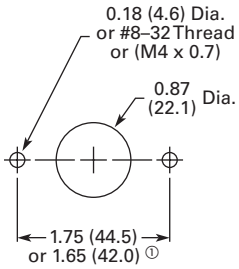


(Use Rubber-Jawed Pliers for Installation to Avoid Scratching the Black Anodized Coating)

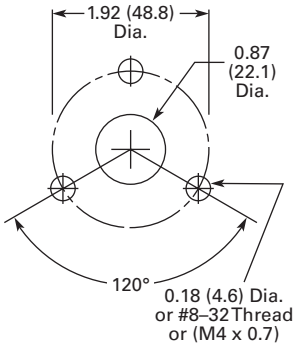
Mounting Dimensions

Approximate Dimensions in Inches (mm)

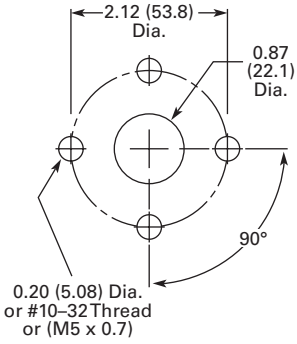
Base Mounting



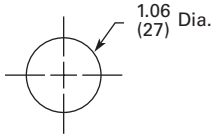
Three-Hole Mounting for E26S108



Four-Hole Mounting for E26S109



Conduit Hub for E26S104—3/4 In (19.1 mm)



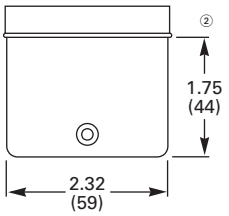
Note

① Stacklight base and gasket are supplied as standard with two sets of base mount holes. One set with centre-to-centre spacing of 1.75 in (44.5 mm) and another set with centre-to-centre spacing of 1.65 in (42 mm).

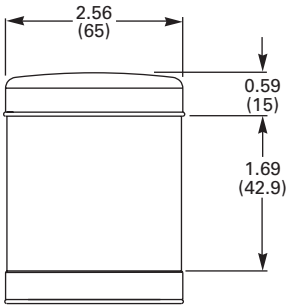
Dimensions

Approximate Dimensions in Inches (mm)

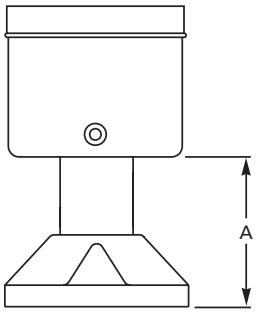
Standard and Flashing Bases ①



Alarm Units

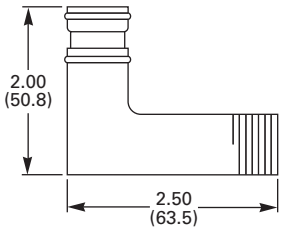


Assembled Extension Tubes



Tube Extension	Height A
0.79 (20)	1.77 (45)
6.30 (160)	7.28 (185)
14.17 (360)	15.16 (385)
29.92 (760)	30.91 (785)

Right Angle Extension Tubes



Notes

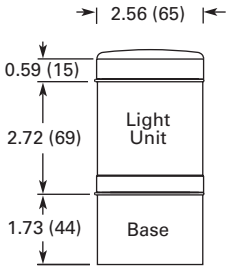
① Bases also suitable for mounting with extension tubes listed on **Page T38-9**.

② Mounting gasket and cover are supplied as standard with stacklight bases.

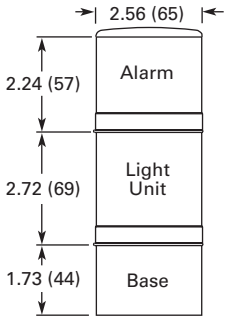
Approximate Dimensions in Inches (mm)

One-Light Unit Stacklight

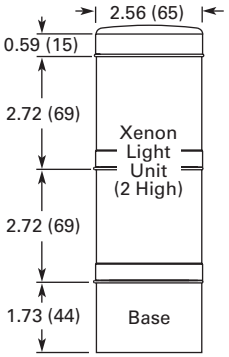
Standard



With Alarm

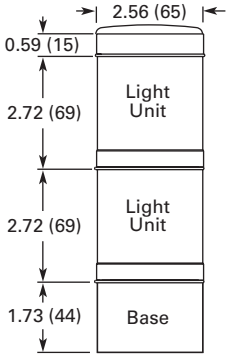


With Xenon Flasher

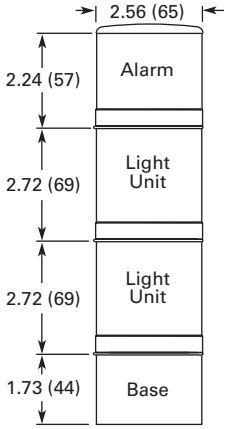


Two-Light Unit Stacklight

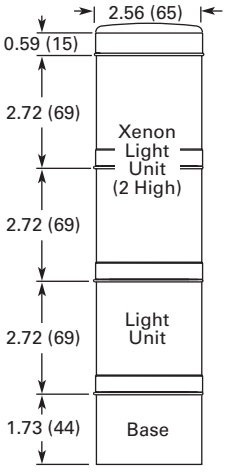
Standard



With Alarm



With Xenon Flasher

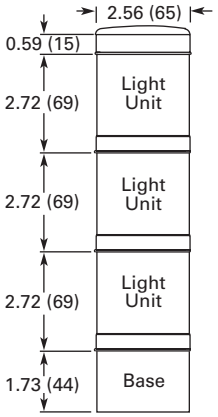


Approximate Dimensions in Inches (mm)

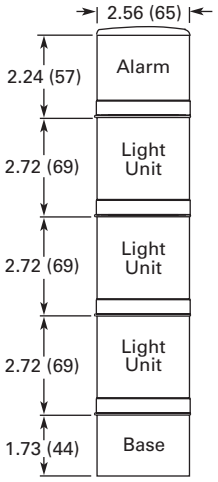
38

Three-Light Unit Stacklight

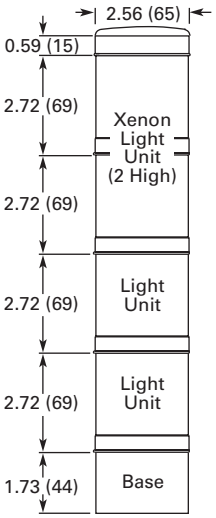
Standard



With Alarm

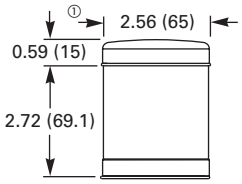


With Xenon Flasher

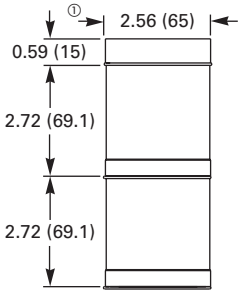


Light Modules

Standard



Xenon



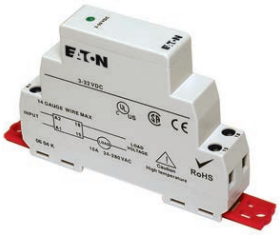
Note

① Cover included with stacklight base.

Control Relays and Timers

D1 Series General Purpose Relay

D96 Series Solid-State Relay



Universal TR Series Timing Relay

40.1 Relay Products

Control Relays and Timers Comparison **T40-2**

40.2 *XR* Series Terminal Block Relays

Standard, OptoCoupler and High Current

Catalogue Number Selection **T40-3**

40.3 EASY Intelligent Relays

Relays, Modules, Power Supplies, Accessories and Software

Product Overview **T40-19**

40.4 General Purpose Plug-In Relays

General Purpose Relays

Product Selection Guide **T40-42**

40.5 General Purpose Relays—Type AA

9575H Series 3000 Relay

9575H Series 3000—Type AA, AC and DC **T40-116**

40.6 Solid-State Relays

D93, D96 and D99 Series

Product Overview **T40-120**

40.7 Machine Tool Relays

Freedom Multipole, Industrial Control, and Multipole with Convertible Contacts

Product Overview **T40-139**

40.8 Timing Relays

Universal TR, TR and TMR Series

Product Selection Guide **T40-165**

40.9 Alternating Relays

D85 Series

Product Description **T40-187**

40.10 Safety Relays

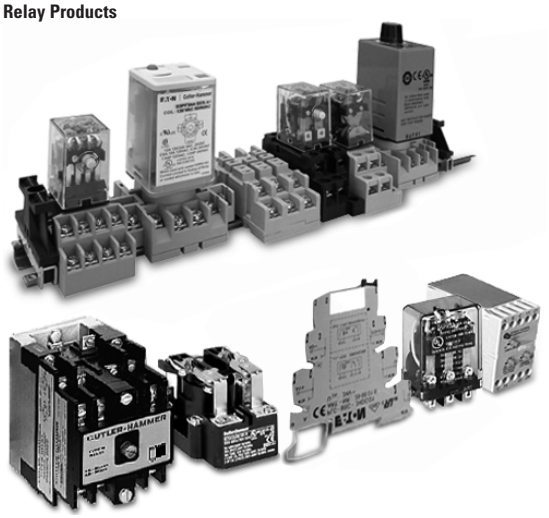
Product Description **T40-192**

Product Selection **T40-193**

Technical Data and Specifications **T40-194**

Dimensions **T40-197**

Relay Products



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Solid-State Relays	**T40-120**
Machine Tool Relays	**T40-139**
Timing Relays	**T40-165**
Alternating Relays	**T40-187**

Control Relays and Timers Comparison

Selection Guide by Catalogue Number Prefix

Relays	Type	Mounting	Contacts	Maximum Amperage (AC)	cULus	UL	CSA	CE	Page Number
9575H3	General purpose	Panel mount	Fixed	40A	—	X	X	X	**T40-117**
AR/ARD	Machine tool	Panel mount	Convertible	10A	—	X	X	—	**T40-152**
BF/BFD	Machine tool	Panel mount	Fixed	10A	X	—	X	—	**T40-146**
D2PF	Full featured plug-in	DIN rail/panel mount	Fixed	10A	X	—	X	X	**T40-53**
D2PR	Standard plug-in	DIN rail/panel mount/flange	Fixed	10A	X	—	X	X	**T40-53**
D3PF	Full featured plug-in	DIN rail/panel mount	Fixed	16A	X	—	X	X	**T40-63**
D3PR	Standard plug-in	DIN rail/panel mount	Fixed	16A	X	—	X	X	**T40-63**
D4PR	Standard plug-in	DIN rail/panel mount	Fixed	10A	X	—	X	X	**T40-72**
D5PF	Full featured plug-in	DIN rail/panel mount	Fixed	16A	X	—	X	X	**T40-77**
D5PR	Standard plug-in	DIN rail/panel mount/PC board	Fixed	16A	X	—	X	X	**T40-77**
D7PF	Full featured plug-in	DIN rail/panel mount	Fixed	20A	X	—	X	X	**T40-87**
D7PR	Standard plug-in	DIN rail/panel mount/flange	Fixed	20A	X	—	X	X	**T40-88**
D8PR	Standard plug-in	DIN rail/panel mount/flange	Fixed	30A	X	—	X	X	**T40-101**
D9PR	Standard plug-in	Panel mounting	Fixed	25A	X	—	X	—	**T40-107**
D15	Machine tool	DIN rail/panel mount	Fixed	10A	—	X	X	X	**T40-141**
D26	Machine tool	Panel or channel mount	Convertible	10A	—	X	X	—	**T40-157**
D85	Alternating relays	DIN rail/panel mount	Fixed	10A	X	X	—	X	**T40-188**
D1PF	Full featured plug-in	DIN rail/panel mount	Fixed	20A	X	—	X	X	**T40-47**
D1PR	Standard plug-in	DIN rail/panel mount	Fixed	20A	X	—	X	X	**T40-47**
EASY	Intelligent relay	DIN rail	Fixed	8A	X	—	X	X	**T40-21**
TMR5	Timing relay (non-programmable)	DIN rail/panel mount	Fixed	10A	X	X	—	X	**T40-178**
TMR6	Timing relay (non-programmable)	DIN rail/panel mount	Fixed	10A	X	X	—	X	**T40-182**
TR	Timing relay (programmable)	DIN rail/panel mount	Fixed	10A	—	X	X	—	**T40-175**
Universal TR	Timing relay (programmable)	DIN rail	Fixed	8A	—	X	X	X	**T40-171**
XR	Terminal block relay	DIN rail	Fixed	6A, 10A	X	—	—	X	**T40-5**

***XR* Series Terminal Block Relays**

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XR Series Terminal Block Relays	
Standard Terminal Block Relays	**T40-4**
OptoCoupler Terminal Block Relays	**T40-12**
High Current Terminal Block Relays	**T40-15**
XR Series Accessories	**T40-18**

Catalogue Number Selection

XR Series—Overview

XR U 1 D 12 G

Description
XR = ***XR*** terminal block relay

Connection Type
U = Screw
P = Spring
R = Replacement relay

Poles
1 = 1PDT
2 = 2PDT

Type
D = Standard relay
S = Octocoupler (solid-state)
H = High current

Voltage
12 = 12 Vdc
24 = 24 Vdc
24U = 24 Vac/Vdc
120U = 120 Vac/110 Vdc
230U = 230 Vac/220 Vdc

Gold-Flashed Contacts
Blank = No
G = Yes

Standard Terminal Block Relay

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Standard Terminal Block Relays	
Product Selection	**T40-5**
Technical Data and Specifications	**T40-6**
Electrical Schematics	**T40-11**
Dimensions	**T40-11**
OptoCoupler Terminal Block Relays	**T40-12**
High Current Terminal Block Relays	**T40-15**
XR Series Accessories	**T40-18**

Standard Terminal Block Relays

Product Description

The ***XR*** Series Terminal Block Relays are ideal for applications that require a high switching capacity and long electrical service life. The relays are plug-in interfaces that connect to basic terminal blocks. The ***XR*** Series uses screw or spring-cage technology, as well as offers quick system wiring, superior safety features, clear labeling and a high level of modularity.

Application Description

Used in automation systems, electromechanical relays guarantee a safe connection between process I/O and electronic controls. The following functions are covered by relay coupling elements:

- Electrical isolation between the input and output circuits
- Independence of the type of switching current (AC and DC)
- High short-term overload resistance in the event of short circuits or voltage peaks
- Low switching losses
- Ease of operation

Features

- Pluggable relay allows for field replacement
- Functional plug-in bridges
- Choice of screw connections or spring-cage connection
- LED status indication
- DIN rail mount
- Only 6.2 mm wide for single-pole versions, 14 mm wide for double-pole
- All common input voltages between 12 Vdc to 120 Vac
- Gold-plated contacts available
- Equipped with a robust, miniature relay:
  - IP67 protection
  - Environmentally friendly, cadmium-free contact material
  - Easy, cost-effective installation and replacement using the engagement lever

Standards and Certifications

- cULus listed
- CE

c UL us Listed CE

Product Selection

XRU1D 24U

Standard Terminal Block Relays

Gold-Plated Contacts	Rated Current	Supply Voltage	Standard Pack	Catalogue Number
1PDT Screw Connection				
No	6A	12 Vdc	10	**XRU1D12**
No	6A	120 Vac/110 Vdc	10	**XRU1D120U**
Yes	6A	120 Vac/110 Vdc	10	**XRU1D120UG**
No	6A	24 Vdc	10	**XRU1D24**
No	6A	24 Vac/Vdc	10	**XRU1D24U**
Yes	6A	24 Vac/Vdc	10	**XRU1D24UG**
No	6A	230 Vac/220 Vdc	10	**XRU1D230U**
1PDT Spring Cage Connection				
No	6A	12 Vdc	10	**XRP1D12**
No	6A	120 Vac/110 Vdc	10	**XRP1D120U**
No	6A	24 Vdc	10	**XRP1D24**
No	6A	24 Vac/Vdc	10	**XRP1D24U**
No	6A	230 Vac/220 Vdc	10	**XRP1D230U**
DPDT Screw Connection				
No	6A	12 Vdc	10	**XRU2D12**
No	6A	120 Vac/110 Vdc	10	**XRU2D120U**
No	6A	24 Vdc	10	**XRU2D24**
No	6A	24 Vac/Vdc	10	**XRU2D24U**
No	6A	230 Vac/220 Vdc	10	**XRU2D230U**

Standard Replacement Relays

Gold-Plated Contacts	Rated Current	Supply Voltage	Standard Pack	Catalogue Number
1PDT				
No	6A	12 Vdc	10	**XRR1D12**
No	6A	120 Vac/110 Vdc	10	**XRR1D120U**
Yes	6A	120 Vac/110 Vdc	10	**XRR1D120UG**
No	6A	24 Vdc	10	**XRR1D24**
Yes	6A	24 Vdc	10	**XRR1D24G**
No	6A	230 Vac/220 Vdc	10	**XRR1D230U**
DPDT				
No	6A	12 Vdc	10	**XRR2D12**
No	6A	120 Vac/110 Vdc	10	**XRR2D120U**
No	6A	24 Vdc	10	**XRR2D24**
No	6A	230 Vac/220 Vdc	10	**XRR2D230U**

Technical Data and Specifications

Standard 1PDT Screw Connection Terminal Block Relays

Catalogue Number Replacement Relay	XRU1D12 XRR1D12	XRU1D24 XRR1D24	XRU1D24U XRR1D24	XRU1D120U XRR1D120U
Input voltage	12 Vdc	24 Vdc	24 Vac/Vdc	120 Vac/110 Vdc
Connection Data				
Rigid solid AWG (mm^2)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)
Flexible stranded AWG (mm^2)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)
Input Data for 1PDT Screw Connection Versions				
Input voltage	12 Vdc	24 Vdc	24 Vac/Vdc	120 Vac/110 Vdc
Permissible range	See **Page T40-10**	See **Page T40-10**	See **Page T40-10**	See **Page T40-10**
Typical input current	15.3 mA	9 mA	11 mA (24 Vac)/8.5 mA (24 Vdc)	3.5 mA (120 Vac)/3 mA (110 Vdc)
Typical response time	5 ms	5 ms	6 ms	6 ms
Typical release time	8 ms	8 ms	15 ms	15 ms
Input protection	Polarity protection diode, free-wheeling diode	Polarity protection diode, free-wheeling diode	Bridge rectifier	Bridge rectifier
Output Data				
Contact type	1PDT	1PDT	1PDT	1PDT
Contact material	AgSnO	AgSnO	AgSnO	AgSnO
Max. switching voltage	250 Vac/Vdc ①	250 Vac/Vdc ①	250 Vac/Vdc ①	250 Vac/Vdc ①
Min. switching voltage	12 Vac/Vdc	12 Vac/Vdc	12 Vac/Vdc	12 Vac/Vdc
Limiting continuous current	6A	6A	6A	6A
Min. switching current	10 mA	10 mA	10 mA	10 mA
Min. switching power	120 mW	120 mW	120 mW	120 mW
Miscellaneous Data				
Ambient temp range	–4˚ to 140˚F (–20˚ to 60˚C)	–4˚ to 140˚F (–20˚ to 60˚C)	–4˚ to 140˚F (–20˚ to 60˚C)	–4˚ to 140˚F (–20˚ to 60˚C)
Rated operating mode	100% operating factor	100% operating factor	100% operating factor	100% operating factor
Inflammability class	V0, in accordance with UL 94	V0, in accordance with UL 94	V0, in accordance with UL 94	V0, in accordance with UL 94
Mechanical service life	2 x 10^7 cycles	2 x 10^7 cycles	2 x 10^7 cycles	2 x 10^7 cycles

Note

① The separating plate, XRAPLCESK, should be installed for voltages greater than 250V (L1, L2, L3) between identical terminal points of adjacent modules. Potential bridging is then possible with the XRAFBST bridge system.

Standard 1PDT Screw Connection Terminal Block Relays with Gold Contacts

Catalogue Number **Replacement Relay**	**XRU1D24UG** **XRR1D24G**	**XRU1D120UG** **XRR1D120UG**
Input voltage	24 Vac/Vdc	120 Vac/110 Vdc
Connection Data		
Rigid solid AWG (mm^2)	26–14 (0.14–2.5)	26–14 (0.14–2.5)
Flexible stranded AWG (mm^2)	26–14 (0.14–2.5)	26–14 (0.14–2.5)
Input Data for 1PDT Screw Connection Versions with Gold Contacts		
Input voltage	24 Vac/Vdc	120 Vac/110 Vdc
Permissible range	See **Page T40-10**	See **Page T40-10**
Typical input current	11 mA (24 Vac)/8.5 mA (24 Vdc)	3.5 mA (120 Vac)/3 mA (110 Vdc)
Typical response time	6 ms	6 ms
Typical release time	15 ms	15 ms
Input protection	Bridge rectifier	Bridge rectifier
Output Data		
Contact type	1PDT	1PDT
Contact material	AgSnO, gold plated ①	AgSnO, gold plated ①
Max. switching voltage	30 Vac/36 Vdc (250 Vac/Vdc) ②	30 Vac/36 Vdc (250 Vac/Vdc) ②
Min. switching voltage	100 mV (12 Vac/Vdc) ②	100 mV (12 Vac/Vdc) ②
Limiting continuous current	50 mA (6A) ②	50 mA (6A) ②
Min. switching current	1 mA (10 mA) ②	1 mA (10 mA) ②
Min. switching power	100 mW (120 mW) ②	100 mW (120 mW) ②
Miscellaneous Data		
Ambient temp range	–4˚ to 140˚F (–20˚ to 60˚C)	–40˚ to 131˚F (–20˚ to 55˚C)
Rated operating mode	100% operating factor	100% operating factor
Inflammability class	V0, in accordance with UL 94	V0, in accordance with UL 94
Mechanical service life	2 x 10^7 cycles	2 x 10^7 cycles

Notes

① The separating plate, XRAPLCESK, should be installed for voltages greater than 250V (L1, L2, L3) between identical terminal points of adjacent modules. Potential bridging is then possible with the XRAFBST bridge system.

② If the maximum values are exceeded, the gold layer is destroyed and the values in parentheses apply.

Standard 1PDT Spring Cage Terminal Block Relays

Catalogue Number Replacement Relay	XRP1D12 XRR1D12	XRP1D24 XRR1D24	XRP1D24U XRR1D24	XRP1D120U XRR1D120U
Input voltage	12 Vdc	24 Vdc	24 Vac/Vdc	120 Vac/110 Vdc
Connection Data				
Rigid solid AWG (mm^2)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)
Flexible stranded AWG (mm^2)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)
Input Data for 1PDT Spring Cage Versions				
Input voltage	12 Vdc	24 Vdc	24 Vac/Vdc	120 Vac/110 Vdc
Permissible range	See **Page T40-10**	See **Page T40-10**	See **Page T40-10**	See **Page T40-10**
Typical input current	15.3 mA	9 mA	11 mA (24 Vac)/8.5 mA (24 Vdc)	3.5 mA (120 Vac)/3 mA (110 Vdc)
Typical response time	5 ms	5 ms	6 ms	6 ms
Typical release time	8 ms	8 ms	15 ms	15 ms
Input protection	Polarity protection diode, free-wheeling diode	Polarity protection diode, free-wheeling diode	Bridge rectifier	Bridge rectifier
Output Data				
Contact type	1PDT	1PDT	1PDT	1PDT
Contact material	AgSnO	AgSnO	AgSnO	AgSnO
Max. switching voltage	250 Vac/Vdc ①	250 Vac/Vdc ①	250 Vac/Vdc ①	250 Vac/Vdc ①
Min. switching voltage	12 Vac/Vdc	12 Vac/Vdc	12 Vac/Vdc	12 Vac/Vdc
Limiting continuous current	6A	6A	6A	6A
Min. switching current	10 mA	10 mA	10 mA	10 mA
Min. switching power	120 mW	120 mW	120 mW	120 mW
Miscellaneous Data				
Ambient temp range	–4˚ to 140˚F (–20˚ to 60˚C)	–4˚ to 140˚F (–20˚ to 60˚C)	–4˚ to 140˚F (–20˚ to 60˚C)	–4˚ to 131˚F (–20˚ to 55˚C)
Rated operating mode	100% operating factor	100% operating factor	100% operating factor	100% operating factor
Inflammability class	V0, in accordance with UL 94	V0, in accordance with UL 94	V0, in accordance with UL 94	V0, in accordance with UL 94
Mechanical service life	2 x 10^7 cycles	2 x 10^7 cycles	2 x 10^7 cycles	2 x 10^7 cycles

Note

① The separating plate, XRAPLCESK, should be installed for voltages greater than 250V (L1, L2, L3) between identical terminal points of adjacent modules. Potential bridging is then possible with the XRAFBST bridge system.

Standard DPDT Screw Connection Terminal Block Relays

Catalogue Number Replacement Relay	XRU2D12 XRR2D12	XRU2D24 XRR2D24	XRU2D24U XRR2D24	XRU2D120U XRR2D120U
Input voltage	12 Vdc	24 Vdc	24 Vac/Vdc	120 Vac/110 Vdc
Connection Data				
Rigid solid AWG (mm^2)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)
Flexible stranded AWG (mm^2)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)
Input Data for 1PDT Spring Cage Versions				
Input voltage	12 Vdc	24 Vdc	24 Vac/Vdc	120 Vac/110 Vdc
Permissible range	See **Page T40-10**	See **Page T40-10**	See **Page T40-10**	See **Page T40-10**
Typical input current	33 mA	18 mA	17.5 mA	4.5 mA (120 Vac)/4.2 mA (110 Vdc)
Typical response time	8 ms	8 ms	8 ms	7 ms
Typical release time	10 ms	10 ms	10 ms	10 ms
Input protection	Polarity protection diode, free-wheeling diode	Polarity protection diode, free-wheeling diode	Bridge rectifier	Bridge rectifier
Output Data				
Contact type	2PDT	Single contact, 2PDT	Single contact, 2PDT	Single contact, 2PDT
Contact material	AgNi	AgNi	AgNi	AgNi
Max. switching voltage	250 Vac/Vdc ①	250 Vac/Vdc ①	250 Vac/Vdc ①	250 Vac/Vdc ①
Min. switching voltage	5V	5V	5V	5V
Limiting continuous current	6A	6A	6A	6A
Max. inrush current	15A (300 ms)	15A (300 ms)	15A (300 ms)	15A (300 ms)
Min. switching current	10 mA	10 mA	10 mA	10 mA
Min. switching power	50 mW	50 mW	50 mW	50 mW
General Data				
Ambient temp range	–4˚ to 140˚F (–20˚ to 60˚C)	–4˚ to 140˚F (–20˚ to 60˚C)	–4˚ to 140˚F (–20˚ to 60˚C)	–4˚ to 140˚F (–20˚ to 60˚C)
Rated operating mode	100% operating factor	100% operating factor	100% operating factor	100% operating factor
Inflammability class	V0, in accordance with UL 94	V0, in accordance with UL 94	V0, in accordance with UL 94	V0, in accordance with UL 94
Mechanical service life	3 x 10^7 cycles	3 x 10^7 cycles	3 x 10^7 cycles	3 x 10^7 cycles

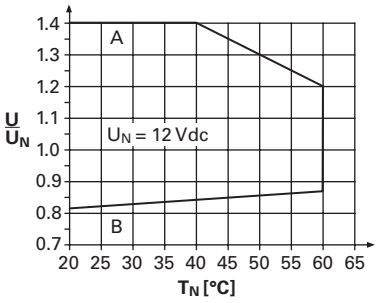
Note

① The separating plate, XRAPLCESK, should be installed for voltages greater than 250V (L1, L2, L3) between identical terminal points of adjacent modules. Potential bridging is then possible with the XRAFBST bridge system.

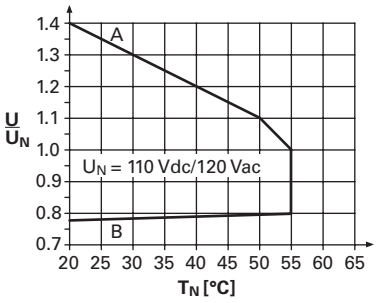
Permissible Range Diagrams

1PDT Relay Modules

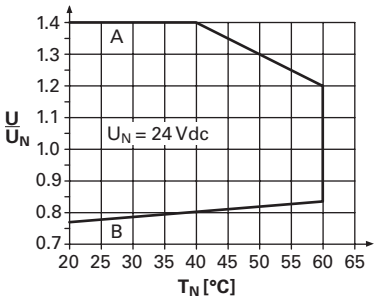
Operating Range Voltage for 12 Vdc



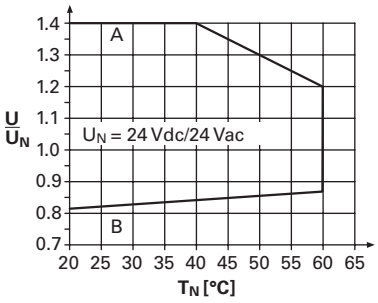
Operating Range Voltage for 120 Vac/110 Vdc



Operating Range Voltage for 24 Vdc

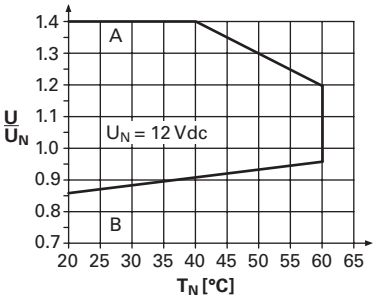


Operating Range Voltage for 24 Vac/Vdc

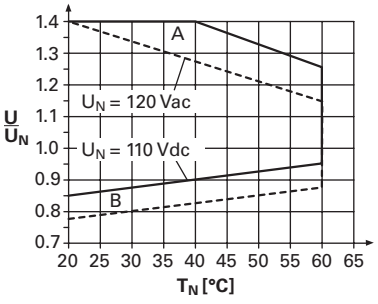


DPDT Relay Modules

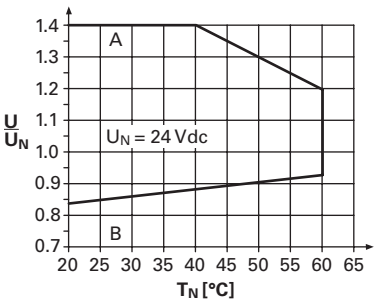
Operating Range Voltage for 12 Vdc



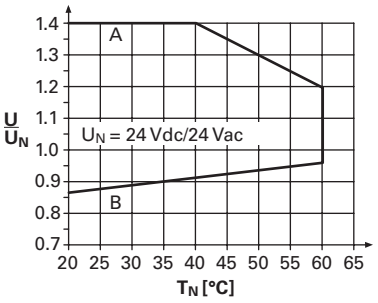
Operating Range Voltage for 120 Vac/110 Vdc



Operating Range Voltage for 24 Vdc



Operating Range Voltage for 24 Vac/Vdc



Notes

General Conditions — Direct alignment in the block, all devices 100% operating factor, horizontal or vertical mounting.
Curve A — Maximum permissible continuous operating voltage U_{max} with limiting continuous current on the contact side (see respective technical data).
Curve B — Minimum permissible relay operate voltage U_{op} after pre-excitation ① (see respective technical data).

① Pre-excitation: Relay has been operated in a thermally steady state at the ambient temperature T_U with nominal voltage U_N and limiting continuous current on the contact side (see respective technical data) (warm coil). After being switched off for a short time, the relay must reliably pick up again at U_{op}.

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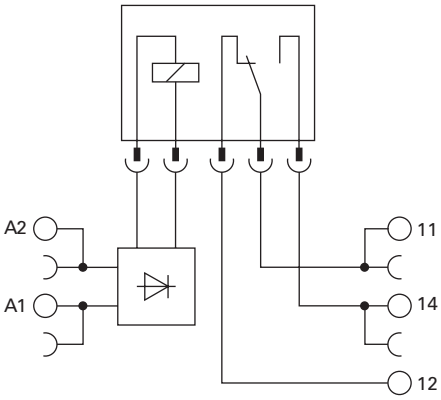
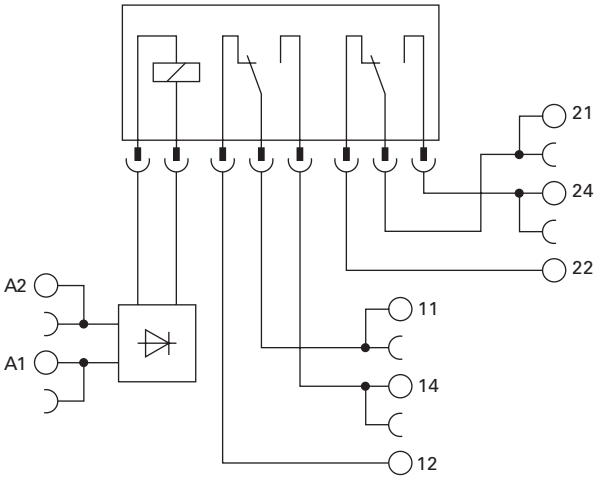
Electrical Schematics

1PDT Terminal Block Relays



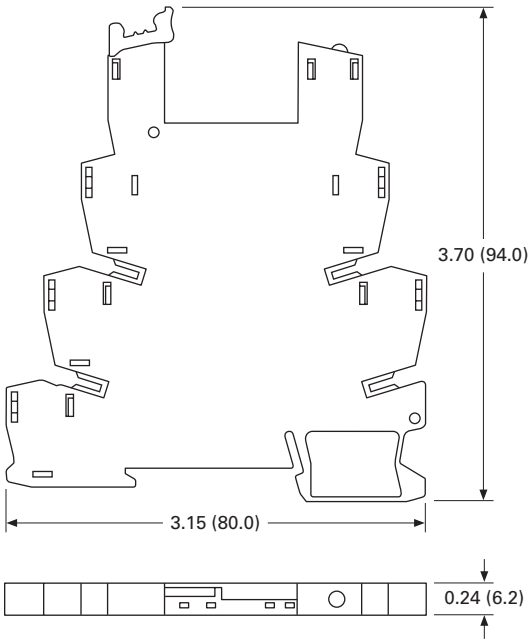
DPDT Terminal Block Relays



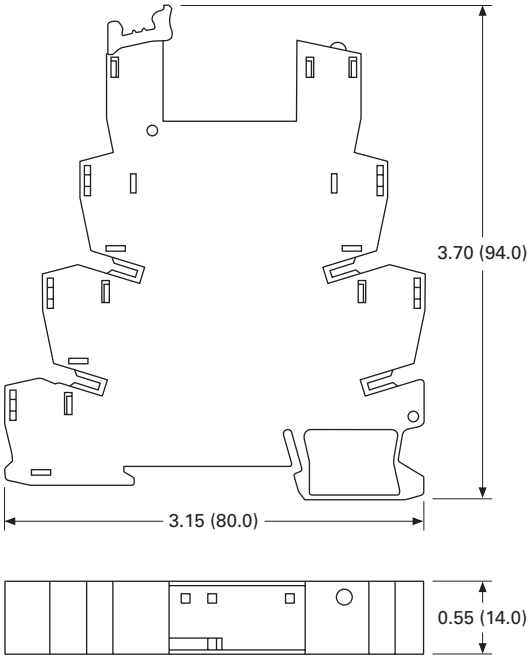
Dimensions

Approximate Dimensions in Inches (mm)

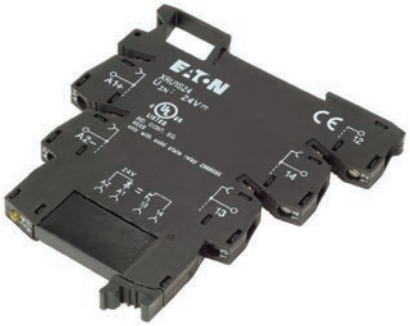
Standard 1PDT Terminal Block Relays



Standard DPDT Terminal Block Relays



OptoCoupler Terminal Block Relay



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Technical Data and Specifications	**T40-13**
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Dimensions	**T40-14**
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XR Series Accessories	**T40-18**

OptoCoupler Terminal Block Relays

Product Description

The ***XR*** Series OptoCoupler Terminal Block Relays can be used in all applications and consist of a pluggable miniature OptoCoupler and a basic terminal block. The ***XR*** Series uses screw or spring-cage technology, as well as offers quick system wiring, superior safety features, clear labeling and a high level of modularity.

Application Description

The ***XR*** Series OptoCoupler relays can be used as an input or output interface. They provide the typical reliability of OptoCouplers and are especially suited for high operating frequencies.

Features

- Pluggable relay allows for field replacement
- Functional plug-in bridges
- LED status indication
- DIN rail mount
- Only 6.2 mm wide
- Switching capacity up to 24 Vdc/3A
- IP67-protected optical electronics
- Wear-resistant and bounce-free switching
- Insensitive to shock and vibration
- Integrated protection circuit
- Zero voltage switch at AC output

Standards and Certifications

- cULus listed
- CE

c UL us Listed CE

Product Selection

XRU1S24

OptoCoupler Terminal Block Relays

Rated Current	Supply Voltage	Standard Pack	Catalogue Number
2A	120 Vac/110 Vdc	10	**XRU1S120U**
2A	24 Vdc	10	**XRU1S24**

OptoCoupler Replacement Relays

Rated Current	Supply Voltage	Standard Pack	Catalogue Number
2A	24 Vdc	18	**XRR1S24**
2A	120 Vac/110 Vdc	10	**XRR1S120U**

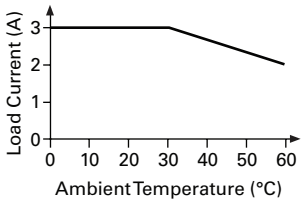
Technical Data and Specifications

Pluggable Power OptoCoupler (Solid-State) Terminal Block Relays

Catalogue Number **Replacement Relay**	**XRU1S24** **XRR1S24**	**XRU1S120U** **XRR1S120U**
Input voltage	24 Vdc	120 Vac/110 Vdc
Connection Data		
Rigid solid AWG (mm^2)	26–14 (0.14–2.5)	26–14 (0.14–2.5)
Flexible stranded AWG (mm^2)	26–14 (0.14–2.5)	26–14 (0.14–2.5)
Input Data		
Input voltage	24 Vdc	120 Vac/110 Vdc
Permissible range	0.8–1.2	0.8 –1.1
Typical input current	9 mA	4 mA
Switching level 1 signal (“H”)	≥0.8	≥0.8
Switching level 0 signal (“L”)	≤0.4	≤0.25
Typical switch-on time	20 µS	6 ms
Typical turn-off time	500 µS	10 ms
Input protection	Polarity protection diode, free-wheeling diode	Bridge rectifier
Output Data		
Max. switching voltage	33 Vdc	33 Vdc
Min. switching voltage	3 Vdc	3 Vdc
Limiting continuous current	3A (See derating curve)	3A (See derating curve)
Max. inrush current	15A (10 ms)	15A (10 ms)
Output circuit	2-conductor floating	2-conductor floating
Output protection	Polarity protection, surge protection	Polarity protection, surge protection
Voltage drop at maximum limiting continuous current	≤ 200 mV	≤ 200 mV
General Data		
Ambient temp range	–4° to 140°F (–20° to 60°C)	–4° to 140°F (–20° to 60°C)
Rated operating mode	100% operating factor	100% operating factor
Inflammability class	V0, in accordance with UL 94	V0, in accordance with UL 94
Mechanical service life	2 x 10^7 cycles	2 x 10^7 cycles

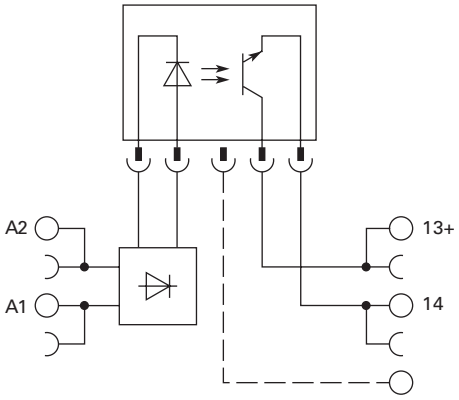
Derating Curve

OptoCoupler



Electrical Schematic

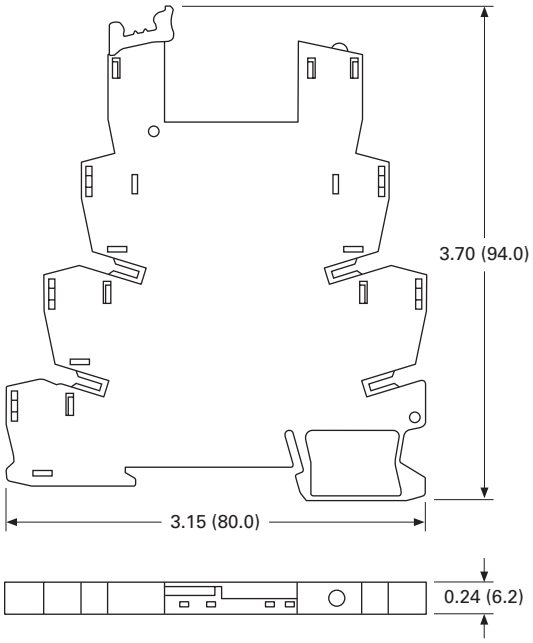
Pluggable Power OptoCoupler (Solid-State) Terminal Block Relays



Dimensions

Approximate Dimensions in Inches (mm)

Pluggable Power OptoCoupler (Solid-State) Terminal Block Relays



High Current Terminal Block Relay

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Electrical Schematic	**T40-17**
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High Current Terminal Block Relays

Product Description

The ***XR*** Series Relays include products designed to meet high continuous current and/or long electrical service life applications. The ***XR*** Series Relays are plug-in interfaces that connect to basic terminal blocks that use screw connection technology. Overall width is 14 mm.

Application Description

These relays are best suited for applications that require higher continuous load currents than miniature relays can carry and switch. They can withstand inrush currents or brief overloads without damage, and allow for continuous load currents of up to 10A. The ***XR*** Series Relay boasts an average service life of the contacts that is two or three times the normal life of a less powerful relay, resulting in service cost savings.

Features

- 14 mm wide
- Pluggable relay allows for field replacement
- Convenient plug-in bridge system
- LED status indication
- DIN Rail Mount
- IP67-protected optical electronics
- Wear-resistant and bounce-free switching
- Insensitive to shock and vibration
- Integrated protection circuit
- Zero voltage switch at AC output
- Environmentally friendly, cadmium-free contact material
- Electrical isolation between input and output

Standards and Certifications

- cULus listed
- CE

c UL us Listed CE

Product Selection

XRU1H24

High Current Terminal Block Relays

Rated Current	Supply Voltage	Standard Pack	Catalogue Number
10A	12 Vdc	10	**XRU1H12**
10A	120 Vac/110 Vdc	10	**XRU1H120U**
10A	24 Vdc	10	**XRU1H24**
10A	24 Vac/Vdc	10	**XRU1H24U**

High Current Replacement Relays

Rated Current	Supply Voltage	Standard Pack	Catalogue Number
10A	24 Vdc	10	**XRR1H24**
10A	24 Vac/Vdc	10	**XRR1H24U**
10A	12 Vdc	10	**XRR1H12**
10A	120 Vac/110 Vdc	10	**XRR1H120U**

Technical Data and Specifications

High Current Terminal Block Relays (1PDT)

Catalogue Number **Replacement Relay**	**XRU1H12** **XRR1H12**	**XRU1H24** **XRR1H24**	**XRU1H24U** **XRR1H24U**	**XRU1H120U** **XRR1H120U**
Input voltage	12 Vdc	24 Vdc	24 Vac/Vdc	120 Vac/110 Vdc
Connection Data				
Rigid solid AWG (mm^2)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)
Flexible stranded AWG (mm^2)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)	26–14 (0.14–2.5)
Input Data for 1PDT Spring Cage Versions				
Input voltage	12 Vdc	24 Vdc	24 Vac/Vdc	120 Vac/110 Vdc
Permissible range	See **Page T40-10**	See **Page T40-10**	See **Page T40-10**	See **Page T40-10**
Typical input current	33 mA	18 mA	17.5 mA	4.5 mA (120 Vac)/4.2 mA (110 Vdc)
Typical response time	8 ms	8 ms	8 ms	7 ms
Typical release time	10 ms	10 ms	10 ms	10 ms
Input protection	Polarity protection diode, free-wheeling diode	Polarity protection diode, free-wheeling diode	Bridge rectifier	Bridge rectifier
Output Data				
Contact type	Single contact, 1PDT	Single contact, 1PDT	Single contact, 1PDT	Single contact, 1PDT
Contact material	AgNi	AgNi	AgNi	AgNi
Max. switching voltage	250 Vac/Vdc ①	250 Vac/Vdc ①	250 Vac/Vdc ①	250 Vac/Vdc ①
Min. switching voltage	12 Vac/Vdc	12 Vac/Vdc	12 Vac/Vdc	12 Vac/Vdc
Limiting continuous current	10A ②	10A ②	10A ②	10A ②
Max. inrush current	30A (300 ms)	30A (300 ms)	30A (300 ms)	30A (300 ms)
Min. switching current	100 mA	100 mA	100 mA	100 mA
Min. switching power	1.2W	1.2W	1.2W	1.2W
Miscellaneous Data				
Ambient temp range	–4° to 140°F (–20° to 60°C)	–4° to 140°F (–20° to 60°C)	–4° to 140°F (–20° to 60°C)	–4° to 140°F (–20° to 60°C)
Rated operating mode	100% operating factor	100% operating factor	100% operating factor	100% operating factor
Inflammability class	V0, in accordance with UL 94	V0, in accordance with UL 94	V0, in accordance with UL 94	V0, in accordance with UL 94
Mechanical service life	3 x 10^7 cycles	3 x 10^7 cycles	3 x 10^7 cycles	3 x 10^7 cycles

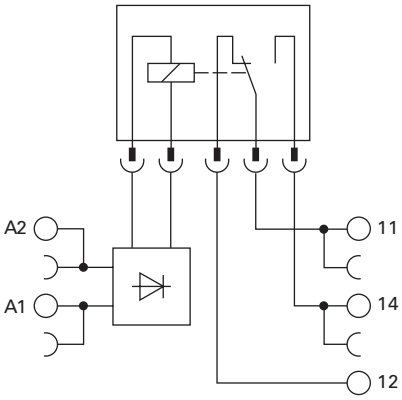
Notes

① The separating plate, XRAPLCESK, should be installed for voltages greater than 250V (L1, L2, L3) between identical terminal points of adjacent modules. Potential bridging is then possible with the XRAFBST bridge system.

② The current rating for the normally open contact (#14) is 10A. The current rating for the normally closed contact (#12) is 6A and can be increased to 10A by bridging the two #12 contact connections.

Electrical Schematic

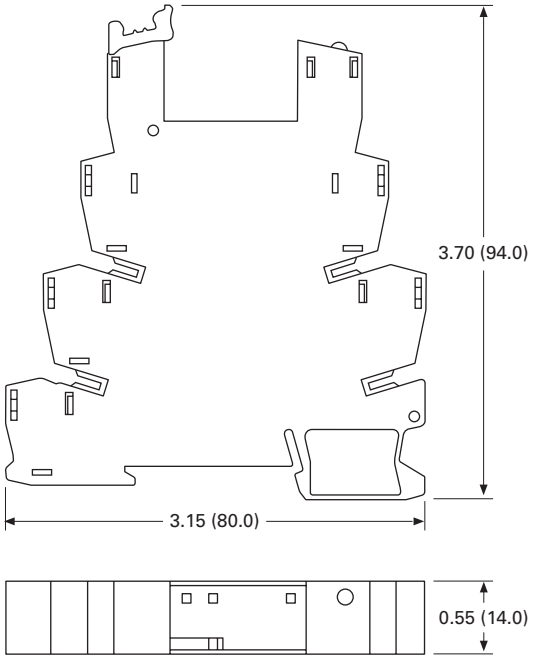
High Current Terminal Block Relays



Dimensions

Approximate Dimensions in Inches (mm)

High Current Terminal Block Relays



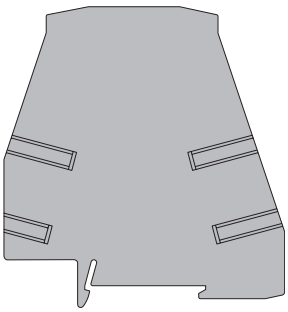
XR Series Accessories

Product Description

Power Terminal Block

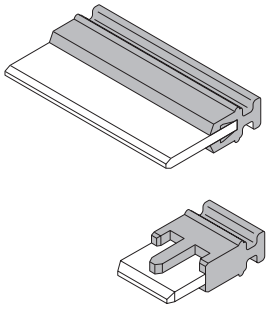
The XRAPLCESK power terminal block has the same shape as the relay modules and is used to feed in the bridging potentials. The nominal current is 32A. When the total current is less than or equal to 6A, supply can take place directly at the connecting terminal blocks of one of the connected relays.

End Cover



The XRAATPBK end cover is required at the start and stop of a relay strip. It can also be used for visual separation of groups of relays as well as separating relays with voltages greater than 250V and separating neighboring bridges with different potentials. It is equipped with pre-scored break out points at the bridging positions so that individual bridges can be passed through as needed. It may also be necessary to use the end cover between adjacent relays when three phases (L1, L2, L3) are used on the contact side of the relay.

Bridges



The XRAFBST colored, insulated plug-in bridge system reduces wiring time by up to 70% compared to conventionally wired relays. The XRAFBST2, 2-position bridges, are suited for bridging a smaller number of relays and total currents ≤6A. When a circuit is supplied from both sides, the circuit can be opened at any point, allowing all other modules to continue being supplied at the same time. The XRAFBST500 allow up to 80 modules to be bridged at one time. If bridges with different potentials meet in neighboring modules, the end cover XRAATPBK should be used. All bridges are equipped with a groove for removal with a standard screwdriver.

Standards and Certifications

- cRUus

c RU us

Product Selection

XR Series Accessories

Colour	Standard Pack	Catalogue Number
2-Position Snap-In Jumper		
Red	10	**XRAFBST2RD**
Blue	10	**XRAFBST2BU**
Gray	10	**XRAFBST2GY**
80-Position Snap-In Jumper		
Red	5	**XRAFBST500RD**
Blue	5	**XRAFBST500BU**
Gray	5	**XRAFBST500GY**
Power Terminal Block		
Gray	5	**XRAPLCESK**
End Cover		
Black	5	**XRAATPBK**

Technical Data and Specifications

Power Terminal Block

Description	Specification
Connection Data	
Rigid solid AWG (mm^2)	24–10 (0.2–4)
Flexible stranded AWG (mm^2)	24–10 (0.2–4)
Miscellaneous Data	
Max. current	32A
Max. voltage	250 Vac ①

Note

① The separating plate, XRAPLCESK, should be installed for voltages greater than 250V (L1, L2, L3) between identical terminal points of adjacent modules. Potential bridging is then possible with the XRAFBST bridge system.

EASY Intelligent Relays

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EASY/MFD Communication Modules	**T40-33**
EASY/MFD Power Supplies, Accessories and Software	**T40-36**

Product Overview

The EASY Intelligent Relays combine timers, relays, counters, special functions, inputs and outputs into one compact device that is easily programmed. The EASY family of products provides an exception level of flexibility together with substantial savings of commissioning time and effort.

The EASY Intelligent Relays are available in more than 35 styles that support from 12 I/O up to a network of up to 320 I/O points providing the ideal solution for lighting, energy management, industrial control, irrigation, pump control, HVAC and home automation.

Once EASY products are installed, changes are easily accomplished through front panel programming, eliminating the need to change wiring and minimizing downtime.

Application Description

The EASY Intelligent Relays excel in traditional applications where multiple relays, timers and pushbuttons are used. Applications span residential, commercial and industrial installations.

Typical control applications are:

- Car washes
- Automatic doors
- Commercial and residential lighting
- Pump control
- 12 Vdc automotive
- Greenhouse
- Machinery
- Irrigation
- Heating and air conditioning

EASY500/700/800 Intelligent Relays

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EASY500/700/800 Intelligent Relays

Product Description

Three families make up the EASY Intelligent Relay product line.

EASY500 Series—for controlling small applications with up to 12 input/output signals. Models are available with and without displays. DIN rail mounted.

EASY700 Series—for controlling medium-sized applications with 20 I/O points (expandable to 40 I/O points). DIN rail mounted.

EASY800 Series—for controlling large-scale applications with 20 points, expandable to 40 points locally, and expandable using the **EASY-NET** network up to 320 I/O points. Models are available with and without displays. DIN rail mounted.

The **EASY-NET** integrated network provides easy and inexpensive linking of up to eight EASY800 devices over a distance of up to 1000 meters. Each EASY800 device can run its own program, or be used as a distributed input/output module. Connect up to eight controllers with up to 40 I/O to obtain 320 I/O.

Standards and Certifications

- EN 50178
- IEC/EN 60947
- UL
- CSA
- CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C

Catalogue Number Selection

EASY500/700/800

EASY7xx - AC - T C X

Module Type	Digital Inputs	Digital Outputs	Clock	Display
EASY5xx = 500 Series **EASY7xx** = 700 Series **EASY8xx** = 800 Series	**AB** = 24 Vac **AC** = 110–240 Vdc **DA** = 12 Vdc **DC** = 24 Vdc	**R** = Relay **T** = Transistor	**C** = Clock **Blank** = No clock	**Blank** = Display **X** = No display

Note: Not all combinations are possible. See selection tables.

Product Selection

EASY500 Intelligent Relays

EASY500 with Display

EASY500 without Display

Description	Inputs 24 Vac	110–240 Vac	12 Vdc	24 Vdc	Analogue ①	Outputs Relay	Transistor	Catalogue Number
Display								
12 I/O, no clock	—	8	—	—	—	4	—	**EASY512-AC-R**
	—	—	—	8	2	4	—	**EASY512-DC-R**
12 I/O, clock	8	—	—	—	2	4	—	**EASY512-AB-RC**
	—	8	—	—	—	4	—	**EASY512-AC-RC**
	—	—	8	—	2	4	—	**EASY512-DA-RC**
	—	—	—	8	2	4	—	**EASY512-DC-RC**
	—	—	—	8	2	—	4	**EASY512-DC-TC**
No Display								
12 I/O, clock	8	—	—	—	2	4	—	**EASY512-AB-RCX**
	—	8	—	—	—	4	—	**EASY512-AC-RCX**
	—	—	8	—	2	4	—	**EASY512-DA-RCX**
	—	—	—	8	2	4	—	**EASY512-DC-RCX**
	—	—	—	8	2	—	4	**EASY512-DC-TCX**

EASY700 Intelligent Relays

EASY700 with Display

EASY700 without Display

Description	Inputs 24 Vac	110–240 Vac	12 Vdc	24 Vdc	Analogue ①	Outputs Relay	Transistor	Catalogue Number
Display								
18 I/O, clock	12	—	—	—	4	6	—	**EASY719-AB-RC**
	—	12	—	—	—	6	—	**EASY719-AC-RC**
	—	—	12	—	4	6	—	**EASY719-DA-RC**
	—	—	—	12	4	6	—	**EASY719-DC-RC**
20 I/O, clock	—	—	—	12	4	—	8	**EASY721-DC-TC**
No Display								
18 I/O, clock	12	—	—	—	4	6	—	**EASY719-AB-RCX**
	—	12	—	—	—	6	—	**EASY719-AC-RCX**
	—	—	12	—	4	6	—	**EASY719-DA-RCX**
	—	—	—	12	4	6	—	**EASY719-DC-RCX**
20 I/O, clock	—	—	—	12	4	—	8	**EASY721-DC-TCX**

EASY800 Intelligent Relays

EASY800 with Display

EASY800 without Display

Description	Inputs 110–240 Vac	24 Vdc	Analogue ①	Outputs Relay	Transistor	Analogue	Catalogue Number
Display							
18 I/O, clock	12	—	—	6	—	—	**EASY819-AC-RC**
	—	12	4	6	—	—	**EASY819-DC-RC**
19 I/O, clock	—	12	4	6	—	1	**EASY820-DC-RC**
20 I/O, clock	—	12	4	—	8	—	**EASY821-DC-TC**
21 I/O, clock	—	12	4	—	8	1	**EASY822-DC-TC**
No Display							
18 I/O, clock	12	—	—	6	—	—	**EASY819-AC-RCX**
	—	12	4	6	—	—	**EASY819-DC-RCX**
19 I/O, clock	—	12	4	6	—	1	**EASY820-DC-RCX**
20 I/O, clock	—	12	4	—	8	—	**EASY821-DC-TCX**
21 I/O, clock	—	12	4	—	8	1	**EASY822-DC-TCX**

Note

① Analogue inputs optional. Use of analogue inputs will result in a decrease in the same number of available digital inputs.

Technical Data and Specifications

EASY500 Series

Type	EASY512-AB…	EASY512-AC…	EASY512-DA…	EASY512-DC-R…	EASY512-DC-TC.
Supply voltage	24 Vac	100–240 Vac	12 Vdc	24 Vdc	24 Vdc
Heat dissipation	5 VA	5 VA	2W	2W	2W
Continuous current outputs ①	8A	8A	8A	8A	0.5A
Short-circuit proof with power factor 1	Line protection B16, 600 A				—
Short-circuit proof with power factor 0.7…0.7	Line protection B16, 900 A				—
Mounting	On top-hat rail to DIN 50022, 35 mm or screw mounting with ZB4-101-GF1 fixing brackets				
Connection cables					
Solid	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)
Flexible	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)
Degree of protection	IP 20	IP 20	IP 20	IP 20	IP 20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4				
Ambient operating temperature	–25 to 55°C	–25 to 55°C	–25 to 55°C	–25 to 55°C	–25 to 55°C
Transport and storage temperature	–40 to 70°C	–40 to 70°C	–40 to 70°C	–40 to 70°C	–40 to 70°C
Hazardous location	CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C				

EASY700 Series

Type	EASY719-AB…	EASY719-AC…	EASY719-DA…	EASY719-DC-RC…	EASY721-DC-TC.
Supply voltage	24 Vac	100–240 Vac	12 Vdc	24 Vdc	24 Vdc
Heat dissipation	7 VA	10 VA	3.5W	3.5W	3.5W
Continuous current outputs ①	8A	8A	8A	8A	0.5A
Short-circuit proof with power factor 1	Line protection B16, 600A	Line protection B16, 600A	Line protection B16, 600A	Line protection B16, 600A	—
Short-circuit proof with power factor 0.7…0.7	Line protection B16, 900A	Line protection B16, 900A	Line protection B16, 900A	Line protection B16, 900A	—
Mounting	On top-hat rail to DIN 50022, 35 mm or screw mounting with ZB4-101-GF1 fixing brackets				
Connection cables					
Solid	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)
Flexible	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)
Degree of protection	IP 20	IP 20	IP 20	IP 20	IP 20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4				
Ambient operating temperature	–25 to 55°C	–25 to 55°C	–25 to 55°C	–25 to 55°C	–25 to 55°C
Transport and storage temperature	–40 to 70°C	–40 to 70°C	–40 to 70°C	–40 to 70°C	–40 to 70°C
Hazardous location	CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C				

EASY800 Series

Type	EASY819-AC…	EASY819-DC-RC…	EASY820-DC-RC…	EASY821-DC-TC…	EASY822-DC-TC.
Supply voltage	100–240 Vac	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Heat dissipation	10 VA	3.4W	3.4W	3.4W	3.4W
Continuous current outputs ①	8A	8A	8A	8A	0.5A
Short-circuit proof with power factor 1	Line protection B16, 600A	Line protection B16, 600A	Line protection B16, 600A	Line protection B16, 600A	—
Short-circuit proof with power factor 0.7…0.7	Line protection B16, 900A	Line protection B16, 900A	Line protection B16, 900A	Line protection B16, 900A	—
Mounting	On top-hat rail to DIN 50022, 35 mm or screw mounting with ZB4-101-GF1 fixing brackets				
Connection cables					
Solid	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)
Flexible	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)
Degree of protection	IP 20	IP 20	IP 20	IP 20	IP 20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4				
Ambient operating temperature	–25 to 55°C	–25 to 55°C	–25 to 55°C	–25 to 55°C	–25 to 55°C
Transport and storage temperature	–40 to 70°C	–40 to 70°C	–40 to 70°C	–40 to 70°C	–40 to 70°C
Hazardous location	CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C				

Note

① Relay = 8A (10A to UL) with resistive load, 3A with inductive load. Transistor outputs = 0.5A/24 Vdc, maximum four outputs switchable in parallel.

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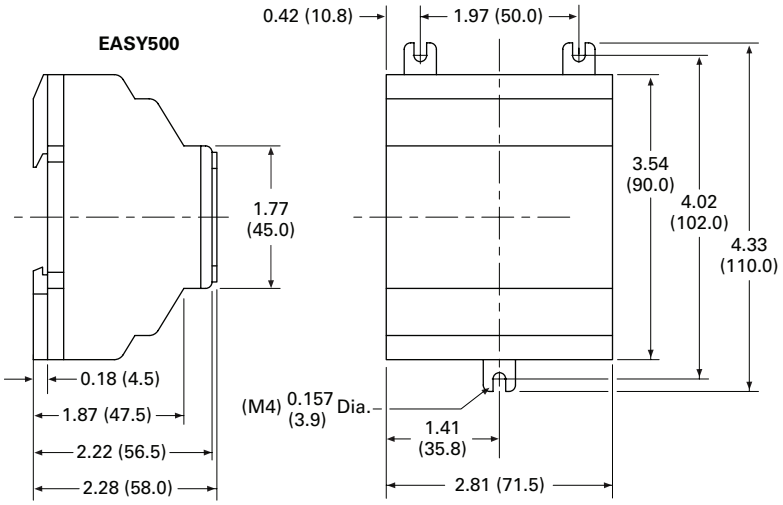
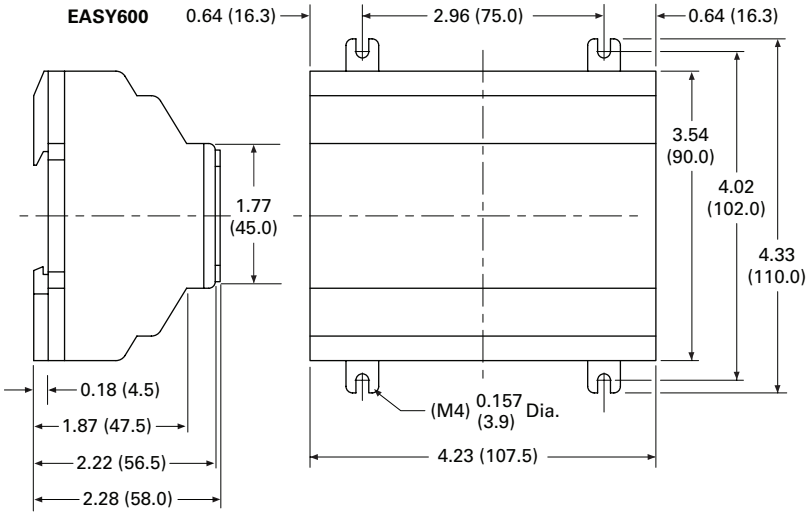
Dimensions

Approximate Dimensions in Inches (mm)

EASY500 Series, Drawing Number MD05013001E

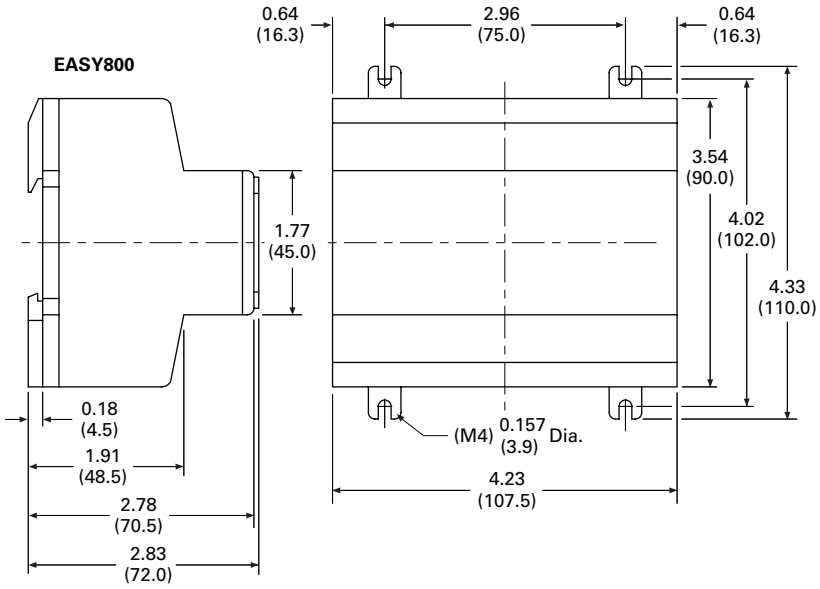


EASY700 Series, Drawing Number MD05013002E

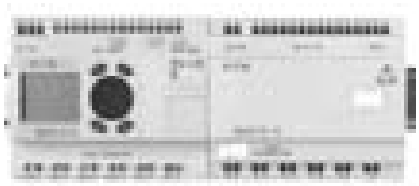


Approximate Dimensions in Inches (mm)

EASY800 Series, Drawing Number MD05013003E



EASY/MFD Expansion Modules



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EASY/MFD Expansion Modules

Product Description

Expansion modules are available for increasing the input/output of the EASY700/800 and MFD intelligent relays to 24 inputs and up to 16 outputs. Expansion modules can be mounted directly to the EASY/MFD unit or up to 98 ft. (30 m) away using coupling module EASY200-EASY.

Product Selection

EASY202-RE

EASY700/800/MFD I/O Expansion Modules ①

Description	Inputs 110–240 Vac	Inputs 24 Vdc	Outputs Relay	Outputs Transistor	Catalogue Number
2 I/O expansion	—	—	2	—	**EASY202-RE**
18 I/O expansion	12	—	6	—	**EASY618-AC-RE**
	—	12	6	—	**EASY618-DC-RE**
20 I/O expansion	—	12	—	8	**EASY620-DC-TE**
Coupling module for remote mounting of expansion modules					**EASY200-EASY**

Note

① All expansion modules include one EASY-LINK-DS.

Technical Data and Specifications

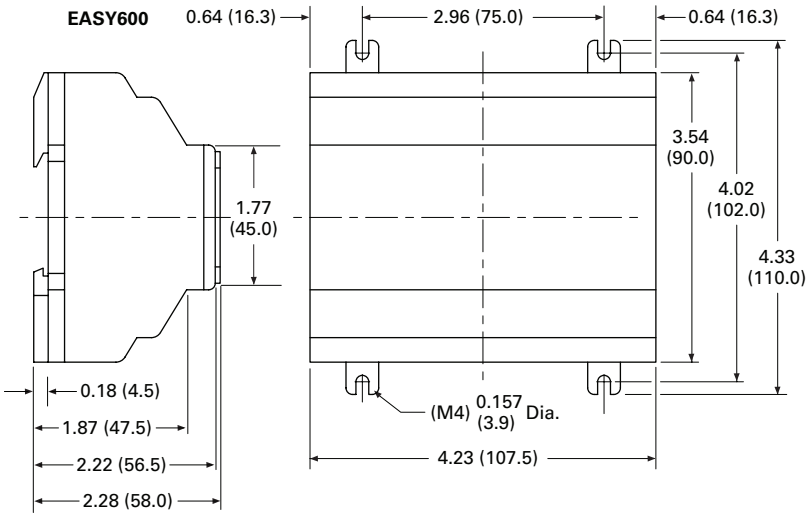
EASY700/800/MFD I/O Expansion Modules

Type	EASY202-RE	EASY618-AC-RE	EASY618-DC-RE	EASY620-DC-TE	EASY200-EASY
Supply voltage	—	100 – 240 Vac	24 Vac	24 Vac	—
Heat dissipation	1W	10 VA	4W	4W	1W
Continuous current outputs ①	8A	8A	8A	0.5A	—
Short-circuit proof with power factor 1	Line protection B16, 600A	Line protection B16, 600A	Line protection B16, 600A	Line protection B16, 600A	—
Short-circuit proof with power factor 0.7…0.7	Line protection B16, 900A	Line protection B16, 900A	Line protection B16, 900A	Line protection B16, 900A	—
Connection cables					
Solid	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)
Flexible	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)
Degree of protection	IP20	IP20	IP20	IP20	IP20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1,2,3,4				
Ambient operating temperature	–25° to 55°C	–25° to 55°C	–25° to 55°C	–25° to 55°C	–25° to 55°C
Transport and storage temperature	–40° to 70°C	–40° to 70°C	–40° to 70°C	–40° to 70°C	–40° to 70°C
Certification, standards	EN 50178, IEC/EN 60947, UL, CSA				
Mounting	On top-hat rail to DIN 50022, 35 mm or screw mounting with ZB4-101-GF1 fixing brackets				

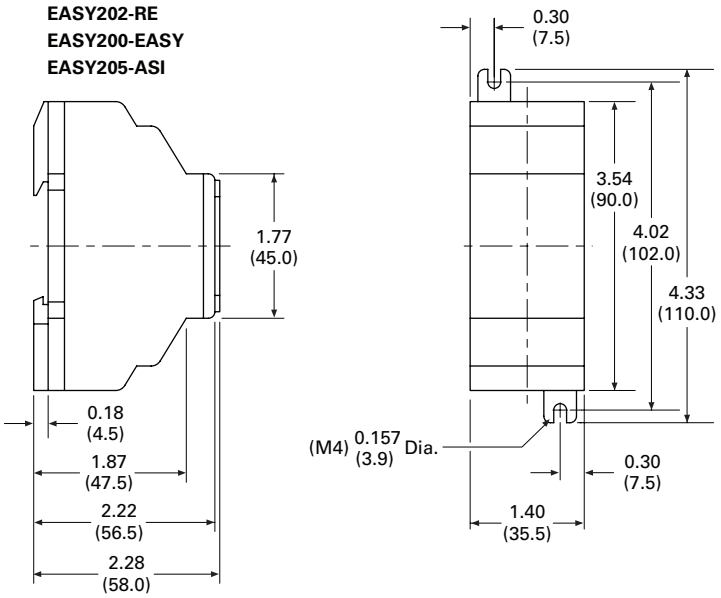
Dimensions

Approximate Dimensions in Inches (mm)

EASY600 Series, Drawing Number MD05013002E



EASY202-RE/EASY200-EASY/EASY205-ASI Series, Drawing Number MD05013012E



MFD Intelligent Relays

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MFD Intelligent Relays

Product Description

MFD Intelligent Relays are comprised of three parts, a display, a controller, and an I/O module. Match each piece to the needs of your application. If you need to both monitor and modify parameters within your application, choose the MFD-80-B. The preprogrammed and user programmable buttons give you the capability to make small changes to the way your application is running, start or stop a process, or change your program completely. Select a controller with or without **EASY-NET** support, and with AC or DC power. Finally, add the MFD I/O module that best suits your application.

MFD Series—for controlling small applications that require graphic visualization and for large-scale applications with 20 points, expandable to 40 points locally, and expandable using the **EASY-NET** network up to 320 I/O points. The MFD display can be linked to the EASY500/700/800 models to provide an enhanced text based operator interface. Panel mounted.

The **EASY-NET** integrated network provides easy and inexpensive linking of up to eight MFD devices over a distance of up to 1000 meters. Each MFD device can run its program, or be used as a distributed input/output module. Connect up to eight controllers with up to 40 I/O to obtain 320 I/O.

Standards and Certifications

- EN 50178
- IEC/EN 60947
- UL
- CSA
- CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C

Product Selection

MFD-80-B

MFD Displays (MFD-80)

Description	Catalogue Number
MFD, no buttons	**MFD-80**
MFD, buttons (shown)	**MFD-80-B**

MFD-CP8

MFD Controllers (MFD-CP8)

Description	Catalogue Number
MFD CPU with 24 Vdc, power supply, clock	**MFD-CP8-ME**
MFD CPU with 24 Vdc, power supply, clock, EASY-NET	**MFD-CP8-NT**
MFD CPU with 100–240 Vac, power supply, clock	**MFD-AC-CP8-ME**
MFD CPU with 100–240 Vac, power supply, clock, EASY-NET	**MFD-AC-CP8-NT**

MFD-R16

MFD I/O Modules

Description	Inputs ① 110–240 Vac	24 Vdc	Analogue	Outputs Relay	Transistor	Analogue	Catalogue Number
16 I/O	12	—	—	4	—	—	**MFD-AC-R16**
	—	12	4	4	—	—	**MFD-R16**
	—	12	4	—	4	—	**MFD-T16**
17 I/O	—	12	4	4	—	1	**MFD-RA17**
	—	12	4	—	4	1	**MFD-TA17**

MFD-CP4-800 Attached to EASY-80 Display and EASY800 Unit

MFD Display to EASY Communication Modules (MFD-CP4) ②

Description	Catalogue Number
MFD display to EASY500/700 DC communication module with EASY500/700 communication cable (MFD-CP4-500-CAB5)	**MFD-CP4-500**
MFD display to EASY500/700 AC communication module with EASY500/700 communication cable (MFD-CP4-500-CAB5)	**MFD-AC-CP4-500**
MFD display to EASY800 DC communication module with EASY800 communication cable (MFD-CP4-800-CAB5)	**MFD-CP4-800**
MFD display to EASY800 AC communication module with EASY800 communication cable (MFD-CP4-800-CAB5)	**MFD-AC-CP4-800**
Replacement communication module (all controllers—no cable)	**MFD-CP4**

MFD-80 +

MFD-CP8 +

MFD-I/O =

MFD Assembly

Notes

For additional expansion, see EASY/MFD Expansion Modules on **Page T40-26**.

① Analogue inputs optional.

② Link MFD displays to EASY 500/700 or 800 intelligent relays for text only cabinet door installations.

Technical Data and Specifications

MFD-80, MFD-CP4, MFD-CP8

Type	MFD-80…	MFD-CP4/CP8
Connection cables		
Solid	—	0.2–4.0 mm^2 (AWG 22-12)
Flexible	—	0.2–2.5 mm^2 (AWG 22-12)
Degree of protection	IP 65	IP 20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4
Ambient operating temperature	Clearly legible at –5 to 50°C	–25 to 55°C
Transport and storage temperature	–40 to 70°C	–40 to 70°C
Hazardous location	CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C	CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C

MFD I/O Modules

Type	MFD-AC-R16	MFD-R16	MFD-RA17	MFD-T16	MFD-TA17
Supply voltage	Supply via MFD-CP8 module	Supply via MFD-CP8 module	Supply via MFD-CP8 module	Supply via MFD-CP8 module	Supply via MFD-CP8 module
Heat dissipation	0.5W	0.5W	0.5W	0.5W	0.5W
Continuous current outputs ①	8A	8A	8A	0.5A	0.5A
Short-circuit proof with power factor 1	Line protection B16, 600A	Line protection B16, 600A	Line protection B16, 600A	—	—
Short-circuit proof with power factor 0.7…0.7	Line protection B16, 600A	Line protection B16, 600A	Line protection B16, 600A	—	—
Connection cables					
Solid	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)
Flexible	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)
Degree of protection	IP20	IP20	IP20	IP20	IP20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1,2,3,4				
Ambient operating temperature	–25 to 55°C	–25 to 55°C	–25 to 55°C	–25 to 55°C	–25 to 55°C
Transport and storage temperature	–40 to 70°C	–40 to 70°C	–40 to 70°C	–40 to 70°C	–40 to 70°C
Mounting	Snap fitted to MFD-CP8 module	Snap fitted to MFD-CP8 module	Snap fitted to MFD-CP8 module	Snap fitted to MFD-CP8 module	Snap fitted to MFD-CP8 module

MFD-CP4 and CP8 Communication Modules

Type	MFD-80…	MFD-CP4-…	MFD-CP8…	MFD-AC-CP8…
Supply voltage	Supply from -CP	24 Vdc	24 Vdc	100–240 Vac
Heat dissipation	3W	1.5W	3W	8 VA
Mounting	Front mounting in 2 x 22.5 mm Standard drill holes	Snap fitted to MFD-80	Snap fitted to MFD-80 or on top-hat rail to DIN 50022, 35 mm or screw Mounting with ZB4-101-GF1 fixing brackets	

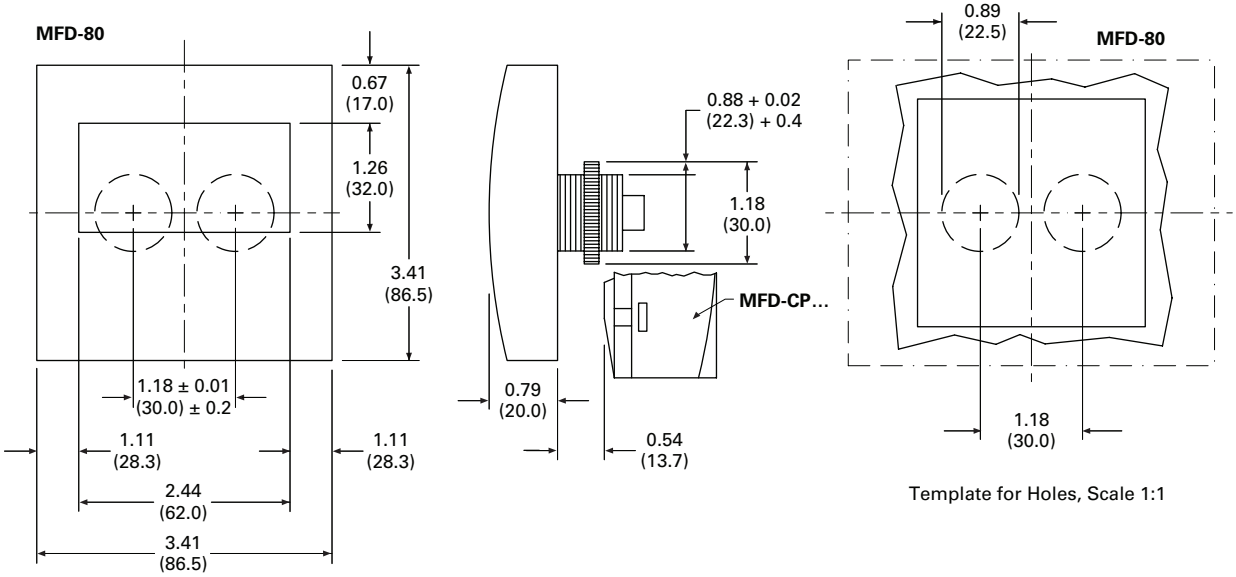
Note

① Relay = 8A with resistive load, 3A with inductive load.
Transistor outputs = 0.5A/24 Vdc, maximum four outputs switchable in parallel.

Dimensions

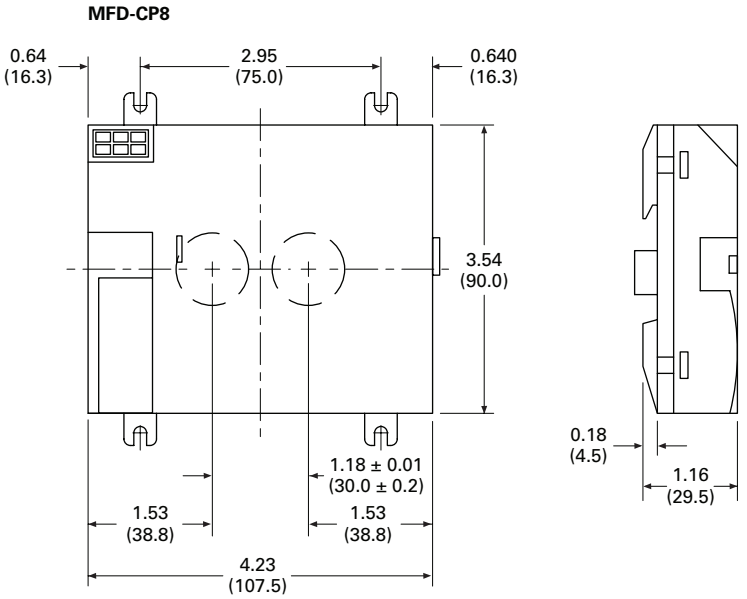
Approximate Dimensions in Inches (mm)

MFD-80 Series, Drawing Number MD05013005E



Template for Holes, Scale 1:1

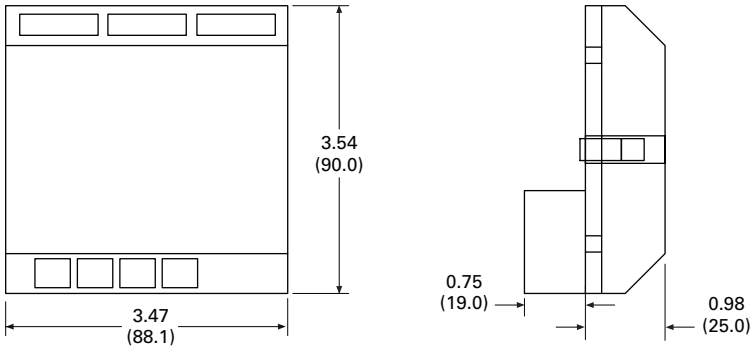
MFD-CP8 Series, Drawing Number MD05013006E



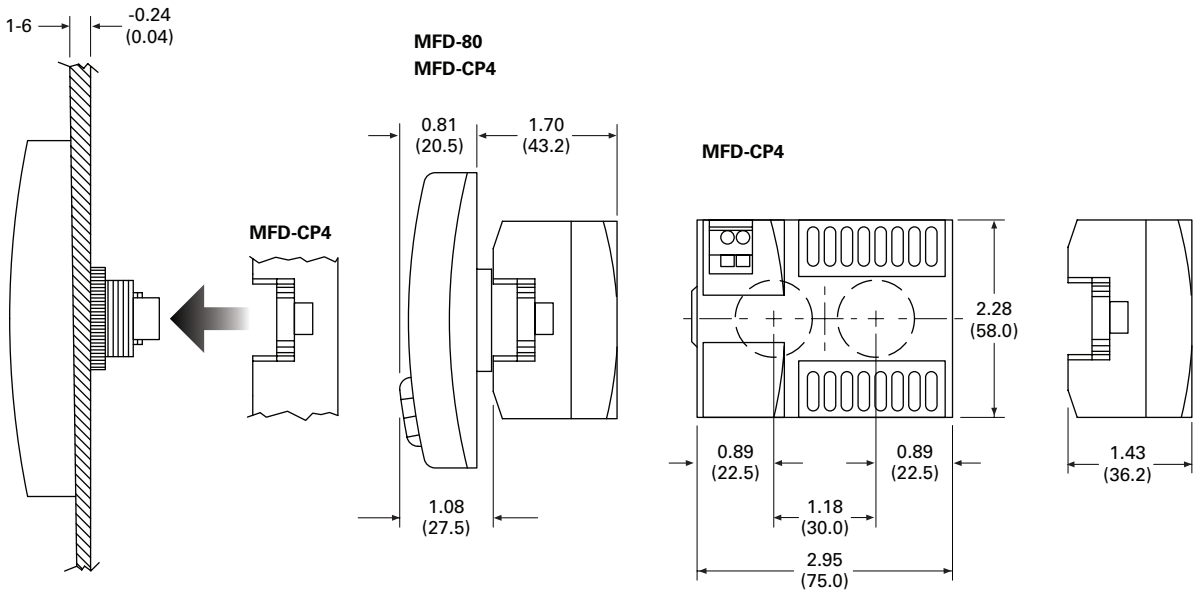
Approximate Dimensions in Inches (mm)

MFD-R/MFD-T I/O Module, Drawing Number MD05013007E

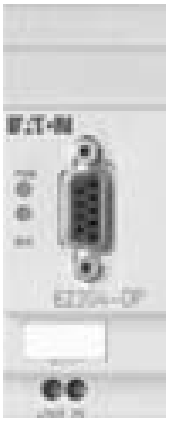
MFD-R and MFD-T I/O



MFD-CP4, MFD-80 and MFD-CP4 Series Combined, Drawing Number MD013013E



EASY/MFD Communication Modules



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EASY/MFD Communication Modules

Product Description

Five modules are available for easily connecting to world-standard networks. The communication modules can be used with the EASY700/800 and MFD intelligent relays.

Available communication modules support:

- PROFIBUS-DP
- AS-I (Actuator Sensor Interface) networks
- CANopen
- DeviceNet
- Ethernet (also compatible with EASY500)

All modules act as a gateway and operate exclusively as a slave station on the network.

Product Selection

EASY204-DP Communication Module

EASY Communication Interface Modules

Description	Catalogue Number
PROFIBUS-DP slave interface module	**EASY204-DP**
AS-Interface slave with 4 in and 4 out interface module	**EASY205-ASI**
CANopen interface module	**EASY221-CO**
DeviceNet slave interface module	**EASY222-DN**
Ethernet Gateway	**EASY209-SE**

Technical Data and Specifications

EASY700/800/MFD Communication Interface Modules
EASY204-DP, EASY205-ASI, EASY221-CO, EASY222-DN, EASY209-SE ①

Description	Specification
Supply voltage	24 Vdc
Heat dissipation ②	1W
Connection cables	
Solid	0.2 – 4.0 mm^2 (AWG 22-12)
Flexible	0.2 – 2.5 mm^2 (AWG 22-12)
Degree of protection	IP20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1,2,3,4
Ambient operating temperature	–25° to 55°C
Transport and storage temperature	–40° to 70°C
Certification, standards	EN 50178, IEC/EN 60947, UL, CSA
Mounting	On top-hat rail to DIN 50022, 35 mm or screw mounting with ZB4-101-GF1 fixing brackets

Notes

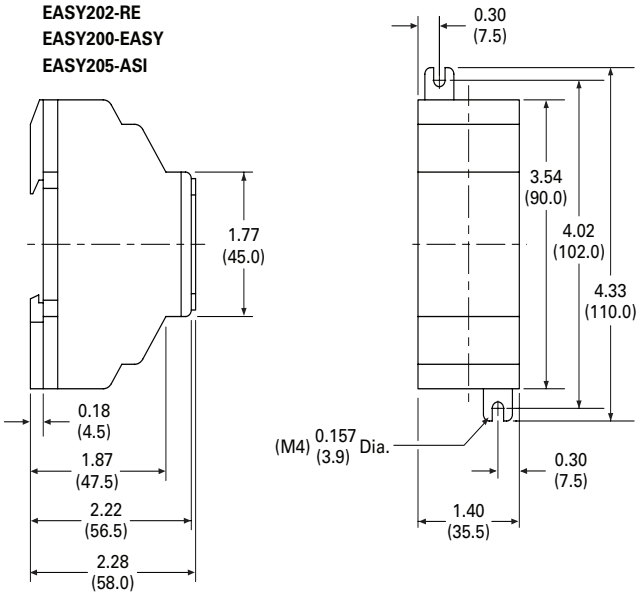
① EASY209-SE is also compatible with EASY500 Intelligent Relays.

② EASY204-DP dissipates 2W.

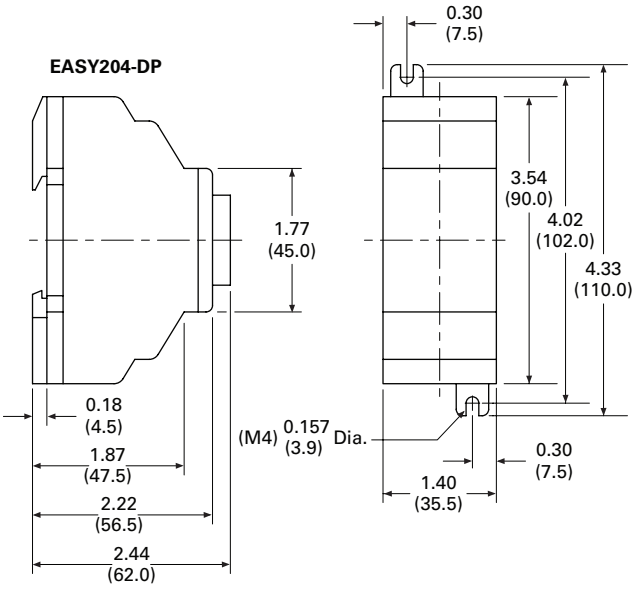
Dimensions

Approximate Dimensions in Inches (mm)

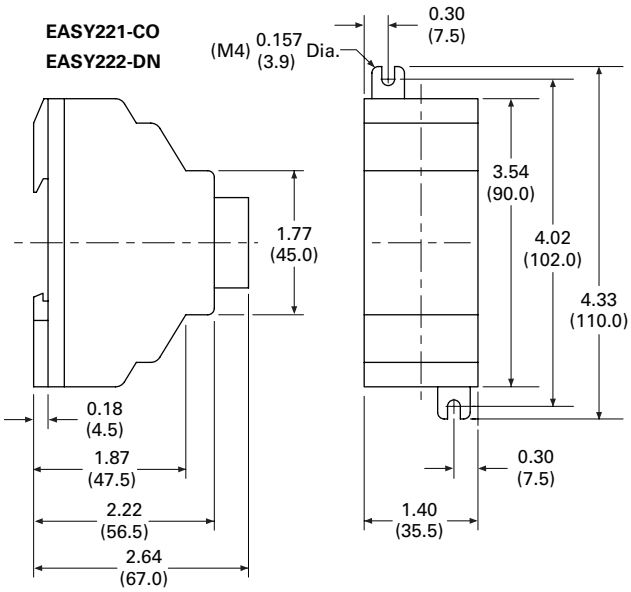
EASY202-RE/EASY200-EASY/EASY205-ASI/ EASY209-SE Series, Drawing Number MD05013012E



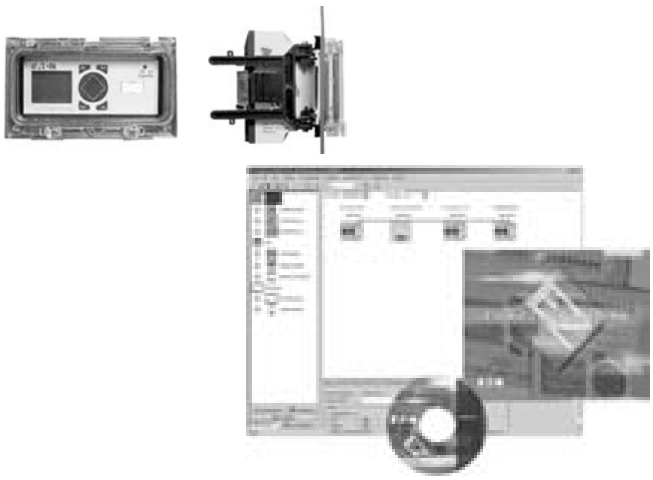
EASY204-DP Series, Drawing Number MD05013011E



EASY221-CO/EASY222-DN Series, Drawing Number MD05013010E



EASY/MFD Power Supplies, Accessories and Software



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Accessories	**T40-37**
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EASY/MFD Power Supplies, Accessories and Software

Product Description

EASY/MFD Power Supplies

12 Vdc and 24 Vdc power supplies for applications where only 100–240 Vac is available.

EASY/MFD Accessories

Memory modules, cables and other components to complete your automation solutions.

EASYSoft Software

The EASYSoft software is used to program all of the EASY and MFD controllers and displays. The Windows®-based software provides straightforward circuit diagram input and editing and the diagrams can be displayed in the format desired. When EASY800 and MFD controllers are connected using EASY-NET, all connected devices can be accessed and their programs loaded from a single controller.

EASYSoft includes an integrated offline simulation tool that allows users to test a circuit diagram before commissioning.

Product Selection

EASY Power Supplies ①

Description	Catalogue Number
100–240 Vac input to 12 Vdc at 20 mA/24 Vdc at 250 mA	**EASY200-POW**
100–240 Vac input to 24 Vdc at 1.25A	**EASY400-POW**

Note

① See Technical Data and Specifications on **Page T40-38** for more information.

Accessories

EASY/MFD Memory Storage Modules

Description	Catalogue Number
EASY500/700 32K memory storage module	**EASY-M-32K**
EASY800/MFD 256K memory storage module	**EASY-M-256K**

EASY/MFD Cables and Connectors

Description	Catalogue Number
EASY500/700 to PC programming cable RS-232 from PC	**EASY-PC-CAB**
EASY800/MFD to PC programming cable RS-232 from PC	**EASY800-PC-CAB**
EASY500/700 to MFD-CP4 communication cable, 5m	**MFD-CP4-500-CAB5**
EASY800 to MFD-CP8 communication cable, 2m	**MFD-800-CAB**
EASY800 to MFD-CP8 communication cable, 5m	**MFD-800-CAB5**
EASY800 to MFD-CP4 communication cable, 5m	**MFD-CP4-800-CAB5**
EASY800/MFD EASY-NET cable, 0.3m networking cable	**EASY-NT-30**
EASY800/MFD EASY-NET cable, 0.8m networking cable	**EASY-NT-80**
EASY800/MFD EASY-NET cable, 1.5m networking cable	**EASY-NT-150**
EASY800/MFD network termination resistor, 2/pack	**EASY-NT-R**
EASY800/MFD EASY-NET cable (cable only, no connectors, see EASY-NT-RJ45), 100m	**EASY-NT-CAB**
RJ45 network connectors for EASY-NET cable (EASY-NT-CAB), 10/pack	**EASY-NT-RJ45**

EASY700/500 Panel Window and Mounting Kit

EASY/MFD Miscellaneous Parts

Description	Catalogue Number
EASY500 relay simulator	**EASY412-DC-SIM-NA**
EASY500 panel window	**SKF-FF4**
EASY700/800 panel window	**SKF-FF6**
EASY500/700/800 panel window mounting kit to front mount units	**SKF-HA**
EASY/MFD panel mount brackets, 9/pack	**ZB4-101-GF1**
EASY/MFD grounding kit	**ZB4-102-KS1**
MFD display DIN rail mount kit	**MFD-TS144**
MFD display protective membrane cover	**MFD-XM-80**
MFD display protective plastic cover	**MFD-XS-80**
EASY/MFD six-channel high current input adapter ①	**EASY256-HCI**
EASY/MFD spare interface connector, base to expander	**EASY-LINK-DS**
EASY starter kit (includes EASY512-DC-RC, EASY-PC-CAB, EASY412-DC-SIM-NA, EASYSoft)	**EASYSTARTKIT1**

EASY Software

EASY Software

EASY/MFD Software

Description	Catalogue Number
Programming software for EASY500/700/800 and MFD	**EASYSOFT**

Note

① See Technical Data and Specifications on **Page T40-38** for more information.

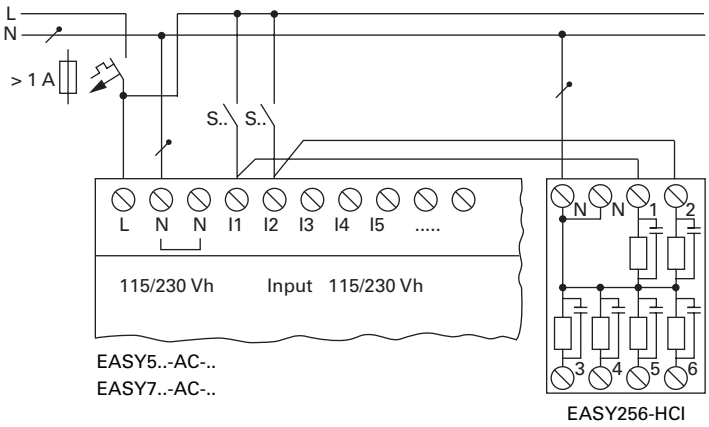
Technical Data and Specifications

EASY Power Supplies

Type	EASY200-POW	EASY400-POW
Supply voltage	100–240 Vac	100–240 Vac
Maximum range	85–264 Vac	85–264 Vac
Output voltage	24 Vdc (±3%)	24 Vdc (±3%)
Output current (rated value)	0.25A	1.25A
Overcurrent limitation form	0.3A	1.4A
Short-circuit proof (secondary)	Yes	Yes
Overload proof	Yes	Yes
Potential isolation (prim/sec.)	Yes, SELV, (to EN 600950, VDE 805)	Yes, SELV, (to EN 600950, VDE 805)
Others	Additional output voltage 12 DC, 20 mA	Additional output voltage 12 DC, 20 mA
Connection cables		
Solid	0.2–4.0 mm^2 (AWG 22-12)	0.2–4.0 mm^2 (AWG 22-12)
Flexible	0.2–2.5 mm^2 (AWG 22-12)	0.2–2.5 mm^2 (AWG 22-12)
Degree of protection	IP20	IP 20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4
Ambient operating temperature	–25 to 55°C	–25 to 55°C
Transport and storage temperature	–40 to 70°C	–40 to 70°C
Mounting	On top-hat rail to DIN 50022, 35 mm or screw mounting with ZB4-101-GF1 fixing brackets	

Wiring Diagram

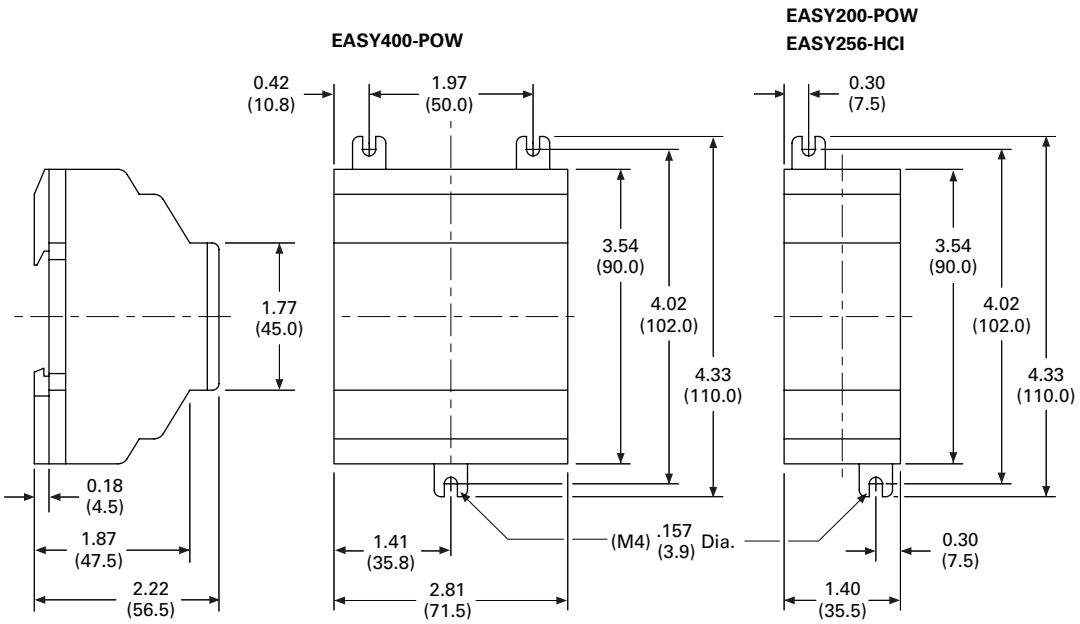
EASY256-HCI



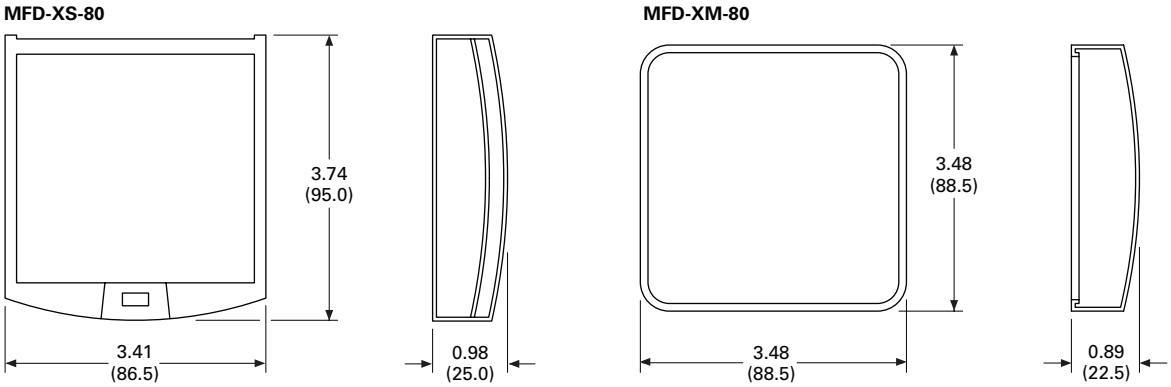
Dimensions

Approximate Dimensions in Inches (mm)

EASY200-POW/EASY256-HCI and EASY400-POW Series, Drawing Number MD05013004E

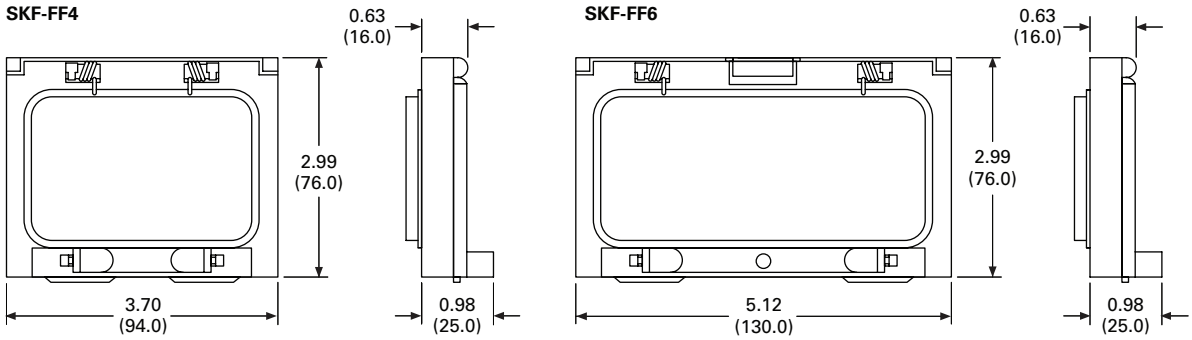


MFD-XS-80 and MFD-XM-80 Series, Drawing Number MD05013009E

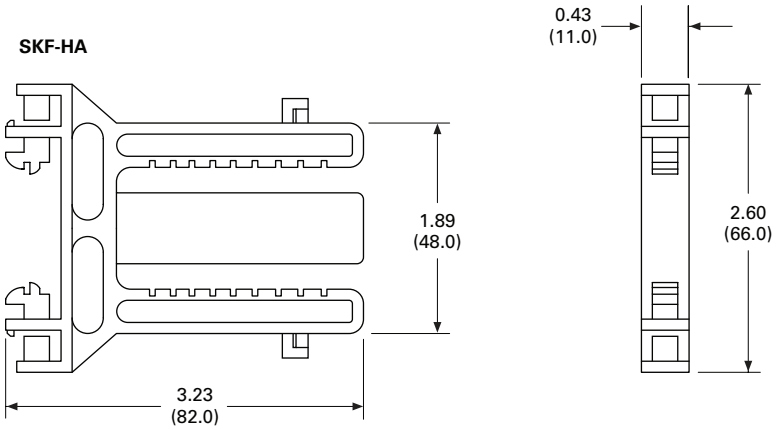


Approximate Dimensions in Inches (mm)

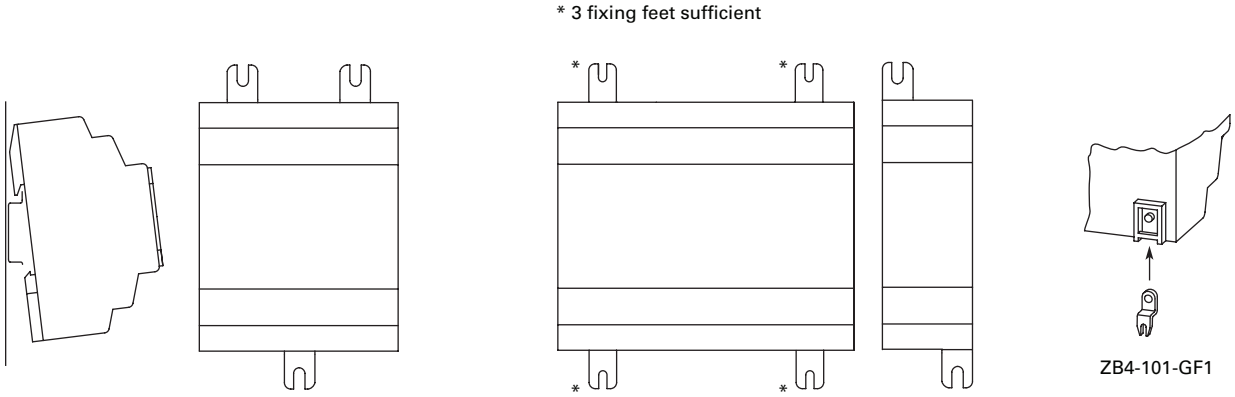
SKF-FF4 and SKF-FF6 Series, Drawing Number MD05013014E



SKF-HA Series, Drawing Number MD05013015E



ZB4-101-GF1 Series

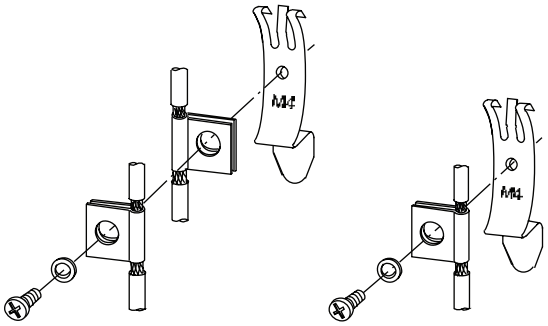


Fitting on 35 mm Top-Hat Rail

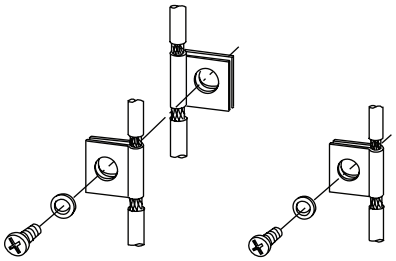
Fitting on Mounting Plate (Horizontal)

Approximate Dimensions in Inches (mm)

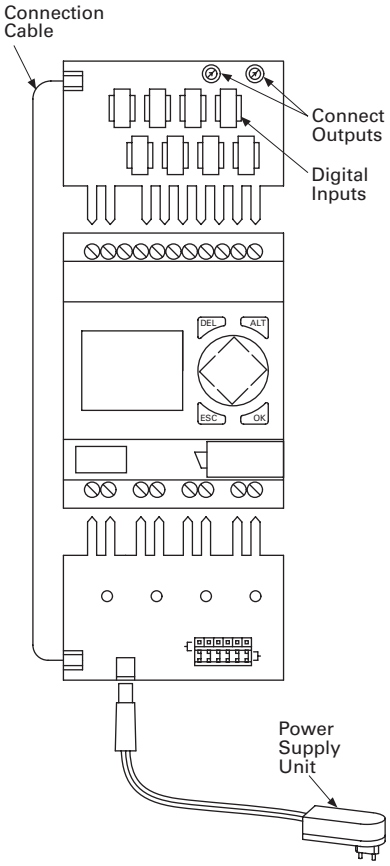
ZB4-102-KS1 Series—
Grounding the Screen for Top-Hat Rail



ZB4-102-KS1 Series—
Grounding the Screen for Mounting Plate



EASY412-DC-SIM-NA Series



General Purpose Plug-In Relay

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D3PR/D3PF Series	**T40-61**
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D5PR/D5PF Series	**T40-75**
D7PR/D7PF Series	**T40-85**
D8 Series	**T40-100**
D9 Series	**T40-106**
Accessories	**T40-110**

Product Selection Guide

General Purpose Relay Selection Characteristics

- Current rating: 1A–30A
- Contact arrangement: SPDT, DPDT, 3PDT, 4PDT, etc.
- Coil voltage: 6V–240 Vac/ 6V–110 Vdc
- Mounting options: socket, flange, DIN rail, panel
- Specifications: CSA, CE, IEC, NEMA, UL, etc.
- Other: Physical dimensions, maximum voltage, mechanical/ electrical life, etc.

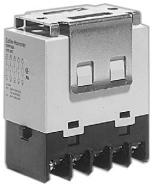
General Purpose Plug-In Relays

Relay Series	D1PR/D1PF	D2PR/D2PF	D3PR/D3PF
Approvals			
Features			
	Polycarbonate cover	Polycarbonate cover	Polycarbonate cover
	Indicator lamp and pushbutton available	Indicator lamp and pushbutton available	Indicator lamp and pushbutton available
	Panel and DIN mounting	Panel, DIN and flange mounting	Panel and DIN mounting
		Latching	8- or 11-pin octal plug-in
			Latching (D3PR version)
Contact Data			
Configuration	**SPDT**	**DPDT** / **DPDT Latching** / **4PDT**	**DPDT** / **3PDT**
Max. allowable load	20A	10A / 10A / 10A	16A / 16A / 16A
Material	Silver alloy	Silver alloy	Silver alloy
Dielectric strength between poles	1500V	1500V	1500V
Coil Data			
AC	6 to 240 Vac	6 to 240 Vac	6 to 240 Vac
DC	6 to 110 Vdc	6 to 110 Vdc	6 to 110 Vdc
Power			
VA (Vac)	0.9 VA	1.2 VA	3 VA 1.4W (D3PR and D3PF)
Watts (Vdc)	0.7W	0.9W	2 VA 1.64W (D3PR5 latching)
General Data			
Ambient temperature			
Storage	–40˚ to 185˚F (–40˚ to 85˚C)	–40˚ to 185˚F (–40˚ to 85˚C)	–40˚ to 185˚F (–40˚ to 85˚C)
Operational	–40˚ to 131˚F (–40˚ to 55˚C)	–40˚ to 131˚F (–40˚ to 55˚C)	–40˚ to 131˚F (–40˚ to 55˚C)
Response time	20 milliseconds	20 milliseconds	20 milliseconds
Life			
Mechanical operations	10 million	10 million	5 million (D3PR and D3PF) 10 million (D3PR5 latching)
Electrical operations	100,000	200,000	100,000
Page Numbers	**T40-46** to **T40-50**	**T40-51** to **T40-60**	**T40-61** to **T40-70**

General Purpose Plug-In Relays, continued

Relay Series	D4	D5PR/D5PF	D7PR/D7PF
Approvals			
	RoHS COMPLIANT, c UL us, CE, CSA	RoHS COMPLIANT, c UL us, CE, CSA	RoHS COMPLIANT, c UL us, CE, CSA
Features			
	Polycarbonate cover	Polycarbonate cover	Polycarbonate cover
	Indicator lamp available	Indicator lamp and pushbutton available	Indicator lamp and pushbutton available
	Panel and DIN mounting	Panel, DIN and flange mounting	Panel and DIN mounting
	Socket has built-in hold-down spring		
Contact Data			
Configuration	**SPDT** / **DPDT**	**DPDT** / **3PDT**	**SPDT** / **DPDT** / **3PDT** / **4PDT**
Max. allowable load	10A at 250 Vac / 5A at 240 Vac	16A / 16A	20A / 15A / 15A / 15A
Material	AgCdO	Silver alloy	Silver alloy
Dielectric strength	5000V	1500V	1500V / 1500V / 2500V / 2500V
Coil Data			
AC	6 to 240 Vac	6 to 240 Vac	6 to 240 Vac
DC	6 to 110 Vdc	6 to 110 Vdc	6 to 110 Vdc
Power			
VA (Vac)	0.9 VA	3 VA	1.2 VA / 1.2 VA / 1.5 VA / 1.5 VA
Watts (Vdc)	0.5W	1.4W	0.9W / 0.9W / 1.4W / 1.5W
General Data			
Ambient temperature			
Storage	–40˚ to 158˚F (–40˚ to 70˚C)	–40˚ to 185˚F (–40˚ to 85˚C)	–40˚ to 185˚F (–40˚ to 85˚C)
Operational	–40˚ to 158˚F (–40˚ to 70˚C)	–40˚ to 131˚F (–40˚ to 55˚C)	–40˚ to 131˚F (–40˚ to 55˚C)
Response time	15 milliseconds	20 milliseconds	20 milliseconds (30 milliseconds for latching)
Life			
Mechanical operations	10 million	5 million	10 million
Electrical operations	100,000	100,000	100,000 / 100,000 / 200,000 / 200,000
Page Numbers	**T40-71** to **T40-74**	**T40-75** to **T40-84**	**T40-85** to **T40-99**

General Purpose Plug-In Relays, continued

Relay Series	D8		D9	
				
Approvals				
Features				
	Dust cover		Dust cover	
	Panel, DIN and flange mounting		Pushbutton available	
	Quick-connect and screw terminals		Panel mounting	
			Screw terminals	
Contact Data				
Configuration			**4PST**	
	SPST-NO	**DPST-NO**	**NO**	**NC**
Max. allowable load	30A at 220 Vac	25A at 220 Vac	25A at 220 Vac	8A at 220 Vac
Material	AgCdO		AgCdO	
Dielectric strength	4000V		4000V	
Coil Data				
AC	6 to 240 Vac		24 to 240 Vac	
DC	12 to 24 Vdc		12 to 110 Vdc	
Power				
VA (Vac)	2.5 VA		2.6 VA	
Watts (Vdc)	1.9W		2.0W	
General Data				
Ambient temperature				
Storage	–4° to 185°F (–20° to 85°C)		–13° to 140°F (–25° to 60°C)	
Operational	–4° to 131°F (–20° to 55°C)		–13° to 140°F (–25° to 60°C)	
Response time	30 milliseconds		50 milliseconds	
Life				
Mechanical operations	5 million		1 million	
Electrical operations	100,000		100,000	
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D1 Series Relay

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D5PR/D5PF Series	**T40-75**
D7PR/D7PF Series	**T40-85**
D8 Series	**T40-100**
D9 Series	**T40-106**
Accessories	**T40-110**

D1PR/D1PF Series

Product Description

The D1 Series of relay provides a compact single-pole relay capable of handling 20A. Multiple feature and voltage options allow for the perfect fit for any application.

Features

D1PR

- Compact relay capable of breaking relatively large load currents
- Panel and DIN rail mounting

D1PF

- The contact operation can be easily checked by Push-to-Test button
- Flag indicator shows relay status in manual or powered condition
- LED status lamp shows coil ON or OFF status—ideal for use in low light applications
- Push-to-Test button allows for manual operation of relay without the need for coil power
- Lock-down door holds pushbutton and contacts in the operate position when activated
- Finger-grip cover allows operator to remove relays from sockets easily
- ID tag/write label to identify relays in multiple-relay circuits
- Bipolar LED allows for reverse polarity applications

Standards and Certifications

When used with accompanying Eaton screw terminal socket.

Catalogue Number Selection

D1PR/D1PF Series

D1PF 1 A A

Family Type
D1PF
D1PR

Contact Configuration
1 = SPDT

Standard Features
Blank = Mechanical flag indicator (only with D1PR)
A = LED test button, flag indicator, lock-down door, finger-grip cover, ID tag (only with D1PF)
1 = LED and mechanical flag indicator

Coil Voltage
A = 120 Vac
A1 = 110 Vdc
B = 240 Vac
P = 6 Vac
P1 = 6 Vdc
R = 12 Vac
R1 = 12 Vdc
T = 24 Vac
T1 = 24 Vdc
W = 48 Vac
W1 = 48 Vdc

Product Selection

D1PR/D1PF Relay/Socket Quick Reference

Relay Type	Socket	Clip	Module Type	ID Tag	Jumper
D1PR1	D1PAA	PMC-1781	B	—	—
D1PF1	D1PAA	PMC-1781	B	—	—

D1PF Series Relay

D1PR/D1PF Series

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalogue Number
Full Featured			
6 Vac	SPDT	12.2	**D1PF1AP**
6 Vdc	SPDT	47	**D1PF1AP1**
12 Vac	SPDT	46	**D1PF1AR**
12 Vdc	SPDT	188	**D1PF1AR1**
24 Vac 50/60 Hz	SPDT	180	**D1PF1AT**
24 Vdc	SPDT	750	**D1PF1AT1**
48 Vac	SPDT	720	**D1PF1AW**
48 Vdc	SPDT	2600	**D1PF1AW1**
110 Vdc	SPDT	13,800	**D1PF1AA1**
120 Vac 50/60 Hz	SPDT	4430	**D1PF1AA**
240 Vac 50/60 Hz	SPDT	15,720	**D1PF1AB**
Plain Cover with LED Indicator			
6 Vac	SPDT	12.2	**D1PR11P**
6 Vdc	SPDT	47	**D1PR11P1**
12 Vac	SPDT	46	**D1PR11R**
12 Vdc	SPDT	188	**D1PR11R1**
24 Vac 50/60 Hz	SPDT	180	**D1PR11T**
24 Vdc	SPDT	750	**D1PR11T1**
48 Vac	SPDT	720	**D1PR11W**
48 Vdc	SPDT	2600	**D1PR11W1**
240 Vac 50/60 Hz	SPDT	15,720	**D1PR11B**
110 Vdc	SPDT	13,800	**D1PR11A1**
120 Vac	SPDT	4430	**D1PR11A**
24 Vac 50/60 Hz	SPDT	180	**D1PR1T**
Plain Cover			
6 Vac	SPDT	12.2	**D1PR1P**
6 Vdc	SPDT	47	**D1PR1P1**
12 Vac	SPDT	46	**D1PR1R**
12 Vdc	SPDT	188	**D1PR1R1**
24 Vdc	SPDT	750	**D1PR1T1**
48 Vac	SPDT	720	**D1PR1W**
48 Vdc	SPDT	2600	**D1PR1W1**
110 Vdc	SPDT	13,800	**D1PR1A1**
120 Vac 50/60 Hz	SPDT	4430	**D1PR1A**
240 Vac	SPDT	15,270	**D1PR1B**

Accessories

D1PR/D1PF Sockets and Accessories

Type	Module Size	Nominal Voltage (Max. for Sockets)	Nominal Current	Mounting Style	Wire Size	Wire Connection	Standard Pack	Catalogue Number
Socket	B	300	20	Panel/DIN rail	12 /14 (2) AWG, 4 /2.5 (2) mm^2	Screw clamping	10	**D1PAA** ①
Flange mount adapter	—	—	—	Flange	—	—	25	**PFC-D11**
Metal spring clip	—	—	—	—	—	—	25	**PMC-1781**
Protection diode	B	6 to 250 Vdc	—	—	—	—	20	**MOD-BD250**
LED indicator	B	24 Vac/Vdc	—	—	—	—	20	**MOD-BLG24**
	B	120/240 Vac/Vdc	—	—	—	—	20	**MOD-BLG240**
MOV suppressor	B	120 Vac/Vdc	—	—	—	—	20	**MOD-BMV120**
	B	24 Vac/Vdc	—	—	—	—	20	**MOD-BMV24**
	B	240 Vac/Vdc	—	—	—	—	20	**MOD-BMV240**
Plastic DIN rail end stop	—	—	—	—	—	—	25	**PFP-P**

Note

① Protection Category (Finger Safe), EN 60529: IP20.

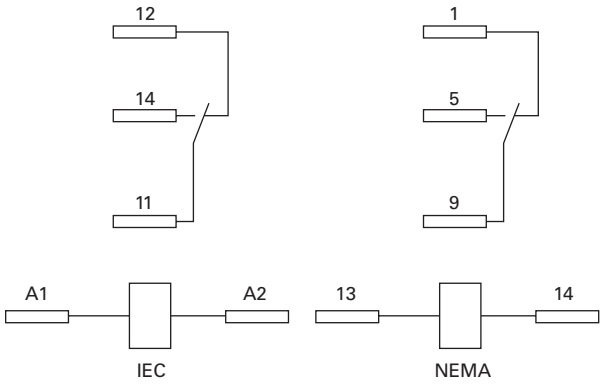
Technical Data and Specifications

D1PF/D1PR Relay Specifications

Description	D1PR	D1PF
Contact Characteristics		
Contact rating	20A	20A
Terminal style	Plug-in	Plug-in
Contact materials	Silver alloy	Silver alloy
Maximum switching voltage	300V	300V
Switching current at voltage—resistive	20A at 120 Vac 50/60 Hz	20A at 120 Vac 50/60 Hz
	20A at 277 Vac 50/60 Hz	20A at 277 Vac 50/60 Hz
	20A at 28 Vdc	20A at 28 Vdc
Switching current at voltage	1/2 hp at 120 Vac	1/2 hp at 120 Vac
	1 hp at 277 Vac	1 hp at 277 Vac
Pilot duty	B300	B300
Minimum switching requirement	100 mA at 5 Vdc (0.5W)	100 mA at 5 Vdc (0.5W)
Coil Characteristics		
Operating range		
% of nominal (AC)	85 to 110%	85 to 110%
% of nominal (DC)	80 to 110%	80 to 110%
Average consumption	0.9 VA	0.9 VA
	0.7W	0.7W
Dropout voltage threshold	15% (AC)	15% (AC)
	10% (DC)	10% (DC)
Performance		
Electrical life (UL 508) operations at rated current	100,000 operations	100,000 operations
Mechanical life operations unpowered	10,000,000 operations	10,000,000 operations
Response time	20 ms	20 ms
Dielectric strength		
Between coil and contact Vac (rms)	2500V (rms)	2500V (rms)
Between poles Vac (rms)	1500V (rms)	1500V (rms)
Environment		
Ambient air temperature around the device		
Storage	–40˚ to 131˚F (–40˚ to 55ºC)	–40˚ to 131˚F (–40˚ to 55˚C)
Operation	–40˚ to 185˚F (–40˚ to 85ºC)	–40˚ to 185˚F (–40˚ to 85˚C)
Vibration resistance—operational	3 g-n at 10–55 Hz	3 g-n at 10–55 Hz
Shock resistance	10 g-n	10 g-n
Degree of protection	IP40	IP40
Features		
Cover options	Plain cover	Full featured
Features	Mechanical flag indicator (optional LED)	Locking pushbutton/ Bipolar LED/ Removable ID tag/ Mechanical flag indicator
Product certifications	RoHS/UL/CE/CSA	RoHS/UL/CE/CSA

Wiring Diagram

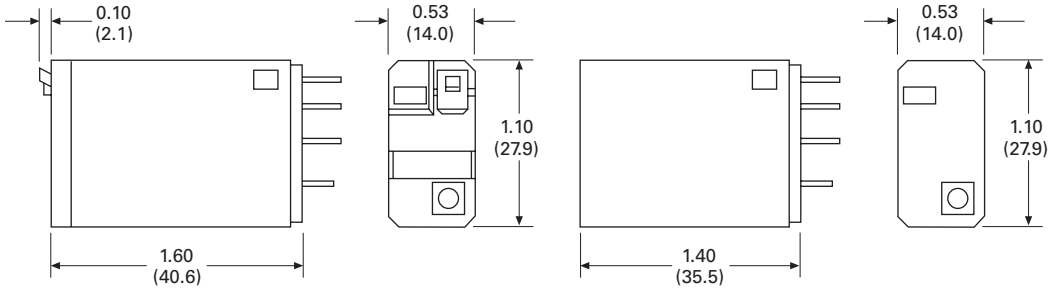
D1PF/D1PR



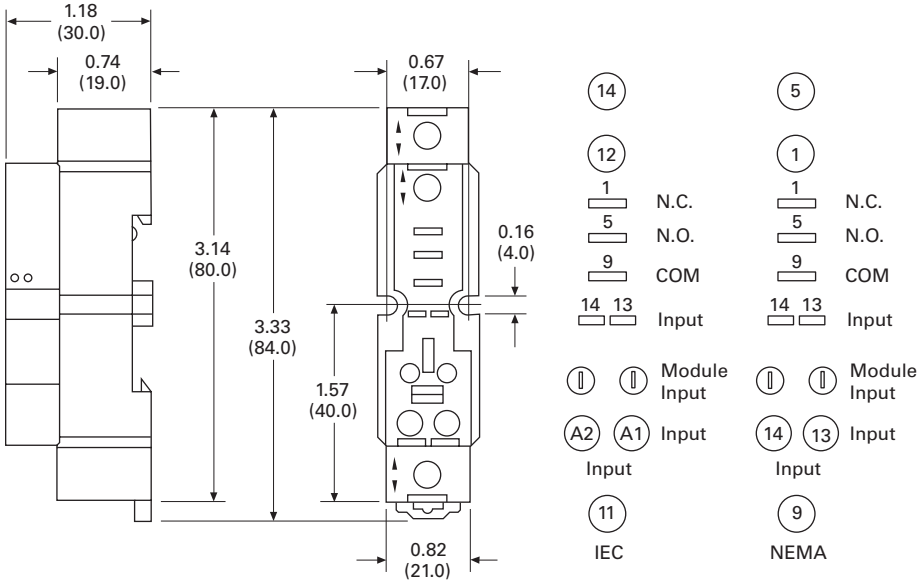
Dimensions

Approximate Dimensions in Inches (mm)

D1PF/D1PR



D1PAA



D2 Series Relay

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D7PR/D7PF Series	**T40-85**
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D2PR/D2PF Series

Product Description

The D2 Series is a compact line of relays with quick response time and long life. Available in DPDT, 4PDT and DPDT latching configurations.

Features

D2PR

- Ultra-high sensitivity relay with quick response
- High reliability, long life
- Panel, DIN rail and flange mounting
- Small size

D2PF

- Flag indicator shows relay status in manual or powered condition
- Bipolar LED status lamp allows for reverse polarity applications
  - Shows coil ON or OFF status
  - Ideal in low light conditions
- Colour-coded pushbutton identifies AC coils with red or DC coils with blue pushbuttons
  - Allows for manual operation of relay without the need for coil power
  - Ideal for field service personnel to test control circuits
- Lock-down door, when activated, holds pushbutton and contacts in the operate position
  - Excellent for analyzing circuit problems
- Finger-grip cover allows operator to remove relays from sockets more easily than conventional relays
- White plastic ID tag/write label used for identification of relays in multi-relay circuits

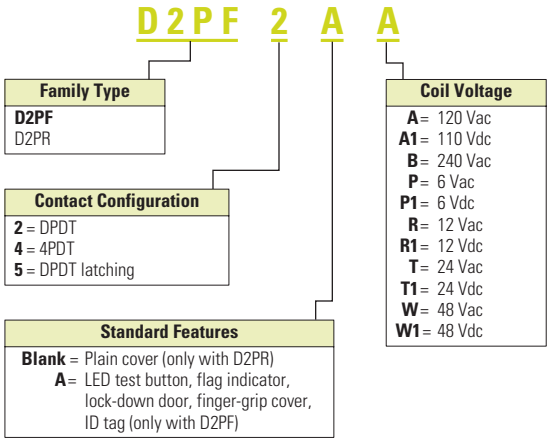
Standards and Certifications

RoHS COMPLIANT c UL us CE CSA

UL Listed When used with accompanying Eaton screw terminal socket.

Catalogue Number Selection

D2PF/D2PR ①



Product Selection

D2PF/D2PR Relay/Socket Quick Reference

Relay Type	Socket	Clip	Module Type	ID Tag	Jumper
D2PR2, D2PF2	D2PAL	PWC-D24	B	PWF-D2P	D2PJ1
		PQC-1782	—	—	—
	D2PA6	PQC-1342	None	—	—
D2PR4, D2PF4	D2PAP	PWC-D24	B	PWF-D2P	D2PJ1
		PQC-1782	—	—	—
	D2PA7	PWC-D24	B	—	—
		PQC-1782	B	—	—
	D2PA6	PQC-1342	None	—	—
D2PR5	D2PA4	PYC-A1	None	—	—

Note

① For deciphering catalogue numbers. Do not use for ordering as not all combinations are readily available.

D2PF Series Relay

D2PF/D2PR Series

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalogue Number
Full Featured Style			
6 Vac	DPDT	9.6	**D2PF2AP**
6 Vdc	DPDT	40	**D2PF2AP1**
12 Vac	DPDT	46	**D2PF2AR**
12 Vdc	DPDT	160	**D2PF2AR1**
24 Vac	DPDT	180	**D2PF2AT**
24 Vdc	DPDT	650	**D2PF2AT1**
48 Vdc	DPDT	2600	**D2PF2AW1**
110/125 Vdc	DPDT	11,000	**D2PF2AA1**
120 Vac	DPDT	4430	**D2PF2AA**
220/240 Vac	DPDT	15,720	**D2PF2AB**
12 Vac	4PDT	46	**D2PF4AR**
12 Vdc	4PDT	160	**D2PF4AR1**
24 Vac	4PDT	180	**D2PF4AT**
24 Vdc	4PDT	650	**D2PF4AT1**
48 Vdc	4PDT	2600	**D2PF4AW1**
110/125 Vdc	4PDT	11,000	**D2PF4AA1**
120 Vac	4PDT	4430	**D2PF4AA**
220/240 Vac	4PDT	15,720	**D2PF4AB**
Plain Cover Style			
6 Vdc	DPDT	40	**D2PR2P1**
12 Vdc	DPDT	160	**D2PR2R1**
24 Vac	DPDT	180	**D2PR2T**
24 Vdc	DPDT	650	**D2PR2T1**
48 Vdc	DPDT	2600	**D2PR2W1**
110/125 Vdc	DPDT	11,000	**D2PR2A1**
120 Vac	DPDT	4430	**D2PR2A**
220/240 Vac	DPDT	15,720	**D2PR2B**
6 Vac	4PDT	9.6	**D2PR4P**
6 Vdc	4PDT	40	**D2PR4P1**
12 Vac	4PDT	46	**D2PR4R**
12 Vdc	4PDT	160	**D2PR4R1**
24 Vac	4PDT	180	**D2PR4T**
24 Vdc	4PDT	650	**D2PR4T1**
110/125 Vdc	4PDT	11,000	**D2PR4A1**
120 Vac	4PDT	4430	**D2PR4A**
220/240 Vac	4PDT	15,720	**D2PR4B**
Latching Style			
24 Vac	DPDT	180	**D2PR5T**
24 Vdc	DPDT	650	**D2PR5T1**
110 Vac	DPDT	11,000	**D2PR5A**

Accessories

D2PF/D2PR Sockets and Accessories

Type	Module Size	Nominal Voltage (Max. for Sockets)	Nominal Current	Mounting Style	Wire Size	Wire Connection	Standard Pack	Catalogue Number
Socket	B	300	12	DIN rail/panel	14/16 (2) AWG, 2.5/1.5 (2) mm^2	Elevator	1	**D2PAL** ①
	None	300	10	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Screw clamping	10	**D2PA6**
	B	300	10	DIN rail/panel	14/16 (2) AWG, 2.5/1.5 (2) mm^2	Elevator	1	**D2PAP** ①
	B	300	10	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Screw clamping	10	**D2PA7** ①
	None	300	10	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Screw clamping	5	**D2PA4**
Flange mount adapter	—	—	—	Flange	—	—	25	**PFC-D2D72**
Plastic ejector clip	—	—	—	—	—	—	10	**PWC-D24**
Metal spring clip	—	—	—	—	—	—	25	**PQC-1782**
	—	—	—	—	—	—	25	**PQC-1342**
Hold-down spring	—	—	—	—	—	—	100	**PYC-A1**
Protection diode	B	6 to 250 Vdc	—	—	—	—	20	**MOD-BD250**
LED indicator	B	24 Vac/Vdc	—	—	—	—	20	**MOD-BLG24**
	B	120/240 Vac/Vdc	—	—	—	—	20	**MOD-BLG240**
MOV suppressor	B	120 Vac/Vdc	—	—	—	—	20	**MOD-BMV120**
	B	24 Vac/Vdc	—	—	—	—	20	**MOD-BMV24**
	B	240 Vac/Vdc	—	—	—	—	20	**MOD-BMV240**
Coil bus jumpers	—	—	—	—	—	—	10	**D2PJ1**
Plastic DIN rail end stop	—	—	—	—	—	—	25	**PFP-P**

Note

① Protection category (finger safe), EN 60529: IP20.

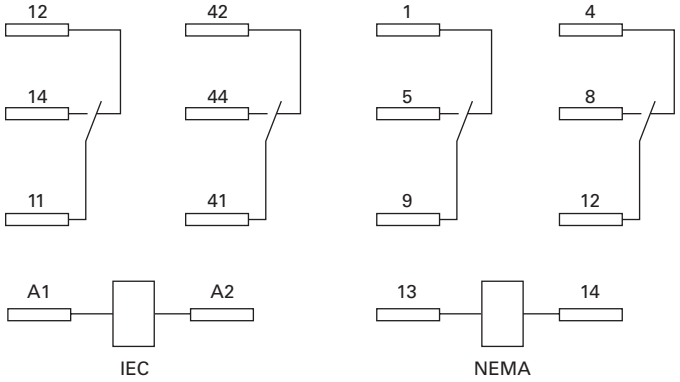
Technical Data and Specifications

D2PF/D2PR Relay Specifications

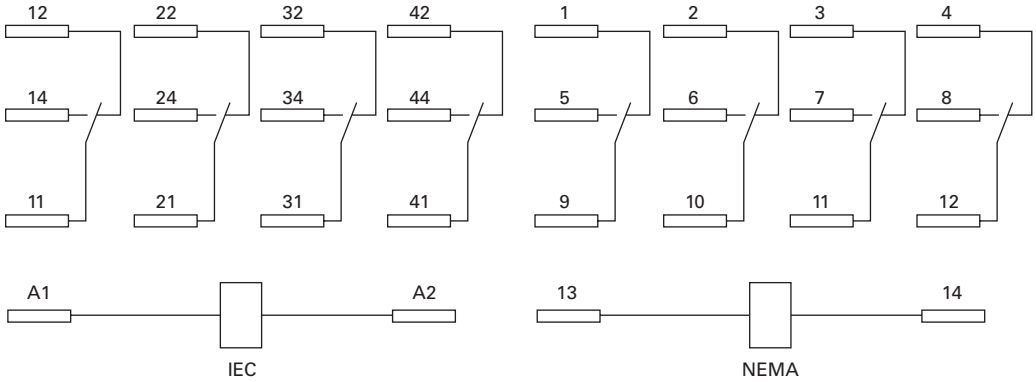
Description	D2PR2/D2PR4	D2PR5	D2PF
Contact Characteristics			
Contact rating	10A	5A	10A
Terminal style	Plug-in	Plug-in	Plug-in
Contact materials	Silver alloy	Silver (gold flashed)	Silver alloy
Maximum switching voltage	300V	250 Vac/125 Vdc	300V
Switching current at voltage—resistive	10A at 120 Vac 50/60 Hz	3A at 250 Vac	10A at 277 Vac 50/60 Hz|
	8A at 277 Vac 50/60 Hz	—	8A at 120 Vac 50/60 Hz
	8A at 28 Vdc	5A at 30 Vdc	8A at 28 Vdc
Switching current at voltage	1/3 hp at 120 Vac 1 hp at 277 Vac	1/8 hp at 250 Vac	1/3 hp at 120 Vac 1 hp at 277 Vac
Pilot duty	B300	—	B300
Minimum switching requirement	100 mA at 5 Vdc (0.5W)	100 mA, 1 Vdc	100 mA at 5 Vdc (0.5W)
Coil Characteristics			
Operating range			
% of nominal (AC)	85 to 110%	80 to 110%	85 to 110%
% of nominal (DC)	80 to 110%	80 to 110%	80 to 110%
Average consumption	1.2 VA	—	1.2 VA
	0.9W	—	0.9W
Dropout voltage threshold	15% (AC)	30% (AC)	15% (AC)
	10% (DC)	10% (DC)	10% (DC)
Performance			
Electrical life (UL 508) operations at rated current	200,000	200,000	200,000
Mechanical life operations unpowered	10,000,000	100,000,000	10,000,000
Response time	20 ms	—	20 ms
Dielectric strength			
Between coil and contact Vac (rms)	1500 rms	—	1500 rms
Between poles Vac (rms)	1500 rms	—	1500 rms
Environment			
Ambient air temperature around the device			
Operation	–40˚ to 131˚F (–40˚ to 55˚C)	—	–40˚ to 131˚F (–40˚ to 55˚C)
Storage	–40˚ to 185˚F (–40˚ to 85˚C)	—	–40˚ to 185˚F (–40˚ to 85˚C)
Vibration resistance—operational	3 g-n at 10–55 Hz	—	3 g-n at 10–55 Hz
Shock resistance	10 g-n	—	10 g-n
Degree of protection	IP40	—	IP40
Features			
Cover options	Plain cover	Plain cover	Full featured
Features	Mechanical flag indicator	Latching	Locking pushbutton/ Bipolar LED/ Removable ID tag/ Mechanical flag indicator
Product certifications	RoHS/UL/CE/CSA	UL/CE/CSA	RoHS/UL/CE/CSA

Wiring Diagrams

D2PF2/D2PR2



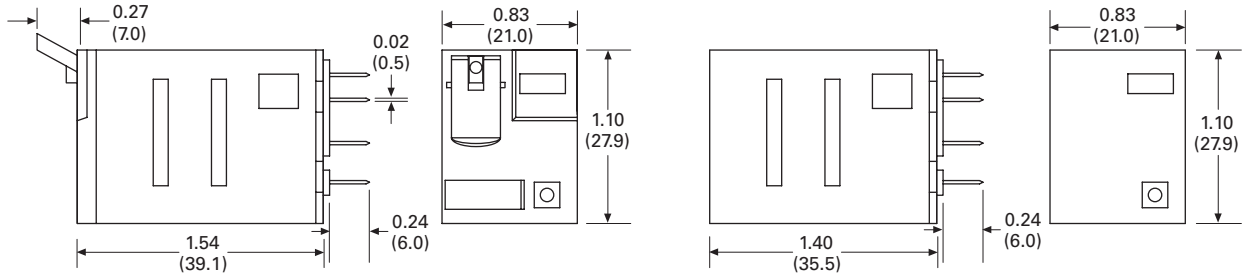
D2PF4/D2PR4



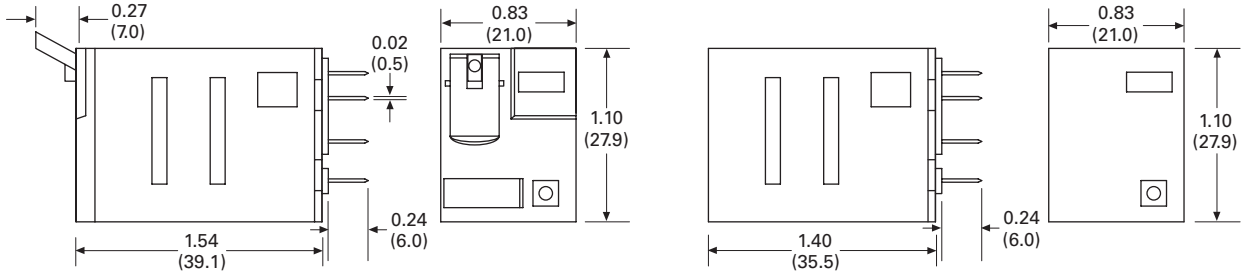
Dimensions

Approximate Dimensions in Inches (mm)

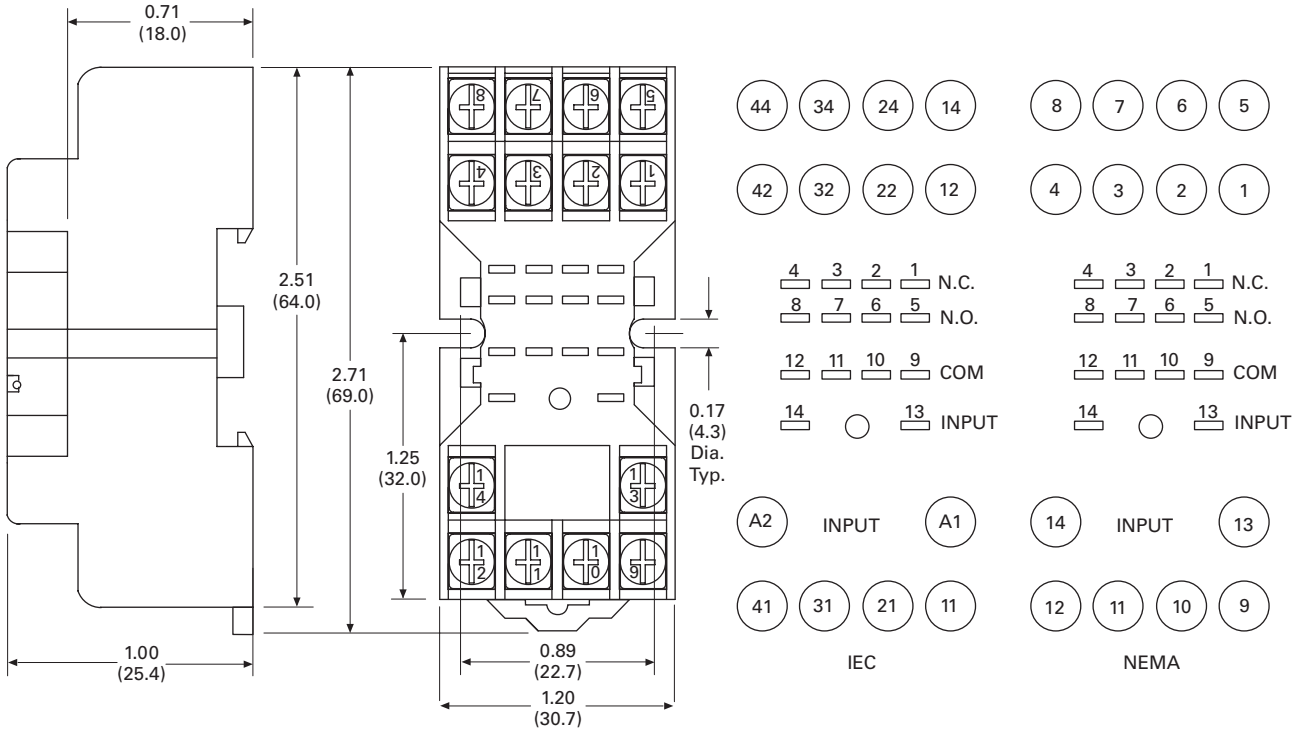
D2PF2/D2PR2



D2PF4/D2PR4



D2PA6



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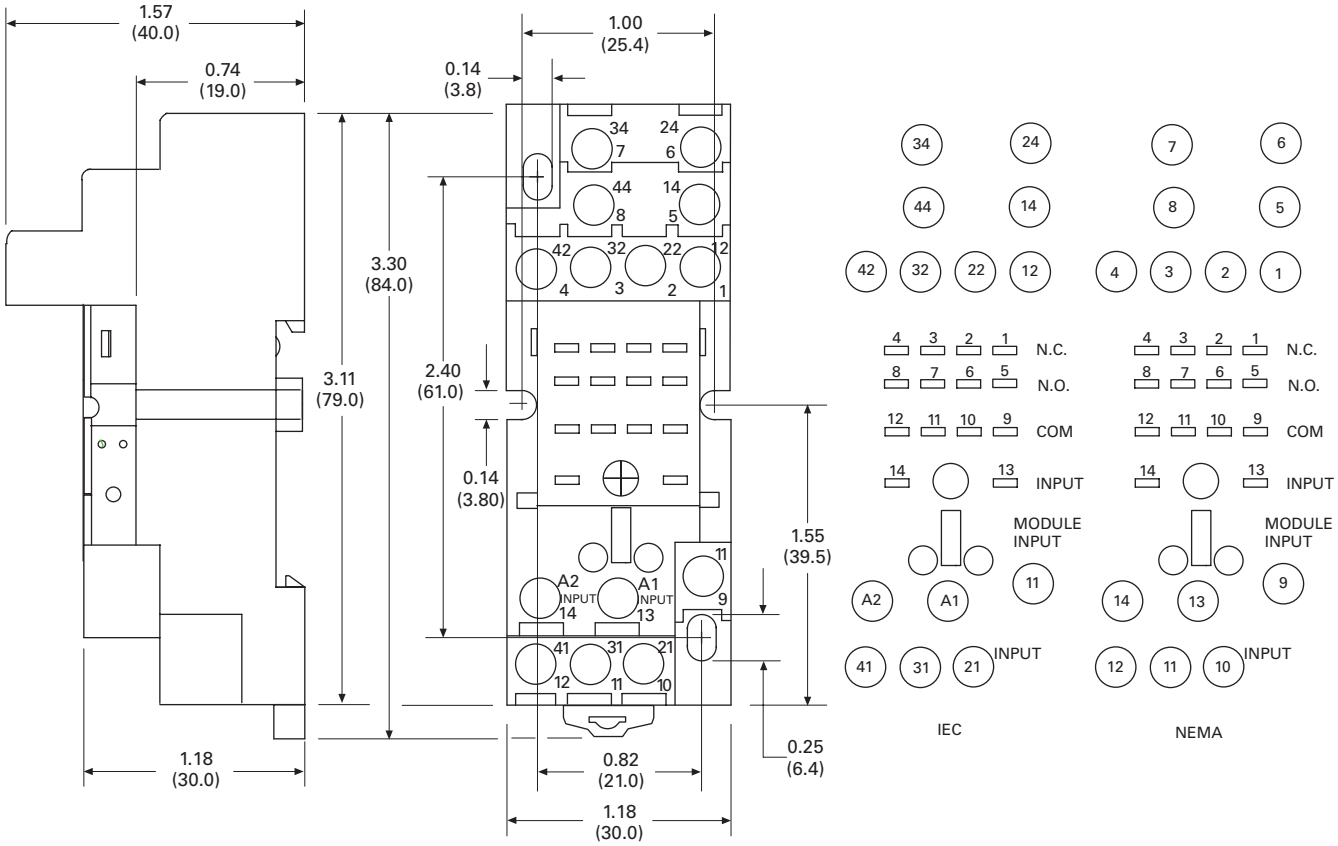
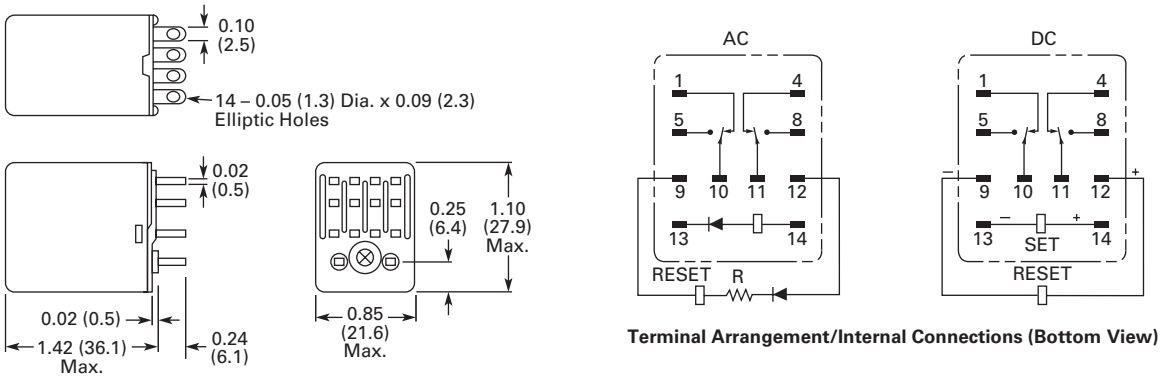
Approximate Dimensions in Inches (mm)

D2PA7



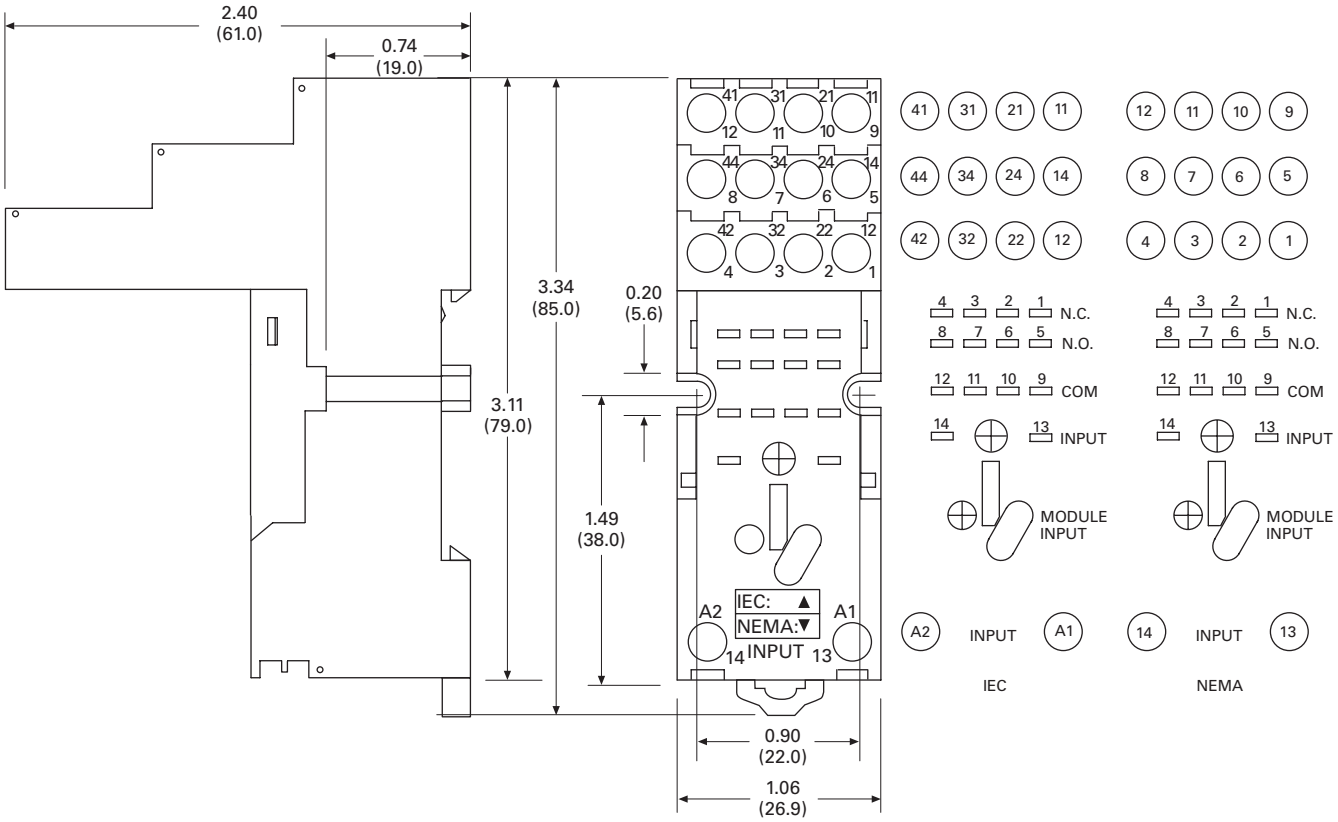
D2PR5



Terminal Arrangement/Internal Connections (Bottom View)

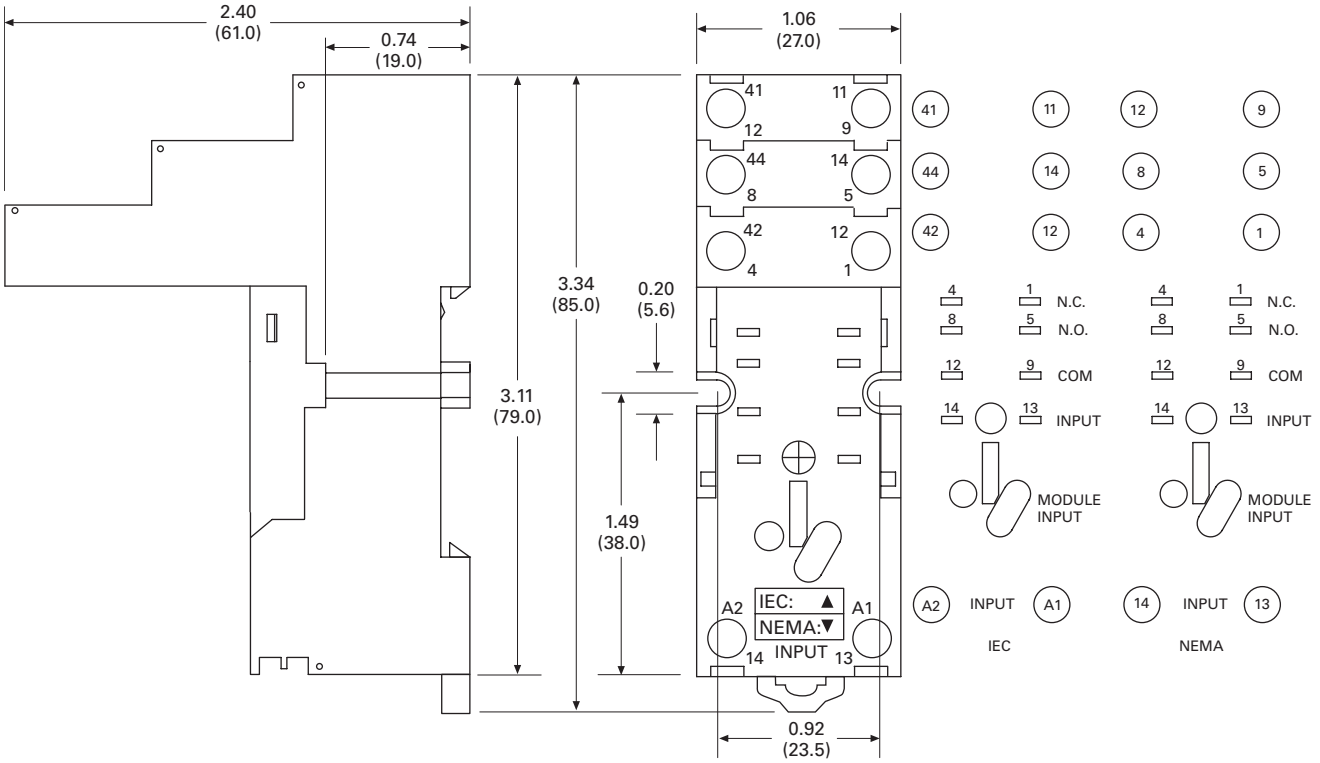
Approximate Dimensions in Inches (mm)

D2PAP

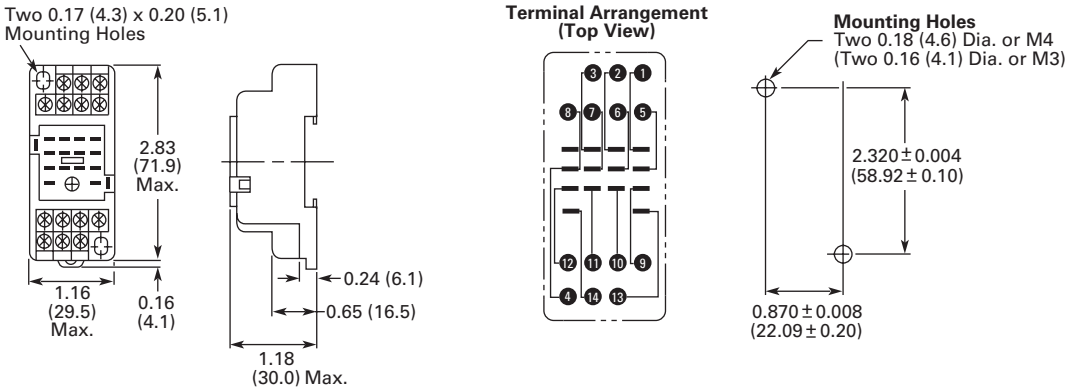


Approximate Dimensions in Inches (mm)

D2PAL



D2PA4 Socket for D2PR5 DPDT Latching Relays Only



D3 Series Relay

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D7PR/D7PF Series	**T40-85**
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D9 Series	**T40-106**
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D3PR/D3PF Series

Product Description

The D3 Series of relays provides excellent functionality in a popular octal base design. Rigid pins and guide allow for quick and easy installation with little risk of damage.

Features

D3PR

- Compact relay capable of breaking relatively large load currents
- Panel and DIN rail mounting
- 8- or 11-pin octal plug-in

D3PF

- The contact operation can be easily checked by Push-to-Test button
- Flag indicator shows relay status in manual or powered condition
- LED status lamp shows coil ON or OFF status—ideal for use in low light applications
- Push-to-Test button allows for manual operation of relay without the need for coil power
- Lock-down door holds pushbutton and contacts in the operate position when activated
- Finger-grip cover allows operator to remove relays from sockets easily
- ID tag/write label to identify relays in multiple-relay circuits
- Bipolar LED allows for reverse polarity applications

Standards and Certifications

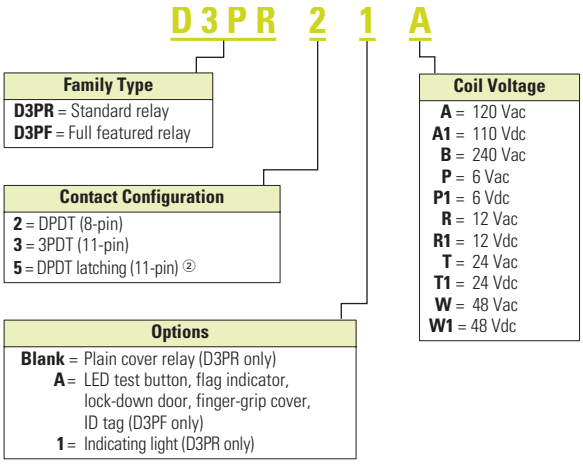
RoHS COMPLIANT c UL us CE CSA

CSA (CSA approval not applicable to D3PR5 Relays)

UL Listed When used with accompanying Eaton screw terminal socket (for D3PF only)

Catalogue Number Selection

D3PR/D3PF Series ①



Product Selection

D3 Relay/Socket Quick Reference

Relay Type	Socket	Clip	Module Type	ID Tag	Jumper
D3PR2, D3PF2	D3PA6	PQC-1332	A	—	D3PJ1
	D3PAL8	PQC-1351	A	PWF-D3D5	—
	D3PA2	PQC-1351	None	—	—
D3PR3, D3PF3	D3PA7	PQC-1332	A	—	D3PJ1
	D3PAL11	PQC-1351	A	PWF-D3D5	—
	D3PA3	PQC-1351	None	—	—
D3PR5	D3PA7	PQC-1351	A	—	D3PJ1
	D3PAL11	PQC-1351	A	PWF-D3D5	—
	D3PA3	PQC-1351	None	—	—

Notes

① For deciphering catalogue numbers. Do not use for ordering as not all combinations are readily available.

② D3PR only.

D3 Series Relay

D3PR/D3PF Series

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalogue Number
Full Featured Style			
120 Vac	DPDT	1700	**D3PF2AA**
240 Vac	DPDT	7200	**D3PF2AB**
12 Vdc	DPDT	120	**D3PF2AR1**
24 Vdc	DPDT	470	**D3PF2AT1**
48 Vdc	DPDT	1800	**D3PF2AW1**
120 Vac	3PDT	1700	**D3PF3AA**
220/240 Vac	3PDT	7200	**D3PF3AB**
6 Vdc	3PDT	32	**D3PF3AP1**
24 Vac	3PDT	72	**D3PF3AT**
24 Vdc	3PDT	470	**D3PF3AT1**
48 Vdc	3PDT	1800	**D3PF3AW1**
Latching Style			
120 Vac	DPDT	10,000	**D3PR5A**
110/125 Vdc	DPDT	9000	**D3PR5A1**
240 Vac	DPDT	36,000	**D3PR5B**
12 Vdc	DPDT	90	**D3PR5R1**
24 Vac	DPDT	470	**D3PR5T**
24 Vdc	DPDT	350	**D3PR5T1**
48 Vdc	DPDT	1400	**D3PR5W1**
Plain Cover with LED Indicator			
120 Vac	DPDT	1700	**D3PR21A**
24 Vac	DPDT	72	**D3PR21T**
24 Vdc	DPDT	470	**D3PR21T1**
220/240 Vac	3PDT	7200	**D3PR31B**
24 Vac	3PDT	72	**D3PR31T**
24 Vdc	3PDT	470	**D3PR31T1**
Plain Cover Style			
120 Vac	DPDT	1700	**D3PR2A**
110/125 Vdc	DPDT	10,000	**D3PR2A1**
220/240 Vac	DPDT	7200	**D3PR2B**
6 Vac	DPDT	4.2	**D3PR2P**
6 Vdc	DPDT	32	**D3PR2P1**
12 Vac	DPDT	18	**D3PR2R**
12 Vdc	DPDT	120	**D3PR2R1**
24 Vac	DPDT	72	**D3PR2T**
24 Vdc	DPDT	470	**D3PR2T1**
48 Vac	DPDT	290	**D3PR2W**
48 Vdc	DPDT	1800	**D3PR2W1**
120 Vac	3PDT	1700	**D3PR3A**
110/125 Vdc	3PDT	10,000	**D3PR3A1**
220/240 Vac	3PDT	7200	**D3PR3B**
12 Vac	3PDT	18	**D3PR3R**
12 Vdc	3PDT	120	**D3PR3R1**
24 Vac	3PDT	72	**D3PR3T**
24 Vdc	3PDT	470	**D3PR3T1**
48 Vdc	3PDT	1800	**D3PR3W1**

Accessories

D3PR/D3PF Series Sockets and Accessories

Type	Module Size	Nominal Voltage (Max. for Sockets)	Nominal Current	Mounting Style	Wire Size	Wire Connection	Standard Pack	Catalogue Number
Socket	A	300	16	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Screw clamping	1	**D3PA6** ①
	A	300	12	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Elevator	10	**D3PAL8** ①
	None	300/600	15/10	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Screw clamping	10	**D3PA2**
	A	600	5	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Screw clamping	1	**D3PA7** ①
	A	300	12	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Elevator	10	**D3PAL11** ①
	None	300/600	15/5	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Screw clamping	10	**D3PA3**
Metal spring clip	—	—	—	—	—	—	25	**PQC-1332**
	—	—	—	—	—	—	10	**PQC-1351**
Protection diode	A	6 to 250 Vdc	—	—	—	—	20	**MOD-AD250**
LED indicator	A	24 Vac/Vdc	—	—	—	—	20	**MOD-ALG24**
	A	120/240 Vac/Vdc	—	—	—	—	20	**MOD-ALG240**
MOV suppressor	A	120 Vac/Vdc	—	—	—	—	20	**MOD-AMV120**
	A	24 Vac/Vdc	—	—	—	—	20	**MOD-AMV24**
	A	240 Vac/Vdc	—	—	—	—	20	**MOD-AMV240**
R/C suppressor	A	6 to 24 Vac/Vdc	—	—	—	—	20	**MOD-RC24**
	A	110 to 240 Vac/Vdc	—	—	—	—	20	**MOD-RC240**
Write-on plastic labels	—	—	—	—	—	—	10	**PWF-D3D5**
Coil bus jumpers	—	—	—	—	—	—	10	**D3PJ1**
Plastic DIN rail end stop	—	—	—	—	—	—	25	**PFP-P**

Note

① Protection category (finger safe), EN 60529: IP20.

Technical Data and Specifications

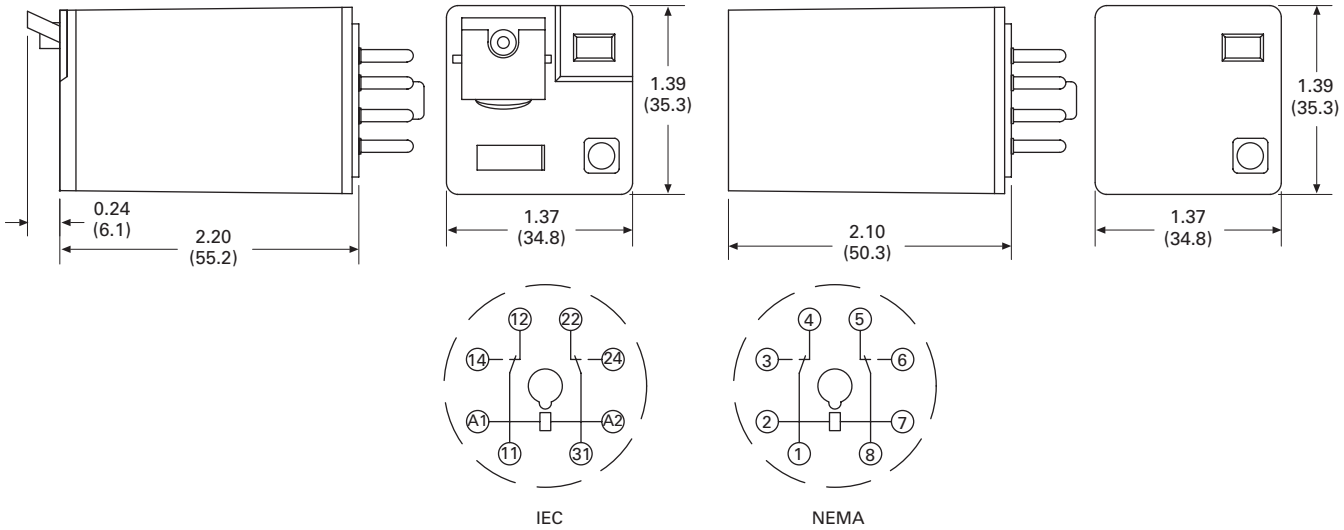
D3PR/D3PF Series Relay Specifications

Description	D3PR	D3PF	D3PR5 (Latching)
Contact Characteristics			
Contact rating	16A	16A	16A
Terminal style	Octal	Octal	11-pin octal
Contact materials	Silver alloy	Silver alloy	Silver alloy
Maximum switching voltage	300V	300V	300V
Switching current at voltage—resistive	16A at 277 Vac 50/60 Hz	16A at 277 Vac 50/60 Hz	16A at 277 Vac 50/60 Hz
	16A at 120 Vac 50/60 Hz	16A at 120 Vac 50/60 Hz	—
	16A at 28 Vdc	16A at 28 Vdc	16A at 28 Vdc
Switching current at voltage	1/2 hp at 240 Vac	1/2 hp at 240 Vac	1/2 hp at 240 Vac
	1/3 hp at 120 Vac	1/3 hp at 120 Vac	1/3 hp at 120 Vac
Pilot duty	B300	B300	B300
Minimum switching requirement	100 mA at 5 Vdc (0.5W)	100 mA at 5 Vdc (0.5W)	100 mA at 5 Vdc (0.5W)
Coil Characteristics			
Operating range			
% of nominal (AC)	85 to 110%	85 to 110%	85 to 110%
% of nominal (DC)	80 to 110%	80 to 110%	80 to 110%
Average consumption	3 VA	3 VA	2 VA
	1.4W	1.4W	1.64W
Dropout voltage threshold	15% (AC)	15% (AC)	15% (AC)
	10% (DC)	10% (DC)	10% (DC)
Performance			
Electrical life (UL 508) operations at rated current	100,000 operations	100,000 operations	100,000 operations
Mechanical life operations unpowered	5,000,000 operations	5,000,000 operations	10,000,000 operations
Response time	20 ms	20 ms	30 ms
Dielectric strength			
Between coil and contact Vac (rms)	1500V (rms)	1500V (rms)	2500V (rms)
Between poles Vac (rms)	1500V (rms)	1500V (rms)	1500V (rms)
Environment			
Ambient air temperature around the device			
Storage	–40˚ to 185˚F (–40˚ to 85˚C)	–40˚ to 185˚F (–40˚ to 85˚C)	–40˚ to 185˚F (–40˚ to 85˚C)
Operation	–40˚ to 131˚F (–40˚ to 55˚C)	–40˚ to 131˚F (–40˚ to 55˚C)	–40˚ to 131˚F (–40˚ to 55˚C)
Vibration resistance—operational	3 g-n at 10–55 Hz	3 g-n at 10–55 Hz	3 g-n at 10–55 Hz
Shock resistance	10 g-n	10 g-n	10 g-n
Degree of protection	IP40	IP40	IP40
Features			
Cover options	Plain cover	Full Featured	Latching
Features	Mechanical flag indicator	Bipolar LED/ Locking pushbutton/ Removable ID tag/ Mechanical flag indicator	—
Product certifications	RoHS/UL/CE/CSA	RoHS/UL/CE/CSA	RoHS/UL/UR

Dimensions

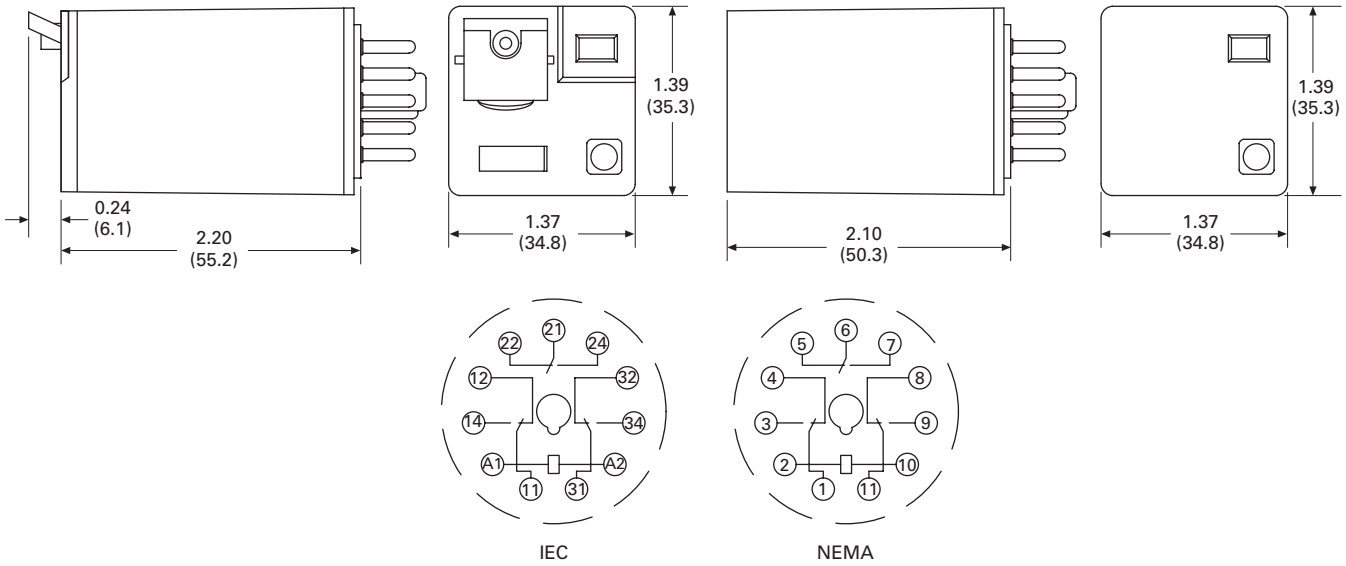
Approximate Dimensions in Inches (mm)

D3PR2/D3PF2



IEC NEMA

D3PR3/D3PF3



IEC NEMA

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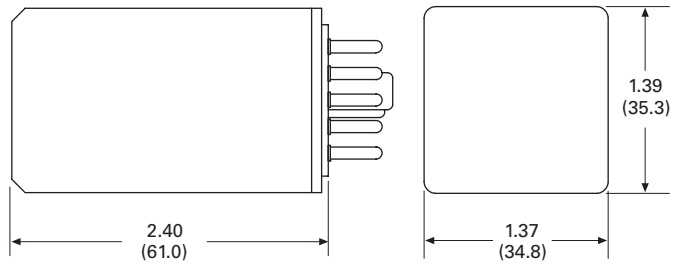
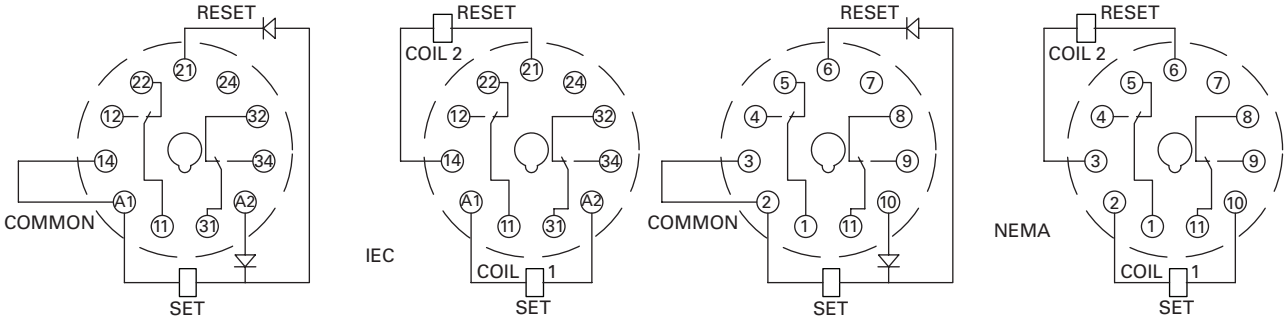
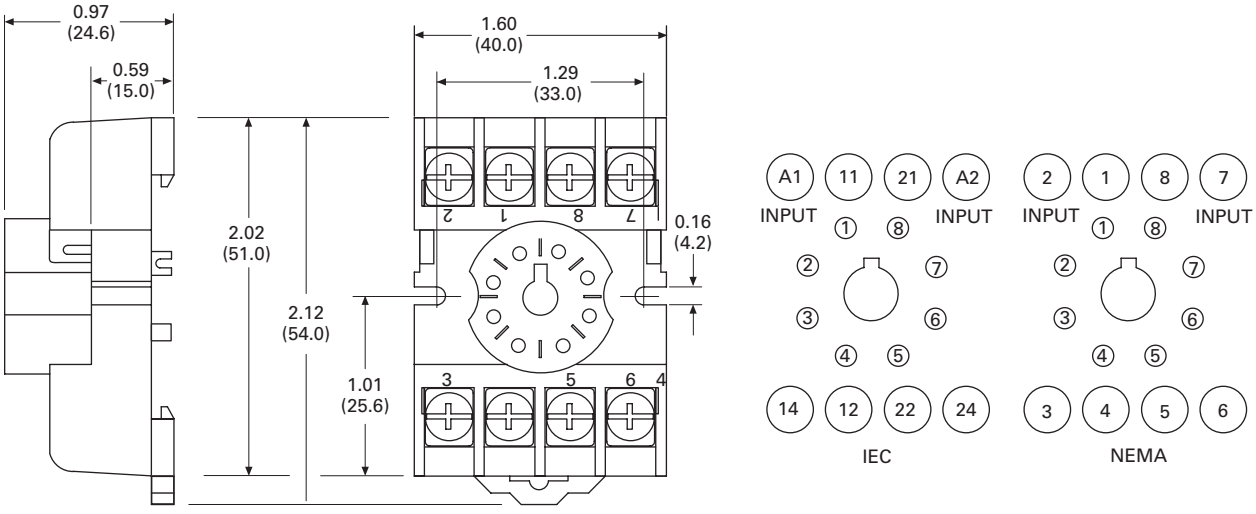
Approximate Dimensions in Inches (mm)

D3PR5—Octal Base Latching Relay



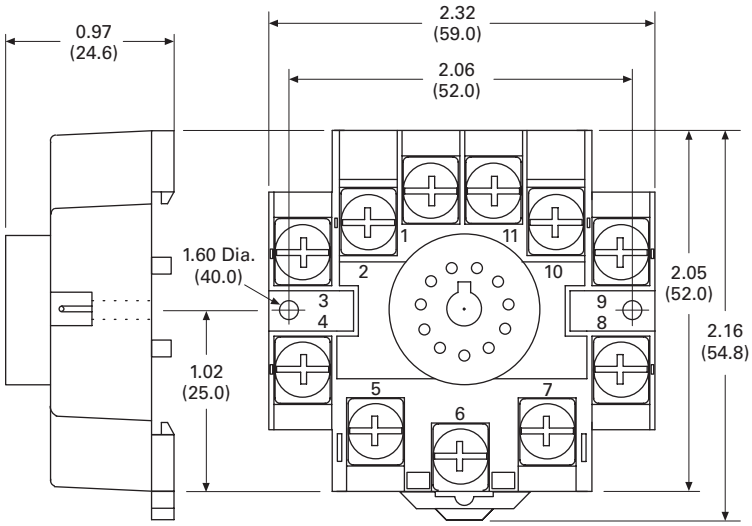


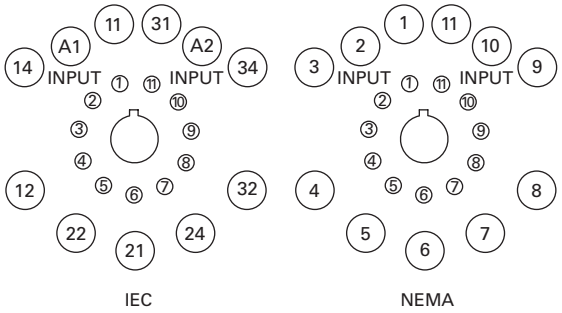
D3PA2

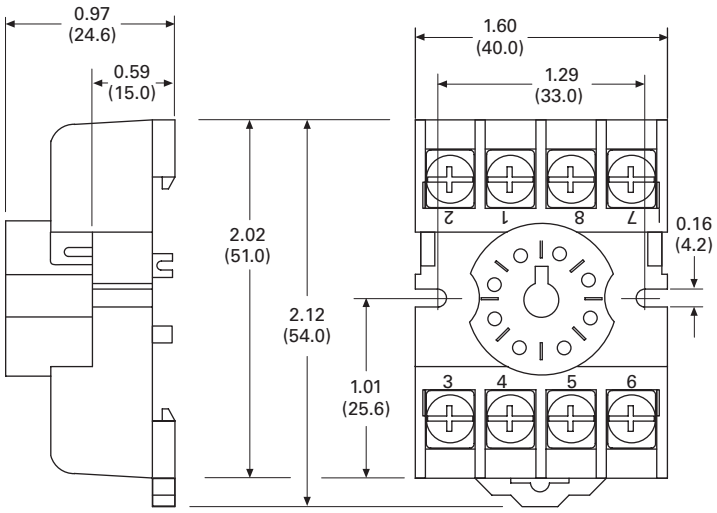


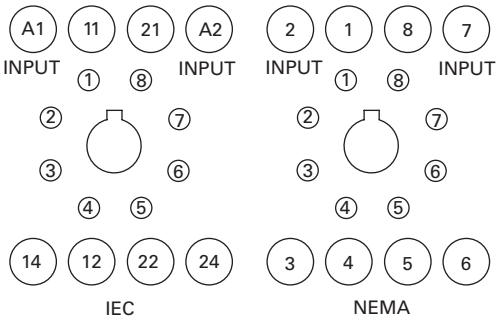
Approximate Dimensions in Inches (mm)

D3PA3



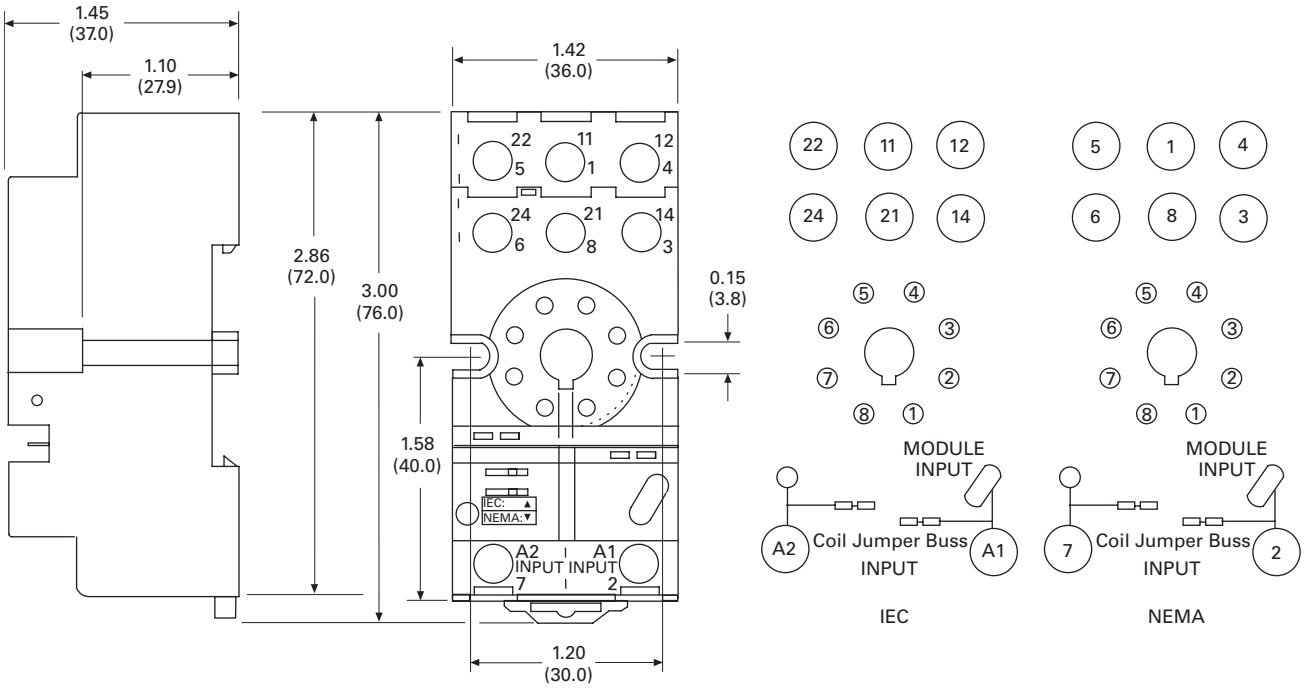




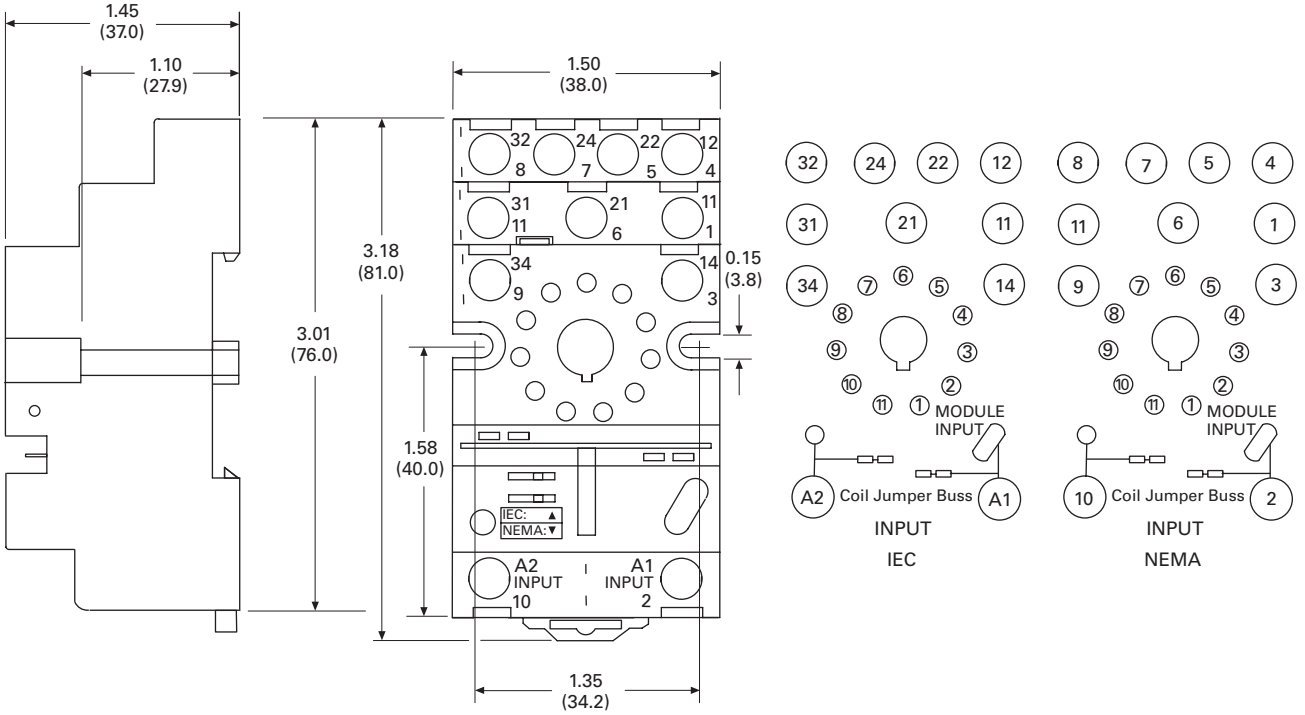


Approximate Dimensions in Inches (mm)

D3PA6

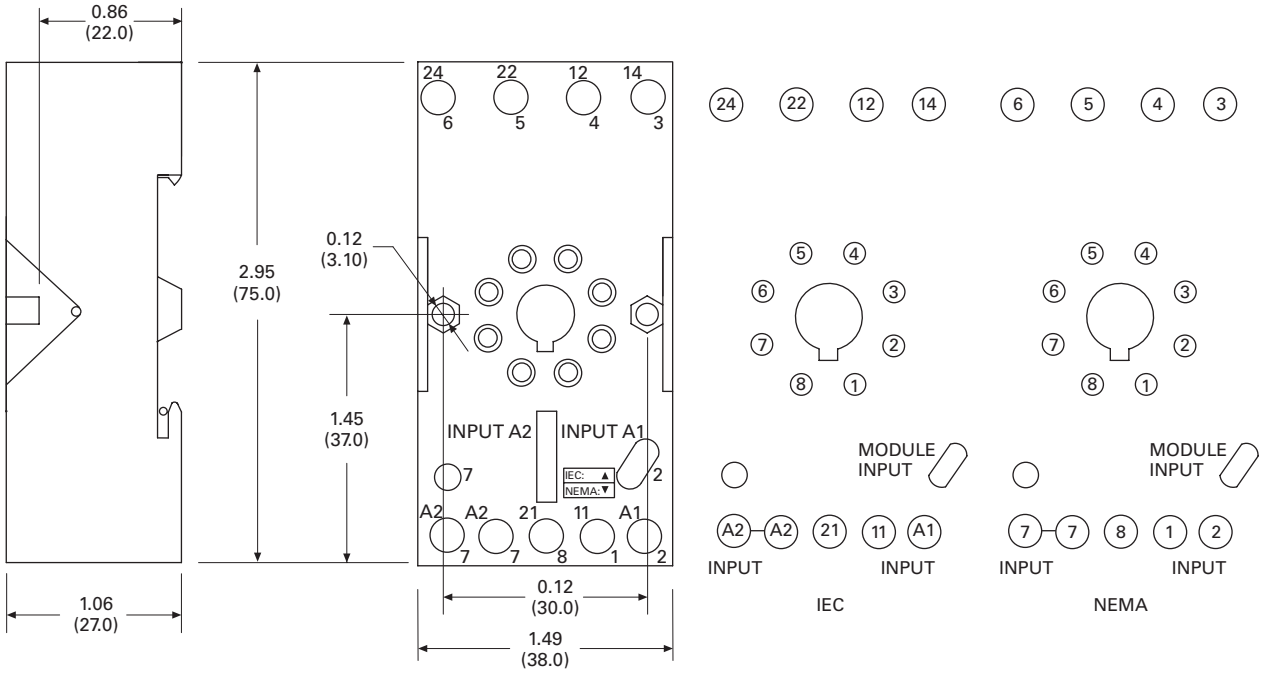


D3PA7

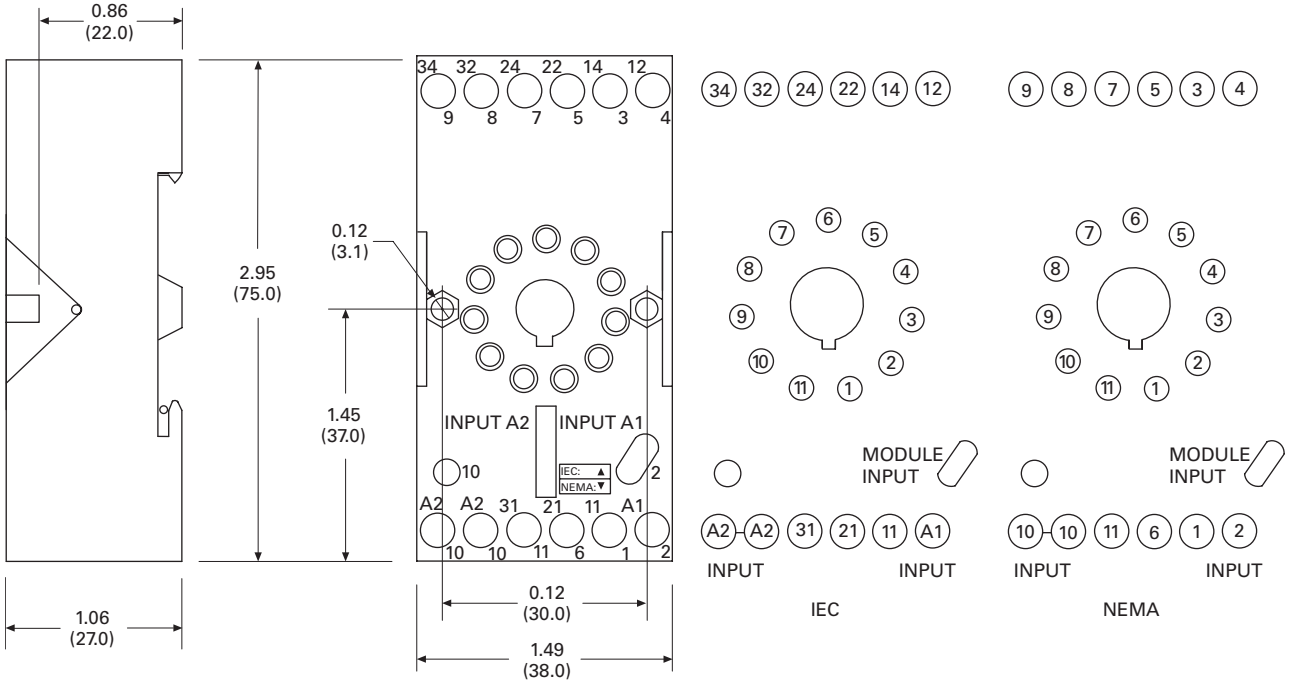


Approximate Dimensions in Inches (mm)

D3PAL8



D3PAL11



D4 Series Relay

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D4 Series

Product Description

The D4 Series is a slim-form relay designed to fit into tight spaces. The retaining clip is built in to the socket to provide easy and secure assembly.

Features

- Slim-styled power relay
- Socket has built-in hold-down clip
- Panel or DIN rail mounting

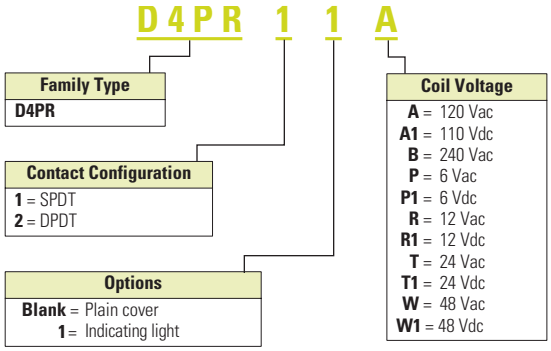
Standards and Certifications

File # E1491, E65657

File # LR701519

Catalogue Number Selection

D4 Series ①



Product Selection

D4 Relay/Socket Quick Reference

Relay Type	Socket	Hold-Down Clip
D4PR1	D4PA1	②
D4PR2	D4PA2	②

Notes

① For deciphering catalogue numbers. Do not use for ordering as not all combinations are readily available.

② Socket has built-in hold-down spring.

D4 Series Relay

D4 Series

Voltage/Poles	Standard Pack	Catalogue Number
DIN Rail Sockets		
Single-pole	10	**D4PA1**
Two-pole	10	**D4PA2**
SPDT with Indicating Light		
120 Vac	1	**D4PR11A**
110 Vdc	1	**D4PR11A1**
240 Vac	1	**D4PR11B**
6 Vac	50	**D4PR11P**
6 Vdc	50	**D4PR11P1**
12 Vac	50	**D4PR11R**
12 Vdc	1	**D4PR11R1**
24 Vac	1	**D4PR11T**
24 Vdc	1	**D4PR11T1**
48 Vdc	50	**D4PR11W1**
Standard SPDT		
120 Vac	1	**D4PR1A**
110 Vdc	50	**D4PR1A1**
240 Vac	50	**D4PR1P**
6 Vac	1	**D4PR1P1**
6 Vdc	50	**D4PR1R**
12 Vac	1	**D4PR1R1**
12 Vdc	1	**D4PR1R1-A2**
24 Vac	1	**D4PR1T**
24 Vdc	1	**D4PR1T1**
48 Vdc	1	**D4PR1W1**

Voltage/Poles	Standard Pack	Catalogue Number
DPDT with Indicating Light		
120 Vac	1	**D4PR21A**
110 Vdc	1	**D4PR21A1**
240 Vac	1	**D4PR21B**
6 Vac	50	**D4PR21P**
6 Vdc	1	**D4PR21P1**
12 Vac	50	**D4PR21R**
12 Vdc	1	**D4PR21R1**
24 Vac	1	**D4PR21T**
24 Vdc	1	**D4PR21T1**
48 Vdc	50	**D4PR21W1**
Standard DPDT		
120 Vac	1	**D4PR2A**
110 Vdc	50	**D4PR2A1**
240 Vac	50	**D4PR2B**
6 Vac	50	**D4PR2P**
6 Vdc	1	**D4PR2P1**
12 Vac	50	**D4PR2R**
12 Vdc	1	**D4PR2R1**
24 Vac	1	**D4PR2T**
24 Vdc	1	**D4PR2T1**
48 Vdc	1	**D4PR2W1**

Technical Data and Specifications

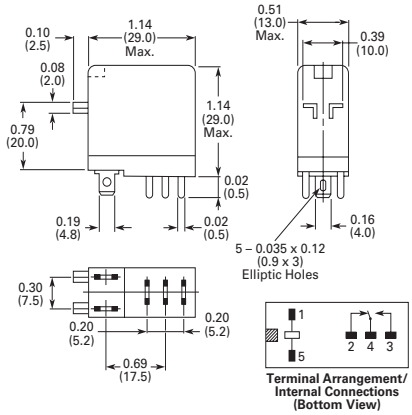
D4 Series

Description	Resistive Load (p.f. = 1)	Inductive Load (p.f. = 0.4, L/R = 7 ms)
D4PR1		
Rated load	250 Vac 10A	250 Vac 7.5A
	30 Vdc 10A	30 Vdc 5A
Carry current	10A	10A
Max. operating voltage	380 Vac/125 Vdc	380 Vac/125 Vdc
Max. operating current	10A	10A
Contact material	AgCdO	AgCdO
Max. switching capacity	2500 VA	1875 VA
	300W	150W
Min. permissible load	100 mA, 5 Vdc	100 mA, 5 Vdc
Pickup voltage (max.)	80% AC/70% DC	80% AC/70% DC
Dropout voltage (min.)	30% AC/15% DC	30% AC/15% DC
Voltage (max.)	110%	110%
Mechanical life (min.)	10,000,000 AC/20,000,000 DC	10,000,000 AC/20,000,000 DC
Electrical life at all contact ratings (min.)	100,000	100,000
Maximum hp ratings	1/3 hp (125 Vac)	1/3 hp (125 Vac)
	1/2 hp (250 Vac)	1/2 hp (250 Vac)
	1/2 hp (277 Vac)	1/2 hp (277 Vac)
D4PR2		
Rated load	240 Vac 5A	250 Vac 2A
	30 Vdc 5A	30 Vdc 3A
Carry current	5A	5A
Max. operating voltage	380 Vac/125 Vdc	380 Vac/125 Vdc
Max. operating current	5A	5A
Contact material	AgCdO	AgCdO
Max. switching capacity	1250 VA	500 VA
	150W	90W
Min. permissible load	10 mA, 5 Vdc	10 mA, 5 Vdc
Pickup voltage (max.)	80% AC/70% DC	80% AC/70% DC
Dropout voltage (min.)	30% AC/15% DC	30% AC/15% DC
Voltage (max.)	110%	110%
Mechanical life (min.)	10,000,000 AC/20,000,000 DC	10,000,000 AC/20,000,000 DC
Electrical life at all contact ratings (min.)	100,000	100,000
Maximum hp ratings	1/6 hp (120 Vac)	1/6 hp (120 Vac)
	1/3 hp (240 Vac)	1/3 hp (240 Vac)
	1/3 hp (265 Vac)	1/3 hp (265 Vac)

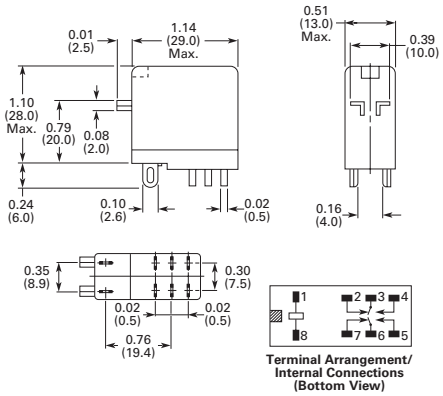
Dimensions

Approximate Dimensions in Inches (mm)

D4PR1



D4PR2



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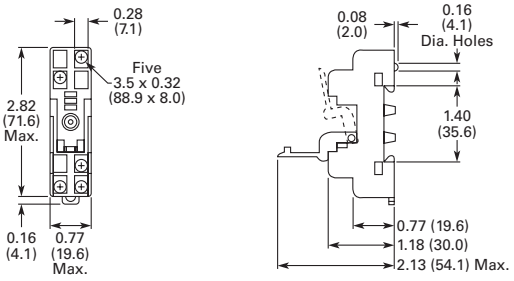
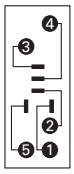
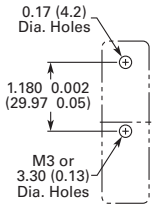


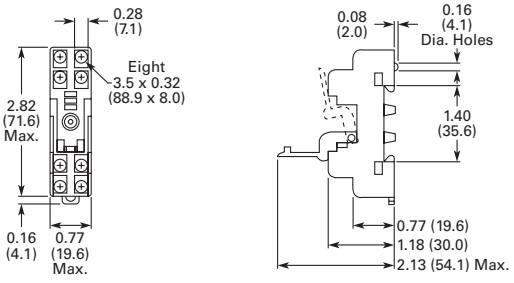


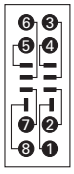
Terminal Arrangement



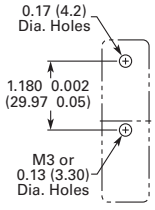
Mounting Holes

D4PA2





Terminal Arrangement



Mounting Holes

D5 Series Relay

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D5PR/D5PF Series

Product Description

The D5 Series is rated at 16A and is available in full-featured and plain cover styles.

Features

D5PR

- Industrial rated 300V, 16A relay in two-pole and three-pole configurations
- Compact design can be panel or DIN rail mounted

D5PF

- Flag indicator shows relay status in manual or powered condition
- LED status lamp shows coil ON or OFF status—ideal for use in low light applications
- Push-to-Test button allows for manual operation of relay without the need for coil power
- Lock-down door holds pushbutton and contacts in the operate position when activated
- Finger-grip cover allows operator to remove relays from sockets easily
- ID tag/write label to identify relays in multiple-relay circuits
- Bipolar LED allows for reverse polarity applications

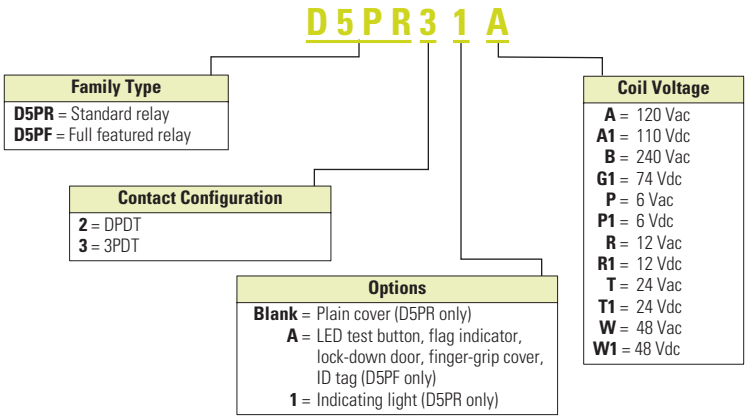
Standards and Certifications

RoHS COMPLIANT

When used with accompanying Eaton screw terminal socket (D5PF only)

Catalogue Number Selection

D5 Series



Product Selection

D5 Relay/Socket Quick Reference

Relay Type	Socket	Clip	Module Type	ID Tag	Jumper
D5PR2, D5PF2, D5PR3, D5PF3	D5PAL	PQC-1351	A	PWF-D3D5	D3PJ1
	D5PA2	PQC-1351	None	—	—
	D5PA3L	PQC-1351	None	—	—
	D5PA3S	PQC-1351	None	—	—

D5 Series Relay

D5 Series

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalogue Number
Full Featured			
120 Vac	DPDT	1700	**D5PF2AA**
110/125 Vdc	DPDT	10,000	**D5PF2AA1**
220/240 Vac	DPDT	7200	**D5PF2AB**
12 Vdc	DPDT	120	**D5PF2AR1**
24 Vac	DPDT	72	**D5PF2AT**
24 Vdc	DPDT	470	**D5PF2AT1**
48 Vdc	DPDT	1800	**D5PF2AW1**
120 Vac	3PDT	1700	**D5PF3AA**
110/125 Vdc	3PDT	10,000	**D5PF3AA1**
220/240 Vac	3PDT	7200	**D5PF3AB**
12 Vdc	3PDT	120	**D5PF3AR1**
24 Vac	3PDT	72	**D5PF3AT**
24 Vdc	3PDT	470	**D5PF3AT1**
Plain Cover with LED			
110/125 Vdc	DPDT	10,000	**D5PR21A1**
6 Vac	DPDT	4.2	**D5PR21P**
6 Vdc	DPDT	32	**D5PR21P1**
12 Vac	DPDT	18	**D5PR21R**
12 Vdc	DPDT	120	**D5PR21R1**
24 Vdc	DPDT	470	**D5PR21T1**
48 Vac	DPDT	290	**D5PR21W**
48 Vdc	DPDT	1800	**D5PR21W1**
120 Vac	3PDT	1700	**D5PR31A**
110/125 Vdc	3PDT	10,000	**D5PR31A1**
6 Vdc	3PDT	32	**D5PR31P1**
12 Vac	3PDT	18	**D5PR31R**
12 Vdc	3PDT	120	**D5PR31R1**
24 Vdc	3PDT	470	**D5PR31T1**
48 Vdc	3PDT	1800	**D5PR31W1**
Side Flange Cover			
220/240 Vac	DPDT	7200	**D5PR24B**
6 Vac	DPDT	4.2	**D5PR24P**
6 Vdc	DPDT	32	**D5PR24P1**
12 Vac	DPDT	18	**D5PR24R**
12 Vdc	DPDT	120	**D5PR24R1**
24 Vac	DPDT	72	**D5PR24T**
24 Vdc	DPDT	470	**D5PR24T1**
48 Vac	DPDT	290	**D5PR24W**

D5 Series Relay

D5 Series, continued

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalogue Number
Plain Cover			
120 Vac	DPDT	1700	**D5PR2A**
110/125 Vdc	DPDT	10,000	**D5PR2A1**
220/240 Vac	DPDT	7200	**D5PR2B**
74 Vdc	DPDT	4800	**D5PR2G1**
6 Vac	DPDT	4.2	**D5PR2P**
6 Vdc	DPDT	32	**D5PR2P1**
12 Vac	DPDT	18	**D5PR2R**
12 Vdc	DPDT	120	**D5PR2R1**
24 Vac	DPDT	72	**D5PR2T**
24 Vdc	DPDT	470	**D5PR2T1**
48 Vac	DPDT	290	**D5PR2W**
48 Vdc	DPDT	1800	**D5PR2W1**
120 Vac	3PDT	1700	**D5PR3A**
110/125 Vdc	3PDT	10,000	**D5PR3A1**
220/240 Vac	3PDT	7200	**D5PR3B**
74 Vdc	3PDT	4800	**D5PR3G1**
6 Vac	3PDT	4.2	**D5PR3P**
6 Vdc	3PDT	32	**D5PR3P1**
12 Vac	3PDT	18	**D5PR3R**
12 Vdc	3PDT	120	**D5PR3R1**
24 Vac	3PDT	72	**D5PR3T**
24 Vdc	3PDT	470	**D5PR3T1**
48 Vdc	3PDT	1800	**D5PR3W**
48 Vdc	3PDT	1800	**D5PR3W1**

Accessories

D5 Sockets and Accessories

Type	Module Size	Nominal Voltage (Max. for Sockets)	Nominal Current	Mounting Style	Wire Size	Wire Connection	Standard Pack	Catalogue Number
Socket	A	300	25	DIN rail	10 /14 (2) AWG, 6/2.5 (2) mm^2	Elevator	10	**D5PAL** ①
	None	300	15	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Screw clamping	10	**D5PA2**
	None	300	15	Chassis	(Output): 16 AWG, 1 mm^2	Solder	10	**D5PA3L**
	None	300	15	Chassis	(Output): 16 AWG, 1 mm^2	Solder	10	**D5PA3S**
Metal spring clip	—	—	—	—	—	—	10	**PQC-1351**
Protection diode	A	6 to 250 Vdc	—	—	—	—	20	**MOD-AD250**
LED indicator	A	24 Vac/Vdc	—	—	—	—	20	**MOD-ALG24**
	A	120/240 Vac/Vdc	—	—	—	—	20	**MOD-ALG240**
MOV suppressor	A	120 Vac/Vdc	—	—	—	—	20	**MOD-AMV120**
	A	24 Vac/Vdc	—	—	—	—	20	**MOD-AMV24**
	A	240 Vac/Vdc	—	—	—	—	20	**MOD-AMV240**
R/C suppressor	A	6 to 24 Vac/Vdc	—	—	—	—	20	**MOD-RC24**
	A	110 to 240 Vac/Vdc	—	—	—	—	20	**MOD-RC240**
Write-on plastic labels	—	—	—	—	—	—	10	**PWF-D3D5**
Coil bus jumpers	—	—	—	—	—	—	10	**D3PJ1**
Plastic DIN rail end stop	—	—	—	—	—	—	25	**PFP-P**

Note

① Protection category (finger safe), EN 60529: IP20.

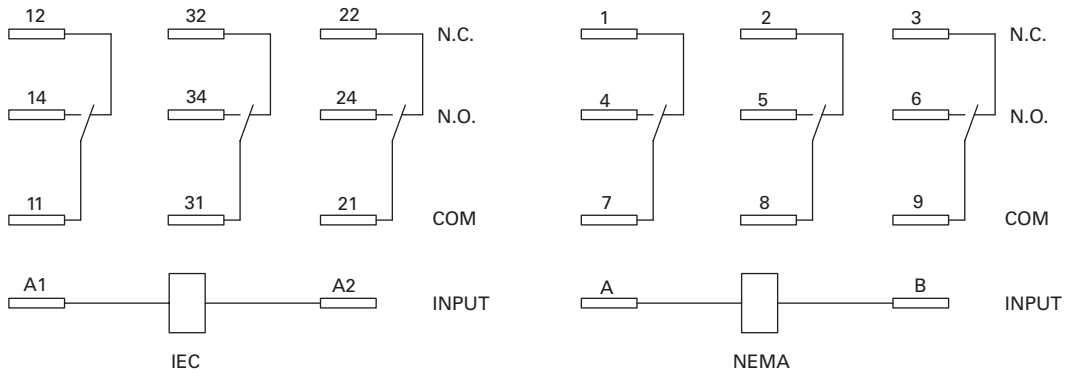
Technical Data and Specifications

D5 Series

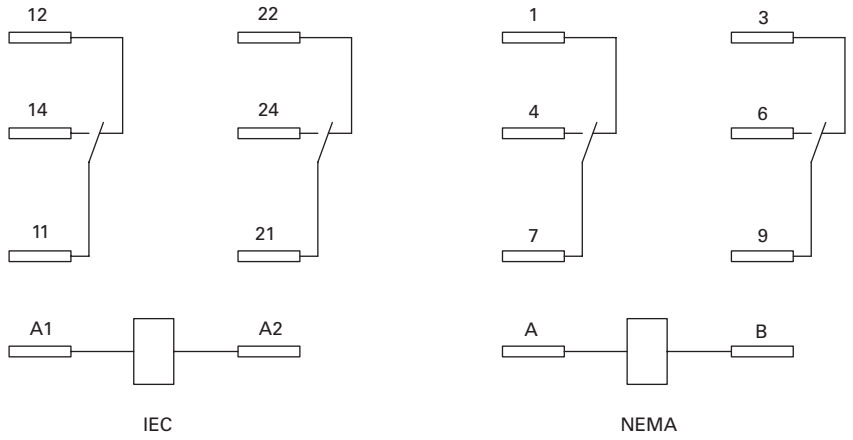
Description	D5PR	D5PF
Contact Characteristics		
Contact rating	16A	16A
Terminal style	Plug-in	Plug-in
Contact materials	Silver alloy	Silver alloy
Maximum switching voltage	300V	300V
Switching current at voltage—resistive		
	16A at 277 Vac 50/60 Hz	16A at 277 Vac 50/60 Hz
	16A at 120 Vac 50/60 Hz	16A at 120 Vac 50/60 Hz
	16A at 28 Vdc	16A at 28 Vdc
Switching current at voltage	1/2 hp at 240 Vac	1/2 hp at 240 Vac
	1/3 hp at 120 Vac	1/3 hp at 120 Vac
Pilot duty	B300	B300
Minimum switching requirement	100 mA at 5 Vdc (0.5W)	100 mA at 5 Vdc (0.5W)
Coil Characteristics		
Operating range		
% of nominal (AC)	85 to 110%	85 to 110%
% of nominal (DC)	80 to 110%	80 to 110%
Average consumption	3 VA 1.4W	3 VA 1.4W
Drop-out voltage threshold	10%/15% (AC) 10% (DC)	10%/15% (AC) 10% (DC)
Performance		
Electrical life (UL 508) operations at rated current	100,000 operations	100,000 operations
Mechanical life operations unpowered	5,000,000 operations	5,000,000 operations
Response time	20 ms	20 ms
Dielectric strength		
Between coil and contact Vac (rms)	1500V (rms)	1500V (rms)
Between poles Vac (rms)	1500V (rms)	1500V (rms)
Environment		
Ambient air temperature around the device		
Storage	–40˚ to 185˚F (–40˚ to 85˚C)	–40˚ to 185˚F (–40˚ to 85˚C)
Operation	–40˚ to 131˚F (–40˚ to 55˚C)	–40˚ to 131˚F (–40˚ to 55˚C)
Vibration resistance—operational	3 g-n at 10–55 Hz	3 g-n at 10–55 Hz
Shock resistance	10 g-n	10 g-n
Degree of protection	IP40	IP40
Features		
Cover options	Flange/plain cover with LED	Full featured
Features	Mechanical flag indicator (LED optional)	Bipolar LED/ Mechanical flag indicator/ Locking pushbutton/ Removable ID tag
Product certifications	RoHS/UL/CE/CSA	RoHS/UL/CE/CSA

Wiring Diagrams

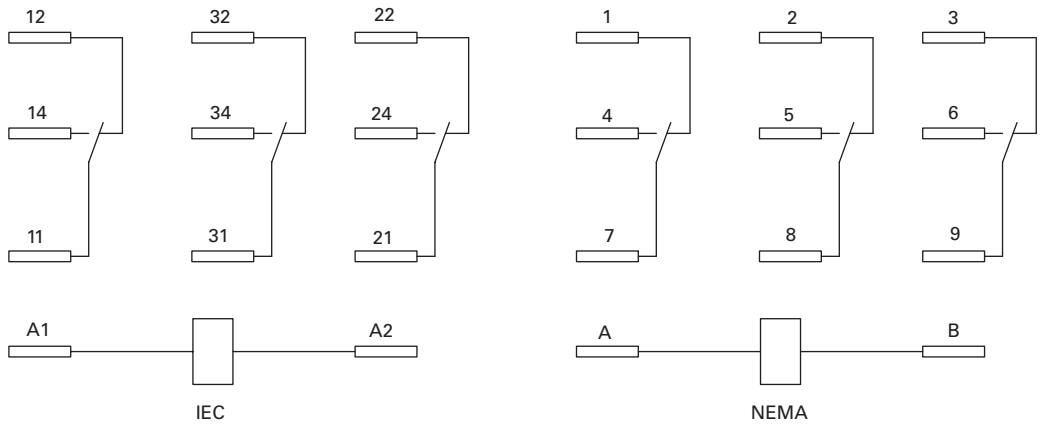
D5PA3L and D5PA3S



D5PR2/D5PF2 DPDT



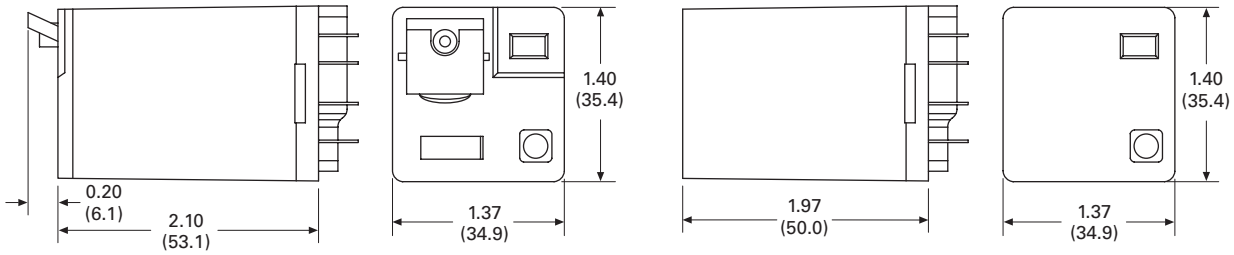
D5PR3/D5PF3 3PDT



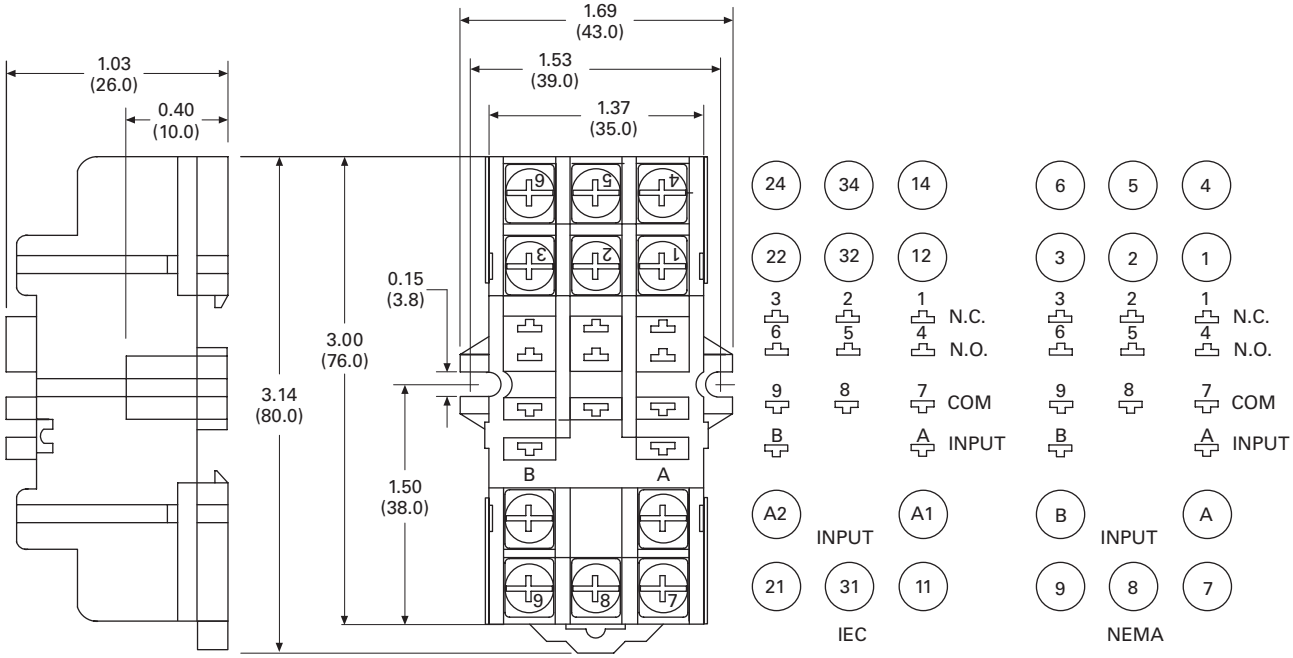
Dimensions

Approximate Dimensions in Inches (mm)

D5PR and D5PF

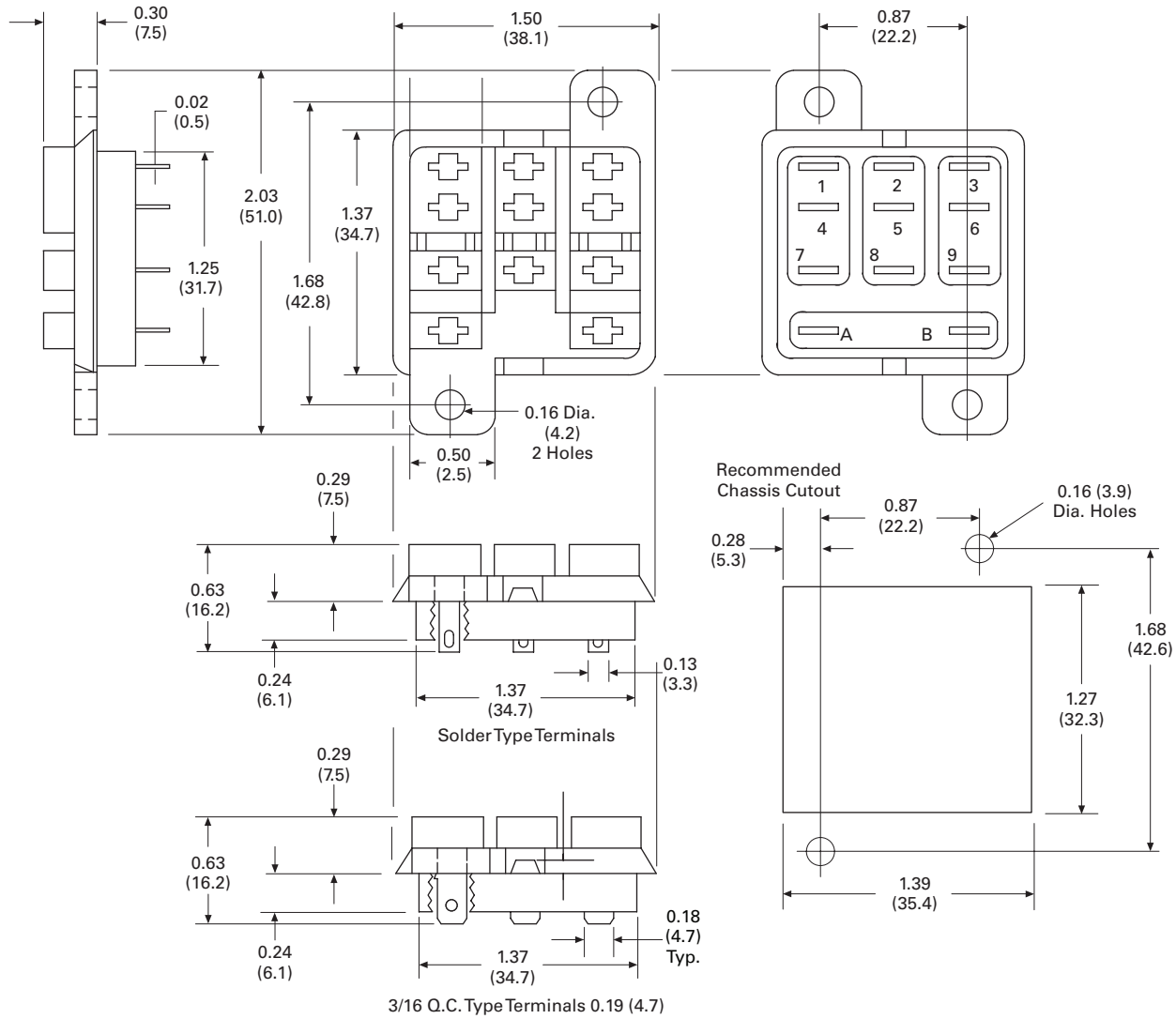


D5PA2



Approximate Dimensions in Inches (mm)

D5PA3L and D5PA3S



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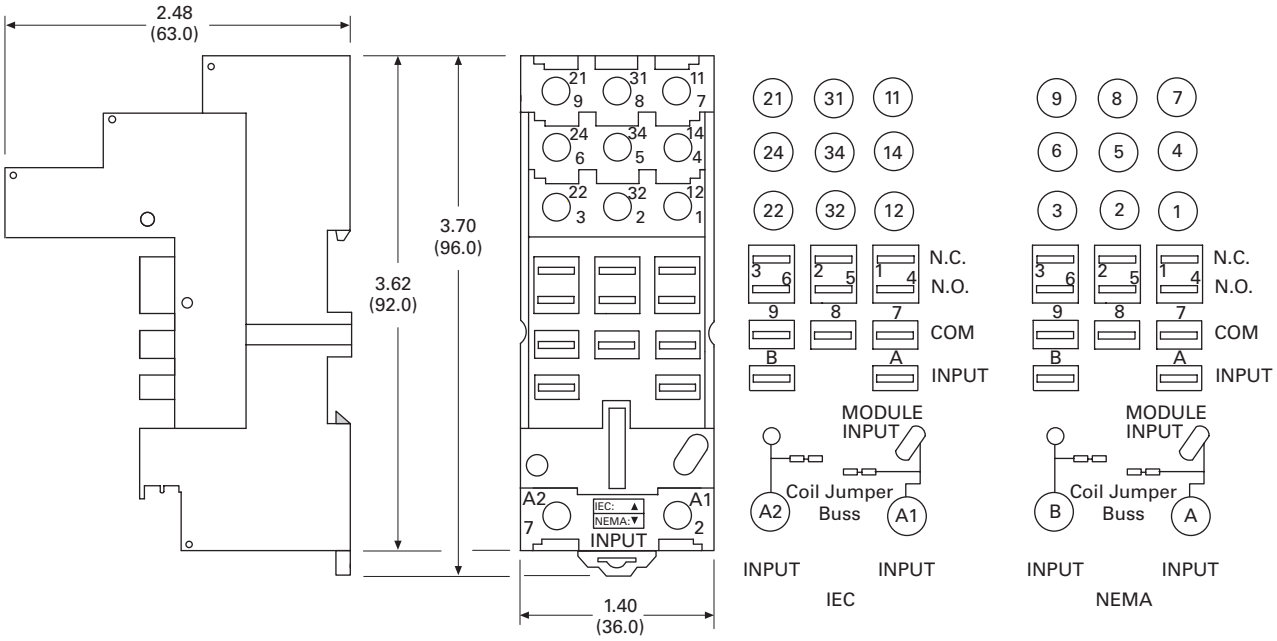
Approximate Dimensions in Inches (mm)

D5PAL



D7 Series Relay

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D7PR/D7PF Series

Product Description

The D7 Series is a cost-effective control relay with high dielectric strength and high current-carrying capacity.

Features

D7PR

- Arc barrier equipped relay with high dielectric strength
- Panel and DIN rail mounting

D7PF

- Flag indicator shows relay status in manual or powered condition
- Bipolar LED status lamp allows for reverse polarity applications
  - Shows coil ON or OFF status
  - Ideal in low light conditions
- Colour-coded pushbutton identifies AC coils with red or DC coils with blue pushbuttons
  - Allows for manual operation of relay without the need for coil power
  - Ideal for field service personnel to test control circuits
- Lock-down door, when activated, holds pushbutton and contacts in the operate position
  - Excellent for analyzing circuit problems
- Finger-grip cover allows operator to remove relays from sockets more easily than conventional relays
- White plastic ID tag/write label used for identification of relays in multi-relay circuits

Standards and Certifications

File # E37317, E65657

File # LR217017, LR217069

CE

RoHS COMPLIANT

Catalogue Number Selection

D7 Series

D7PR 1 1 A

Family Type
D7PR = Standard relay
D7PF = Full featured relay

Contact Configuration

1 = SPDT	**3** = 3PDT
2 = DPDT	**4** = 4PDT

Options
Blank = Plain cover (D7PR only)
A = LED test button, flag indicator, lock-down door, finger-grip cover, ID tag (D7PF only)
1 = Indicating light (D7PR only)

Coil Voltage
A = 120 Vac
A1 = 110 Vdc
B = 240 Vac
P = 6 Vac
P1 = 6 Vdc
R = 12 Vac
R1 = 12 Vdc
T = 24 Vac
T1 = 24 Vdc
W = 48 Vac
W1 = 48 Vdc

Product Selection

D7 Relay/Socket Quick Reference

Relay Type	Socket/Adapter	Clip	Module Type	ID Tag	Jumper
D7PR1, D7PR2, D7PF1, D7PF2	D7PAA	PQC-1342	B	—	—
		PQC-1349	B	—	—
	D7PA9	PQC-1342	None	—	—
	PFC-D2D72	—	None	—	—
D7PR3, D7PF3	D7PAB	PQC-1783	A	—	—
		PMC-1783	A	—	—
	PFC-D73	—	None	—	—
D7PR4, D7PF4	D7PAD	PQC-1784	A	—	—
		PMC-1784	A	—	—
	PFC-D74	—	None	—	—

D7 Series Relay

D7 Series

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalogue Number
Full Featured			
120 Vac	SPDT	4430	**D7PF1AA**
6 Vac	SPDT	9.6	**D7PF1AP**
6 Vdc	SPDT	40	**D7PF1AP1**
12 Vac	SPDT	46	**D7PF1AR**
24 Vdc	SPDT	650	**D7PF1AT1**
48 Vac	SPDT	788	**D7PF1AW**
48 Vdc	SPDT	2600	**D7PF1AW1**
120 Vac	DPDT	4430	**D7PF2AA**
110/125 Vdc	DPDT	11,000	**D7PF2AA1**
220/240 Vac	DPDT	15,720	**D7PF2AB**
6 Vac	DPDT	9.6	**D7PF2AP**
6 Vdc	DPDT	40	**D7PF2AP1**
12 Vac	DPDT	46	**D7PF2AR**
12 Vdc	DPDT	160	**D7PF2AR1**
24 Vac	DPDT	180	**D7PF2AT**
24 Vdc	DPDT	650	**D7PF2AT1**
48 Vac	DPDT	788	**D7PF2AW**
48 Vdc	DPDT	2600	**D7PF2AW1**
120 Vac	3PDT	2770	**D7PF3AA**
6 Vac	3PDT	6	**D7PF3AP**
6 Vdc	3PDT	25	**D7PF3AP1**
12 Vac	3PDT	25.3	**D7PF3AR**
24 Vac	3PDT	103	**D7PF3AT**
24 Vdc	3PDT	400	**D7PF3AT1**
48 Vac	3PDT	412	**D7PF3AW**
48 Vdc	3PDT	1600	**D7PF3AW1**
120 Vac	4PDT	2220	**D7PF4AA**
110/125 Vdc	4PDT	7340	**D7PF4AA1**
240 Vac	4PDT	9120	**D7PF4AB**
6 Vac	4PDT	5.4	**D7PF4AP**
6 Vdc	4PDT	24	**D7PF4AP1**
12 Vac	4PDT	21.2	**D7PF4AR**
12 Vdc	4PDT	96	**D7PF4AR1**
24 Vac	4PDT	84.5	**D7PF4AT**
24 Vdc	4PDT	388	**D7PF4AT1**
48 Vdc	4PDT	1550	**D7PF4AW**
48 Vac	4PDT	410	**D7PF4AW1**

D7 Series Relay

D7 Series, continued

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalogue Number
Plain Cover with LED			
120 Vac	SPDT	4430	**D7PR11A**
110/125 Vdc	SPDT	11,000	**D7PR11A1**
6 Vac	SPDT	9.6	**D7PR11P**
12 Vac	SPDT	46	**D7PR11R**
12 Vdc	SPDT	160	**D7PR11R1**
24 Vac	SPDT	180	**D7PR11T**
24 Vdc	SPDT	650	**D7PR11T1**
48 Vdc	SPDT	2600	**D7PR11W1**
120 Vac	3PDT	2770	**D7PR31A**
240 Vac	3PDT	12100	**D7PR31B**
24 Vac	3PDT	103	**D7PR31T**
24 Vdc	3PDT	400	**D7PR31T1**
48 Vdc	3PDT	1600	**D7PR31W1**
120 Vac	4PDT	2220	**D7PR41A**
12 Vdc	4PDT	100	**D7PR41R1**
24 Vdc	4PDT	388	**D7PR41T1**
Plain Cover			
120 Vac	SPDT	4430	**D7PR1A**
110/125 Vdc	SPDT	11000	**D7PR1A1**
220/240 Vac	SPDT	15720	**D7PR1B**
6 Vac	SPDT	9.6	**D7PR1P**
12 Vdc	SPDT	160	**D7PR1R1**
24 Vac	SPDT	180	**D7PR1T**
24 Vdc	SPDT	650	**D7PR1T1**
48 Vdc	SPDT	2600	**D7PR1W1**
120 Vac	DPDT	4430	**D7PR2A**
110/125 Vdc	DPDT	11000	**D7PR2A1**
220/240 Vac	DPDT	15720	**D7PR2B**
6 Vac	DPDT	9.6	**D7PR2P**
6 Vdc	DPDT	40	**D7PR2P1**
12 Vac	DPDT	46	**D7PR2R**
12 Vdc	DPDT	160	**D7PR2R1**
24 Vac	DPDT	180	**D7PR2T**
24 Vdc	DPDT	650	**D7PR2T1**
120 Vac	3PDT	2770	**D7PR3A**
240 Vac	3PDT	12100	**D7PR3B**
6 Vac	3PDT	6	**D7PR3P**
12 Vac	3PDT	25.3	**D7PR3R**
12 Vdc	3PDT	100	**D7PR3R1**
24 Vac	3PDT	103	**D7PR3T**
24 Vdc	3PDT	400	**D7PR3T1**
48 Vdc	3PDT	1600	**D7PR3W1**
120 Vac	4PDT	2220	**D7PR4A**
110/125 Vdc	4PDT	7340	**D7PR4A1**
240 Vac	4PDT	9120	**D7PR4B**
6 Vac	4PDT	5.4	**D7PR4P**
24 Vac	4PDT	84.5	**D7PR4T**
24 Vdc	4PDT	388	**D7PR4T1**
48 Vdc	4PDT	1550	**D7PR4W1**

Accessories

D7 Sockets and Accessories

Type	Module Size	Nominal Voltage (Max. for Sockets)	Nominal Current	Mounting Style	Wire Size	Wire Connection	Standard Pack	Catalogue Number
Socket	B	300	16	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Screw clamping	—	**D7PAA** ①
	None	300	10	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Screw clamping	1	**D7PA9**
	A	300	16	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Screw clamping	—	**D7PAD** ①
	A	300	16	DIN rail/panel	12/14 (2) AWG, 4/2.5 (2) mm^2	Screw clamping	—	**D7PAB** ①
Flange mount adapter	—	—	—	Flange	—	—	25	**PFC-D2D72**
	—	—	—	Flange	—	—	25	**PFC-D73**
	—	—	—	Flange	—	—	25	**PFC-D74**
Metal spring clip	—	—	—	—	—	—	25	**PQC-1342**
Plastic ID clip	—	—	—	—	—	—	10	**PQC-1349**
Metal spring clip	—	—	—	—	—	—	25	**PQC-1784**
Plastic ID clip	—	—	—	—	—	—	10	**PMC-1784**
Hold-down spring	—	—	—	—	—	—	25	**PYC-B2**
Metal spring clip	—	—	—	—	—	—	10	**PQC-1783**
Plastic ID clip	—	—	—	—	—	—	10	**PMC-1783**
Protection diode	A	6 to 250 Vdc	—	—	—	—	20	**MOD-AD250**
LED indicator	A	24 Vac/Vdc	—	—	—	—	20	**MOD-ALG24**
	A	120/240 Vac/Vdc	—	—	—	—	20	**MOD-ALG240**
MOV suppressor	A	120 Vac/Vdc	—	—	—	—	20	**MOD-AMV120**
	A	24 Vac/Vdc	—	—	—	—	20	**MOD-AMV24**
	A	240 Vac/Vdc	—	—	—	—	20	**MOD-AMV240**
R/C suppressor	A	6 to 24 Vac/Vdc	—	—	—	—	20	**MOD-RC24**
	A	110 to 240 Vac/Vdc	—	—	—	—	20	**MOD-RC240**
Protection diode	B	6 to 250 Vdc	—	—	—	—	20	**MOD-BD250**
LED indicator	B	24 Vac/Vdc	—	—	—	—	20	**MOD-BLG24**
	B	120/240 Vac/Vdc	—	—	—	—	20	**MOD-BLG240**
MOV suppressor	B	120 Vac/Vdc	—	—	—	—	20	**MOD-BMV120**
	B	24 Vac/Vdc	—	—	—	—	20	**MOD-BMV24**
	B	240 Vac/Vdc	—	—	—	—	20	**MOD-BMV240**
Plastic DIN rail end stop	—	—	—	—	—	—	25	**PFP-P**

Note

① Protection category (finger safe), EN 60529: IP20.

Technical Data and Specifications

D7PR Relay

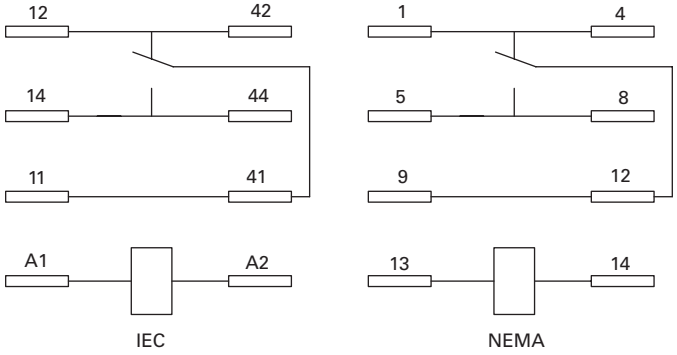
Description	D7PR (SPDT)	D7PR (DPDT)	D7PR (3PDT)	D7PR (4PDT)
Contact Characteristics				
Contact rating	20A	15A	15A	15A
Terminal style	Plug-in	Plug-in	Plug-in	Plug-in
Contact materials	Silver alloy	Silver alloy	Silver alloy	Silver alloy
Maximum switching voltage	300V	300V	300V	300V
Switching current at voltage—resistive	20A at 277 Vac 50/60 Hz	15A at 120 Vac 50/60 Hz	15A at 120 Vac 50/60 Hz	15A at 120 Vac 50/60 Hz
	20A at 120 Vac 50/60 Hz	12A at 277 Vac 50/60 Hz	12A at 277 Vac 50/60 Hz	12A at 277 Vac 50/60 Hz
	—	10A at 277 Vac 50/60 Hz	—	—
	20A at 28 Vdc	12A at 28 Vdc	12A at 28 Vdc	12A at 28 Vdc
Switching current at voltage	1/2 hp at 120 Vac	1/2 hp at 120 Vac	1/2 hp at 120 Vac	1/2 hp at 120 Vac
	1 hp at 250 Vac	1 hp at 250 Vac	3/4 hp at 250 Vac	3/4 hp at 250 Vac
Pilot duty	B300	B300	B300	B300
Minimum switching requirement	100 mA at 5 Vdc (0.5W)	100 mA at 5 Vdc (0.5W)	100 mA at 5 Vdc (0.5W)	100 mA at 5 Vdc (0.5W)
Coil Characteristics				
Operating range				
% of nominal (AC)	85 to 110%	85 to 110%	85 to 110%	85 to 110%
% of nominal (DC)	80 to 110%	80 to 110%	80 to 110%	80 to 110%
Average consumption	1.2 VA	1.2 VA	1.5 VA	1.5 VA
	0.9W	0.9W	1.4W	1.5W
Dropout voltage threshold	15% (AC)	15% (AC)	15% (AC)	15% (AC)
	10% (DC)	10% (DC)	10% (DC)	10% (DC)
Performance				
Electrical life (UL 508) operations at rated current	100,000 operations	100,000 operations	200,000 operations	200,000 operations
Mechanical life operations unpowered	10,000,000 operations	10,000,000 operations	10,000,000 operations	10,000,000 operations
Response time	20 ms	20 ms	20 ms	20 ms
Dielectric strength				
Between coil and contact Vac (rms)	2500V (rms)	2500V (rms)	2500V (rms)	2500V (rms)
Between poles Vac (rms)	1500V (rms)	1500V (rms)	2500V (rms)	2500V (rms)
Environment				
Ambient air temperature around the device				
Operation	–40˚ to 131˚F (–40˚ to 55˚C)	–40˚ to 131˚F (–40˚ to 55˚C)	–40˚ to 131˚F (–40˚ to 55˚C)	–40˚ to 131˚F (–40˚ to 55˚C)
Storage	–40˚ to 185˚F (–40˚ to 85˚C)	–40˚ to 185˚F (–40˚ to 85˚C)	–40˚ to 185˚F (–40˚ to 85˚C)	–40˚ to 185˚F (–40˚ to 85˚C)
Vibration resistance—operational	3 g-n at 10–55 Hz	3 g-n at 10–55 Hz	3 g-n at 10–55 Hz	3 g-n at 10–55 Hz
Shock resistance	10 g-n	10 g-n	10 g-n	10 g-n
Degree of protection	IP40	IP40	IP40	IP40
Features				
Cover options	Plain cover	Plain cover	Plain cover	Plain cover
Features	Mechanical flag indicator (optional LED)	Mechanical flag indicator (optional LED)	Mechanical flag indicator (optional LED)	Mechanical flag indicator (optional LED)
Product certifications	RoHS/UL/CE/CSA	RoHS/UL/CE/CSA	RoHS/UL/CE/CSA	RoHS/UL/CE/CSA

D7PF Relay

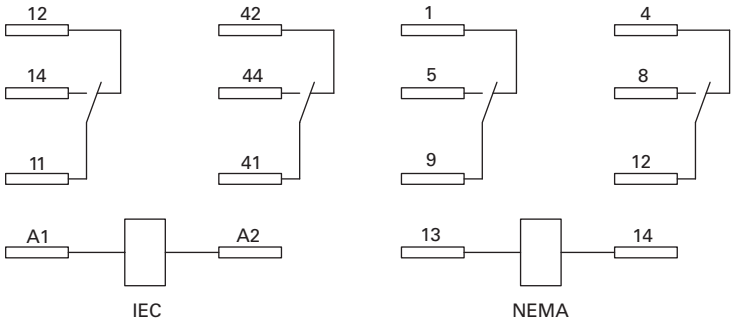
Description	D7PF (SPDT)	D7PF (DPDT)	D7PF (3PDT)	D7PF (4PDT)
Contact Characteristics				
Contact rating	20A	15A	15A	15A
Terminal style	Plug-in	Plug-in	Plug-in	Plug-in
Contact materials	Silver alloy	Silver alloy	Silver alloy	Silver alloy
Maximum switching voltage	300V	300V	300V	300V
Switching current at voltage—resistive				
	20A at 277 Vac 50/60 Hz	15A at 120 Vac 50/60 Hz	15A at 120 Vac 50/60 Hz	15A at 120 Vac 50/60 Hz
	20A at 277 Vac 50/60 Hz	12A at 277 Vac 50/60 Hz	12A at 277 Vac 50/60 Hz	12A at 277 Vac 50/60 Hz
	—	10A at 277 Vac 50/60 Hz	—	—
	20A at 28 Vdc	12A at 28 VDC	12A at 28 Vdc	12A at 28 Vdc
Switching current at voltage	1/2 hp at 120 Vac	1/2 hp at 120 Vac	3/4 hp at 250 Vac	1/2 hp at 120 Vac
	1 hp at 250 Vac	1 hp at 250 Vac	1/2 hp at 120 Vac	3/4 hp at 250 Vac
Pilot duty	B300	B300	B300	B300
Minimum switching requirement	100 mA at 5 Vdc (0.5W)	100 mA at 5 Vdc (0.5W)	100 mA at 5 Vdc (0.5W)	100 mA at 5 Vdc (0.5W)
Coil Characteristics				
Operating range				
% of nominal (AC)	85 to 110%	85 to 110%	85 to 110%	85 to 110%
% of nominal (DC)	80 to 110%	80 to 110%	80 to 110%	80 to 110%
Average consumption	1.2 VA	1.2 VA	1.5 VA	1.5 VA
	0.9W	0.9W	1.4W	1.5W
Dropout voltage threshold	15% (AC)	15% (AC)	15% (AC)	15% (AC)
	10% (DC)	10% (DC)	10% (DC)	10% (DC)
Performance				
Electrical life (UL 508) operations at rated current	100,000 operations	100,000 operations	200,000 operations	200,000 operations
Mechanical life operations unpowered	10,000,000 operations	10,000,000 operations	10,000,000 operations	10,000,000 operations
Response time	20 ms	20 ms	20 ms	20 ms
Dielectric strength				
Between coil and contact Vac (rms)	2500V (rms)	2500V (rms)	2500V (rms)	2500V (rms)
Between poles Vac (rms)	1500V (rms)	1500V (rms)	2500V (rms)	2500V (rms)
Environment				
Ambient air temperature around the device				
Operation	–40˚ to 131˚F (–40˚ to 55˚C)	–40˚ to 131˚F (–40˚ to 55˚C)	–40˚ to 131ºF (–40˚ to 55˚C)	–40˚ to 131˚F (–40˚ to 55˚C)
Storage	–40˚ to 185˚F (–40˚ to 85˚C)	–40˚ to 185˚F (–40˚ to 85˚C)	–40˚ to 185ºF (–40˚ to 85˚C)	–40˚ to 185˚F (–40˚ to 85˚C)
Vibration resistance—operational	3 g-n at 10–55 Hz	3 g-n at 10–55 Hz	3 g-n at 10–55 Hz	3 g-n at 10–55 Hz
Shock resistance	10 g-n	10 g-n	10 g-n	10 g-n
Degree of protection	IP40	IP40	IP40	IP40
Features				
Cover options	Full featured	Full featured	Full featured	Full featured
Features	Locking pushbutton/ Bipolar LED/ Removable ID tag/ Mechanical flag indicator	Locking pushbutton/ Bipolar LED/ Removable ID tag/ Mechanical flag indicator	Locking pushbutton/ Bipolar LED/ Removable ID tag/ Mechanical flag indicator	Locking pushbutton/ Bipolar LED/ Removable ID tag/ Mechanical flag indicator
Product certifications	RoHS/UL/CE/CSA	RoHS/UL/CE/CSA	RoHS/UL/CE/CSA	RoHS/UL/CE/CSA

Wiring Diagrams

D7PR1/D7PF1



D7PR2/D7PF2



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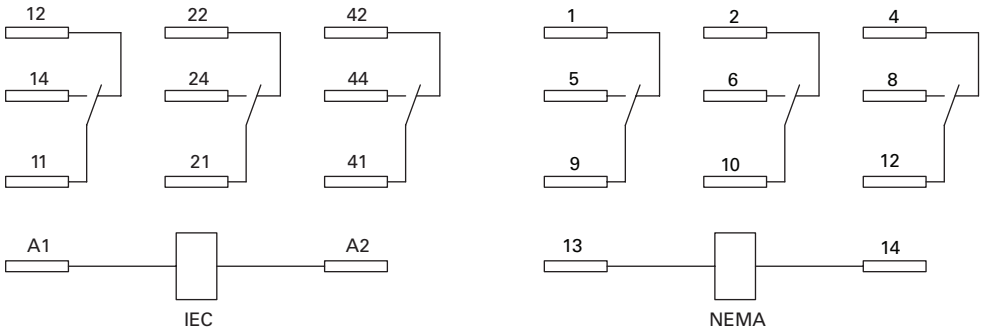
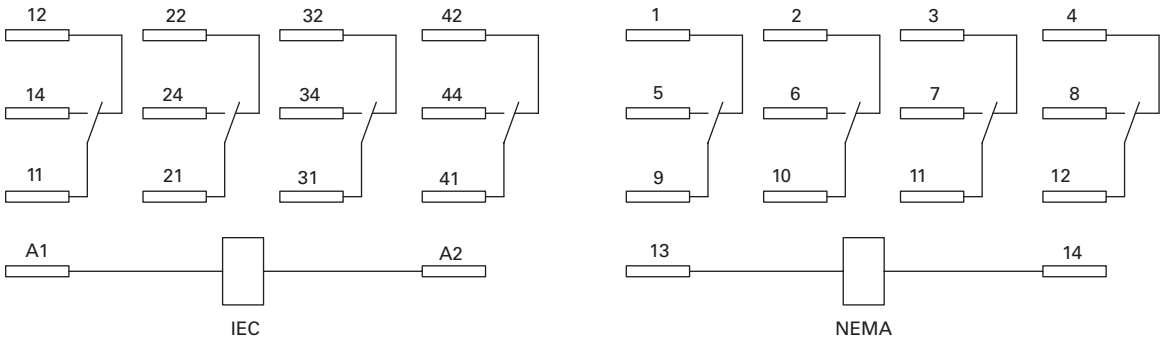


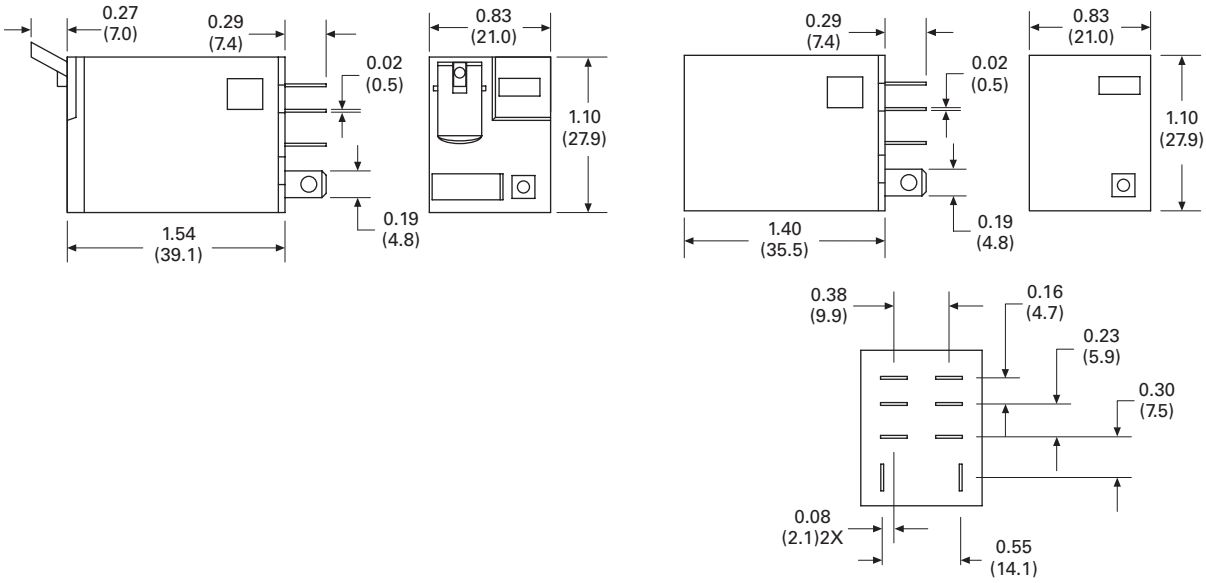
D7PR4/D7PF4



Dimensions

Approximate Dimensions in Inches (mm)

D7PR1/D7PF1



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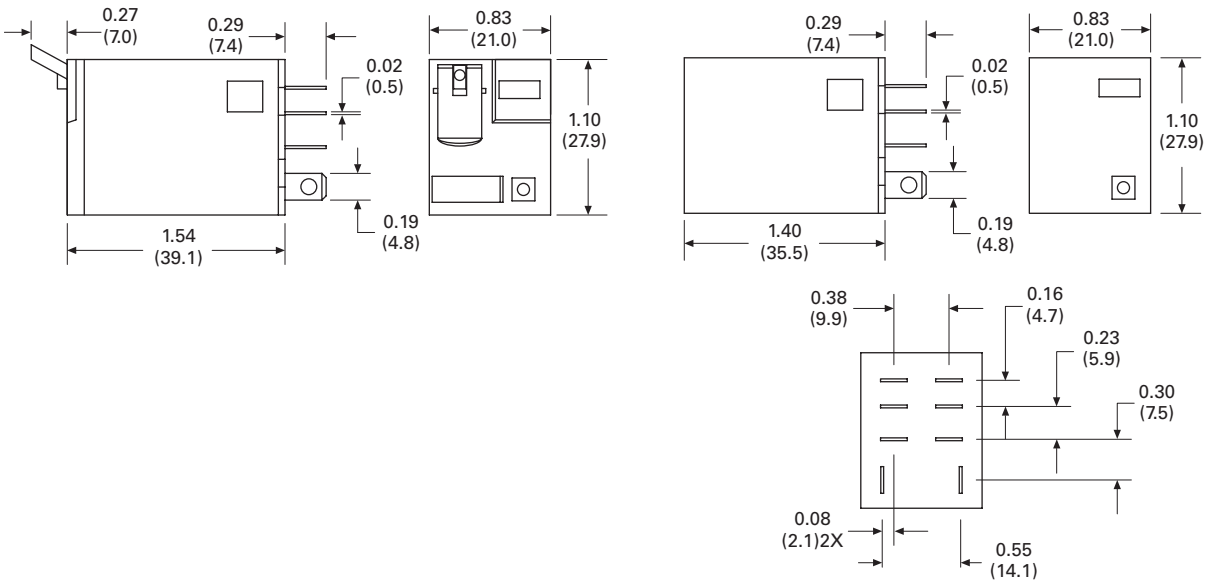
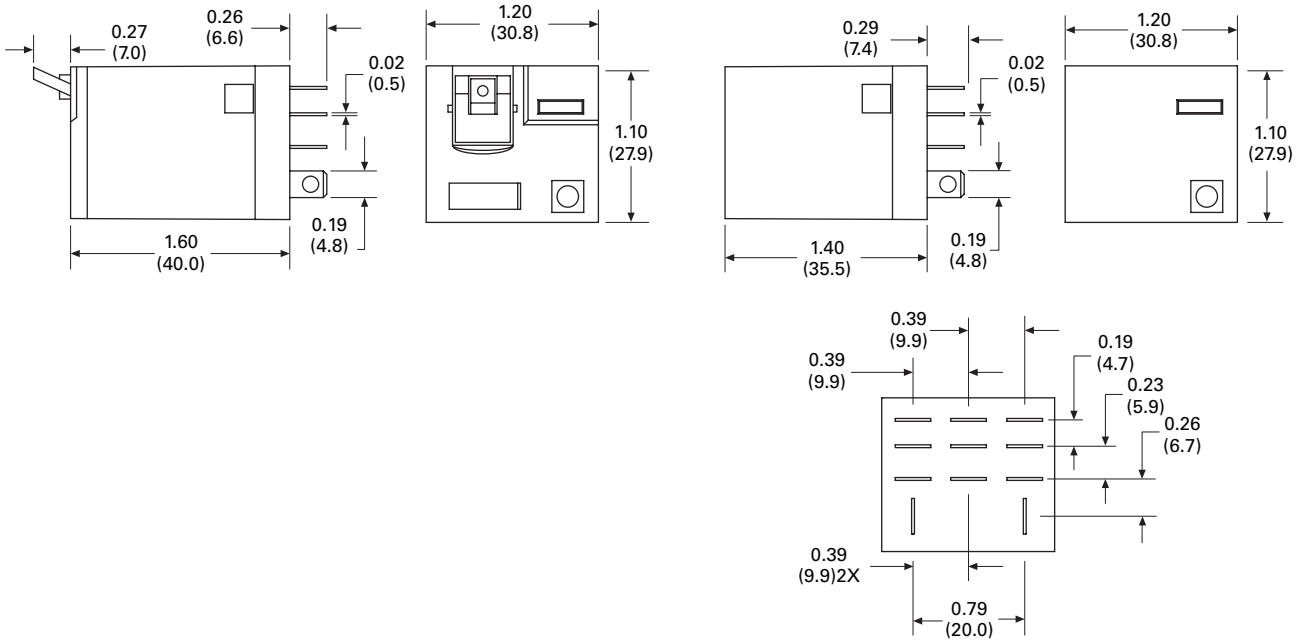
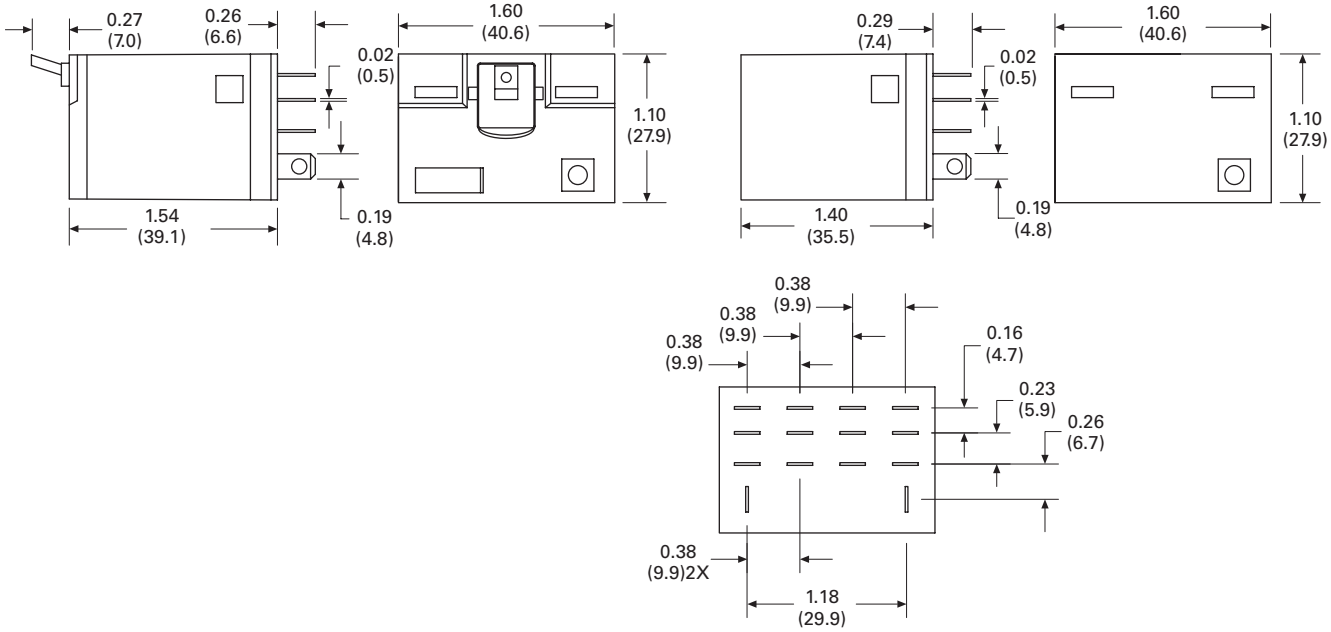


Approximate Dimensions in Inches (mm)

D7PR3/D7PF3

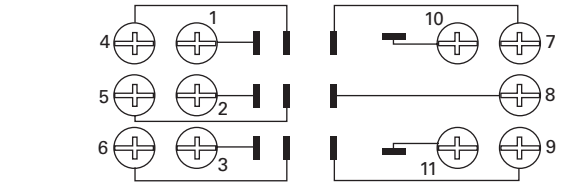


D7PR4/D7PF4

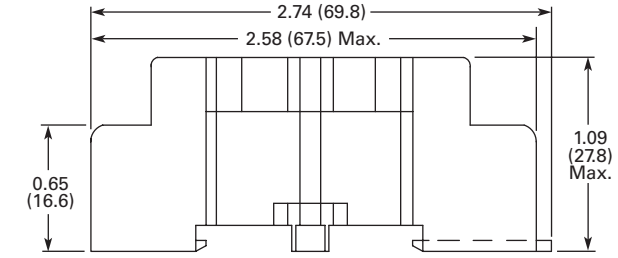


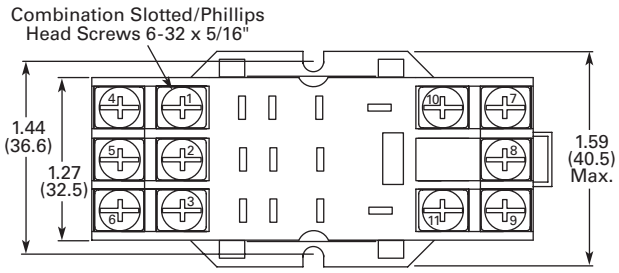
Approximate Dimensions in Inches (mm)

D7PA3

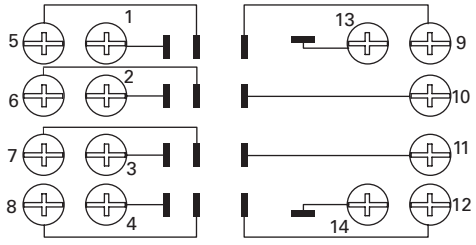


Wiring Diagram (Top View)

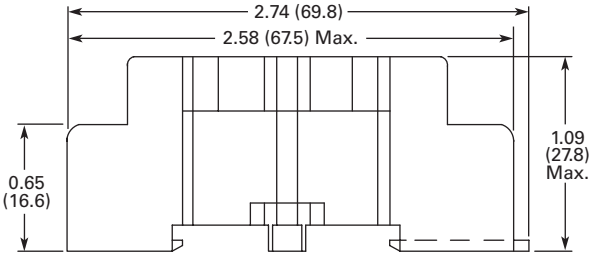


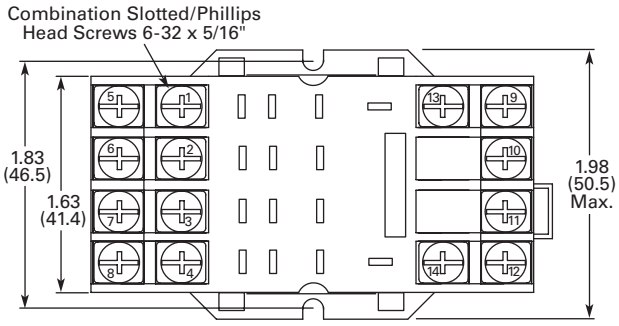


D7PA4



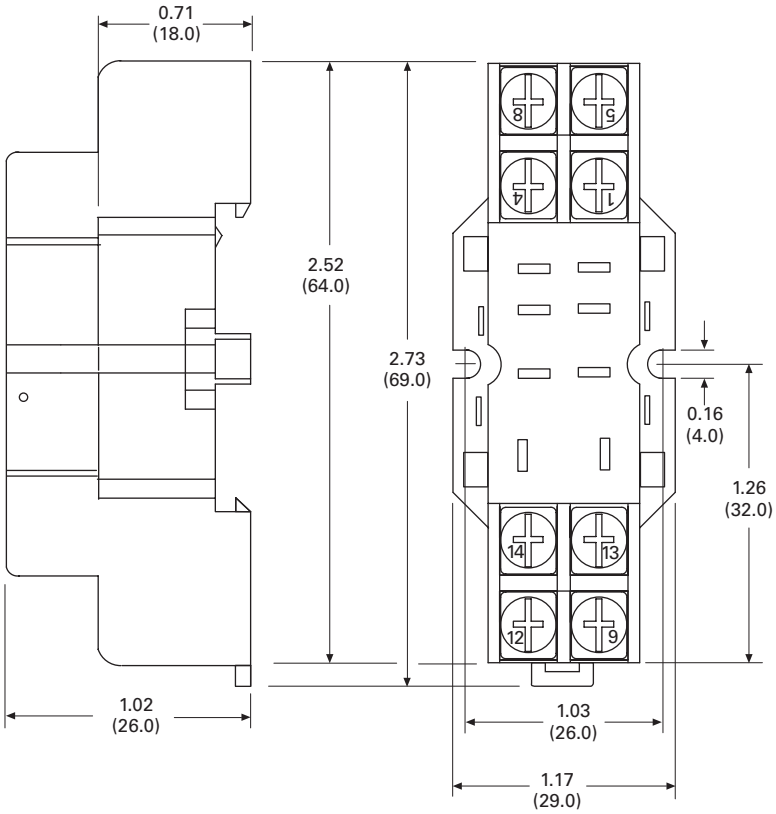
Wiring Diagram (Top View)

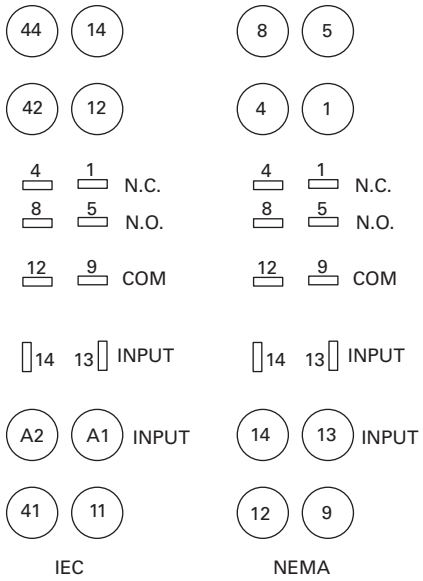




Approximate Dimensions in Inches (mm)

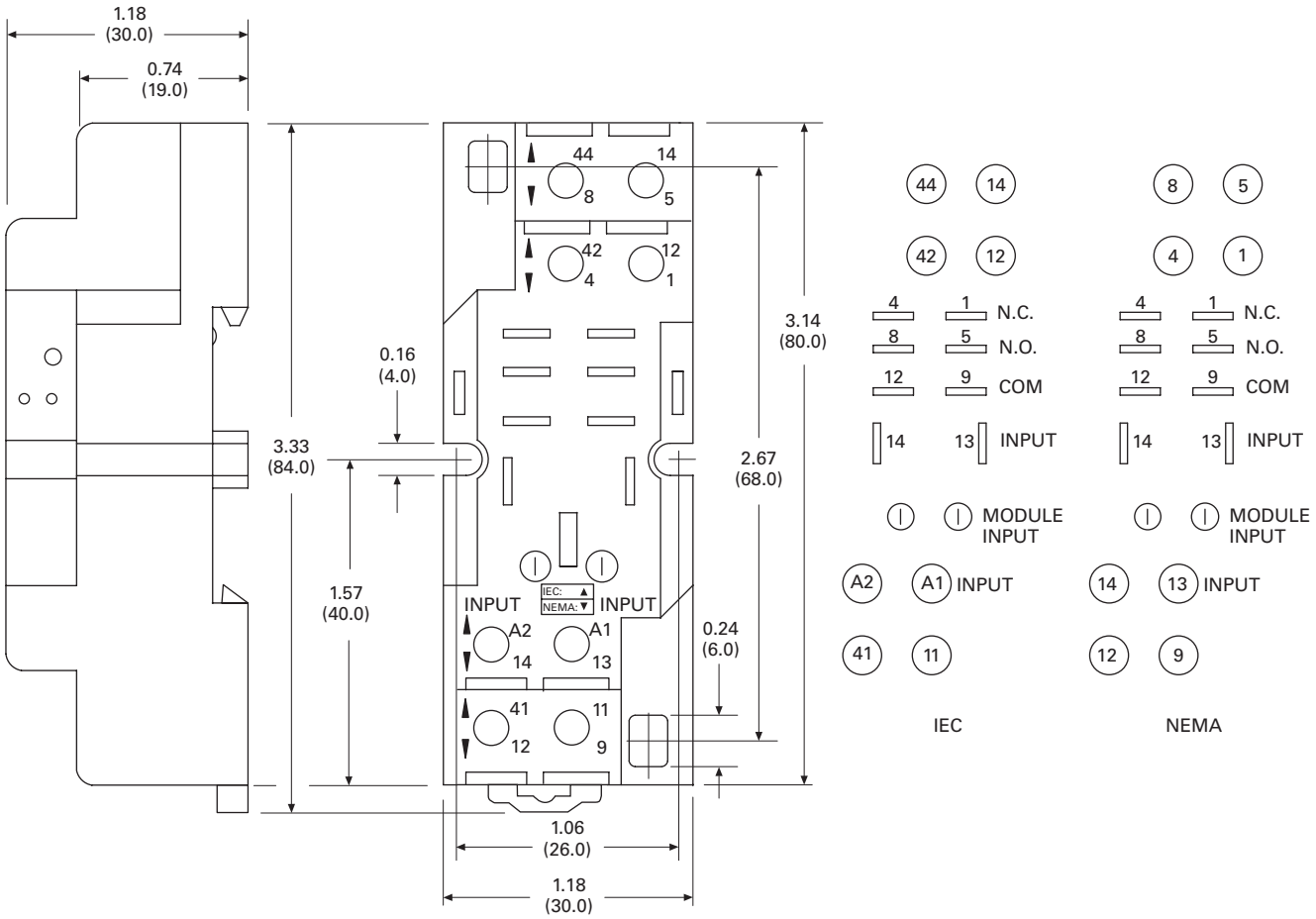
D7PA9 Standard Mount





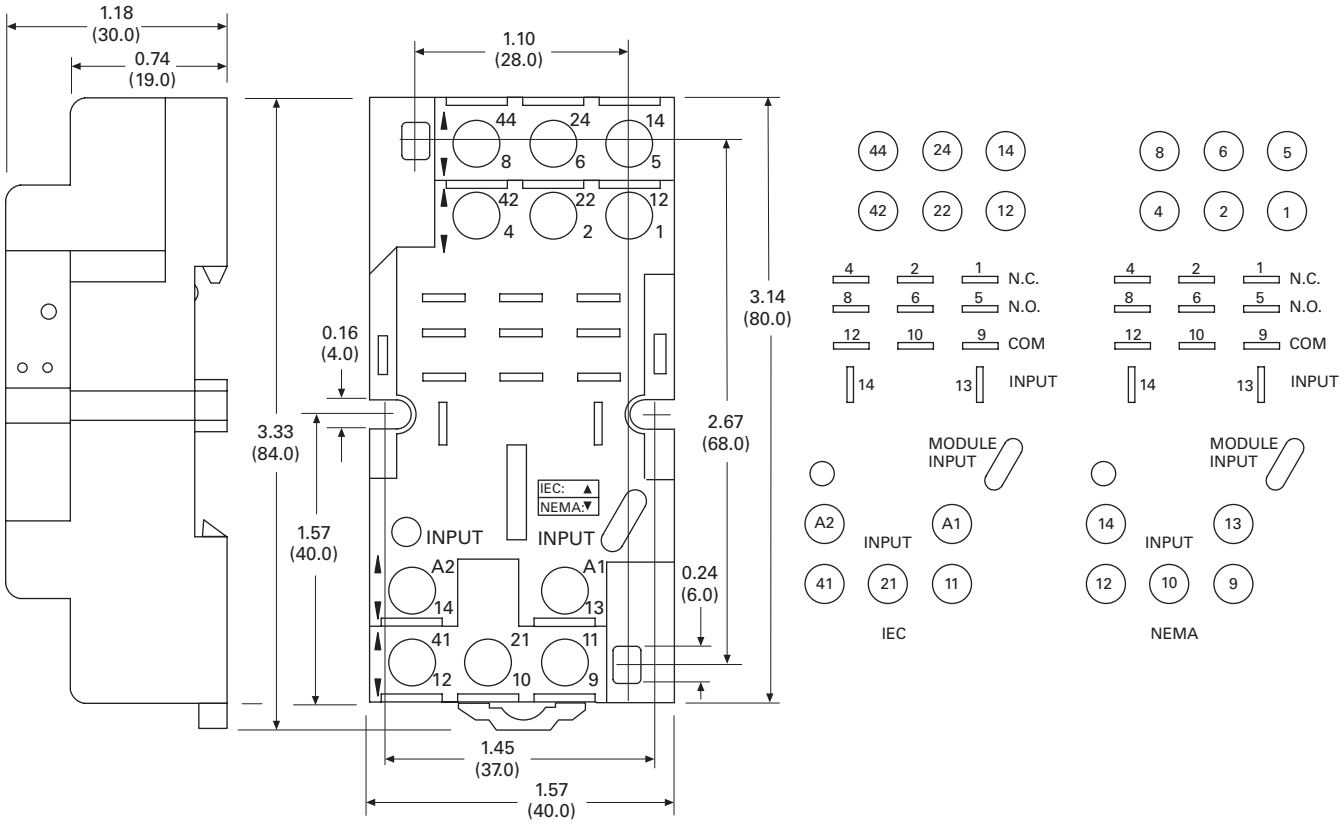
Approximate Dimensions in Inches (mm)

D7PAA



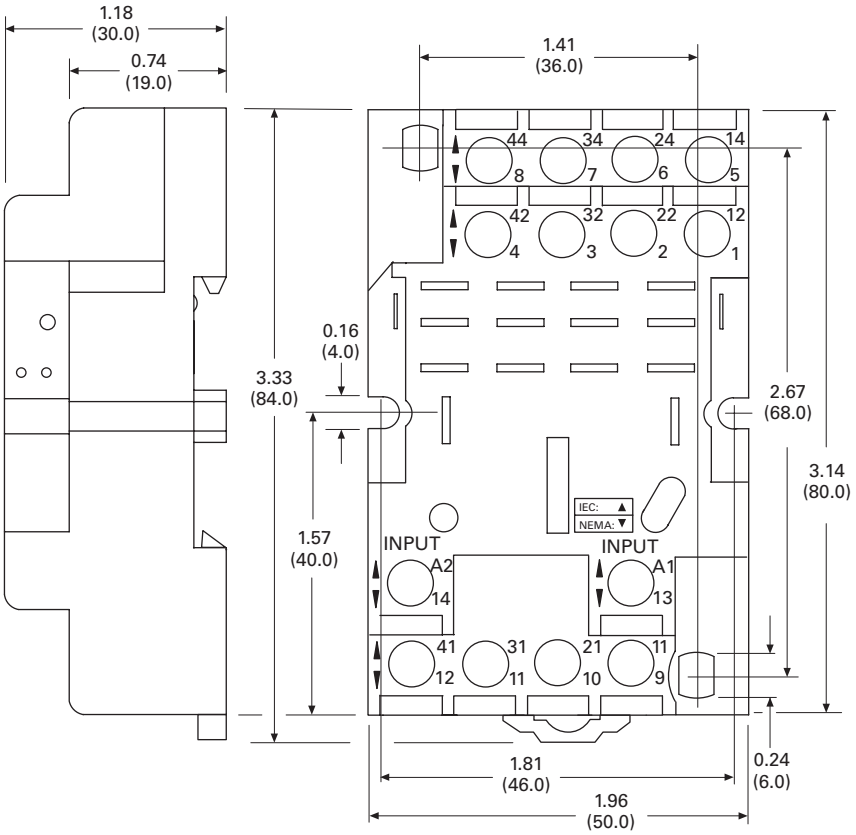
Approximate Dimensions in Inches (mm)

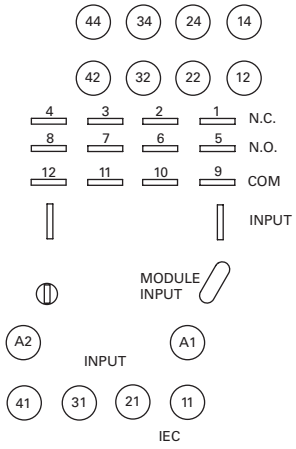
D7PAB

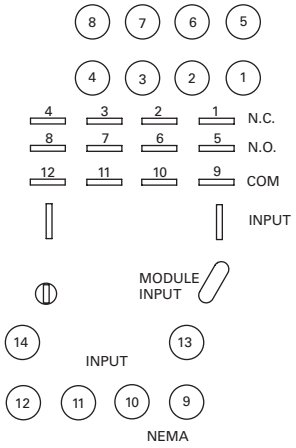


Approximate Dimensions in Inches (mm)

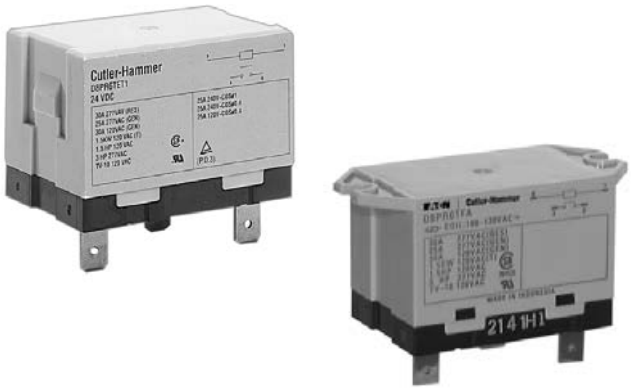
D7PAD







D8 Series Relay



Contents

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D2PR/D2PF Series	**T40-51**
D3PR/D3PF Series	**T40-61**
D4 Series	**T40-71**
D5PR/D5PF Series	**T40-75**
D7PR/D7PF Series	**T40-85**
D8 Series	
Catalogue Number Selection	**T40-101**
Product Selection	**T40-101**
Technical Data and Specifications	**T40-102**
Dimensions	**T40-103**
D9 Series	**T40-106**
Accessories	**T40-110**

D8 Series

Product Description

The D8 Series power relays are perfect for loads up to 30A, with versions for flange mounting and e-clip mounting available.

Features

- Allows switching of 25A and 30A loads
- A high-capacity, high-withstand voltage relay compatible with momentary voltage drops
- No contact chattering for momentary voltage drops up to 50% of rated voltage
- UL Class B construction standard
- Wide-range AC-activated coil that handles 100 to 120 Vac at either 50 or 60 Hz
- Panel, DIN rail and flange mounting

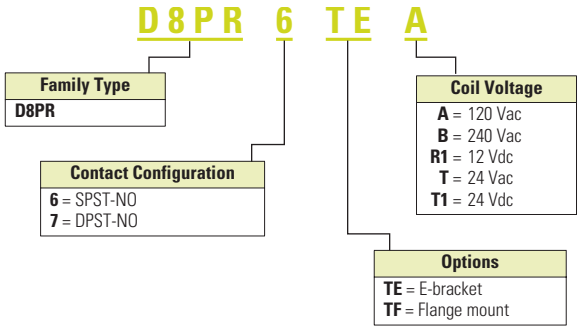
Standards and Certifications

File # E1491

File # LR701520

Catalogue Number Selection

D8 Series ①



Product Selection

D8 Relay/Socket Quick Reference

Relay Type	Mounting Bracket	Adapter Track/ Panel Mount	Front Connecting Sockets Track/ Panel Mount
D8PR6TE	D8PA5	D8PA1	D8PA2
D8PR7TE	D8PA5	D8PA1	D8PA2

D8 Series Relay

D8 Series ②

Type	Standard Pack	Catalogue Number
SPST E-Bracket		
Coil voltage		
24 Vac	1	**D8PR6TET**
24 Vdc	1	**D8PR6TET1**
SPST Flange Mount		
120 Vac	1	**D8PR6TFA**
24 Vdc	1	**D8PR6TFT1**
DPST E-Bracket		
Coil voltage		
120 Vac	1	**D8PR7TEA**
DPST Flange Mount		
120 Vac	1	**D8PR7TFA**
24 Vdc	1	**D8PR7TFT1**
Sockets		
DIN rail adapter	10	**D8PA1**
Screw terminal adapter	10	**D8PA2**
Bracket adapter	10	**D8PA5**
Accessory		
DIN rail end stop	100	**PFP-M**

Notes

① For deciphering catalogue numbers. Do not use for ordering as not all combinations are readily available.
② Additional coil voltages available—consult Sales Office or Customer Support Centre.

Technical Data and Specifications

Coil Resistance

Coil Voltage	Ohms	mA
24 Vac	303	71
110/120 Vac	5260	20.4
220/240 Vac	21,000	10.2
12 Vdc	75	158
24 Vdc	303	79

D8 Relays

Description	D8PR6	D8PR7
Rated load	220 Vac 30A	220 Vac 25A
Carry current	30A	25A
Max. operating voltage	250 Vac	250 Vac
Max. switching current	30A	25A
Contact material	AgCdO	AgCdO
Max. switching capacity	6600 VA	5500 VA
Min. permissible load	100 mA at 5 Vdc	100 mA at 5 Vdc
Mechanical life (min.)	5,000,000 operations	5,000,000 operations
Electrical life at all contact ratings (min.)	100,000 operations	100,000 operations
Maximum hp ratings	1-1/2 hp (120 Vac) 3 hp (240/265/277 Vac)	1-1/2 hp (120 Vac) 3 hp (240/265/277 Vac)

Coil Data

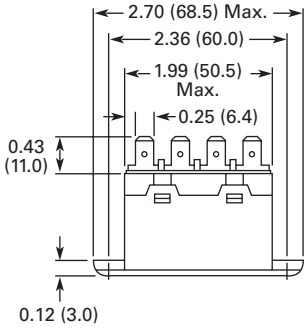
Coil Voltage	Must Operate	Must Release	Maximum Voltage
24 Vdc/Vac, 12 Vdc	75% maximum	15% minimum	110%
120 Vac	75V	18V	132V
240 Vac	150V	36V	264V

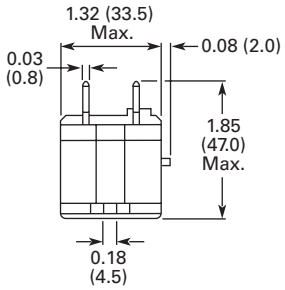
40

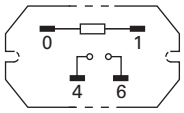
Dimensions

Approximate Dimensions in Inches (mm)

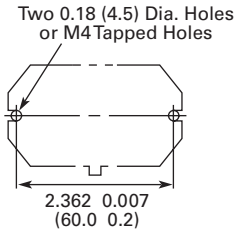
D8PR6TF





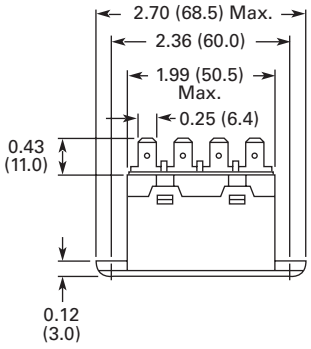


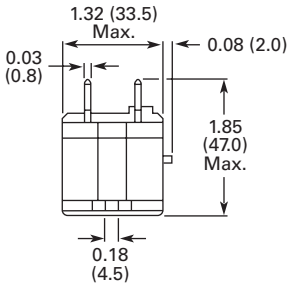
Terminal Arrangement/ Internal Connections (Top View)

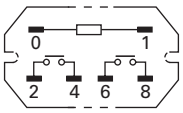


Mounting Holes (Bottom View)

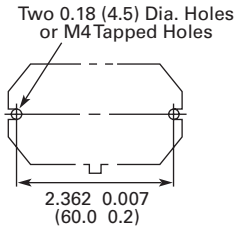
D8PR7TF







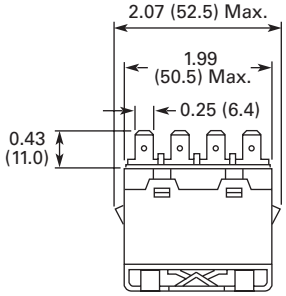
Terminal Arrangement/ Internal Connections (Top View)

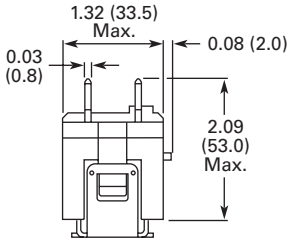


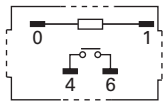
Mounting Holes (Bottom View)

Approximate Dimensions in Inches (mm)

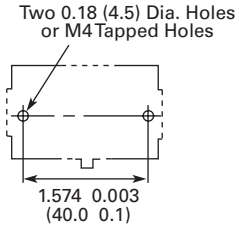
D8PR6TE with D8PA5 Bracket Attached





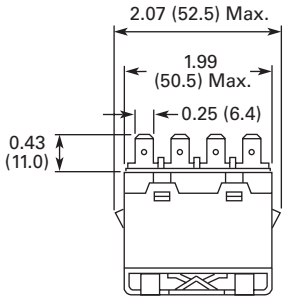


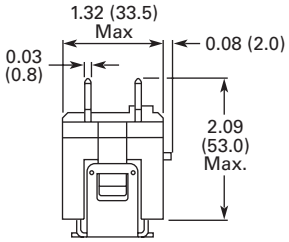
Terminal Arrangement/ Internal Connections (Top View)

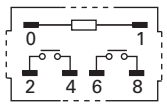


Mounting Holes (Bottom View)

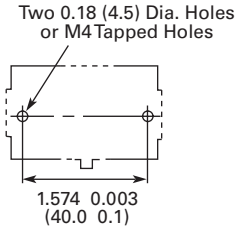
D8PR7TE with D8PA5 Bracket Attached





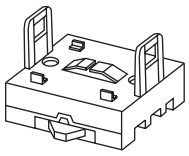


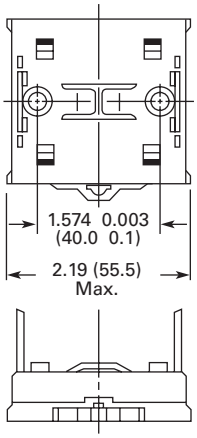
Terminal Arrangement/ Internal Connections (Top View)

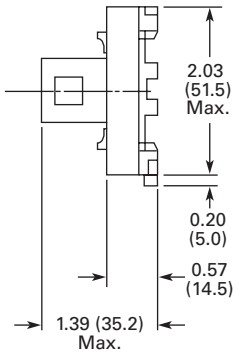


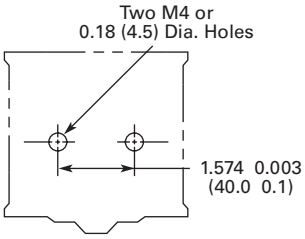
Mounting Holes (Bottom View)

D8PA1







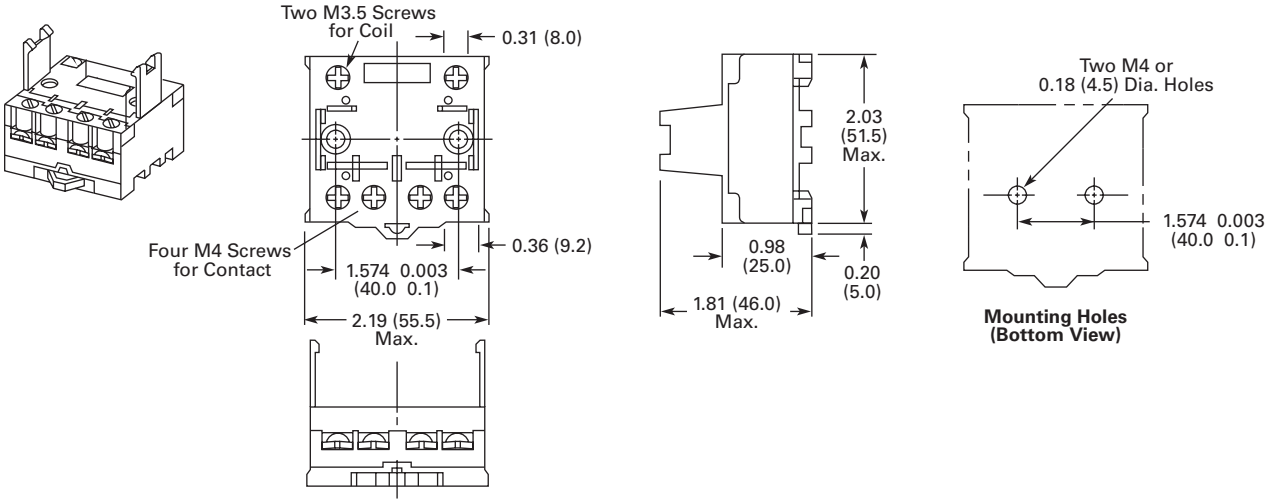


Mounting Holes (Bottom View)

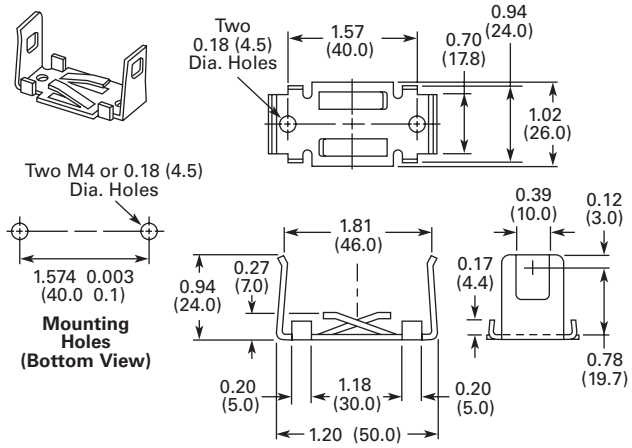
Note: Minimum spacing around relay = 0.20 inches (5 mm).

Approximate Dimensions in Inches (mm)

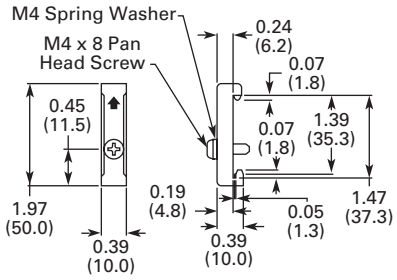
D8PA2



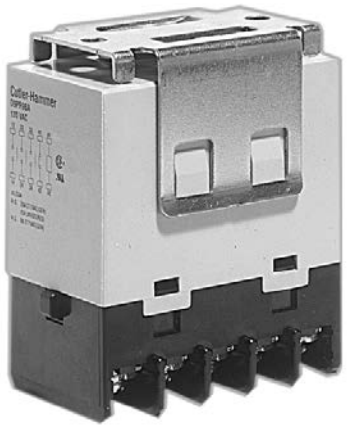
D8PA5



PFP-M DIN Rail End Stop



D9 Series Relay



Contents

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D1PR/D1PF Series	**T40-46**
D2PR/D2PF Series	**T40-51**
D3PR/D3PF Series	**T40-61**
D4 Series	**T40-71**
D5PR/D5PF Series	**T40-75**
D7PR/D7PF Series	**T40-85**
D8 Series	**T40-100**
D9 Series	
Product Selection	**T40-107**
Technical Data and Specifications	**T40-107**
Dimensions	**T40-108**
Accessories	**T40-110**

D9 Series

Product Description

The four-pole D9 Series is ideal for three-phase motor applications. Various contact configurations are available.

Features

- Ideal for three-phase motor control applications
- No contact chattering for momentary voltage drops up to 50% of rated voltage
- Push-to-Test button is a standard feature to check contact operation
- Mounting bracket is supplied with relay

Standards and Certifications

File # E1491

File # LR701520

Catalogue Number Selection

D9PR 8B A

Family Type	Contact Configuration	Coil Voltage
D9PR	**8B** = 4PST-NO **9B** = 3PST-NO/SPST-NC **10B** = DPST-NO/DPST-NC	**A** = 120 Vac **B** = 240 Vac **R1** = 12 Vdc **T** = 24 Vac **T1** = 24 Vdc

Product Selection

D9 Series

	Catalogue Number
4PST-NO Power Relay	
Coil voltage	
24 Vac	**D9PR8BT**
120 Vac	**D9PR8BA**
240 Vac	**D9PR8BB**
24 Vdc	**D9PR8BT1**
3PST-NO/SPST-NC Power Relay	
120 Vac	**D9PR9BA**

	Catalogue Number
DPST-NO/DPST-NC Power Relay	
Coil voltage	
24 Vac	**D9PR10BT**
120 Vac	**D9PR10BA**
24 Vac	**D9PR10BT1**

Technical Data and Specifications

Coil Resistance

Coil Voltage	Ohms	mA
24 Vac	—	75
120 Vac	—	21.6
240 Vac	—	10.8

Coil Voltage	Ohms	mA
12 Vdc	72	167
24 Vdc	288	83
110 Vdc	6050	18

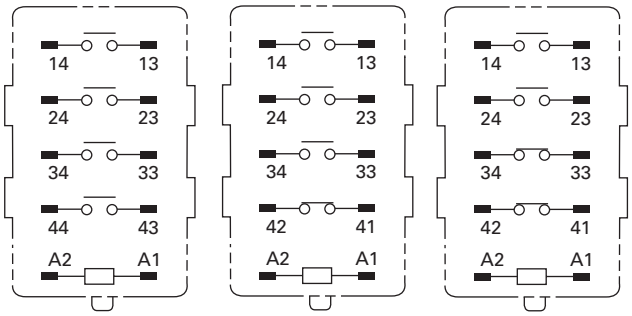
D9PR Specifications

Description	NO Contacts Resistive Load (p.f. = 1)	NC Contacts Resistive Load (p.f. = 1)
Rated load	220 Vac 25A 30 Vdc 25A	220 Vac 8A 30 Vdc 8A
Carry current	25A	8A
Max. operating voltage	250 Vac/125 Vdc	250 Vac/125 Vdc
Max. switching current	25A	8A
Max. switching capacity	5500 VA 750W	1760 VA 240 W
Min. permissible load	100 mA at 24 Vdc	100 mA at 24 Vdc
Mechanical life (min.)	1,000,000 operations	1,000,000 operations
Electrical life at all contact ratings (min.)	100,000 operations	100,000 operations
Maximum hp ratings	1-1/2 hp (120 Vac) 3 hp (240/265/277 Vac) Three-phase 3 hp (240/265/277 Vac) 30,000 cycles Three-phase 5 hp (240/265/277 Vac) 30,000 cycles	1-1/2 hp (120 Vac) 3 hp (240/265/277 Vac) Three-phase 3 hp (240/265/277 Vac) 30,000 cycles Three-phase 5 hp (240/265/277 Vac) 30,000 cycles

Coil Data

Coil Voltage	Must Operate	Must Release	Maximum Voltage
24 Vdc/Vac, 12 Vdc, 110 Vdc	75% maximum	10% minimum	110%
120 Vac	75V	18V	132V
240 Vac	150V	36V	264V

Terminal Arrangements

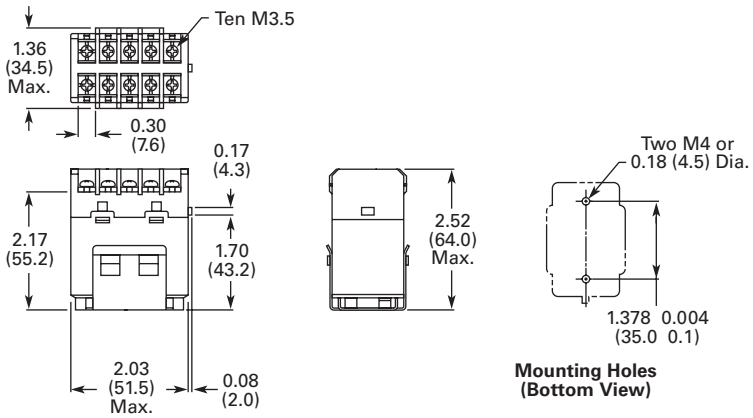


Dimensions

Approximate Dimensions in Inches (mm)

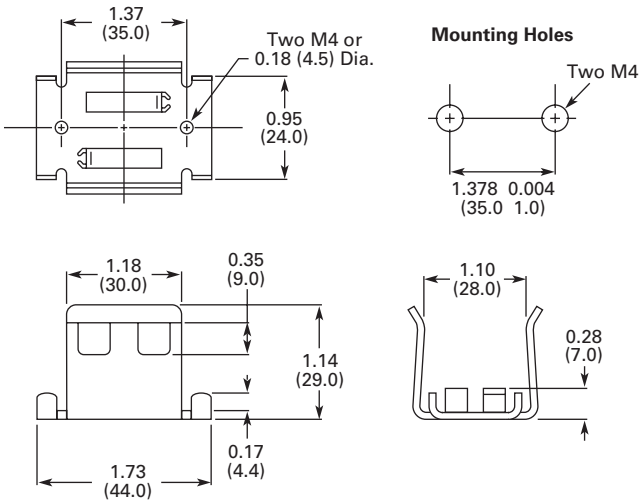
D9PR

Screw Terminal Brackets



Approximate Dimensions in Inches (mm)

Mounting Bracket



Accessories

Contents

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D1PR/D1PF Series	**T40-46**
D2PR/D2PF Series	**T40-51**
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D5PR/D5PF Series	**T40-75**
D7PR/D7PF Series	**T40-85**
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D9 Series	**T40-106**
Accessories	
MOD Modules	**T40-111**
Relay Clips	**T40-112**
Coil Bus Jumpers	**T40-114**
Write-On Plastic Labels/ID Tags	**T40-114**
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Accessories

Accessories Selection Guide

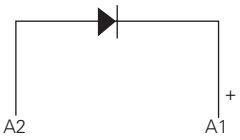
Eaton offers a variety of simple-to-install relay accessories that allow you to customize the features of a relay system to meet your exact needs.

The MOD Module System

Eaton's plug-in modules are a simple way to add functionality to your relay without the hassle of messy wiring and additional mounting of external electronics. They are available in a variety of configurations to meet the needs of almost any application.

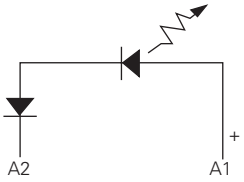
Circuit Diagrams

Diode Circuit



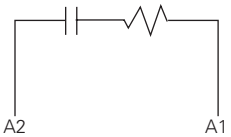
The diode module protects external drive circuitry from inductive voltages generated when removing coil voltages.

LED Circuit



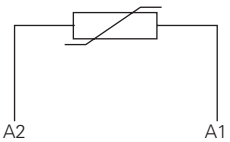
The LED status lamp verifies that power is being supplied to the coil. Ideal for both AC and DC applications. Polarity sensitive for DC applications.

RC Circuit



Snubs back EMF of relay coil.

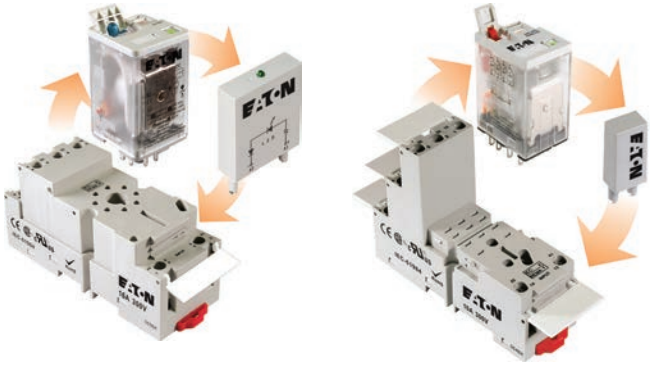
Metal Oxide Varistor (MOV) Circuit



The MOV circuit protects by shunting potentially damaging electrical spikes away from the relay coil. Ideal for AC and DC applications.

System Diagrams

The MOD Module System



MOD Modules

Eaton's relay accessories provide a complete solution for add-on modules and identification tags.

MOD Modules

	Module Size	Description	Nominal Voltage	Catalogue Number	Mating Sockets
MOD-AD250	A	Protection diode	6–250 Vdc	**MOD-AD250**	D3PA6, D3PAL8, D3PA7, D3PAL11, D5PAL, D7PAB, D7PAD
MOD-RC_		R/C suppressor	6–24 Vac	**MOD-RC24**	
			110–240 Vac	**MOD-RC240**	
MOD-ALG_		LED indicator	24 Vac	**MOD-ALG24**	
			120/240 Vac	**MOD-ALG240**	
MOD-AMV_		MOV suppressor	24 Vac	**MOD-AMV24**	
			120 Vac	**MOD-AMV120**	
			240 Vac	**MOD-AMV240**	
MOD-BD250	B	Protection diode	6–250 Vdc	**MOD-BD250**	D1PAA, D2PAL, D2PAP, D2PA7, D7PAA
MOD-BLG_		LED indicator	24 Vac	**MOD-BLG24**	
			120/240 Vac	**MOD-BLG240**	
MOD-BMV_		MOV suppressor	24 Vac	**MOD-BMV24**	
			120 Vac	**MOD-BMV120**	
			240 Vac	**MOD-BMV240**	

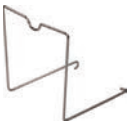
Relay Clips

Eaton offers a variety of relay clips designed to improve the performance and functionality within an electrical panel.

Metal Hold-Down Clips

Metal hold-down clips, or spring clips, are ideal for use where high heat or humid conditions are a factor. These clips hold their shape and tension and are designed to withstand harsh environments. All clips are made of corrosion-resistant stainless steel.

Metal Hold-Down Clips

Catalogue Number	Mating Sockets	Mating Relays
PMC-1781	**PMC-1781**	D1PAA	D1PR, D1PF
PQC-1782	**PQC-1782**	D2PAL, D2PAP, D2PA7	D2PR2, D2PF2, D2PR3, D2PF4
PQC-1342	**PQC-1342**	D2PA6, D7PAA, D7PA9	D2PR4, D2PF4
PQC-1332 	**PQC-1332**	D3PA6, D3PA7	D3PR2, D3PF2, D3PR3, D3PF3
PQC-1351	**PQC-1351**	D3PAL8, D3PA2, D3PAL11, D3PA3, D5PAL, D5PA2, D5PA3L, D5PA3S	D3PR2, D3PF2, D3PR3, D3PF4, D5PR, D5PF
PQC-1783	**PQC-1783**	D7PAB	D7PR1, D7PF1, D7PR2, D7PF3
PQC-1784	**PQC-1784**	D7PAD	D7PR4, D7PF4
PYC- _	**PYC-A1**	D2PA4	D2PR5
	PYC-B2	D7PA3, D7PA4	D7PR1, D7PR2, D7PR4

Plastic Ejector/ Hold-Down Clips

These clips are great for applications where sockets are located in dense or tight areas. They allow for quick, safe and firm securing of relays in the sockets with the added benefit that the relay can be ejected with one finger. Plastic clips also aid in keeping operators' fingers away from live circuits. The optional snap-in identification tag allows for custom marking of sockets when used in multi-socket applications.

Plastic ID Clips

Plastic ID clips allow for easy circuit identification in multi-relay applications. They are designed for labeling and are not ideal for securing the relay in the socket.

PWC-D24

Plastic Ejector/Hold-Down Clips

Catalogue Number	Mating Sockets	Mating Relays
PWC-D24	D2PAL, D2PAP, D2PA7	D2PF2, D2PF4

Plastic ID Clips

PQC-1349

Catalogue Number	Mating Sockets	Mating Relays
PQC-1349	D7PAA	D7PF1, D7PF2

PMC-1783

PMC-1783	D7PAB	D7PF1, D7PF2

PMC-1784

PMC-1784	D7PAD	D7PF4

Coil Bus Jumpers

Eaton's coil bus jumpers allow inputs to be bridged to adjacent sockets without additional wiring, making multi-relay connections quick and easy. The easy-to-install design requires no tools and can be complete in a matter of seconds.

System Diagrams

Coil Bus Jumpers ①

Coil Bus Jumpers

Catalogue Number	Mating Sockets
D2PJ1	D2PAL, D2PAP
D3PJ1	D3PA6, D3PA7, D5PAL

D2PJ1

D3PJ1

Write-On Plastic Labels/ID Tags

These convenient plastic labels snap easily onto the relay socket for clear identification in multi-relay panels. The hinged design makes wiring simple and allows for angular adjustment of the tag to improve readability in the panel. Marking with a standard permanent marker creates a smudge-free surface.

Write-On Plastic Labels/ID Tags

Catalogue Number	Mating Sockets
PWF-D2P	D2PAL, D2PAP
PWF-D3D5	D3PAL8, D3PAL11, D5PAL

PWF-D2P

PWF-D3D5

Note

① Jumpers in photo are colored green to improve visibility, actual jumpers are black.

Flange Mount Adapters

Eaton's relay flange mount adapters create a modular approach to flexible mounting options. Each low-cost adapter allows for panel mounting of a standard control relay and can eliminate the need for a socket.

Unit with Flange Mount Adapter

Flange Mount Adapters

	Catalogue Number	Mating Relay
PFC-D11	**PFC-D11**	D1PF1, D1PR1
PFC-D2D72	**PFC-D2D72**	D2P, D7PF2, D7PR2
PFC-D73	**PFC-D73**	D7PF3, D7PR3
PFC-D74	**PFC-D74**	D7PF4, D7PR4

9575H Series 3000 Relay

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Accessories	**T40-117**
Technical Data and Specifications	**T40-118**
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9575H Series 3000—Type AA, AC and DC

Product Description

Type AA panel-mounted relays are rated (each pole) 40A up to 300 Vac, 50/60 Hz; 5A at 480/600 Vac, 50/60 Hz and 40A at 28 Vdc.

Application Description

9575H Series 3000 relays are ideal for applications when controlling smaller loads, such as single-phase motors.

Standards and Certifications

- UL listed, E1491
- CSA 41729
- CE: EN60947-4-1, EN60947-5-1

Product Selection

When Ordering, Specify

Catalogue number and magnet coil code letter. Example: for DPDT relay with auxiliary switch and a 120V 50/60 Hz coil, order Catalogue Number 9575H3A010.

9575H Series 3000 Relay

Type AA Relays ①

Relay Style	Catalogue Number ②
Relay (DPDT)	**9575H3_000**
Relay with auxiliary switch	**9575H3_010**
Relay with blowout magnets	**9575H3_100**
Relay with auxiliary switch and blowout magnets	**9575H3_110**

Coil Voltage Selection

Coil Voltage	Hz	Suffix Code
Volts AC		
120	50/60	**A**
240	50/60	**B**
480/440	60/50	**C**
600/550	60/50	**D**
208	50/60	**E**
277	50/60	**H**
6	50/60	**J**
12	50/60	**K**
24	50/60	**L**
48	50/60	**M**
Volts DC		
110	—	**P**
220	—	**Q**
6	—	**R**
12	—	**S**
24	—	**T**
48	—	**W**

Accessories

Enclosure ③

Description	Catalogue Number
NEMA 1 Enclosure	**9575H2449**

Notes

① There are no "repair parts" available for these relays.
② Underscore indicates missing code suffix for magnet coil—see Selection table above.
③ Only 9575H3 relays without an auxiliary switch should be mounted in the 9575H2449 enclosure.

Technical Data and Specifications

Relay Specifications

Coil

- Pull-in voltage: 80% DC coils, 85% AC coils of nominal voltage or less at 25ºC
- Dropout voltage: 10% of nominal voltage or more at 25ºC
- Coil resistance: ±10% measured at 25ºC
- Max. DC coil dissipation capability: 4 watts DC continuous at 25ºC

Contacts

- Contact combination: DPDT
- Contact rating each pole (main contacts): Each pole rated 40 amps up to 300 Vac, 50/60 Hz, 5 amps at 480/600 Vac 50/60 Hz, 0.75 PF load. 1-1/2 hp motor load (each pole) at 120–600 Vac, 50/60 Hz. 2 hp motor load at 200–600 Vac, 50/60 Hz only when using both poles to switch both sides of load, 40 amps at 28 Vdc resistive load each pole. NEMA A 600 pilot duty 50/60 Hz
- Additional contact ratings for relays with blowout magnets: 10A at 110 Vdc resistive, 4A at 225 Vdc resistive, 2A at 325 Vdc resistive. For inductive loads, contacts must be derated accordingly.
- Contact material: Silver cadmium oxide, gold flashed. 5/16 in (7.9 mm) diameter standard

Dielectric Withstanding Voltage

- Between open contacts: 1500 V_{rms}
- All other mutually insulated conductive elements: 2200 V_{rms}

Miscellaneous

- Coil terminals: 6–32 screws
- Contact terminals: 8—32 screws
- Main base material: Molded phenolic, UL recognized (QMFZ2)
- Weight (DPDT Relay): 11 oz (311 grams) approximately
- Weight (DPDT Relay with auxiliary switch) 14.5 oz (411 grams) approximately

Auxiliary Switch Specifications

- Contact combination: SPDT
- Contact rating: Auxiliary switch rated 10 amps at 125 or 250 Vac, resistive load; 1/4 hp at 125 or 250 Vac, motor load; 0.4 amps at 125 Vdc or 0.20 amps at 250 Vdc, resistive load; 3 amps at 125 Vac lamp load. All AC ratings are 50/60 Hz
- Dielectric withstanding voltage: 500 Vac rms between open contacts, 1500 Vac rms between all other mutually insulated conductive elements
- Terminals: 4–40 round head screws for auxiliary contacts standard

Average Operating Times (Milliseconds)

Operation	DPDT Relay	DPDT Relay with Auxiliary Switch
Pickup	40	50
Dropout	35	35

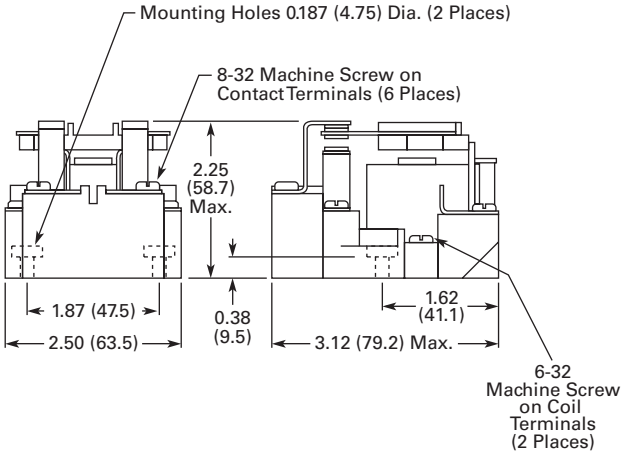
Temperature Ranges

Temperature	AC	DC
Operating range	–30º to 55ºC	–30º to 55ºC
Non-operating range	–30º to 100ºC	–30º to 100˚C

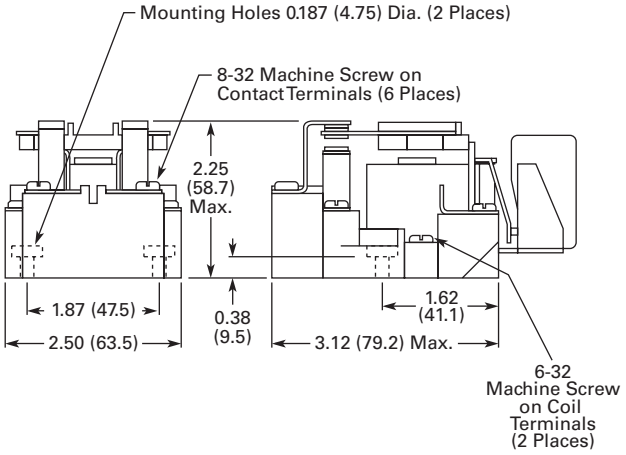
Dimensions

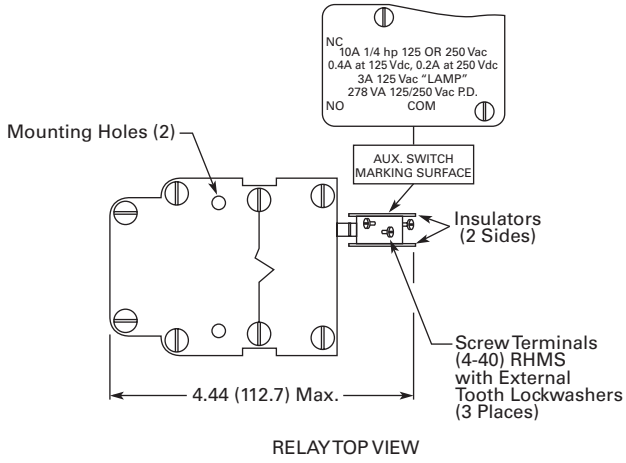
Approximate Dimensions in Inches (mm)

9575H3 DPDT Relay



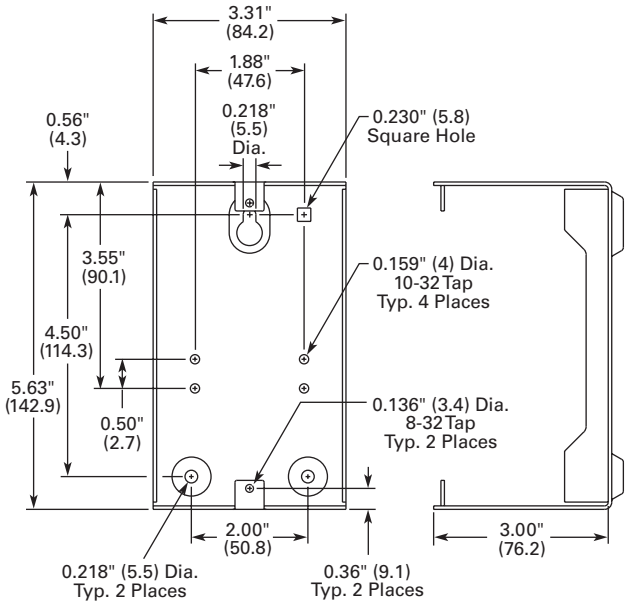
9575H3 DPDT Relay with Auxiliary SPDT Switch

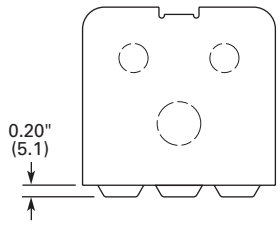




RELAY TOP VIEW

9575H2449





Solid-State Relays

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D99 Series	**T40-133**

Product Overview

Catalogue Number Selection

Solid-State Relays—D93, D96 and D99 Series

D93 3 25 A M D 2

Description
D93 = Hockey puck
D96 = Compact
D99 = DIN rail

Output Voltage
1 = 2–60 Vdc
2 = 24–280 Vac
3 = 3–200 Vdc
4 = 48–480 Vac
6 = 48–600 Vac

Current
Output current in amps

Contact Configuration
A = SPST-NO
B = SPST-NC
C = DPST-NO
D = DPST-NC

Output Type
C = SCR
T = Triac
M = MOSFET

Turn On Type
Z = Zero cross
R = Random
D = DC switch

Input Voltage
1 = 90–280 Vac
2 = 3–32 Vdc
3 = 3.5–32 Vdc
4 = 4–15 Vdc
5 = 20–50 Vdc

D93 Series—Solid-State Relays

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D93 Series

Product Description

Eaton's D93 series of solid-state relays is a line of heavy-duty industrial relays in the common "hockey puck" package. The removable, finger-safe cover and optional accessories make the D93 safe and easy to install in a variety of applications.

Models are available in a variety of input voltages and switch types up to 75A.

Application Description

A solid-state relay (SSR) can perform many applications that an electromechanical relay can perform. The SSR differs in that it has no moving mechanical parts within it and has some distinct advantages over an electromechanical relay.

When used correctly in the intended application, the SSR provides a high degree of reliability, a long service life, significantly reduced electromagnetic interference, fast response and high vibration resistance.

Applications for the SSR typically include equipment that requires high cycling rates, low acoustical or electrical noise, or high vibration resistance. Some examples are medical equipment, heating/cooling equipment, lighting control and pumps/compressors, among others.

Features and Benefits

- All solid-state circuitry with no moving parts to wear
- Compact, panel mounting for flexible installation
- Isolated input and output terminals to protect the system from electrical noise
- Internal snubber circuitry to protect the SSR from transients

Standards and Certifications

- UL/cUL listed—UL 508
- CSA certified
- CE marked
- RoHS compliant

c UL us Listed

Product Selection

D93210ACZ1

D93 Series

Input Voltage	Output Voltage	Contact Configuration	Switching Type	Rated Current Load (Amps)	Catalogue Number
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	10	**D93210ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	10	**D93210ACZ2**
3–32 Vdc	24–280 Vac	SPST-NO	Triac	10	**D93210ATZ2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	25	**D93225ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	25	**D93225ACZ2**
3–32 Vdc	24–280 Vac	SPST-NO	Triac	25	**D93225ATZ2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	40	**D93240ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	40	**D93240ACZ2**
3–32 Vdc	24–280 Vac	SPST-NO	Triac	40	**D93240ATZ2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	50	**D93250ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	50	**D93250ACZ2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	75	**D93275ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	75	**D93275ACZ2**
3–32 Vdc	3–200 Vdc	SPST-NO	MOSFET	12	**D93312AMD2**
3–32 Vdc	3–200 Vdc	SPST-NO	MOSFET	25	**D93325AMD2**
3–32 Vdc	3–200 Vdc	SPST-NO	MOSFET	40	**D93340AMD2**

Accessories

D93HS1

D93 Series—Heat Sink

Eaton's D93HS1 heat sink is specifically designed to be used with D93 solid-state relays. It is pre-drilled and tapped, and matches the heat dissipation requirements for relays up to 50A.

Heat Sink Accessory

Description	Catalogue Number
Heat sink	**D93HS1**

Note: Always ensure that all details of the application are considered when determining heat dissipation requirements, including ambient temperature. The D93 relays must be firmly mounted to the heat sink using a suitable thermally conductive grease or thermal transfer pad.

D93TP1

D93 Series—Thermal Transfer Pad

The D93TP1 is a self-adhesive transfer pad designed for use with Eaton's D93 solid-state relays. When used properly, it will adequately conduct the heat to a heat sink without the use of grease.

Technical Data and Specifications

D93 Series

Description	Units	D93210ACZ1	D93210ACZ2	D93210ATZ2	D93225ACZ1	D93225ACZ2	D93225ATZ2
Output Characteristics							
Contact configuration		SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPST-NO
Switching device		SCR	SCR	Triac	SCR	SCR	Triac
Current rating	A	10	10	10	25	25	25
Switching type		Zero cross	Zero cross	Zero cross	Zero cross	Zero cross	Zero cross
Maximum rate of rise off state voltage (DV/DT)	V/us	200	250	700	500	500	250
Incandescent lamp ampere rating (rms)	A	8	16	16	16	16	16
Motor load rating (rms)	A	4.5	8	8	8	8	8
Min. load current to maintain on	mA	50	120	250	120	120	120
Non-repetitive surge current (1 cycle)	A	83	250	1000	250	250	250
Max. rms overload current (1 second)	A	24	80	50	40	40	80
Max. off state leakage current (rms)	mA	8	10	10	8	10	10
Peak blocking voltage	Vpk	600	300	—	600	600	—
Typical on state voltage drop (rms)	Vac	1.6	1.6	1.35	1.6	1.6	1.6
Max. on state voltage drop (rms)	Vac	1.6	1.6	1.6	1.6	1.6	1.6
Max. I^2t for fusing (A^2)		72	300	1700	312	250	300
Input Characteristics							
Must release voltage	V	10 AC	1 DC	10 AC	10 AC	1 DC	1 DC
Typical input impedance	ohms	13k	Current regulator	16–25k	13k	Current regulator	1.5k
Nominal input current at 5 Vdc or 240 Vac	mA	20	2	12	20	16	2
Reverse polarity protection		NA	Yes	NA	NA	Yes	Yes
Performance Characteristics							
Operating time (response time)							
ON	ms	8.3	8.3	8.3	8.3	8.3	8.3
OFF	ms	8.3	8.3	8.3	8.3	8.3	8.3
Rated insulation voltage—input to input	Vac	4000	4000	4000	4000	4000	4000
Dielectric strength—terminal to chassis	Vac	4000	4000	4000	4000	4000	4000
Environment							
Product certifications		UR, CSA, CE	UR, CSA, CE	UR, CSA, CE	UR, CSA, CE	UR, CSA, CE	UR, CSA, CE
Ambient air temperature							
Storage	°C	–40 to 100	–40 to 100	–40 to 100	–40 to 100	–40 to 100	–40 to 100
Operating	°C	–40 to 80	–40 to 80	–40 to 80	–40 to 80	–40 to 80	–40 to 80
Degree of protection		IP20	IP20	IP20	IP20	IP20	IP20
Miscellaneous Characteristics							
Thermal resistance (junction to case)	°C/W	3.5	3.5	1.45	1.02	1.02	1.45
Weight	g (oz)	100 (3.5)	100 (3.5)	100 (3.5)	100 (3.5)	100 (3.5)	100 (3.5)
LED—input		Green	Green	Green	Green	Green	Green
Input terminals		M3.5	M3.5	M3.5	M3.5	M3.5	M3.5
Output terminals		M4	M4	M4	M4	M4	M4
Terminal torque (max.)	Nm	1.0	1.0	1.0	1.0	1.0	1.0

D93 Series, continued

Description	Units	D93240ACZ1	D93240ACZ2	D93240ATZ2	D93250ACZ1	D93250ACZ2
Output Characteristics						
Contact configuration		SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPST-NO
Switching device		SCR	SCR	Triac	SCR	SCR
Current rating	A	40	40	40	50	50
Switching type		Zero cross	Zero cross	Zero cross	Zero cross	Zero cross
Maximum rate of rise off state voltage (DV/DT)	V/us	500	500	250	500	500
Incandescent lamp ampere rating (rms)	A	30	30	20	39	39
Motor load rating (rms)	A	14	14	14	14	14
Min. load current to maintain on	mA	250	250	50	250	250
Non-repetitive surge current (1 cycle)	A	625	625	250	520	520
Max. rms overload current (1 second)	A	80	80	80	100	100
Max. off state leakage current (rms)	mA	10	10	10	10	8
Peak blocking voltage	Vpk	600	600	600	600	600
Typical on state voltage drop (rms)	Vac	1.6	1.6	1.6	1.1	1.8
Max. on state voltage drop (rms)	Vac	1.6	1.6	1.6	1.8	1.8
Max. I^2t for fusing (A^2)		1250	1250	438	1250	1250
Input Characteristics						
Must release voltage	V	10 AC	1 DC	1 DC	10 AC	1 DC
Typical input impedance	ohms	13k	ACL	1.5k	13k	Current regulator
Nominal input current at 5 Vdc or 240 Vac	mA	20	16	2	20	16
Reverse polarity protection		N/A	Yes	Yes	NA	Yes
Performance Characteristics						
Operating time (response time)						
ON	ms	8.3	8.3	8.3	8.3	8.3
OFF	ms	8.3	8.3	8.3	8.3	8.3
Rated insulation voltage—input to input	Vac	4000	4000	4000	4000	4000
Dielectric strength—terminal to chassis	Vac	4000	4000	4000	4000	4000
Environment						
Product certifications		UR, CSA, CE	UR, CSA, CE	UR, CSA, CE	UR, CSA, CE	UR, CSA, CE
Ambient air temperature						
Storage	°C	–40 to 100	–40 to 100	–40 to 100	–40 to 100	–40 to 100
Operating	°C	–40 to 80	–40 to 80	–40 to 80	–40 to 80	–40 to 80
Degree of protection		IP20	IP20	IP20	IP20	IP20
Miscellaneous Characteristics						
Thermal resistance (junction to case)	°C/W	0.9	0.9	0.95	0.63	0.63
Weight	g (oz)	100	100	100	135 (4.8)	135 (4.8)
LED—input		Green	Green	Green	Green	Green
Input terminals		M3.5	M3.5	M3.5	M3.5	M3.5
Output terminals		M6	M6	M6	M6	M6
Terminal torque (max.)	Nm	1.0	1.0	1.0	1.0	1.0

D93 Series, continued

Description	Units	D93275ACZ1	D93275ACZ2	D93312AMD2	D93325AMD2	D93340AMD2
Output Characteristics						
Contact configuration		SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPST-NO
Switching device		SCR	SCR	MOSFET	MOSFET	MOSFET
Current rating	A	75	75	12	25	40
Switching type		Zero cross	Zero cross	DC switching	DC switching	DC switching
Maximum rate of rise off state voltage (DV/DT)	V/us	500	500	NA	NA	NA
Incandescent lamp ampere rating (rms)	A	39	39	NA	NA	NA
Motor load rating (rms)	A	25	25	NA	NA	NA
Min. load current to maintain on	mA	250	250	20	20	20
Non-repetitive surge current (1 cycle)	A	1150	1150	27	50	90
Max. rms overload current (1 second)	A	150	150	NA	NA	NA
Max. off state leakage current (rms)	mA	10	10	8	8	8
Peak blocking voltage	Vpk	600	600	—	—	—
Typical on state voltage drop (rms)	Vac	1.8	1.8	1.6	1.6	1.6
Max. on state voltage drop (rms)	Vac	1.8	1.8	2.83	2.83	2.83
Max. I^2t for fusing (A^2)		5000	5000	NA	NA	NA
Input Characteristics						
Must release voltage	V	10 AC	1 DC	1 DC	1 DC	1 DC
Typical input impedance	ohms	13k	Current regulator	1k	1k	1k
Nominal input current at 5 Vdc or 240 Vac	mA	20	16	10	10	10
Reverse polarity protection		NA	Yes	No	No	No
Performance Characteristics						
Operating time (response time)						
ON	ms	8.3	8.3	300 µs	600 µs	600 µs
OFF	ms	8.3	8.3	1	2.6	2.6
Rated insulation voltage—input to input	Vac	4000	4000	4000	4000	4000
Dielectric strength—terminal to chassis	Vac	4000	4000	2500	2500	2500
Environment						
Product certifications		UR, CSA, CE	UR, CSA, CE	UR, CSA, CE	UR, CSA, CE	UR, CSA, CE
Ambient air temperature						
Storage	°C	–40 to 100	–40 to 100	–40 to 100	–40 to 100	–40 to 100
Operating	°C	–40 to 80	–40 to 80	–40 to 80	–40 to 80	–40 to 80
Degree of protection		IP20	IP20	IP20	IP20	IP20
Miscellaneous Characteristics						
Thermal resistance (junction to case)	°C/W	0.6	0.63	1.06	1.06	0.63
Weight	g (oz)	200	135 (4.8)	110 (3.9)	110 (3.9)	135 (4.8)
LED—input		Green	Green	Green	Green	Green
Input terminals		M3.5	M3.5	M3.5	M3.5	M3.5
Output terminals		M6	M6	M4	M4	M6
Terminal torque (max.)	Nm	1.0	1.0	1.0	1.0	1.0

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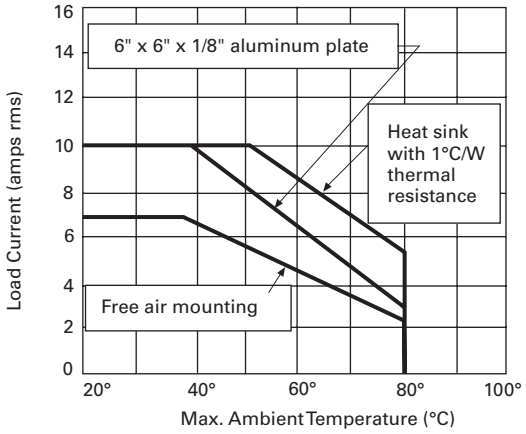
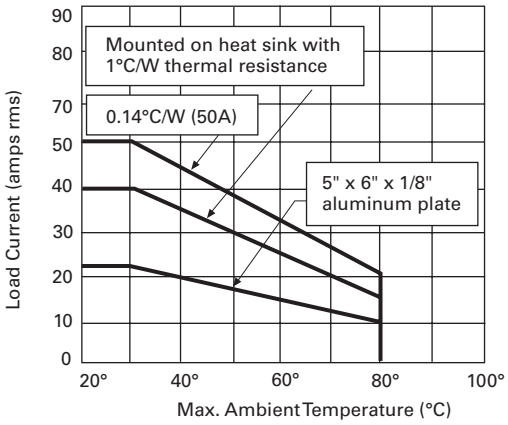
Temperature Derating Curves

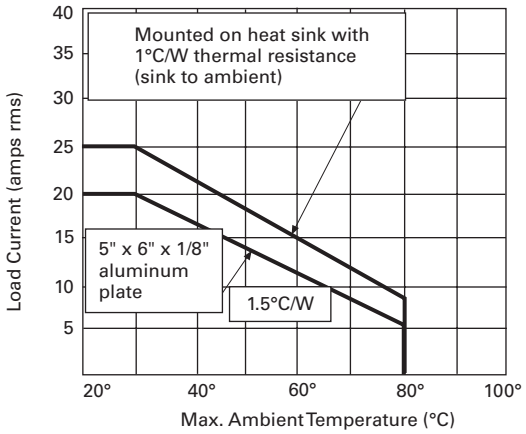
10 Amp Styles



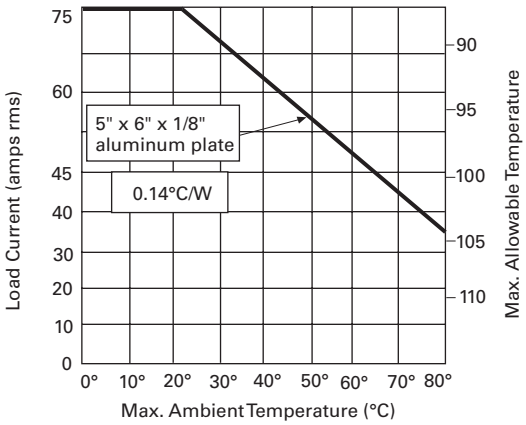
40 and 50 Amp Styles



25 Amp Styles



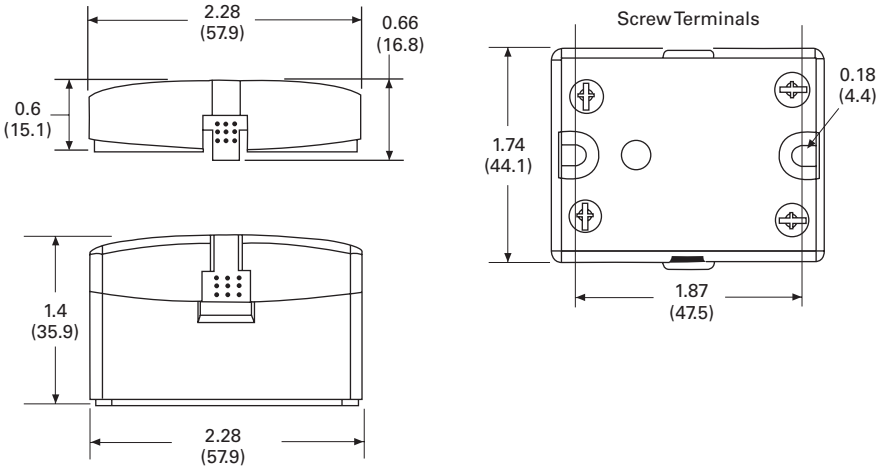
75 Amp Styles



Dimensions

Approximate Dimensions in Inches (mm)

D93 Series



D96 Series—Solid-State Relays

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D96 Series	
Product Selection	**T40-129**
Technical Data and Specifications	**T40-130**
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D99 Series	**T40-133**

D96 Series

Product Description

Eaton's D96 series of solid-state relays is a technologically advanced set of electronic relays for tough applications and harsh environments. The compact 17.5 mm wide package with an integrated heat sink provides easy mounting in tight spaces.

Application Description

A solid-state relay (SSR) can perform many applications that an electromechanical relay can perform. The SSR differs in that it has no moving mechanical parts within it and has some distinct advantages over an electromechanical relay.

When used correctly in the intended application, the SSR provides a high degree of reliability, a long service life, significantly reduced electromagnetic interference, fast response and high vibration resistance.

Applications for the SSR typically include equipment that requires high cycling rates, low acoustical or electrical noise, or high vibration resistance. Some examples are medical equipment, heating/cooling equipment, lighting control and pumps/compressors, among others.

Features and Benefits

- All solid-state circuitry has no moving parts to wear
- Integral heat sink eliminates the need for added accessories and installation
- Flexible mounting allows DIN rail or panel mounting without additional hardware or tools
- Isolated input and output terminals protect the system from electrical noise
- Internal snubber circuitry protects the SSR from transients

Standards and Certifications

- UL/cUL listed—UL 508
- CSA certified
- CE marked
- RoHS compliant

c UL us Listed CE RoHS COMPLIANT

Product Selection

D96115ACZ3

D96 Series

Input Voltage	Output Voltage	Contact Configuration	Switching Type	Rated Current Load (Amps)	Catalogue Number
3.5–32 Vdc	3–50 Vdc	SPST-NO	DC switch	15	**D96115ACZ3**
3.5–32 Vdc	3–150 Vdc	SPST-NO	DC switch	8	**D96208ACZ3**
90–280 Vac	24–280 Vac	SPST-NO	Random	10	**D96210ACR1**
3–32 Vdc	24–280 Vac	SPST-NO	Random	10	**D96210ACR2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	10	**D96210ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	10	**D96210ACZ2**
3–32 Vdc	24–280 Vac	SPST-NC	Random	10	**D96210BCR2**
90–280 Vac	48–480 Vac	SPST-NO	Random	10	**D96410ACR1**
3–32 Vdc	48–480 Vac	SPST-NO	Random	10	**D96410ACR2**
90–280 Vac	48–480 Vac	SPST-NO	Zero cross	10	**D96410ACZ1**
3–32 Vdc	48–480 Vac	SPST-NO	Zero cross	10	**D96410ACZ2**
90–280 Vac	48–600 Vac	SPST-NO	Random	10	**D96610ACR1**
90–280 Vac	48–600 Vac	SPST-NO	Zero cross	10	**D96610ACZ1**
3–32 Vdc	48–600 Vac	SPST-NO	Zero cross	10	**D96610ACZ2**

Technical Data and Specifications

D96 Series

Description	Units	D96210ACZ1	D96210ACZ2	D96210ACR1	D96210ACR2	D96115ACZ3	D96208ACZ3	D96210BCR2
Output Characteristics								
Contact configuration		SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPST-NC
Switching device		SCR	SCR	SCR	SCR	MOSFET	MOSFET	SCR
Current rating	A	10	10	10	10	15	8	10
Switching type		Zero cross	Zero cross	Random turn on	Random turn on	DC switching	DC switching	Random turn on
Maximum zero turn-on voltage (Vpk)	V	35	35	35	35	NA	NA	35
Maximum rate of rise off state voltage (DV/DT)	V/us	500	500	500	500	NA	NA	500
Incandescent lamp ampere rating (rms)	A	8	8	8	8	NA	NA	8
Motor load rating (rms)	A	4.5	4.5	4.5	4.5	NA	NA	4.5
Min. load current to maintain on	mA	50	50	50	50	20	20	50
Non-repetitive surge current (1 cycle)	A	500	500	500	500	50	35	500
Max. rms overload current (1 second)	A	24	24	24	24	24	17	24
Max. off state leakage current (rms)	mA	10	10	10	10	10	10	10
Typical on state voltage drop (rms)	V	1.25 AC	1.25 AC	1.25 AC	1.25 AC	1.25 DC	1.25 DC	1.25 AC
Max. on state voltage drop (rms)	V	1.6 AC	1.6 AC	1.6 AC	1.6 AC	1.6 DC	1.6 DC	1.6 AC
Max. I^2t for fusing (A^2)		1250	1250	1250	1250	NA	NA	1250
Input Characteristics								
Must release voltage	V	10 AC	1 DC	10 AC	1 DC	1 DC	1 DC	1 DC
Typical input impedance	ohms	16–25k	Current regulator	16–25k	ACL	Current regulator	Current regulator	ACL
Nominal input current at 5 Vdc or 240 Vac	mA	12	16	12	16	12	12	12
Reverse polarity protection		NA	Yes	NA	Yes	Yes	Yes	Yes
Performance Characteristics								
Operating time (response time)								
ON	ms	40	8.3	8.3	8.3	5	5	8.3
OFF	ms	80	8.3	8.3	8.3	5	5	8.3
Rated insulation voltage—input to input	Vac	2500	2500	4000	4000	2500	2500	4000
Dielectric strength—terminal to chassis	Vac	2500	2500	2500	2500	2500	2500	2500
Environment								
Product certifications		UL, CSA, CE	UL, CSA, CE	UL, CSA, CE	UL, CSA, CE	UL, CSA, CE	UL, CSA, CE	UL, CSA, CE
Ambient air temperature								
Storage	°C	–40 to 100	–40 to 100	–40 to 100	–40 to 100	–40 to 100	–40 to 100	–40 to 100
Operating	°C	–30 to 80	–30 to 80	–30 to 80	–30 to 80	–30 to 80	–30 to 80	–30 to 80
Degree of protection		IP20	IP20	IP20	IP20	IP20	IP20	IP20
Miscellaneous Characteristics								
Thermal resistance (junction to case)	°C/W	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Integral heat sink	°C/W	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Weight	g (oz)	127 (4.1)	127 (4.1)	127 (4.1)	127 (4.1)	127 (4.1)	127 (4.1)	127 (4.1)
LED—input		Green	Green	Green	Green	Green	Green	Green
Terminal wire capacity	AWG (mm^2)	14 (2.1)	14 (2.1)	14 (2.1)	14 (2.1)	14 (2.1)	14 (2.1)	14 (2.1)
Terminal torque (max.)	in-lb (Nm)	7.1 (0.8)	7.1 (0.8)	7.1 (0.8)	7.1 (0.8)	7.1 (0.8)	7.1 (0.8)	7.1 (0.8)

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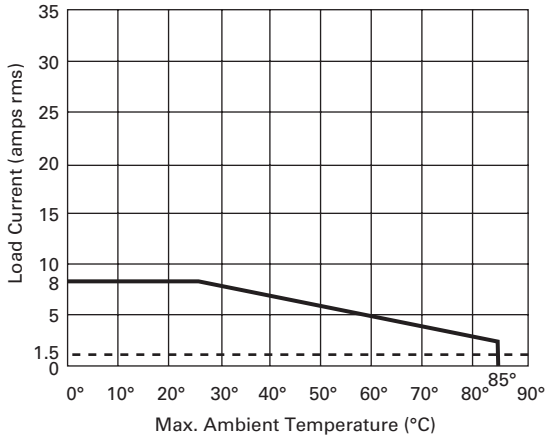
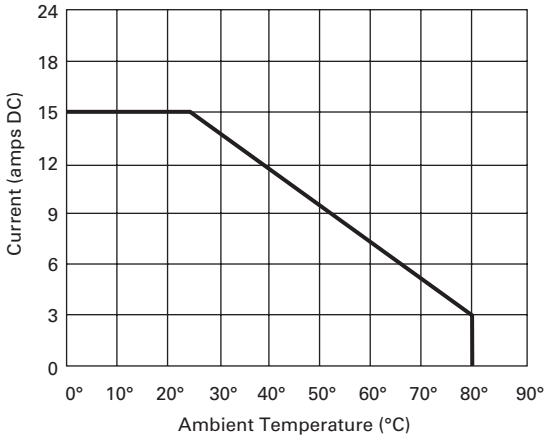
Temperature Derating Curves

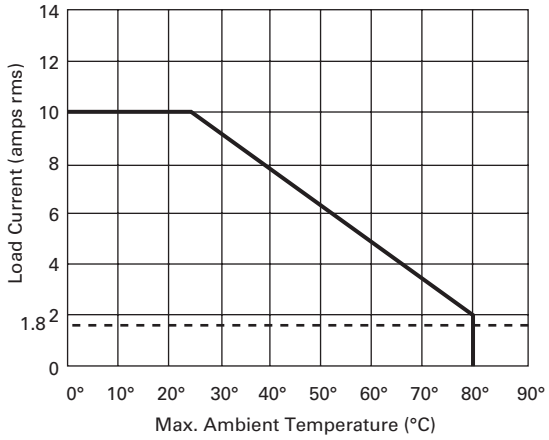
8 Amp Style



15 Amp Style



10 Amp Style



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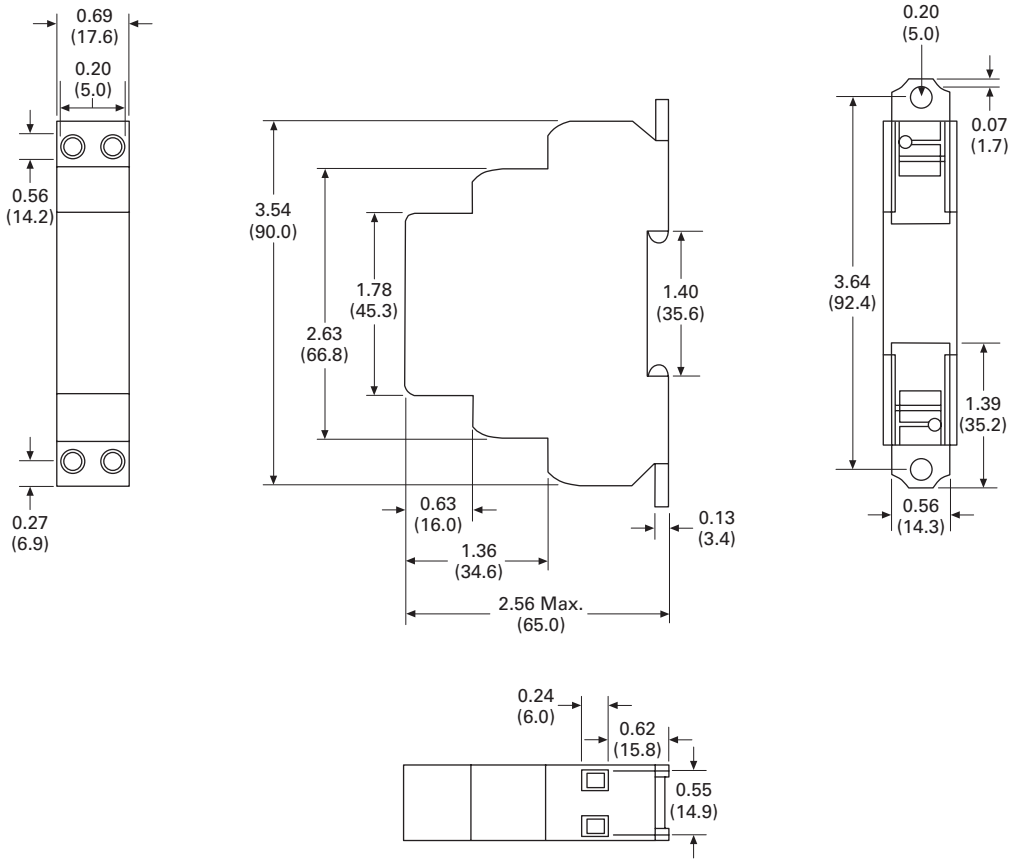
Dimensions

Approximate Dimensions in Inches (mm)

D96 Series



D99 Series—Solid-State Relays

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D99 Series	
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D99 Series

Product Description

Eaton's D99 series of solid-state relays is a line of heavy-duty industrial relays with an integrated heat sink. The attached metal hardware can be used for DIN rail or panel mounting.

Models are available in a variety of input voltages in 10A, 25A and 40A sizes.

Application Description

A solid-state relay (SSR) can perform many applications that an electromechanical relay can perform. The SSR differs in that it has no moving mechanical parts within it and has some distinct advantages over an electromechanical relay.

When used correctly in the intended application, the SSR provides a high degree of reliability, a long service life, significantly reduced electromagnetic interference, fast response and high vibration resistance.

Applications for the SSR typically include equipment that requires high cycling rates, low acoustical or electrical noise, or high vibration resistance. Some examples are medical equipment, heating/cooling equipment, lighting control and pumps/compressors, among others.

Features and Benefits

- All solid-state circuitry has no moving parts to wear
- Integral heat sink eliminates the need for added accessories and installation
- Flexible mounting allows DIN rail or panel mounting without additional hardware or tools
- Isolated input and output terminals protect the system from electrical noise
- Internal snubber circuitry protects the SSR from transients

Standards and Certifications

- UL/cUL listed—UL 508
- CSA certified
- CE marked
- RoHS compliant

c UL us Listed CE RoHS COMPLIANT

Product Selection

D99210ACZ1

D99 Series

Input Voltage	Output Voltage	Contact Configuration	Switching Type	Rated Current Load (Amps)	Catalogue Number
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	10	**D99210ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	10	**D99210ACZ2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	25	**D99225ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	25	**D99225ACZ2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	40	**D99240ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	40	**D99240ACZ2**
90–280 Vac	48–600 Vac	SPST-NO	Zero cross	10	**D99610ACZ1**
3–32 Vdc	48–600 Vac	SPST-NO	Zero cross	10	**D99610ACZ2**
90–280 Vac	48–600 Vac	SPST-NO	Zero cross	25	**D99625ACZ1**
3–32 Vdc	48–600 Vac	SPST-NO	Zero cross	25	**D99625ACZ2**
90–280 Vac	48–600 Vac	SPST-NO	Zero cross	40	**D99640ACZ1**
3–32 Vdc	48–600 Vac	SPST-NO	Zero cross	40	**D99640ACZ2**

Technical Data and Specifications

D99 Series

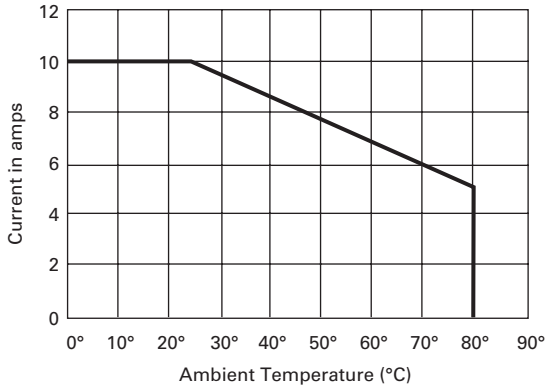
Description	Units	D99210ACZ1	D99210ACZ2	D99225ACZ1	D99225ACZ2	D99240ACZ1	D99240ACZ2
Output Characteristics							
Contact configuration		SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPST-NO
Switching device		SCR	SCR	SCR	SCR	SCR	SCR
Current rating	A	10	10	25	25	40	40
Switching type		Zero cross	Zero cross	Zero cross	Zero cross	Zero cross	Zero cross
Maximum zero turn-on voltage (Vpk)	V	35	35	35	35	35	35
Maximum rate of rise off state voltage (DV/DT)	V/us	500	200	500	500	500	500
Incandescent lamp ampere rating (rms)	A	8	8	16	16	20	20
Motor load rating (rms)	A	4.5	4.5	8	8	14	14
Min. load current to maintain on	mA	50	50	120	120	250	250
Non-repetitive surge current (1 cycle)	A	83	83	800	800	800	800
Max. rms overload current (1 second)	A	24	24	40	40	100	100
Max. off state leakage current (rms)	mA	10	10	10	10	10	10
Typical on state voltage drop (rms)	Vac	1.25	1.25	1.35	1.35	1.6	1.6
Max. on state voltage drop (rms)	Vac	1.6	1.6	1.8	1.8	1.6	1.6
Max. I^2t for fusing (A^2)		83	83	3700	3700	3700	83
Input Characteristics							
Must release voltage	V	10 AC	1 DC	10 AC	1 DC	10 AC	1 DC
Typical input impedance	ohms	16–25k	Current regulator	16–25k	Current regulator	13k	Current regulator
Nominal input current at 5 Vdc or 240 Vac	mA	12	12	12	12	16	16
Reverse polarity protection		NA	Yes	NA	Yes	NA	Yes
Performance Characteristics							
Operating time (response time)							
ON	ms	8.3	8.3	8.3	8.3	8.3	10
OFF	ms	8.3	8.3	8.3	8.3	8.3	10
Rated insulation voltage—input to input	Vac	4000	4000	4000	4000	4000	4000
Dielectric strength—terminal to chassis	Vac	4000	4000	4000	4000	4000	4000
Environment							
Product certifications		UL, CSA, CE	UL, CSA, CE	UL, CSA, CE	UL, CSA, CE	UL, CSA, CE	UL, CSA, CE
Ambient air temperature							
Storage	˚C	–40 to 100	–40 to 100	–40 to 100	–40 to 100	–40 to 100	–40 to 100
Operating	˚C	–30 to 80	–30 to 80	–30 to 80	–30 to 80	–30 to 80	–30 to 80
Degree of protection		IP20	IP20	IP20	IP20	IP20	IP20
Miscellaneous Characteristics							
Thermal resistance (junction to case)	˚C/W	1.5	1.5	1.5	0.43	1.5	0.43
Integral heat sink	˚C/W	2.2	2.2	2.2	2.2	2.2	2.2
Weight	g (oz)	320 (11.3)	320 (11.3)	320 (11.3)	326 (11.5)	320 (11.3)	332 (11.7)
LED—input		Green	Green	Green	Green	Green	Green
Terminal wire capacity	AWG (mm^2)	8 (10)	8 (10)	8 (10)	8 (10)	8 (10)	8 (10)
Terminal torque (max.)	in-lb (Nm)	12.5 (1.4)	12.5 (1.4)	12.5 (1.4)	12.5 (1.4)	12.5 (1.4)	12.5 (1.4)

D99 Series, continued

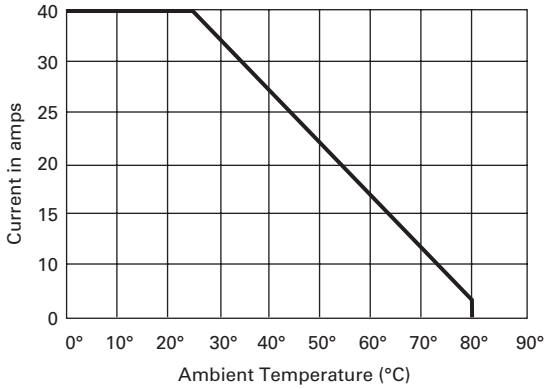
Description	Units	D99610ACZ1	D99610ACZ2	D99625ACZ1	D99625ACZ2	D99640ACZ1	D99640ACZ2
Output Characteristics							
Contact configuration		SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPST-NO
Switching device		SCR	SCR	SCR	SCR	SCR	SCR
Current rating	A	10	10	25	10	40	40
Switching type		Zero cross	Zero cross	Zero cross	Zero cross	Zero cross	Zero cross
Maximum zero turn-on voltage (Vpk)	V	35	35	35	35	35	35
Maximum rate of rise off state voltage (DV/DT)	V/us	200	200	700	700	500	500
Incandescent lamp ampere rating (rms)	A	8	8	16	16	20	20
Motor load rating (rms)	A	4.5	4.5	8	8	14	14
Min. load current to maintain on	mA	80	80	250	250	250	250
Non-repetitive surge current (1 cycle)	A	83	83	1000	1000	800	800
Max. rms overload current (1 second)	A	24	24	50	50	100	100
Max. off state leakage current (rms)	mA	10	10	10	10	10	10
Typical on state voltage drop (rms)	Vac	1.25	1.25	1.35	1.35	1.6	1.6
Max. on state voltage drop (rms)	Vac	1.6	1.6	1.6	1.6	1.6	1.6
Max. I^2t for fusing (A^2)		83	83	1700	1700	3700	3700
Input Characteristics							
Must release voltage	V	10 AC	1 DC	10 AC	1 DC	10 AC	1 DC
Typical input impedance	ohms	16–25k	Current regulator	16–25k	Current regulator	13k	Current regulator
Nominal input current at 5 Vdc or 240 Vac	mA	12	16	12	16	16	16
Reverse polarity protection		NA	Yes	NA	Yes	NA	Yes
Performance Characteristics							
Operating time (response time)							
ON	ms	8.33	8.3	8.33	8.3	10	10
OFF	ms	8.33	8.3	8.33	8.3	10	10
Rated insulation voltage—input to input	Vac	4000	4000	4000	4000	4000	4000
Dielectric strength—terminal to chassis	Vac	4000	4000	4000	4000	4000	4000
Environment							
Product certifications		UL, CSA, CE	UL, CSA, CE	UL, CSA, CE	UL, CSA, CE	UL, CSA, CE	UL, CSA, CE
Ambient air temperature							
Storage	°C	–40 to 100	–40 to 100	–40 to 100	–40 to 100	–40 to 100	–40 to 100
Operating	°C	–30 to 80	–30 to 80	–30 to 80	–30 to 80	–30 to 80	–30 to 80
Degree of protection		IP20	IP20	IP20	IP20	IP20	IP20
Miscellaneous Characteristics							
Thermal resistance (junction to case)	°C/W	1.8	1.8	0.43	0.43	0.43	0.43
Integral heat sink	°C/W	2.2	2.2	2.2	2.2	2.2	2.2
Weight	g (oz)	320 (11.3)	321 (11.3)	326 (11.5)	326 (11.5)	332 (11.7)	332 (11.7)
LED—input		Green	Green	Green	Green	Green	Green
Terminal wire capacity	AWG (mm^2)	8 (10)	9 (10)	8 (10)	8 (10)	8 (10)	8 (10)
Terminal torque (max.)	in-lb (Nm)	12.5 (1.4)	12.5 (1.4)	12.5 (1.4)	12.5 (1.4)	12.5 (1.4)	12.5 (1.4)

Temperature Derating Curves

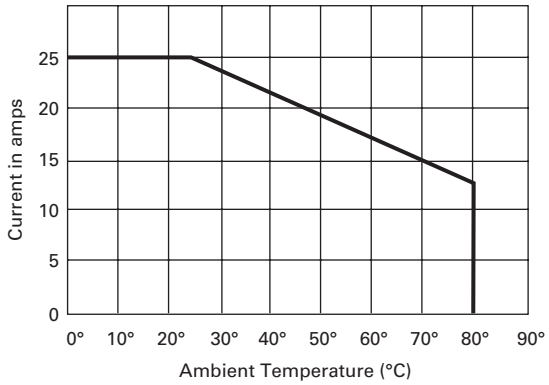
10 Amp Styles



40 Amp Styles



25 Amp Styles



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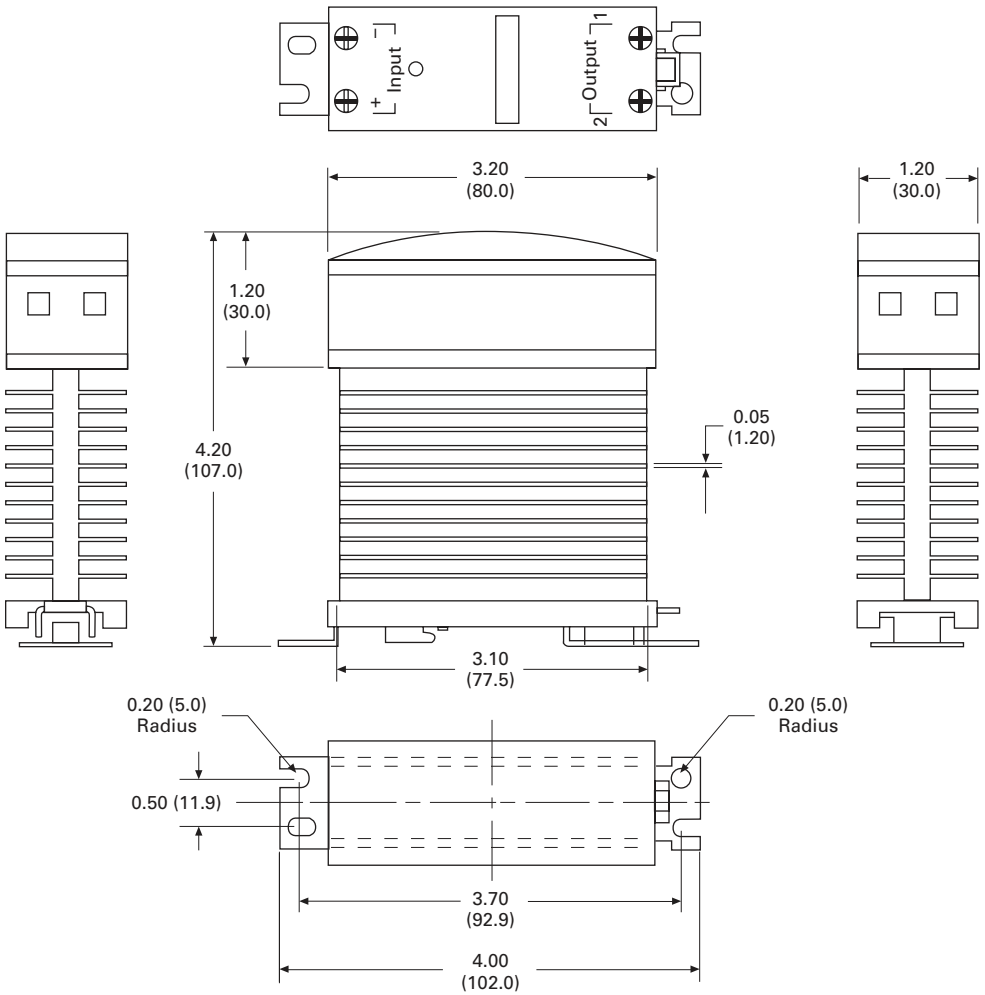
Dimensions

Approximate Dimensions in Inches (mm)

D99 Series



Machine Tool Relays

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D26 Series—Type M, 600 Vac Multipole with Convertible Contacts	**T40-156**
D26 Series—Type M, DC Multipole with Convertible Contacts	**T40-161**

40

Product Overview

Eaton's machine tool relay offering includes a variety of NEMA type relays. Included in this are open style relays and relays with convertible or side-mount contacts. Also included in this family are a variety of accessories to match the application, including suppressors, timing contacts and enclosures. The relay coils are available in a variety of line and control level voltages.

D15 Series—Freedom 600V Multipole

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BF/BFD Series—Fixed Contact Industrial Control	**T40-145**
AR/ARD Series—Convertible Contact Industrial Control	**T40-151**
D26 Series—Type M, 600 Vac Multipole with Convertible Contacts	**T40-156**
D26 Series—Type M, DC Multipole with Convertible Contacts	**T40-161**

D15 Series—Freedom 600V Multipole

Product Description

Contact poles on the D15 relay are of the fixed design and are not convertible. The basic four-pole relay will accept a front-mounted contact pole deck and/or side-mounted contact blocks (one per side). In addition, a side-mounted solid-state timer or a front-mounted pneumatic timer can be added to the relay. Only one front-mounted attachment can be added to the basic relay.

Application Description

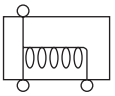
Side-mounted contact blocks can be used to provide additional poles in applications where a pneumatic timer is installed on the front of the relay. They can also be used where panel depth is restricted.

The maximum number of contacts recommended per relay is eight, six of which can be NC. When a pneumatic timer is used, the maximum recommended number of NC contacts is three.

Relays with DC coils are supplied with a coil clearing NC contact mounted on the side of the relay.

Features and Benefits

- 600V, 10A continuous thermal current
- State indicator visually shows relay ON or OFF status
- Relay base has mounting holes on 35 x 60 mm centers, permitting direct replacement of competitive relays
- Relay also mounts on 35 mm DIN rail as standard
- Magnet coil has three terminals, permitting either top or diagonal wiring—easy to replace European or U.S. relays without changing wiring layout



- Contact pole terminals have captive, backed-out, self-lifting pressure plates with ± screws—reduced wiring time
- All terminals are shrouded or "finger-proofed" to reduce possibility of electrical shock
- Designed to meet or exceed UL, NEMA, IEC, CSA, VDE, BS and other international standards

Standards and Certifications

- UL
- CSA certified
- CE marked

Product Selection

When Ordering, Specify

Catalogue number and magnet coil code letter. Example: For a four-pole relay having 4NO contacts with a 120V 60 Hz coil, order Catalogue Number D15CR40**A**B.

Factory-Assembled Multipole Relays

	Number of Poles	Type of Contacts NO	NC	Open Type Catalogue Number ①
D15CR40_B	4	4	0	**D15CR40_B**
		3	1	**D15CR31_B**
		2	2	**D15CR22_B**
		1	3	**D15CR13_B**
		0	4	**D15CR04_B**
D15CR60_B	6 (four-pole relay with two-pole front-mounted deck)	6	0	**D15CR60_B**
		5	1	**D15CR51_B**
		4	2	**D15CR42_B**
		3	3	**D15CR33_B**
		2	4	**D15CR24_B**
		1	5	**D15CR15_B** ②
		0	6	**D15CR06_B** ②
D15CR80_B	8 (four-pole relay with four-pole front-mounted deck)	8	0	**D15CR80_B**
		7	1	**D15CR71_B**
		6	2	**D15CR62_B**
		5	3	**D15CR53_B**
		4	4	**D15CR44_B**
		3	5	**D15CR35_B** ②
		2	6	**D15CR26_B** ②

Additional Contact Poles

Description	Catalogue Number
Front Contact Pole Deck	
1NO-1NC	**C320KGT3**
2NO	**C320KGT4**
2NC	**C320KGT5**
1NO (early closing)–1NC (late opening)	**C320KGT7**
4NO	**C320KGT13**
3NO-1NC	**C320KGT14**
2NO-2NC	**C320KGT15**
1NO-3NC	**C320KGT16**
4NC	**C320KGT17**
Side-Mounted Contact Blocks	
1NO-1NC	**C320KGS3**
2NO	**C320KGS4**
2NC	**C320KGS5**
1NO (early closing)–1NC (late opening)	**C320KGS7**

Magnet Coil Selection

AC Coils Volts and Hertz	Code Suffix
120/60 or 110/50	**A**
240/60 or 220/50	**B**
480/60 or 440/50	**C**
600/60 or 550/50	**D**
208/60	**E**
277/60	**H**
208–240/60	**J**
24/60	**T**

DC Coils Volts	Code Suffix
12	**R1**
24	**T1**
48	**W1**
120	**A1**

Notes

① Underscore indicates missing code suffix for magnet coil—see Magnet Coil Selection table above.

② Not all suffix codes available: consult Customer Support Centre.

Accessories

C320 Pneumatic Timer Attachment

Pneumatic Timer Attachment

Timing Range	Catalogue Number
0.1 to 30 seconds	C320TP1
10 to 180 seconds	C320TP2

Maximum Ampere Ratings

Description	Volts AC 120	240	480	600
Make	30	15	7.5	6
Break	3	1.5	0.75	0.6

Attachment mounts on top of any Freedom Series relay (top-mounted auxiliary contacts can not be installed on device when timer is used). Timer unit has DPST timed contacts—circuits in each pole must be the same polarity. Units are convertible from OFF to ON delay or vice-versa.

Finger Protection Shields

Application	Catalogue Number
D15	C320LS1

Snap-on shields for both contactors and starters provide IEC Type IP20 Finger Protection. Prevents accidental contact with line/load terminals.

Adhesive Dust Cover

Description	Catalogue Number
25 to a package	C320DSTCVR

These adhesive stickers come 25 to a package and provide extra protection from contaminants when applied to the sides of Freedom D15. Adhesive covers are easily applied to side opening where auxiliaries are not installed and provide extra protection from metal filings and other debris.

Solid-State Timer

Solid-State ON DELAY Timer ①

Timing Range	Catalogue Number ②③④
0.1 to 1.0 seconds	C320TDN1_
1 to 30 seconds	C320TDN30_
30 to 300 seconds	C320TDN300_
5 to 30 minutes	C320TDN3000_

This timer is designed to be **wired in series with the load** (typically a coil). When the START button is pushed (power applied to timer), the ON delay timing function starts. At the completion of the set timing period, timer and series wired load will both be energized.

C32MP1

Metal Mounting Plate

Description	Catalogue Number
Metal mounting plate	C321MP1

Fits all D15 multipole relays.

DIN Rail

Mounting Channel (DIN Rail)

Description	Catalogue Number
1 meter length	XBANS3575P

Designed for DIN rail mounting of Freedom Series relays.

C320TS2

Transient Suppressor Kits

Description	Coil Voltage 50/60 Hz ⑤	Catalogue Number
Transient	24/120V	C320TS1
Suppressor	208/240V	C320TS2
	277/480V	C320TS3

These kits limit high voltage transients produced in the control circuit when power is removed from the contactor or starter coil. There are three separate suppressors for use on 24–120V, 208–240V or 27–480V coils respectively.

These devices mount directly to the coil terminals.

Notes

① Side mounted on Freedom Series NEMA 00–2, D15, IECA-K and C25D, C25E and C25F frame.
② Add operating voltage suffix to catalogue number; **A** = 120V, **B** = 240V, **E** = 208V.
③ Rated 0.5 ampere pilot duty—not to be used on larger contactors.
④ Terminal connections are quick connects only. Two per side.
⑤ Suppressor is compatible with coil voltages/ranges as shown, both 50 and 60 Hz.

C320DC

AC/DC Interface Module—Controller Coil Voltage Ranges

Controller Catalogue Number Prefix	Controller Size or Rating	Coil Range Volts AC
AE16, AE17, AE56, AE57, CE15, CE55	A–F	24–240
	G–K	48–240
	L–N	110–240
AN16, AN56, CN15, CN55	00–0	24–240
	1–2	48–240
	3	110–240
CN35	10–30A	24–240
	60A	48–240
	100A	110–240

The Catalogue Number C320DC Interface Module is an optically isolated solid-state switch that provides a means of operating AC coils with a 24 Vdc control signal. It acts as a space-saving interposing relay that can switch a specified 50/60 Hz AC source to the contactor or starter coil.

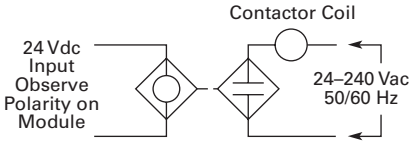
The module may be directly attached to the coil terminals of any Freedom Series contactor or starter—NEMA Sizes 00–3, D15, IEC Sizes A–N and lighting contactors 10–100A. It also has provisions for DIN rail mounting.

The module will operate coils within the voltage ranges shown in the table to the left.

Design Characteristics

- DC input: 24V ±10% at mA nominal
- AC operating voltage: 24–240 Vac ±10% 50/60 Hz
- AC current rating: 10A make (inrush), 1A break (sealed)

Typical Application—Solid-State Switch



Technical Data and Specifications

Contact Ratings—NEMA A600

Continuous Thermal Rating: 10A

AC Volts	Make	Break
120	60	6.0
240	30	3.0
480	15	1.5
600	12	1.2

Contact Ratings—NEMA P300

Continuous Thermal Rating: 5A

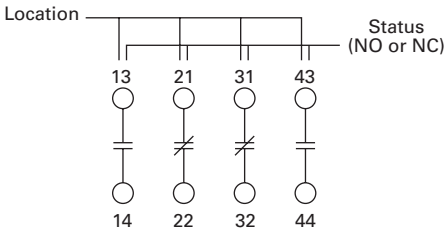
DC Volts	Make/Break Amperes
125	1.1
250	0.55

Magnet Coil Data

AC Voltage	Pickup VA	Watts	Sealed VA	Watts
12–600V	80	49	7.5	2.4

DC Voltage	Pickup Amps	Watts	Sealed VA	Watts
12	6.4	76.8	0.28	3.36
24	3.2	76.8	0.14	3.36
48	1.6	76.8	0.07	3.36
120	0.64	76.8	0.028	3.36

Example of Terminal Marking with 2NO and 2NC Contacts



Relay terminals are identified by a two-digit number in accordance with International Standards approved by CENELEC (European Committee for Electro-technical Standardization). The number is marked on the relay and is used to identify location and status of the contacts.

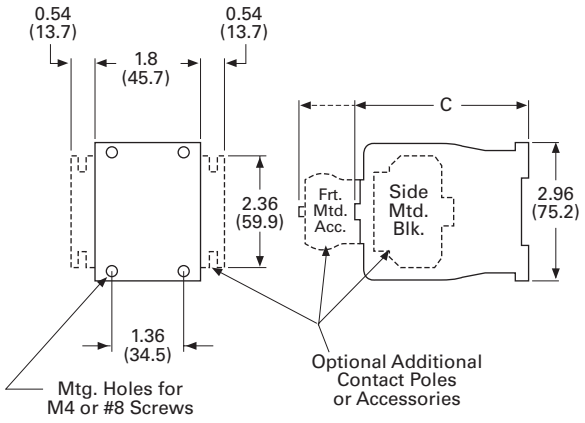
The first digit indicates the location of the contact on the relay. The numbering begins with 1 and continues without a break from left to right.

The second digit indicates the status of the contacts (NO or NC). Terminal marking 1 and 2 mean NC and 3 and 4 mean NO.

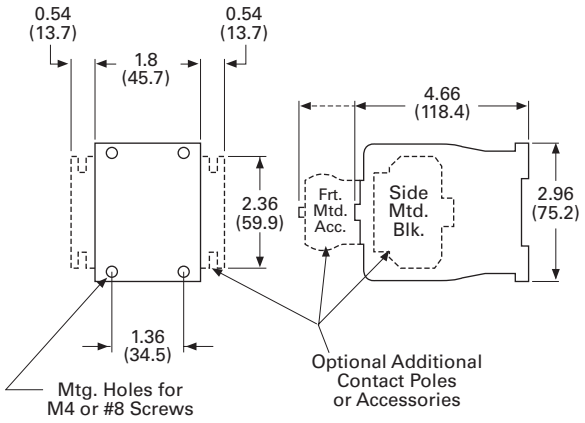
Dimensions

Approximate Dimensions in Inches (mm)

D15 Four-Pole Relay



D15 Six- and Eight-Pole Relays



Dimensions and Shipping Weights

Description	Dimension C	Shipping Weights Lbs (kg)
Relay only	3.30 (83.8)	1.3 (0.6)
Relay with timer attachment	5.55 (141.0)	1.5 (0.7)
Relay with front contact pole deck	4.66 (118.4)	1.7 (0.8)

BF/BFD Series—Fixed Contact Industrial Control

Contents

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BF/BFD Series—Fixed Contact Industrial Control

Product Description

Type BF is AC operated, 300V maximum, and the BFD is DC operated, 250V. Fixed contact relays are available in any combination of NO and NC from two to 12 poles. BF and BFD relays have captive clamp terminals fully accessible from the front, a molded coil with low operating temperature and silver alloy contacts suitable for low voltage circuits.

Features and Benefits

Wiring to Relay

- In parallel with coil—one timed and up to 12 instantaneous contacts, or
- In series with coil—up to 12 timed contacts in one relay

Permanent Magnet Latch

- Field mountable on Catalogue Number BF; factory installed on BFD
- Latch coil continuously rated
- Latch plunger adjustable for optimum performance

Standards and Certifications

- UL recognized, UL File No. E19223 (AC relays only)
- CSA certified, File No. LR39402-6, LR28548-10, 11 (AC and DC relays)

Product Selection

When Ordering, Specify

- Catalogue number of basic relay
- If a coil voltage other than listed is required, select the suffix code from the Coil Voltage table and substitute it for the last letter in the catalogue number. Example: BF80**V** for a 110/60 AC coil

Type BF

Type BFD

Complete Relay—Type BF and BFD, Two-, Three-, Four- and Six-Pole ①

Number of Poles	Type of Contact NO (Form A)	Type of Contact NC (Form B)	BF 300 Vac Basic Relays 120/60, 110/50 AC Coil Catalogue Number	BFD 250 Vdc Basic Relays 120 DC Coil Catalogue Number
2	2	0	**BF20F**	**BFD20S**
	1	1	**BF11F**	**BFD11S**
	0	2	**BF02F**	**BFD02S**
3	3	0	**BF30F**	**BFD30S**
	2	1	**BF21F**	**BFD21S** ②
	1	2	**BF12F**	**BFD12S**
	0	3	**BF03F**	**BFD03S**
4	4	0	**BF40F**	**BFD40S**
	3	1	**BF31F**	**BFD31S**
	2	2	**BF22F**	**BFD22S**
	1	3	**BF13F**	**BFD13S**
	0	4	**BF04F**	**BFD04S**
6	6	0	**BF60F**	**BFD60S**
	5	1	**BF51F**	**BFD51S**
	4	2	**BF42F**	**BFD42S**
	3	3	**BF33F**	**BFD33S**
	2	4	**BF24F**	**BFD24S**
	0	6	**BF06F**	**BFD06S**

Coil Voltage

BF Coils

Volts AC	Hz	Suffix Code
12	60	**H**
24	60	**I**
48	60	**J**
110	60	**V**
110/120	50/60	**F**
208	60	**K**
220/240	50/60	**G**
440	60	**C**

BFD Coils

Volts DC	Suffix Code
6	**C**
12	**D**
24	**L**
38	**N**
48	**M**
72	**E**
95	**B**
120	**S**
130	**U**
240	**T**

Notes

① Relays listed above with equal number of NO and NC contact poles are specially priced—1NO and 1NC pole are supplied at no additional charge.

② Consult Customer Support Centre for availability.

When Ordering, Specify

- Catalogue number of basic relay
- If a coil voltage other than listed is required, select the suffix code from the Coil Voltage table and substitute it for the last letter in the catalogue number. Example: BF80**V** for a 110/60 AC coil

Type BF

Type BFD

Complete Relay—Type BF and BFD, Eight-, 10- and 12-Pole ①

Number of Poles	Type of Contact NO (Form A)	Type of Contact NC (Form B)	BF 300 Vac Basic Relays 120/60, 110/50 AC Coil Catalogue Number	BFD 250 Vdc Basic Relays 120 DC Coil Catalogue Number
8	8	0	**BF80F**	**BFD80S**
	7	1	**BF71F**	**BFD71S**
	6	2	**BF62F**	**BFD62S**
	5	3	**BF53F**	**BFD53S**
	4	4	**BF44F**	**BFD44S**
	0	8	**BF08F**	**BFD08S**
10	10	0	**BF100F**	**BFD100S**
	8	2	**BF82F**	**BFD82S** ②
	7	3	**BF73F** ②	**BFD73S**
	6	4	**BF64F**	**BFD64S**
	5	5	**BF55F**	**BFD55S** ②
	4	6	**BF46F**	**BFD46S**
	2	8	**BF28F**	**BFD28S**
12	12	0	**BF120F**	**BFD120S**
	8	4	**BF84F**	**BFD84S**
	7	5	**BF75F**	**BFD75S**
	6	6	**BF66F**	**BFD66S**
	5	7	**BF57F**	**BFD57S**
	4	8	**BF48F**	**BFD48S**

Coil Voltage

BF Coils

Volts AC	Hz	Suffix Code
12	60	**H**
24	60	**I**
48	60	**J**
110	60	**V**
110/120	50/60	**F**
208	60	**K**
220/240	50/60	**G**
440	60	**C**

BFD Coils

Volts DC	Suffix Code
6	**C**
12	**D**
24	**L**
38	**N**
48	**M**
72	**E**
95	**B**
120	**S**
130	**U**
240	**T**

Notes

① Relays listed above with equal number of NO and NC contact poles are specially priced—1NO and 1NC pole are supplied at no additional charge.

② Consult Customer Support Centre for availability.

Permanent Magnet Latch, Relay Mounted

Permanent Magnet Latch

Coil Volts	Coil Hz	Catalogue Number
AC Relays		
24	60	**BFMLI** ②
48	60	**BFMLJ** ②
110/120	50/60	**BFMLF**
220/240	50/60	**BFMLG**
DC Relays		
24	—	**BFMLL**
48	—	**BFMLM**
120	—	**BFMLS**
240	—	**BFMLT**

Options

FASTON Push-On Terminals

Description	Code Letter	Catalogue Number
Insert letter **F** after relay type designation in listed catalogue number. Example: BF**F**20F or BFD**F**20S	**F**	—

Overlapping Contacts

Description	Code Letter	Catalogue Number
NO contact closes before corresponding NC contact opens—supplied as NO/NC set(s). Insert letter **A** after relay type designation in listed catalogue number. Example: BF**A**22F or BFD**A**F22S	**A**	—

NEMA 1 Enclosure for Relay Types

Description	Code Letter	Catalogue Number
BF, AR—all poles	—	**4977D40G04**
BFD—4–8 poles	—	**4977D40G04**
ARD—4–8 poles	—	**4977D40G04**

Notes

① For panel mount, add Suffix **F**.

② Consult Customer Support Centre for availability.

Technical Data and Specifications

General Specifications

BF Relay Electrical Ratings—NEMA A300

	Maximum Current			Maximum VA	
Volts	Cont.	Make	Break	Make	Break
120	10	60	6	7200	720
240	10	30	3	7200	720

Horsepower Ratings (UL Recognized)

	AC Volts	
Phase	115	230
1	1/6	1/2
3	—	1

DC Rating—NEMA P300

	Maximum Current			Max. Make
Volts	Cont.	Make	Break	or Break (VA)
125	5.0	1.1	1.1	138
250	5.0	0.55	0.55	138

Resistive Rating

125 Vdc	3A
250 Vdc	1.5A

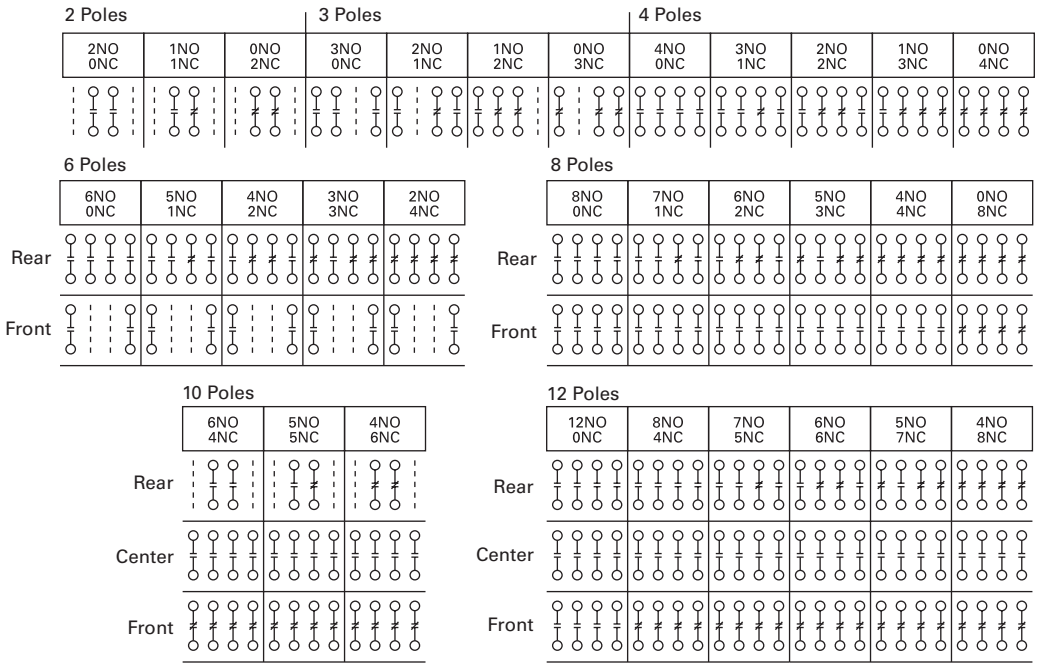
Coil Power Requirements

AC	72 VA open, 22 VA closed
DC	12 watts (nominal), 250V max.

Permanent Magnet Latch Specifications

Item	Specification
Unlatching power requirements	Open gap: 24 VA AC Closed gap: 7 VA Burden: 4 watts (AC)

Contact Arrangements—BF and BFD Relays

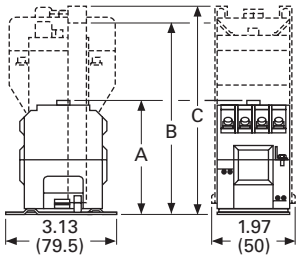


Note: NO = Normally Open NC = Normally Closed

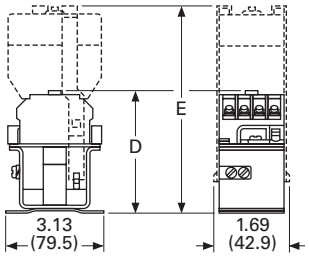
Dimensions

Approximate Dimensions in Inches (mm)

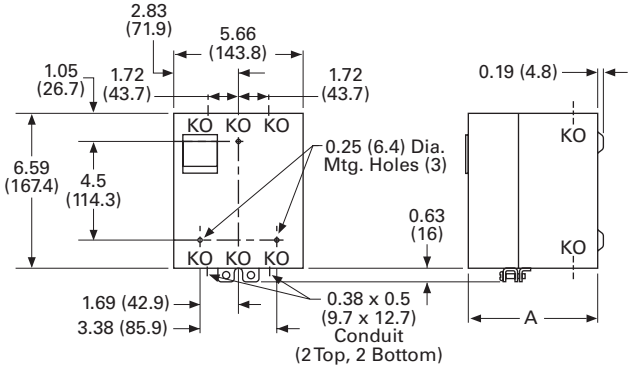
BF Relay with Permanent Magnet Latch and Solid-State Timer



BFD Relay with Solid-State Timer



Enclosures—NEMA 1 for BF, BFD, AR and ARD



BF and BFD Relay Dimensions

Number of Poles	A BF Only	B BF w/Latch	C BF w/Timer	D BFD Only	E BFD w/Timer
4	3.22 (81.8)	6.22 (158.0)	5.88 (149.4)	4.03 (102.4)	7.06 (179.3)
8	4.19 (106.4)	7.19 (182.6)	6.88 (174.8)	4.97 (126.2)	8.00 (203.2)
12	4.81 (122.2)	7.81 (198.4)	7.50 (190.5)	5.63 (143.0)	8.66 (220.0)

NEMA 1 for BF, BFD, AR and ARD Dimensions

Poles	Catalogue Number	A NEMA 1
Relays without Attachments		
All	**BF, AR, ARD**	5.34 (135.6)
4 – 8	**BFD**	5.34 (135.6)
10, 12	**BFD**	7.97 (202.4)
Relays with Attachments		
All	**BF, AR, ARD**	7.97 (202.4)

AR/ARD Series—Convertible Contact Industrial Control

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D26 Series—Type M, DC Multipole with Convertible Contacts	**T40-161**

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AR/ARD Series—Convertible Contact Industrial Control

Product Description

The AR/ARD relays are electromechanical convertible contact relays. AR relays are AC devices and the ARD is for DC applications.

Application Description

Type AR and ARD relays are designed for use on machine tools, process lines, conveyors and similar automatic and semi-automatic equipment.

Features and Benefits

Permanent Magnet Latch

By energizing the relay coil, the latch attachment "sets" (when the base relay's armature/crossbar assembly has closed) holding the relay ON, even after the relay coil has been de-energized. The clearing coil on the latch is energized to release the armature/crossbar assembly.

- Field mountable to four- and six-pole
- Latch plunger is adjustable
- Latch coil continuously rated
- Unlatching power requirements
  - Open gap: 24 VA
  - Closed gap: 7 VA
  - Burden: 4 watts AC, 6 watts DC

Surge Suppressor

- Mounts in contact cavity of AR relays
- Limits high transient voltages resulting from de-energizing relay coil or other electromechanical devices
- Protects sensitive instruments and solid-state devices
- 120 Vac maximum, not used on Vdc
- For noise suppression, see Catalogue Number SS-56 starter mounted surge suppressor.

Operation

AR relays are available in either four- or six-pole configurations. AR relays are easily converted to eight- or 10-poles simply by adding a four-pole deck. In addition, mechanical latch attachments are available with four- and six-pole relays.

Contacts are convertible from NO to NC, to provide any combination desired up to a maximum of 10. For the ARD, the number of poles cannot exceed **four** NC in any pole configuration. Wide spacing of contacts simplifies installation, contact testing and maintenance. Contacts are electrically and mechanically isolated from each other. Overlap contacts are also available in one or two sets. These contacts should be mounted in the centre pole positions. AC and DC contact cartridges should not be used in the same relay.

Standards and Certifications

- UL File No. E19223
- CSA File No. LR39402-6, LR54517 and LR54520

Reference Information

- ART, ARTD: IL 14510, IL 14485

Product Selection

When Ordering, Specify

- Catalogue number of basic relay with 120/60, 110/50 AC coil from AR/ARD Relays table.
- If a coil voltage other than listed is required, select the suffix code from the Coil Voltage table below and substitute it for the last letter in the catalogue number. Example: AR64**V** for a 110/60 AC coil.

AR/ARD Relays

AR/ARD Relays

Number of Poles	Contact NO	Contact NC	Blank Cavities	AR 600 Vac Relays 120/60, 110/50 AC Coil Catalogue Number	ARD 600 Vdc Relays 120 DC Coil Catalogue Number
4	0	0	4	**AR4A**	**ARD4S**
	2	0	2	**AR420A**	**ARD420S**
	4	0	0	**AR440A**	**ARD440S**
6	0	0	6	**AR6A**	**ARD6S**
	4	0	2	**AR640A**	—
	6	0	0	**AR660A**	**ARD660S**
8 ①	6	0	2	**AR860A**	**ARD860S** ②
	8	0	0	**AR880A**	**ARD880S**
10 ①	10	0	0	**AR10100A**	**ARD10100S**

Coil Voltage

AR Coils

Volts AC	Hz	Suffix Code
12	60	**F**
24	60	**I**
48	60	**G**
110	60	**V**
110/120	50/60	**A**
208	60	**B**
220/240	50/60	**W**
277	60	**C**
380/440	50/60	**H**
440/480	50/60	**X**
550	60	**D**
550/600	50/60	**E**

ARD Coils

Volts DC	Suffix Code
12	**D**
24	**L**
48	**M**
95	**B**
120	**S**
130	**U**
240	**T**

Contact Cartridges—600V

Terminal Type	Standard Contact Cartridge Catalogue Number ③	Overlap Contact Cartridge Catalogue Number ④
AC Cartridges		
With clamp terminals	**ARC**	**AROC**
With screw terminals	**ARCR**	**AROCR**
DC Cartridges		
With clamp terminals	**ARDC**	**ARDOC**
With screw terminals	**ARDCR**	**ARDOCR**

Notes

① Will not accept top-mounted latch or timers.
② Contact Customer Support Centre for availability.
③ Standard cartridges are sold in cartons of four cartridges. Catalogue number is for single cartridge.
④ Overlap contact cartridges are sold in sets of two cartridges. Catalogue number is for sets of two.

ARML Permanent Magnet Latch for AR/ARD Relays

Permanent Magnet Latch

Operating Volts	Coil Hz	Catalogue Number
For AC Control Circuits		
24	60	**ARMLI**
48	60	**ARMLG**
120	60/50	**ARMLA**
240	60/50	**ARMLW**
For DC Control Circuits		
24	—	**ARMLL**
48	—	**ARMLM**
120	—	**ARMLS**
240	—	**ARMLT**

Accessories

Four-Pole Top Deck Adder

- Increases contact capacity from four/six-poles to eight/10-poles
- Mounts on top of basic relay using three screws
- Will not interfere with wiring, testing or convertible cartridges
- Screw terminals for ring connectors available; to order, add Suffix **R** to catalogue number listed below

Four-Pole Top Deck Adder

Four-Pole Top Deck Adder

No. of Poles	Contacts NO	Contacts NC	Blank Cavities	Catalogue Number
With 600 Vac Cartridges				
4	2	0	2	**ARA20**
	4	0	0	**ARA40**
With 600 Vdc Cartridges				
4	2	0	2	**ARDA20**
	4	0	0	**ARDA40**

ARSS Surge Suppressor for AR Relays

Surge Suppressor

	Catalogue Number
Surge Suppressor	**ARSS**

Options

Convertible Contacts

Description	Code Letter	Catalogue Number
AR and ARD relays listed are supplied with NO contacts that are easily converted to NC. If both NO and NC poles are required, order by catalogue number. Example: four-pole relay with 1NO and 3NC contacts, order AR4**13**A.	①	—

Screw Terminals

Description	Code Letter	Catalogue Number
For ring-type connectors, add suffix **R** to the catalogue number. Example: AR420A**R**.	**R**	—

Overlapping Contacts

Description	Code Letter	Catalogue Number
NO contact closes before corresponding NC contact opens — supplied as NO/NC sets of two cartridges. Insert letter **S** after relay type designation in listed catalogue number. Example: AR402A**S**. Specify the number of sets required: **S** for one set and **S2** for two sets.	**S** or **S2** ①	—

Note

① Consult Customer Support Centre for availability.

Technical Data and Specifications

General

Contact Ratings—600 Vac Cartridge NEMA A600

	Maximum Current			Maximum VA	
Volts	Cont.	Make	Break	Make	Break
120	10	60	6	7200	720
240	10	30	3	7200	720
480	10	15	1.5	7200	720
600	10	12	1.2	7200	720

DC Cartridges—NEMA P600

	Maximum Current		Maximum VA
Volts	Continuous	Make or Break	Make or Break
125	5	1.10	138
250	5	0.55	138
600	5	0.20	138

Resistive Rating

125 Vdc	3A
250 Vdc	1.5A

Coil Power Requirements

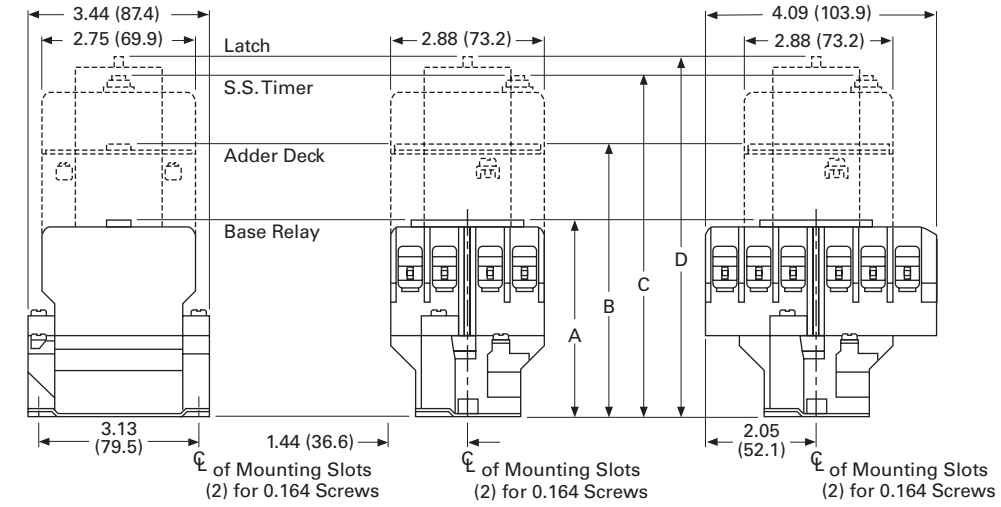
AC	96 VA open, 14 VA closed
DC	14 watts open, 250V max.

Voltage	AR Relays	ARD Relays
Pickup voltage (max.)	85%	65%
Dropout voltage (min.)	60%	15%
Voltage (max.)	110%	110%

Dimensions

Approximate Dimensions in Inches (mm)

Four- and Six-Pole with Four-Pole Adder, Solid-State Timer and Mechanical Latch

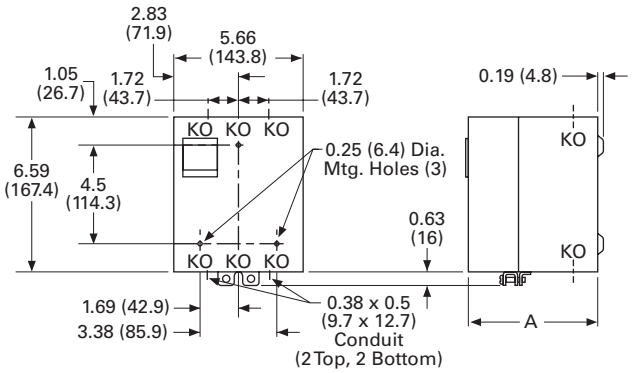


End View, 4- and 6-Pole **Side View, 4-Pole** **Side View, 6-Pole**

Four- and Six-Pole with Four-Pole Adder, Solid-State Timer and Mechanical Latch

Relay Catalogue Number	A Four-, Six-Pole Relays	B Relay Adder	C Relay with Timer	D Relay with Latch
AR	3.56 (90.4)	4.94 (125.5)	6.00 (152.4)	6.39 (162.3)
ARD	4.63 (117.6)	6.00 (152.4)	7.06 (179.3)	7.45 (189.2)

Enclosures—NEMA 1 for BF, BFD, AR and ARD



Enclosures—NEMA 1 for BF, BFD, AR and ARD

Poles	Catalogue Number	Dimension A NEMA 1
Relays without Attachments		
All	**BF, AR, ARD**	5.34 (135.6)
4–8	**BFD**	5.34 (135.6)
10, 12	**BFD**	7.97 (202.4)
Relays with Attachments		
All	**BF, AR, ARD**	7.97 (202.4)

D26 Series—Type M, 600 Vac Multipole with Convertible Contacts

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D26 Series—Type M, DC Multipole with Convertible Contacts	**T40-161**

D26 Series—Type M, 600 Vac Multipole with Convertible Contacts

Product Description

Relays can be ordered as complete devices in any pole combination up to a maximum of 12NO or 8NC and 4NO poles, or can be assembled from components shown on **Page T40-158**.

Relay base assembly (**D26MB**) will accept from 1 to 4 rear poles (**D26MPR**, **D26MPS** and/or **D26MPL**).

Features

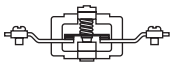
Contact poles D26MPR and D26MPF in 2- through 8-pole relays are convertible NO to NC or vice versa. Simply reverse the terminal screws and rotate the unit pole 180° (in either direction).

Options

Adding a front deck, the total number of poles can be increased to 8, all convertible NO to NC.

Adding a **D26MF**, 4-pole fixed NO attachment, builds a 12-pole relay with 8 convertible poles and 4 fixed NO poles.

Relays with mechanical latch are available in any convertible pole combination up to eight poles maximum.



Normally Closed Contact

Normally Open Contact

To obtain overlapping contacts, use **D26MPS** (NO early closing) and **D26MPL** (NC late opening) rear poles, in related circuits.

Standards and Certifications

- UL listed—Class No. NKCR2, File E1230(N)
- CSA certified—File LR353

Product Selection

Complete AC Relays

When Ordering, Specify

- Catalogue number and magnet coil suffix letter.
- Example: For a 4-pole relay having 4NO contacts, order Catalogue Number **D26MR40**, with a 120V, 60 Hz coil, order **D26MR40A**.
- For fast delivery and minimum inventory, it is recommended that component parts or complete relays with NO poles be ordered.

4-Pole

4-Pole with Latch

4-Pole with Pneumatic Timer Attachment

Complete AC Relays—Open Type

Number of Contacts	Type of Contact NO (Form A)	NC (Form B)	Relay Only Catalogue Number	Relay with Mechanical Latch Catalogue Number
2	2	0	**D26MR20**	**D26MR202**
	1	1	**D26MR11**	**D26MR112**
	0	2	**D26MR02**	**D26MR022**
3	3	0	**D26MR30**	**D26MR302**
	2	1	**D26MR21**	**D26MR212**
	1	2	**D26MR12**	**D26MR122**
	0	3	**D26MR03**	**D26MR032**
4	4	0	**D26MR40**	**D26MR402**
	3	1	**D26MR31**	**D26MR312**
	2	2	**D26MR22**	**D26MR222**
	1	3	**D26MR13**	**D26MR132**
	0	4	**D26MR04**	**D26MR042**
6 ①	6	0	**D26MR60**	**D26MR602**
	5	1	**D26MR51**	**D26MR512**
	4	2	**D26MR42**	**D26MR422**
	3	3	**D26MR33**	**D26MR332**
	2	4	**D26MR24**	**D26MR242**
	1	5	**D26MR15**	**D26MR152**
	0	6	**D26MR06**	**D26MR062**
8 ①	8	0	**D26MR80**	**D26MR802**
	7	1	**D26MR71**	**D26MR712**
	6	2	**D26MR62**	**D26MR622**
	5	3	**D26MR53**	**D26MR532**
	4	4	**D26MR44**	**D26MR442**
	3	5	**D26MR35**	**D26MR352**
	2	6	**D26MR26**	**D26MR262**
	1	7	**D26MR17**	**D26MR172**
	0	8	**D26MR08**	**D26MR082**

Magnet Coil Selection

Volts/Hertz	Suffix Code
120/60–110/50	**A**
240/60–220/50	**B**
208/60 ②	**E**
24/60	**T**
277/60	**H**

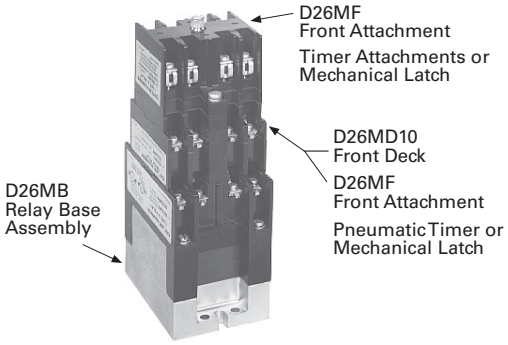
Volts/Hertz	Suffix Code
32/60 ②	**V**
12/60 ②	**R**
6/60	**P**
380/50 ②	**L**
480/60 or 440/50	**C**
600/60 or 550/50 ②	**D**

Notes

① **10- and 12-Poles**: The 6 and 8 contact relays (without mechanical latch only) listed above can be provided with four additional NO non-convertible contacts. Add suffix number **4** to above listed catalogue number plus magnet coil suffix. Example: For a 12 contact relay, order D26MR80**4A**.

② Consult Customer Support Centre for availability.

Relay Component Parts Location



Relay with Pneumatic Timer Attachment Factory Installed (without Relay Contacts)

Contact Positions ①	Timer Operation	Catalogue Number ②
4	ON delay	**D26MR005**
4	OFF delay	**D26MR006**

The relays listed above will accept up to four catalogue number D26MPR contacts (convertible—NO or NC) for instantaneous operation. Order contacts separately.

For additional information on timer attachment, see **Page T40-159**.

For assembly of relays from component parts and relay accessories, see components tables below.

Rear Pole

Front Pole

Separate Contacts

Description	Catalogue Number
Convertible Contacts	
Rear pole—NO	**D26MPR**
Rear pole—NC	**D26MPR02**
Front pole—NO	**D26MPF**
Front pole—NC	**D26MPF02**
Gold plated (for low power circuits)	
Rear pole—NO	**D26MPR03**
Front pole—NO	**D26MPF03**
Non-Convertible Contacts	
Rear pole NO early closing ③	**D26MPS**
Rear pole NC late opening ③	**D26MPL**

Relay Base Assembly

Relay Base Assembly (without Poles)

Description	Catalogue Number
Relay base assembly	**D26MB** ④

Basic four-pole D26 relay without contacts. Provision for adding one to four poles as needed, **D26MPR, D26MPL** and/or **D26MPS** rear pole type.

Rear Pole

Front Deck (Convertible Contact Poles)

Description	Catalogue Number
Front Deck with ...	
1NO contact pole	**D26MD10**
2NO contact poles	**D26MD20**
4NO contact poles	**D26MD40**

Provides up to four additional front pole type D26MPF contacts. Convertible, NO to NC.

Four-Pole Front Attachment

Four-Pole Front Attachment (4NO Fixed Circuit)

Description	Catalogue Number
Front attachment	**D26MF**

Can be added to any two- to eight-pole Type M, D26 relay to provide up to a 12-pole relay. Four NO, non-convertible contacts are included in this assembly.

Notes

① Number of available instantaneous contact positions (order contacts separately—Catalogue Number D26MPR).
② Consult Customer Support Centre for availability.
③ To obtain overlapping contacts, these two special poles must be used in related circuits.
④ Add magnet coil suffix letter, see **Page T40-157**. Example: D26MB**A**.

Relay State Indicating Light

Relay State Indicating Light

Description	Catalogue Number
120 Vac, 50/60 Hz	**D26MAP120**
240 Vac, 50/60 Hz	**D26MAP240**

Light provided with leads and bracket for mounting on two- to 12-pole relays. May be used to monitor state of magnet coil or relay contact operation.

Pneumatic Timer Attachment

Pneumatic Timer Attachment

Description	Catalogue Number
ON delay	**D26MTE**
OFF delay	**D26MTD**

Attachment mounts on any 0- to four-pole D26 relay without latch. Timer unit has DPDT timed contacts (circuits in each pole must be the same polarity). Adjustable timing range—0.1 to 180 seconds, repeat accuracy ±10%. Units are convertible from OFF delay to ON delay or vice versa.

Mounting Channel

Mounting Channel

Description	Catalogue Number
10 in length for 4 relays	**D26MC4**
20 in length for 8 relays	**D26MC8**
30 in length for 12 relays	**D26MC12**
40 in length for 16 relays	**D26MC16**

Pre-spaced mounting for adjacent relay installation. Indexed for cutting to desired length. Captive mounting screws provided in channel for easier installation.

Manual Test Accessory

Manual Test Accessory

Description	Catalogue Number
Manual test accessory	**D26MTA**

Tool to manually hold relays in the energized position for circuitry testing on completed panel. (10 per box, order in multiples of 10.)

Transient Suppressor

Transient Suppressor

Description	Catalogue Number
Magnet coil transient suppressor	**D26MAS1**
Latch coil transient suppressor	**D26MAS2**

May be mounted on any 120 Vac relay magnet coil or latch coil or 120 Vdc latch coil—connects directly across coil terminals. All DC magnet coils have a built-in varistor for transient suppression. Limits high voltage transients produced in the circuit when power is removed from the coil.

Technical Data and Specifications

General

Contact Ratings (Amperes) A600

AC Volts ①	Make and Emergency Interrupting Capacity	Break	Continuous Thermal Rating
120	60	6	10
240	30	3	10
480	15	1.5	10
600	12	1.2	10

Coil Power

Relay	Watts Inrush	Watts Sealed	VA Inrush	VA Sealed	Operating Time Range in Milliseconds
Two- to 12-pole	95.0	9	155	22	Pickup: 6–13
Latch coil	18.5	11	41	17	Dropout: 8–26

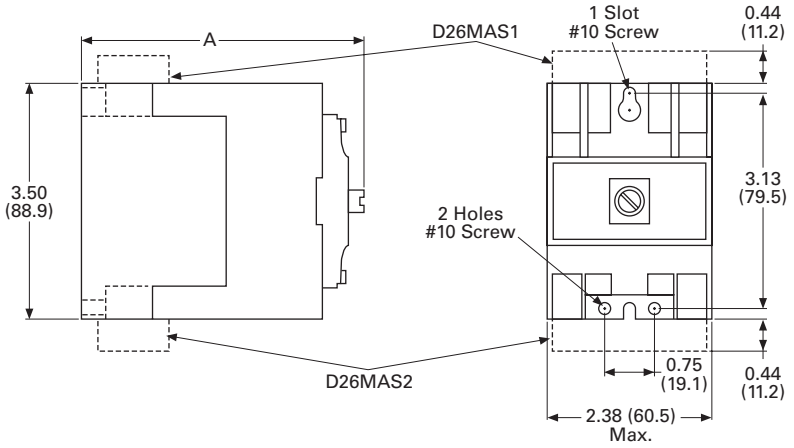
Note

① For DC contact ratings, see **Page T40-163**.

Dimensions

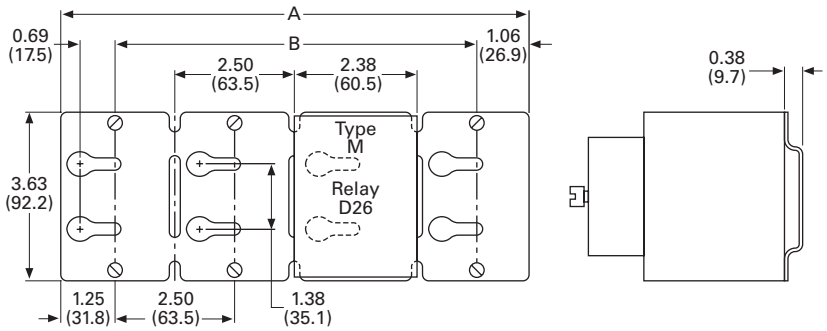
Approximate Dimensions in Inches (mm)

AC and DC D26 Relays



AC Relay D26	DC Relay D26	Dimension A	Ship. Wt. Lbs (kg)
1–4 poles	1–3 poles	4.00 (101.6)	2.5 (1.1)
1–4 poles with timer D26 or D87	1–3 poles with timer D26 or D87	6.00 (152.4)	3.3 (1.5)
1–4 poles with latch	1–2 poles with latch	6.13 (155.7)	3.5 (1.6)
1–4 poles with d26mf	1–3 poles with D26MF	5.81 (147.6)	2.8 (1.3)
5–8 poles	4–7 poles	5.25 (133.4)	2.8 (1.3)
5–8 poles with timer D87	4–7 poles with timer D87	7.25 (184.2)	3.5 (1.6)
5–8 poles with latch	3–6 poles with latch	7.31 (185.7)	3.8 (1.7)
9–12 poles	8–11 poles	7.00 (177.8)	3.0 (1.4)

Mounting Channel



Catalogue Number	Dimension A	Dimension B
D26MC16	40 (1016)	37.5 (952.5)
D26MC12	30 (762)	27.5 (698.5)
D26MC8	20 (508)	17.5 (444.5)
D26MC4	10 (254)	7.5 (190.5)

Note: Channel mounts through keyholes with #10 screws (two each end and one every fourth relay). Relays mount with screws captive in channel. All screws must be tightened firmly.

D26 Series—Type M, DC Multipole with Convertible Contacts

Contents

Description	*Page*
D15 Series—Freedom 600V Multipole	**T40-140**
BF/BFD Series—Fixed Contact Industrial Control	**T40-145**
AR/ARD Series—Convertible Contact Industrial Control	**T40-151**
D26 Series—Type M, 600 Vac Multipole with Convertible Contacts	**T40-156**
D26 Series—Type M, DC Multipole with Convertible Contacts	
Product Selection	**T40-162**
Technical Data and Specifications	**T40-163**
Dimensions	**T40-164**

40

D26 Series—Type M, DC Multipole with Convertible Contacts

Product Description

Type M, DC multipole relays are physically and mechanically similar to the (D26) Type M AC relays described on **Page T40-157**. They differ only in the electrical ratings and available pole combinations due to the use of a normally closed late opening, coil clearing contact, factory wired to the pickup winding of the magnet coil. (Contact is shown as L in figure to the right.) Magnet coil has built-in varistor for transient suppression.

The mechanically latched relay has one extra contact, normally open early closing, factory wired in series with the winding of the intermittent rated latch coil. (Contact is shown as S in figure to the right.)

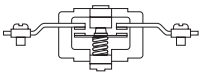
Component parts for these relays are the same as those listed for the (D26) Type M AC relays on **Page T40-157**, except for the Indicating Light, which is not applicable to a DC relay.

Contact poles D26MPR and D26MPF in 2- to 7-pole relays are convertible NO to NC or vice versa. Simply reverse the terminal screws and rotate the unit pole 180˚ (in either direction).

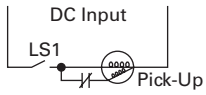
Latch Operation

With the latch coil de-energized, energizing the relay coil will pick up the relay and mechanically latch it in the pickup position. With the relay coil de-energized, energizing the latch coil will allow the relay to drop out.

Convertible Contacts

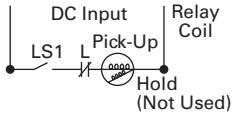


DC Type M Relay

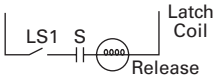


L = NC Late Opening

DC Type M Relay with Latch



L = NC Late Opening



S = NO Early Closing

Product Selection

Complete DC Relays

When Ordering, Specify

- Catalogue number and magnet coil suffix letter.
- Example: For a 4-pole relay having 4NO contacts, order Catalogue Number **D26MRD40**, with a 120 Vdc coil, order **D26MRD40A1**.

3-Pole

3-Pole with Latch

Complete DC Relays—Open Type

Number of Contacts	Type of Contact ① NO (Form A)	NC (Form B)	Relay Only Catalogue Number	Relay with Mechanical Latch Catalogue Number
2	2	0	**D26MRD20**	**D26MRD202**
	1	1	**D26MRD11**	**D26MRD112**
	0	2	**D26MRD02**	**D26MRD022**
3	3	0	**D26MRD30**	**D26MRD302**
	2	1	**D26MRD21**	**D26MRD212**
	1	2	**D26MRD12**	**D26MRD122**
	0	3	**D26MRD03**	**D26MRD032**
4	4	0	**D26MRD40**	**D26MRD402**
	3	1	**D26MRD31**	**D26MRD312**
	2	2	**D26MRD22**	**D26MRD222**
	1	3	**D26MRD13**	**D26MRD132**
	0	4	**D26MRD04**	**D26MRD042**
6 ②	6	0	**D26MRD60**	**D26MRD602**
	5	1	**D26MRD51**	**D26MRD512**
	4	2	**D26MRD42**	**D26MRD422**
	3	3	**D26MRD33**	**D26MRD332**
	2	4	**D26MRD24**	**D26MRD242**
	1	5	**D26MRD15**	**D26MRD152**
	0	6	**D26MRD06**	**D26MRD062**
7 ②	7	0	**D26MRD70**	—
	6	1	**D26MRD61**	—
	5	2	**D26MRD52**	—
	4	3	**D26MRD43**	—
	3	4	**D26MRD34**	—
	2	5	**D26MRD25**	—
	1	6	**D26MRD16**	—
	0	7	**D26MRD07**	—

Magnet Coil Selection

Volts/Hertz	Suffix Code
12	**R1**
24	**T1**
48	**W1**

Volts/Hertz	Suffix Code
120	**A1**
240	**B1**

Notes

① Relay has additional factory wired normally closed coil clearing contact (see diagram).

② **10- and 11-Poles**: The 6 and 7 contact relays (without mechanical latch only) listed above can be provided with four additional NO non-convertible contacts. Add suffix number **4** to above listed catalogue number plus magnet coil suffix. Example: For an 11 contact relay, order D26MRD70**4A1**.

3-Pole with Timer Attachment

Relay with Pneumatic Timer Attachment (without Relay Contacts)

Contact Positions ①	Timer Operation	Catalogue Number
3	ON delay	**D26MRD005**
3	OFF delay	**D26MRD006**

The relays listed above will accept up to three catalogue number D26MPR contacts (convertible—NO or NC) for instantaneous operation.

Order contacts separately. For additional information on timer attachment, see **Page T40-159**.

Technical Data and Specifications

General

Contact Ratings (Amperes) ②

DC Volts	Inductive Make/Break	Resistive Make/Break
28	7.0	10.0
48	2.5	10.0
120	1.1	2.0
240	0.2	0.4

Coil Power			Operating Time
	Watts		
Relay	Inrush	Sealed	Average Milliseconds
Two- to 11-pole	168	13.2	Pickup: 10
Latch coil	21.6 intermittent	21.6 intermittent	Dropout: 16

Notes

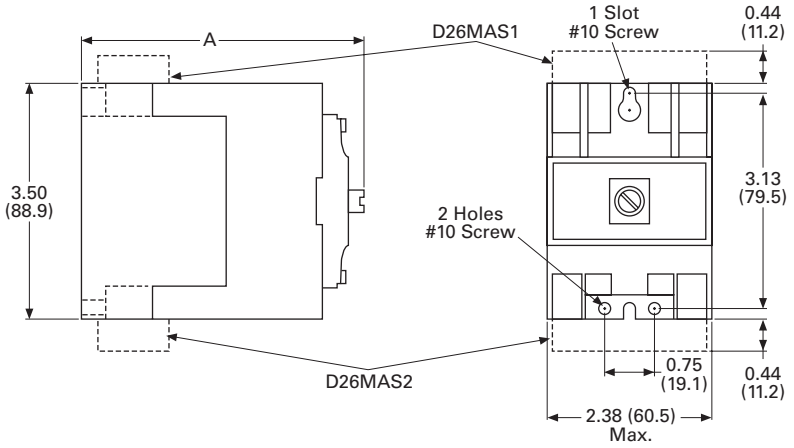
① Number of available instantaneous contact positions (order contacts separately—Catalogue Number D26MPR).

② Contact ratings do not apply to contacts D26MPL and D26MPS. For AC contact ratings, see **Page T40-159**.

Dimensions

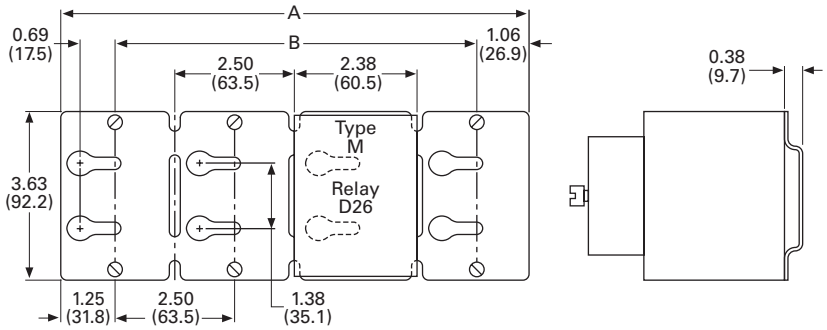
Approximate Dimensions in Inches (mm)

AC and DC D26 Relays



AC Relay D26	DC Relay D26	Dimension A	Ship. Wt. Lbs (kg)
1–4 poles	1–3 poles	4.00 (101.6)	2.5 (1.1)
1–4 poles with timer D26 or D87	1–3 poles with timer D26 or D87	6.00 (152.4)	3.3 (1.5)
1–4 poles with latch	1–2 poles with latch	6.13 (155.7)	3.5 (1.6)
1–4 poles with D26MF	1–3 poles with D26MF	5.81 (147.6)	2.8 (1.3)
5–8 poles	4–7 poles	5.25 (133.4)	2.8 (1.3)
5–8 poles with timer D87	4–7 poles with timer D87	7.25 (184.2)	3.5 (1.6)
5–8 poles with latch	3–6 poles with latch	7.31 (185.7)	3.8 (1.7)
9–12 poles	8–11 poles	7.00 (177.8)	3.0 (1.4)

Mounting Channel



Catalogue Number	Dimension A	Dimension B
D26MC16	40 (1016)	37.5 (952.5)
D26MC12	30 (762)	27.5 (698.5)
D26MC8	20 (508)	17.5 (444.5)
D26MC4	10 (254)	7.5 (190.5)

Note: Channel mounts through keyholes with #10 screws (two each end and one every fourth relay). Relays mount with screws captive in channel. All screws must be tightened firmly.

Timing Relays

Contents

Description	*Page*
Timing Relays	
Universal TR Series	**T40-170**
TR Series	**T40-174**
TMR5 Series	**T40-177**
TMR6 Series	**T40-181**
TMRP Series	**T40-183**
E5-248—Battery-Powered LCD Time Control	**T40-186**

Product Selection Guide

Function Code Cross-Reference Guide

		Timer Series					
Function	**Description**	**Universal TR**	**TR**	**TMR5**	**TMR6**	**TMRP**	**E5-248** ③
1	Asymmetrical flasher, pause first	Ip	—	R/P	—	—	RC DLY
2	Asymmetrical flasher, pulse first	Ii	—	Y	—	—	RC
3	ON delay and OFF delay with control contact	ER	—	—	—	—	—
4	ON delay and single shot leading edge voltage controlled	EWu	—	—	—	—	—
5	ON delay and single shot leading edge control contact	EWs	—	—	—	—	—
6	Single shot leading and single shot trailing edge with control contact	WsWa	—	—	—	—	—
7	Pulse sequence monitoring	Wt	—	—	—	—	—
8	ON delay, power triggered	E	A ①	N	—	A	—
9	Single shot leading edge voltage controlled	Wu	B ①	T	—	C	—
10	OFF delay/signal OFF delay	R	E ②	F	—	D	OFF DLY
11	Single shot leading edge with control input	Ws	F ②	C/G	—	H	SS
12	Single shot trailing edge with control input	Wa	—	—	—	—	—
13	ON delay control signal start, trailing edge OFF	Es	—	—	—	—	—
14	Flasher, pause first	Bp	C ①	L	—	B	—
15	Retriggerable single shot	—	—	W/D	—	E	SS
16	Flasher, ON first	—	D ①	—	—	F	—
17	ON delay control signal start, leading edge OFF	—	A ②	—	—	—	ON DLY
18	Flasher—control signal start, pause first	—	B ②	—	—	—	RC DLY
19	Flasher—control signal start, ON first	—	C ②	—	—	—	RC
20	Signal ON/OFF delay	—	D ②	—	—	—	—
21	ON/OFF delay	—	—	—	—	I	—
22	Single pulse generator	—	—	—	—	G	OS
23	Memory latch	—	—	—	—	J	—
24	True OFF delay	—	—	—	X	—	—

Notes

① Applies to TRN model only.
② Applies to TRF model only.
③ The E5-248 is battery powered and has three programmable trigger functions. This product may perform somewhat differently from the standard timing relays. Refer to the operator instructions for details.

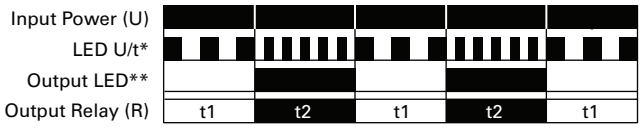
Product Overview

Timer Function Descriptions

Function #1—Universal TR, TMR5, E5-248

Asymmetrical Flasher, Pause First
Repeat Cycle, OFF/ON Delay

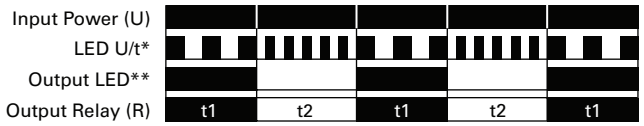
When the supply voltage U is applied, the set interval t1 begins. After the interval t1 has expired, the output relay R switches into ON position and the set interval t2 begins. After the interval t2 has expired, the output relay switches into OFF position. The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.



Function #2—Universal TR, TMR5, E5-248

Asymmetrical Flasher, Pulse First
Repeat Cycle, ON/OFF Delay

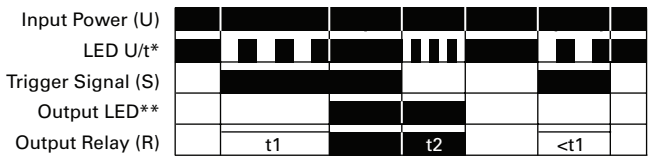
When the supply voltage U is applied, the output relay R switches into the ON position and the set interval t1 begins. After the interval t1 has expired, the output relay R switches into OFF position and the set interval t2 begins. After the interval t2 has expired, the output relay switches into ON position. The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.



Function #3—Universal TR

ON Delay and OFF Delay with Control Contact

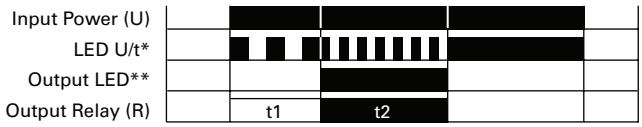
The supply voltage U must be constantly applied to the device. When the control contact S is closed, the set interval t1 begins. After the interval t1 has expired, the output relay R switches into ON position. If the control contact is opened, the set interval t2 begins. After the interval t2 has expired, the output relay R switches into OFF position. If the control contact is opened before the interval t1 has expired, the interval already expired is erased and is restarted with the next cycle.



Function #4—Universal TR

ON Delay and Single Shot Leading Edge Voltage Controlled

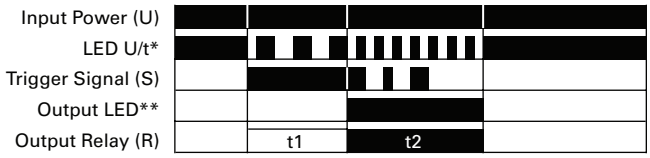
When the supply voltage U is applied, the set interval t1 begins. After the interval t1 has expired, the output relay R switches into ON position and the set interval t2 begins. After the interval t2 has expired, the output relay switches into OFF position. If the supply voltage is interrupted before the interval t1 + t2 has expired, the interval already expired is erased and is restarted when the supply voltage is next applied.



Function #5—Universal TR

ON Delay and Single Shot Leading Edge Control Contact

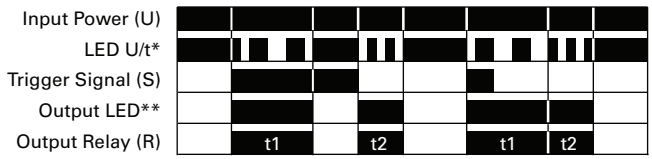
The supply voltage U must be constantly applied to the device. When the control contact S is closed, the set interval t1 begins. After the interval t1 has expired, the output relay R switches into ON position and the set interval t2 begins. After the interval t2 has expired, the output relay R switches into OFF position. During the interval, the control contact is ignored. A new cycle can only be initiated when the cycle has been completed.



Function #6—Universal TR

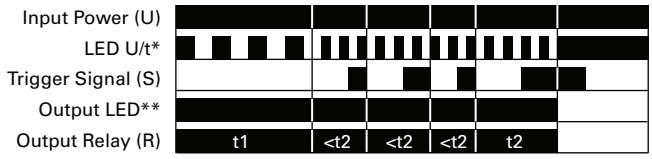
Single Shot Leading and Single Shot Trailing Edge with Control Contact
Asymmetrical Signal ON/OFF Delay

The supply voltage U must be constantly applied to the device. When the control contact S is closed, the output relay R switches to the ON position and the set interval t1 begins. After the interval t1 has expired, the output relay R switches into OFF position. If the control contact S is opened, the output relay again switches to the ON position and the set interval t2 begins. After the interval t2 has expired, the output relay R switches into OFF position. During the interval, the control contact is ignored. During the interval, the control contact can be operated any number of times.



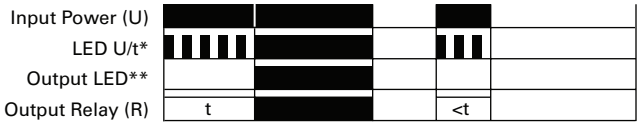
Function #7—Universal TR
Pulse Sequence Monitoring

When the supply voltage U is applied, the set interval t1 begins and the output relay R switches to the ON position. After the interval t1 has expired, the interval t2 begins. As long as the control switch S is closed and opened within the interval t2, the relay will remain in the ON position. If the control switch is not closed and opened within the interval t2, the relay will change to the OFF position until supply voltage U is interrupted and reapplied.



Function #8—Universal TR, TRN, TMR5, TMRP
ON Delay, Power Triggered
Delay ON Make

When the supply voltage U is applied, the set interval t begins. After the interval t has expired, the output relay R switches to the ON position. The relay will remain in that position until supply voltage U is interrupted.

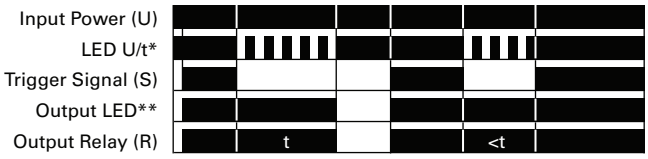


Function #9—Universal TR, TRN, TMR5, TMRP
Single Shot Leading Edge Voltage Controlled
Interval ON/Interval (Power Start)

When the supply voltage U is applied, the output relay R switches to the ON position and set interval t begins. After the interval t has expired, the output relay R switches to the OFF position. The relay will remain in that position until supply voltage U is interrupted. If the supply voltage is interrupted prior to interval t timing out, the relay will immediately switch to the OFF position.

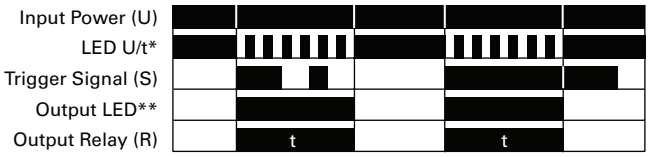
Function #10—Universal TR, TRF, TMR5, TMRP, E5-248
OFF Delay/Signal OFF Delay
Delay ON Release

The supply voltage U must be constantly applied to the device. When the control contact S is closed, the output relay R switches to the ON position. When the control contact is opened, interval t begins. After the interval t has expired, the output relay R switches to the OFF position. If the control contact S is closed before interval t expires, the output relay will remain in the ON position until the control switch opens, at which time the interval t will begin again.



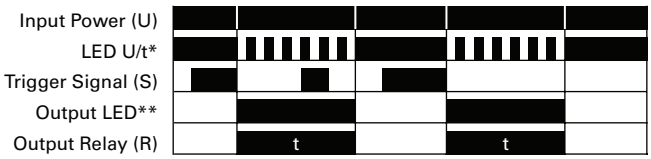
Function #11—Universal TR, TRF, TMR5, TMRP, E5-248
Single Shot Leading Edge with Control Input
Single Shot/One Shot (Signal Start)/Momentary Interval

The supply voltage U must be constantly applied to the device. When the control contact S is closed, the output relay R switches to the ON position and the set interval t begins. After the interval t has expired, the output relay R switches to the OFF position. The control contact is ignored during the interval t, and a new cycle cannot be started until the set interval t has timed out.



Function #12—Universal TR
Single Shot Trailing Edge with Control Input

The supply voltage U must be constantly applied to the device. When the control contact S is closed and reopened, the output relay R switches to the ON position and the set interval t begins. After the interval t has expired, the output relay R switches to the OFF position. The control contact is ignored during the interval t, and a new cycle must be started after the set interval t has timed out.

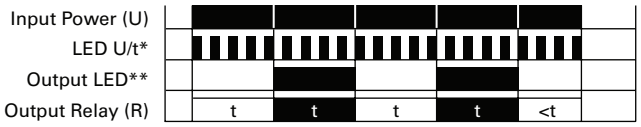


Function #13—Universal TR
ON Delay Control Signal Start, Trailing Edge OFF

The supply voltage U must be constantly applied to the device. When the control switch S is applied, the set interval t begins. After the interval t has expired, the output relay R switches to the ON position. The relay will remain in that position until the control switch opens. If the control switch is opened prior to interval t timing out, the relay will remain in the OFF position and any elapsed time will be erased.

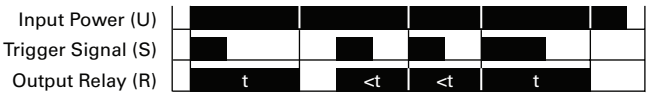
Function #14—Universal TR, TRN, TMR5, TMRP
Flasher, Pause First
Cycle 1 (Power Start, OFF First)

When the supply voltage U is applied, the set interval t begins. After the interval t has expired, the output relay R switches to the ON position and set interval t will begin again. After interval t has expired, the relay will switch to the OFF position for the set interval t. This cycle will repeat at a 1:1 ratio until supply voltage U is interrupted.



Function #15—TMR5, TMRP, E5-248
Watchdog
Retriggerable Single Shot

The supply voltage U must be constantly applied to the device. When the control switch S is applied, the relay switches to the ON position and the set interval t begins. After the interval t has expired, the output relay R switches to the OFF position. Closing the control switch during interval t will reset the time. Continuous cycling of the trigger signal at a rate faster than the preset time will cause the relay to remain in the ON position.

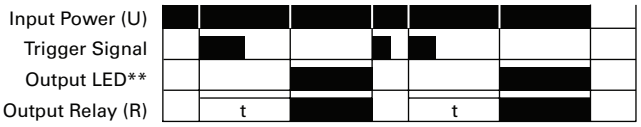


Function #16—TRN, TMRP
Flasher, ON First
Cycle 3 (Power Start, ON First)

When the supply voltage U is applied, the relay switches to the ON position and set interval t begins. After the interval t has expired, the output relay R switches to the OFF position and set interval t will begin again. After interval t has expired, the relay will again switch to the ON position for the set interval t. This cycle will repeat at a 1:1 ratio until supply voltage U is interrupted.

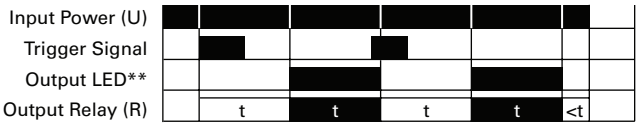
Function #17—TRF, E5-248
ON Delay Control Signal Start, Leading Edge OFF

The supply voltage U must be constantly applied to the device. When the control switch S is applied, the set interval t begins. After the interval t has expired, the output relay R switches to the ON position. The relay will remain in that position until the control switch has opened and closed. If the control switch is opened and closed prior to interval t timing out, the relay will remain in the OFF position and any elapsed time will be erased.



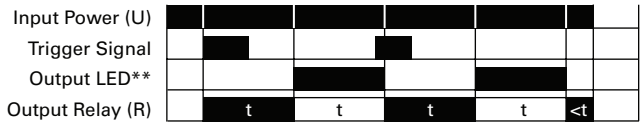
Function #18—TRF, E5-248
Flasher—Control Signal Start, Pause First

The supply voltage U must be constantly applied to the device. When the control switch S is closed, the set interval t begins. After the interval t has expired, the output relay R switches to the ON position and set interval t will begin again. After interval t has expired, the relay will switch to the OFF position for the set interval t. This cycle will repeat at a 1:1 ratio until supply voltage U is interrupted. The control switch is ignored during the cycle.



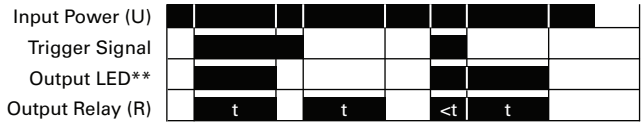
Function #19—TRF, E5-248
Flasher—Control Signal Start, ON First

The supply voltage U must be constantly applied to the device. When the control switch S is closed, the relay switches to the ON position and set interval t begins. After the interval t has expired, the output relay R switches to the OFF position and set interval t will begin again. After interval t has expired, the relay will again switch to the ON position for the set interval t. This cycle will repeat at a 1:1 ratio until supply voltage U is interrupted. The control switch is ignored during the cycle.



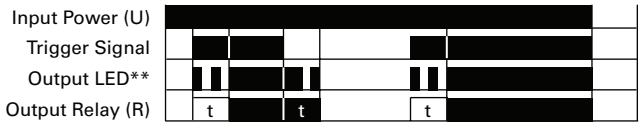
Function #20—TRF
Signal ON/OFF Delay

The supply voltage U must be constantly applied to the device. When the control switch S is closed, the relay switches to the ON position and set interval t begins. After the interval t has expired with the control switch still closed, the output relay R switches to the OFF position. When the control switch is opened, the relay will switch to the ON position again and the interval t will begin. If the control switch is closed and opened within the interval t, the relay will remain in the ON position until interval t has timed out after the control switch is opened.



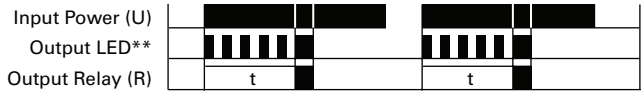
Function #21—TMRP
ON/OFF Delay
Make/Break with Control Switch Trigger

The supply voltage U must be constantly applied to the device. When the control switch S is closed, the set interval t begins. After the interval t has expired, the output relay R switches to the ON position. When the control switch is opened, interval t will begin again. After interval t has timed out, the relay will switch to the OFF position. If supply voltage U is removed at any time, the relay will return to the OFF position.



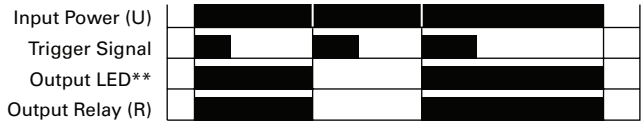
Function #22—TMRP, E5-248
Single Pulse Generator, Voltage Controlled

When the supply voltage U is applied, the set interval t begins. After the interval t has expired, the relay will switch to the ON position for 0.5 seconds before returning to the OFF position. Supply voltage U must be removed and reapplied to repeat the pulse.



Function #23—N/A
Memory Latch
Control Switch Make

The supply voltage U must be constantly applied to the device. Output changes state with every closure of the control switch S (leading edge).



Function #24—TMR6
True OFF Delay

When the supply voltage U is applied, the relay switches to the ON position. When supply power is removed, set time interval t begins. After interval t has expired, the relay switches to the OFF position and will remain there until supply power U is applied again.

Universal TR Series

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E5-248—Battery-Powered LCD Time Control	**T40-186**

Universal TR Series

Product Description

Eaton's Universal TR Series timers are our most flexible and cost-effective timing relays available. Products are available with up to seven user-selectable functions and seven user-selectable time ranges. Each unit is DIN rail mountable with a direct connection, eliminating the need for additional sockets. The Universal TR Series timers are available in SPDT and DPDT contact configurations, and have a compact IEC-style footprint and a universal input voltage range for AC and DC applications.

Application Description

A timing relay is a simple form of time-based control, allowing the user to open or close the contacts based on a specified timing function. The Universal TR Series timers are equipped with a set of selector switches, which can easily be set to a specific function and time, thereby reducing the number of product variations required. The universal input voltage (either 12–240 Vac/Vdc or 24–240 Vac/Vdc, depending on the model) further reduces the number of product variations.

The Universal TR Series timers are ideal for high-variability operations, such as systems integrators, distributors, and small equipment manufacturers. The compact design saves panel space, and the low cost and high flexibility of the units reduce inventory requirements.

Features

- Multiple user-selectable timing functions and timing ranges in a single unit reduce product variations and stock keeping units (SKUs)
- Universal input voltages from 12 or 24 to 240 Vac or Vdc eliminate the need to order and stock separate coil voltages
- Compact, DIN rail mountable case reduces panel size
- Advanced LED indication makes troubleshooting easy
- Staggered terminal locations allow access to lower-level terminals after wiring
- SPDT or DPDT contacts with 8A ratings

Standards and Certifications

- cULus listed
- CE marked
- RoHS compliant
- IEC/EN 61812

c UL us Listed CE RoHS COMPLIANT

Product Selection

Single-Pole Model

Universal TR Timing Relays

Supply Voltage	Description	Catalogue Number
4-Function		
24–240 Vac/Vdc	Compact DIN rail mount, SPDT	**TRL04**
7-Function		
24–240 Vac/Vdc	Compact DIN rail mount, SPDT	**TRL07**
12–240 Vac/Vdc	Compact DIN rail mount, DPDT	**TRL27**
	Asymmetrical pulse generator, DPDT	**TRW27**

Technical Data and Specifications

Universal TR Timing Relays

Description	TRL04	TRL07	TRL27	TRW27
Functions ①	E, R, Wu, Bp	E, R, Wu, Bp, Ws, Wa, Es	E, R, Wu, Bp, Ws, Wa, Es	Ii, Ip, ER, Ewu, Ews, WsWa, Wt
Time range	0.05 sec to 100 hours	0.05 sec to 100 hours	0.05 sec to 100 hours	0.05 sec to 100 hours
Input				
Supply voltage	24–240 Vac/Vdc	24–240 Vac/Vdc	12–240 Vac/Vdc	12–240 Vac/Vdc
Rated supply frequency	+10% /–15%	+10% /–15%	±10%	±10%
Rated consumption	4 VA (1.5W)	4 VA (1.5W)	6 VA (2W)	6 VA (2W)
Duty cycle	100%	100%	100%	100%
Reset time	100 ms	100 ms	100 ms	100 ms
Residual ripple for DC	10%	10%	10%	10%
Dropout voltage	>30% of rated supply voltage	>30% of rated supply voltage	>30% of rated supply voltage	>30% of rated supply voltage
Overvoltage category	III (in accordance with IEC 60664-1)	III (in accordance with IEC 60664-1)	III (in accordance with IEC 60664-1)	III (in accordance with IEC 60664-1)
Rated surge voltage	4 kV	4 kV	4 kV	4 kV
Output				
Contact configuration	SPDT (one changeover contact)	SPDT (one changeover contact)	DPDT (two changeover contacts)	DPDT (two changeover contacts)
Rated voltage	250 Vac	250 Vac	250 Vac	250 Vac
Switching capacity	2000 VA (8A/250V)	2000 VA (8A/250V)	2000 VA (8A/250V)	2000 VA (8A/250V)
Fusing	8A fast acting	8A fast acting	8A fast acting	8A fast acting
Mechanical life	20 x 10^6 operations	20 x 10^6 operations	20 x 10^6 operations	20 x 10^6 operations
Electrical life	2 x 10^5 operations at 1000 VA load, resistive	2 x 10^5 operations at 1000 VA load, resistive	2 x 10^5 operations at 1000 VA load, resistive	2 x 10^5 operations at 1000 VA load, resistive
Switching frequency	Max. 6/min. at 1000 VA resistive load (in accordance with IEC 60947-5-1)	Max. 6/min. at 1000 VA resistive load (in accordance with IEC 60947-5-1)	Max. 6/min. at 1000 VA resistive load (in accordance with IEC 60947-5-1)	Max. 6/min. at 1000 VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category	III (in accordance with IEC 60664-1)	III (in accordance with IEC 60664-1)	III (in accordance with IEC 60664-1)	III (in accordance with IEC 60664-1)
Rated surge voltage	4 kV	4 kV	4 kV	4 kV
Control Signal				
Loadable	Yes	Yes	Yes	Yes
Maximum cable length	10m	10m	10m	10m
Trigger level (sensitivity)	Automatic adaption to supply voltage	Automatic adaption to supply voltage	Automatic adaption to supply voltage	Automatic adaption to supply voltage
Minimum control pulse length	DC 50 ms/AC 100 ms	DC 50 ms/AC 100 ms	DC 50 ms/AC 100 ms	DC 50 ms/AC 100 ms

Note

① Refer to Function Code Cross-Reference Guide on **Page T40-165** for function details.

Universal TR Timing Relays, continued

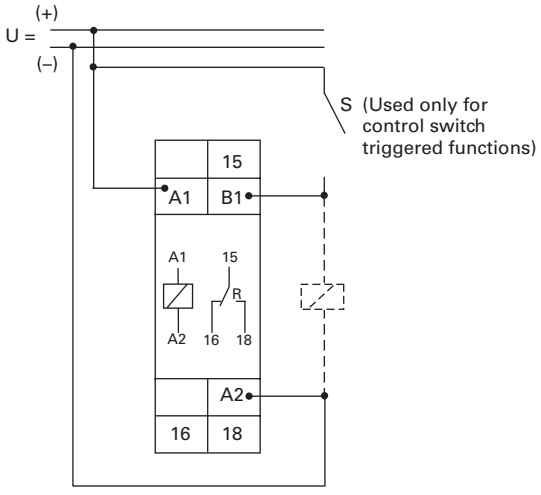
Description	TRL04	TRL07	TRL27	TRW27
Accuracy				
Base accuracy	±1% of maximum scale value	±1% of maximum scale value	±1% of maximum scale value	±1% of maximum scale value
Adjustment accuracy	<5% of maximum scale value	<5% of maximum scale value	<5% of maximum scale value	<5% of maximum scale value
Repetition accuracy	<0.5% or ±5 ms	<0.5% or ±5 ms	<0.5% or ±5 ms	<0.5% or ±5 ms
Temperature influence	≤0.01% /°C	≤0.01% /°C	≤0.01% /°C	≤0.01% /°C
Physical				
Ambient temperature	–25 to 55°C	–25 to 55°C	–25 to 55°C	–25 to 55°C
Storage temperature	–25 to 70°C	–25 to 70°C	–25 to 70°C	–25 to 70°C
Relative humidity	15% to 85% (in accordance with IEC 60721-3-3 Class 3K3)	15% to 85% (in accordance with IEC 60721-3-3 Class 3K3)	15% to 85% (in accordance with IEC 60721-3-3 Class 3K3)	15% to 85% (in accordance with IEC 60721-3-3 Class 3K3)
Pollution degree	2, if built in 3 (in accordance with IEC 60664-1)	2, if built in 3 (in accordance with IEC 60664-1)	2, if built in 3 (in accordance with IEC 60664-1)	2, if built in 3 (in accordance with IEC 60664-1)
Housing material	Self-extinguishing plastic housing, IP40 rating	Self-extinguishing plastic housing, IP40 rating	Self-extinguishing plastic housing, IP40 rating	Self-extinguishing plastic housing, IP40 rating
Mounting	Mounted on DIN rail TS 35 according to EN 60715, any position	Mounted on DIN rail TS 35 according to EN 60715, any position	Mounted on DIN rail TS 35 according to EN 60715, any position	Mounted on DIN rail TS 35 according to EN 60715, any position
Terminal rating	Shockproof terminal connection according to VBG 4 (PZ1 required), IP20 rating	Shockproof terminal connection according to VBG 4 (PZ1 required), IP20 rating	Shockproof terminal connection according to VBG 4 (PZ1 required), IP20 rating	Shockproof terminal connection according to VBG 4 (PZ1 required), IP20 rating
Tightening torque	Max. 1 Nm	Max. 1 Nm	Max. 1 Nm	Max. 1 Nm

Terminal Capacity

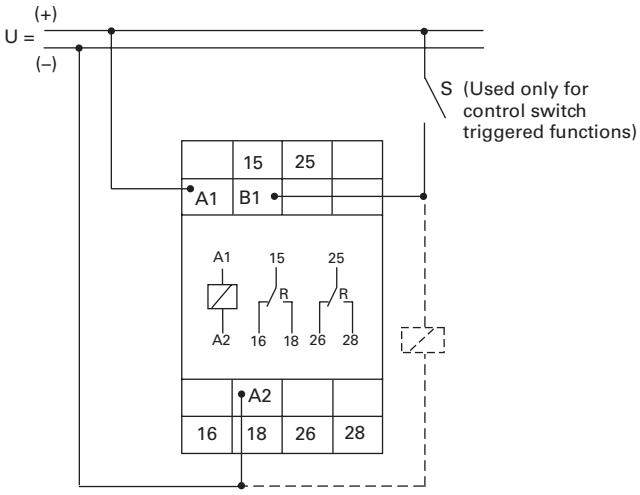
Description
1 x 0.5 to 2.5 mm^2 with/without multicore cable end
1 x 4 mm^2 without multicore cable end
2 x 0.5 to 1.5 mm^2 with/without multicore cable end
2 x 2.5 mm^2 flexible without multicore cable end

Wiring Diagrams

Single-Pole, Double-Throw Units (SPDT)—TRL04 and TRL07



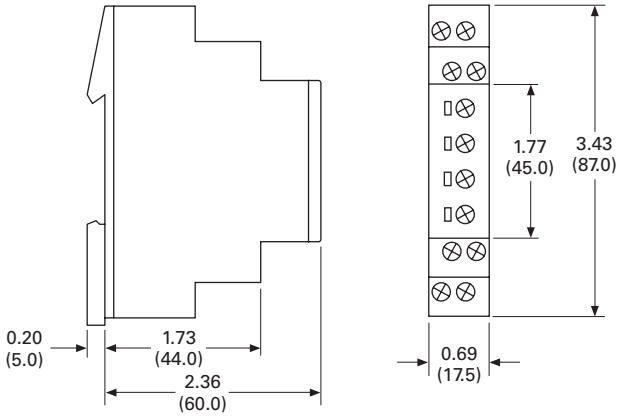
Double-Pole, Double-Throw Units (DPDT)—TRL27 and TRW27



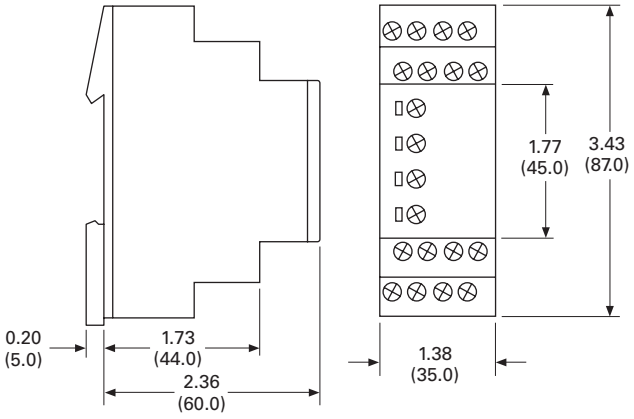
Dimensions

Approximate Dimensions in Inches (mm)

17.5 mm (TRL04 and TRL07)



35 mm (TRL27 and TRW27)



TR Series

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TMR6 Series	**T40-181**
TMRP Series	**T40-183**
E5-248—Battery-Powered LCD Time Control	**T40-186**

TR Series

Product Description

The upgraded TR Series Timing Relays are designed to meet most timing requirements by offering more flexibility in range of input voltage, timing range and functionality. Use a rotary switch to choose from 20 selectable time ranges from 0.1 second to 600 hours. We offer both a power triggered and signal triggered model—each with expanded operation modes. There is a green LED to indicate when power is ON and an orange LED when output is ON.

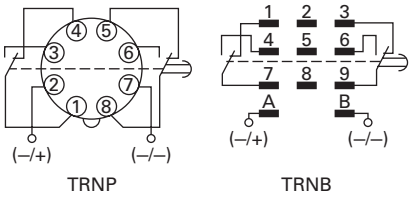
Features

- 20 time ranges and 10 timing functions
- Time delays from 0.1 sec to 600 hrs
- Space-saving, compact package
- High repeat accuracy of ± 0.2%
- LED indication
- Standard 8- or 11-pin and 11-blade termination
- 2 Form C DPDT delayed output contacts
- 10A contact rating

Operation

TRNP and TRNB

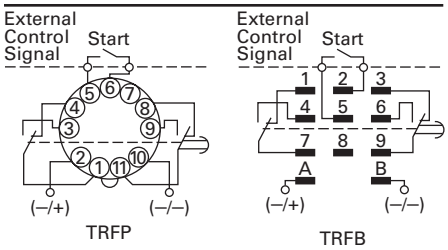
Internal Connections



TRNP TRNB

TRFP and TRFB

Internal Connections

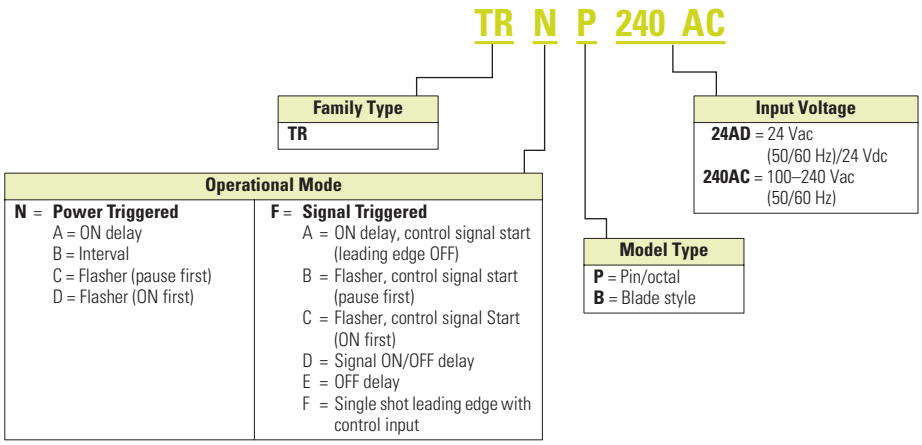


TRFP TRFB

Standards and Certifications

- cULus listed
- CSA
- CE marked
- TUV

Catalogue Number Selection



Product Selection

TR Plug-In Timing Relays—Power Triggered

Coil Voltage	Octal Catalogue Number	Blade Catalogue Number
24 Vac/Vdc	**TRNP24AD**	**TRNB24AD**
100–240 Vac	**TRNP240AC**	**TRNB240AC**

TR Plug-In Timing Relays—Signal Triggered

Coil Voltage	Octal Catalogue Number	Blade Catalogue Number
24 Vac/Vdc	**TRFP24AD**	**TRFB24AD**
100–240 Vac	**TRFP240AC**	**TRFB240AC**

Accessories

Sockets for Use with TR Timers—Standard Pack of 10

Timing Relay	Terminal Style	Catalogue Number
TRNP	8-pin octal	**D3PA2**
TRFP	11-pin octal	**D3PA3**
TRNB, TRFB	0.187 in solder/QC terminals (blade style)	**D5PA2**

Technical Data and Specifications

General

Description	Specification
Operation system	Solid-state CMOS circuit
Time range	0.1 sec to 600 hours
Pollution degree	2 (IE60664-1)
Overvoltage category	III (IE60664-1)
Rated operational voltage	
240 AC	100–240 Vac (50/60 Hz)
24 AC	24 Vac (50/60 Hz)/24 Vdc
12 DC	12 Vdc
Voltage tolerance	
240 AC	85–264 Vac (50/60 Hz)
24 AC	20.4–26.4 Vac (50/60 Hz)/21.6–26.4 Vdc
12 DC	10.8–13.2 Vdc
Input OFF voltage	Rated voltage x 10% minimum
Ambient operating temperature	–4 to 149°F (–20 to 65°C)
Reset time	100 ms maximum
Repeat error	± 0.2%, ± 20 ms ①
Voltage error	± 0.2%, ± 20 ms ①
Temperature error	± 0.5%, ± 20 ms ①
Setting error	± 10% maximum
Insulation resistance	100M ohm minimum (500 Vdc)
Dielectric strength	
Between power and output terminals	2000 Vac, 1 minute
Between contacts of different poles	2000 Vac, 1 minute
Between contacts of same pole	1000 Vac, 1 minute
Vibration resistance	10–55 Hz amplitude 0.5 mm; 2 hrs in each of 3 axes
Shock resistance	
Operating extremes	10G
Damage limits —	
TRNP, TRFP	40G (3x in each of 3 axes)
TRNB, TRFB	10G (3x in each of 3 axes)
Power consumption (approx.)	
240 AC	6.5 VA TRNP, TRNB/6.6 VA TRFP, TRFB
240 Vac/60 Hz	11.6 VA TRNP, TRNB/12.1 VA TRFP, TRFB
24 AC (AC/DC)	3.4 VA–1.7W TRNP, TRNB/3.5 VA–1.7W TRFP, TRFB
12 DC	1.6W

TR Series Contact Ratings

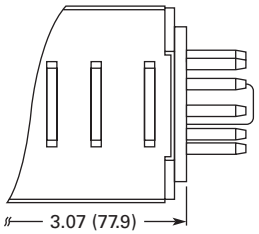
Description	Specification
Contact configuration	2 Form C, DPDT (delayed output)
Allowable voltage/current	240 Vac, 30 Vdc/10A
Max. permissible operating frequency	1800 cycles per hour
Rated load	
Resistive	10A, 240 Vac/30 Vdc
Inductive	7A, 240 Vac/30 Vdc
Horsepower rating	1/6 hp 120 Vac, 1/3 hp 240 Vac
Life	
Electrical	500,000 operations minimum (resistive)
Mechanical	50,000,000 operations minimum

Dimensions

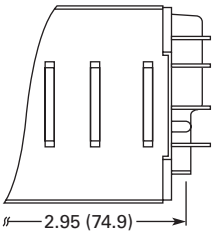
Approximate Dimensions in Inches (mm)

TR Series Dimensions and Weights

Description	Specification
Dimensions	
TRNP, TRFP	1.58H x 1.42W x 3.07D in. (40H x 36W x 77.9D mm)
TRNB, TRFB	1.58H x 1.42W x 2.95D in. (40H x 36W x 74.9D mm)
Weights	
TRNP	87g
TRFP	89g
TRNB, TRFB	85g



Pin (P) Type



Blade (B) Type

Note

① For the value of the error against a preset time, whichever value is larger should apply.

TMR5 Series

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Accessories	**T40-178**
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Wiring Diagrams	**T40-179**
Dimensions	**T40-180**
TMR6 Series	**T40-181**
TMRP Series	**T40-183**
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TMR5 Series

Product Description

The TMR5 Series Time Delay Relays are designed for a broad range of OEM applications. The TMR5 Series offers non-programmable plug-in style timers with a variety of functions available. Each unit offers a single function and single input voltage, and operates over a defined time delay range. Units with fixed time delays are also available. Eaton also offers customization capabilities for these timers—remote adjustments, special pin configurations, and more. Contact us to discuss your specific application and design of a custom timer.

Features

- Single timing range for each unit
- Ranges available from 0.02 sec to 24 hours
- Wide variety of functions available
- Plugs into standard 8- or 11-pin socket
- 10A DPDT output contacts
- Can be easily customized to meet your needs

Standards and Certifications

- cRUus
- UL listed (with Eaton socket)
- RoHS compliant
- CE marked

c US UL with Eaton socket RoHS COMPLIANT CE

Catalogue Number Selection

All configurations from Catalogue Number Selection are available.

TMR5 N 05 120

Family Type
TMR5

Operational Mode

8-Pin Octal Sockets	11-Pin Octal Sockets
N = ON delay	**F** = OFF delay, control switch trigger
T = Interval ON	**C** = Single shot, control switch trigger
L = Flasher-pause-first	**W** = Watchdog, control switch trigger (retriggerable single shot)
R = Repeat cycle ① (OFF time first followed by ON time and repeating)	**P** = OFF delay, power trigger
Y = Repeat cycle ① (ON time first followed by OFF time and repeating)	**G** = Single shot, power trigger
	D = Watchdog, power trigger (retriggerable single shot)

Timing Range ②
04 = 0.05–5 sec
05 = 0.1–10 sec
08 = 0.6–60 sec
12 = 3–300 sec
15 = 0.3–30 min
16 = 0.6–60 min
22 = 6 sec–10 min

Input Voltage
120 = 120 Vac/Vdc
24 = 24 Vac/Vdc
12 = 12 Vac/Vdc
240 = 240 Vac/Vdc

Product Selection

TMR5 Time Delay Relays

Input Voltage	Socket	Timing Range	Catalogue Number
ON Delay			
120 Vac/Vdc	8-pin	0.1–10 sec	**TMR5N05120**
		0.6–60 sec	**TMR5N08120**
24 Vac/Vdc		0.1–10 sec	**TMR5N0524**
		0.6–60 sec	**TMR5N0824**
OFF Delay, Control Switch Trigger			
120 Vac/Vdc	11-pin	0.1–10 sec	**TMR5F05120**
		0.6–60 sec	**TMR5F08120**
24 Vac/Vdc		0.1–10 sec	**TMR5F0524**
		0.6–60 sec	**TMR5F0824**
Interval ON			
120 Vac/Vdc	8-pin	0.1–10 sec	**TMR5T05120**
		0.6–60 sec	**TMR5T08120**
24 Vac/Vdc		0.1–10 sec	**TMR5T0524**
		0.6–60 sec	**TMR5T0824**
Single Shot, Control Switch Trigger			
120 Vac/Vdc	11-pin	0.1–10 sec	**TMR5C05120**
		0.6–60 sec	**TMR5C08120**
24 Vac/Vdc		0.1–10 sec	**TMR5C0524**
		0.6–60 sec	**TMR5C0824**
Repeat Cycle (OFF Time First Followed by ON Time and Repeating)			
120 Vac/Vdc	8-pin	0.1–10 sec	**TMR5R05120**
		0.6–60 sec	**TMR5R08120**
24 Vac/Vdc		0.1–10 sec	**TMR5R0524**
		0.6–60 sec	**TMR5R0824**
Repeat Cycle (ON Time First Followed by OFF Time and Repeating)			
120 Vac/Vdc	8-pin	0.1–10 sec	**TMR5Y05120**
		0.6–60 sec	**TMR5Y08120**
24 Vac/Vdc		0.1–10 sec	**TMR5Y0524**
		0.6–60 sec	**TMR5Y0824**

Accessories

Accessories for Use with TMR5 Time Delay Relays

Description	Standard Pack	Catalogue Number
8-pin socket	10	**D3PA2**
11-pin socket	10	**D3PA3-A2**
Hold-down spring	10	**D65CHDS**

Notes

① Indicates DUAL knob unit. All dual knob units can have independently selectable and adjustable ON and OFF times. If different ON and OFF times are desired, add two codes for time ranges in the part number. The first code listed indicates the first timing range of the unit (OFF time for R, ON time for Y) and the second code indicates the second timing range (ON time for R, OFF Time for Y).

② Fixed time delay settings are available for orders of 50 pieces or more. Contact EatonCare for additional information at 877-ETN-CARE (386-2273).

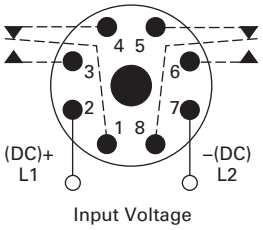
Technical Data and Specifications

TMR5 Time Delay Relays

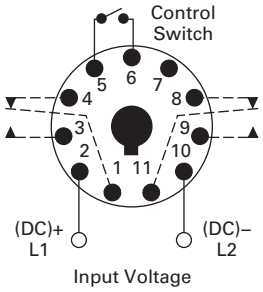
Description	Specification
Voltage tolerance	
AC operation	+10/–15% of nominal at 50/60 Hz
DC operation	+10/–15% of nominal
Load burden	2 VA
Setting accuracy	
Maximum setting (adjustable)	+5%, –0%
Minimum setting (adjustable)	+0%, –50%
Fixed time delay	
< 2 seconds	+1%
0.1–2 seconds	±5%
Repeat accuracy (constant voltage and temperature)	
> 2 seconds delay	±0.1%
0.1–2 seconds delay	±2%
Reset time	
ON Delay/interval/repeat cycle	0.1 second
OFF Delay/single shot/watchdog	0.04 second
Startup time (time from when power is applied until unit is timing)	
120 and 240V units	0.05 second
12, 24 and 48V units	0.08 second
Maintain function time (time unit continues to time after power is removed)	0.01 second
Temperature	
12–120V input voltage	–18 to 150°F (–28 to 65°C)
240V input voltage	–18 to 122°F (–28 to 50°C)
Insulation voltage	2000V
Output contacts	DPDT 10A @ 240 Vac/30 Vdc, 1/2 hp @ 120/240 Vac (NO contacts) 1/3 hp @ 120/240 Vac (NC contacts) B300 and R300; AC-15 and DC-13
Life	
Mechanical	10,000,000 operations
Full load	100,000 operations

Wiring Diagrams

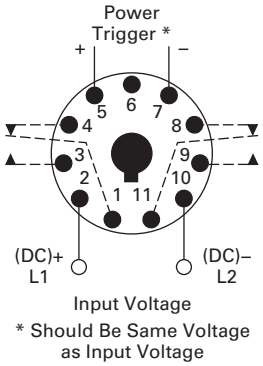
Wiring for 8-Pin Units



Wiring for 11-Pin Control Switch Trigger Units



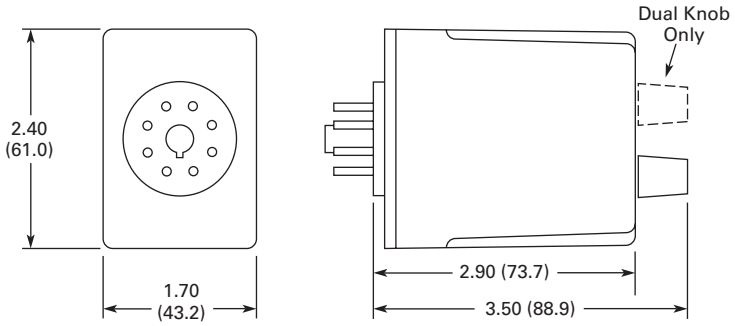
Wiring for 11-Pin Power Trigger Units



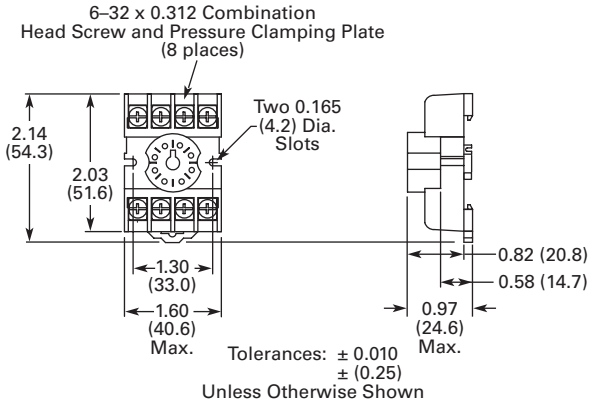
Dimensions

Approximate Dimensions in Inches (mm)

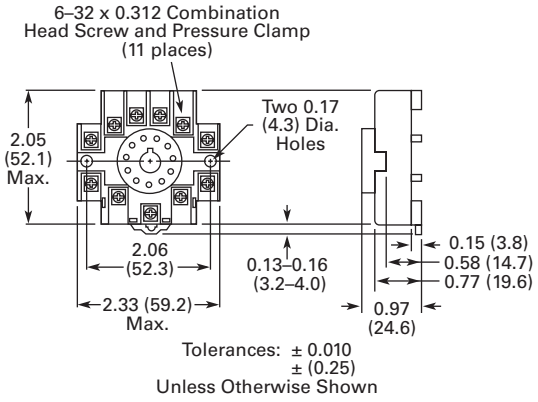
TMR5



D3PA2 Socket



D3PA3 Socket



TMR6 Series

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Dimensions	**T40-182**
TMRP Series	**T40-183**
E5-248—Battery-Powered LCD Time Control	**T40-186**

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TMR6 Series

Product Description

Most electronic time delay relays with an OFF delay function require input voltage to be applied continuously in order to operate correctly. However, there are many applications where this is not possible—keeping a relay energized for some amount of time after input voltage has been removed. Eaton's TMR6 true OFF delay product provides this function even when input voltage is removed. It duplicates the operation of the older OFF delay pneumatic time delay relays.

Features

- Provides OFF delay function without requiring input voltage during OFF time delay
- Duplicates operation of pneumatic OFF delay timers
- Each unit has eight timing ranges built in, covering 0.05 seconds to 30 minutes
- Selecting a range is easy using a rotary switch (no math is required or DIP switches to set)
- Uses industry-standard 8-pin octal socket
- 10A DPDT output contacts

Timing Ranges

Select one of the eight timing ranges using the selector knob, and then adjust the time within that range for an accurate delay setting.

Timing Ranges

Dial Setting	Timing Range
A	0.05–5 sec.
B	0.1–10 sec.
C	0.3–30 sec.
D	0.6–60 sec.
E	1.8–180 sec.
F	3–300 sec.
G	0.1–10 min.
H	0.3–30 min

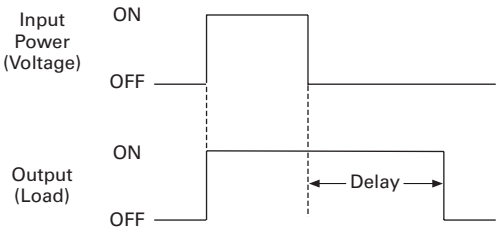
Operation

True OFF Delay

Upon application of input voltage, the relay is energized. When the input voltage is removed, the preset time begins. At the end of the preset time, the relay is de-energized.

Voltage must be applied for a minimum of 0.1 second to assure proper operation. Any application of the input voltage during the preset time will keep the relay energized and reset the time delay. No external trigger switch is required.

True OFF Delay



Standards and Certifications

- cRUus
- UL listed (with Eaton socket)
- RoHS compliant
- CE marked

cRUus UL with Eaton socket RoHS COMPLIANT CE

Catalogue Number Selection

All configurations from Catalogue Number Selection are available

TMR6 X 00 120

Family Type
TMR6

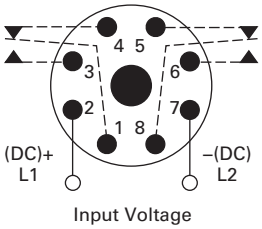
Operational Mode
X = True OFF delay

Timing Range
00 = Programmable

Input Voltage
120 = 120 Vac/Vdc
24 = 24 Vac/Vdc
240 = 240 Vac/Vdc

Wiring Diagram

Wiring for 8-Pin Units



Input Voltage

Product Selection

TMR6 True OFF Delay Relays

Input Voltage	Timing Range	Catalogue Number
True OFF Delay		
120 Vac/Vdc	0.05 sec–30 min (user selectable, 8 ranges)	**TMR6X00120**
24 Vac/Vdc		**TMR6X0024**
240 Vac/Vdc		**TMR6X00240**

Accessories

Accessories for Use with TMR6 Time Delay Relays

Description	Standard Pack	Catalogue Number
8-pin socket	10	**D3PA2**
Hold-down spring	10	**D65CHDS**

Technical Data and Specifications

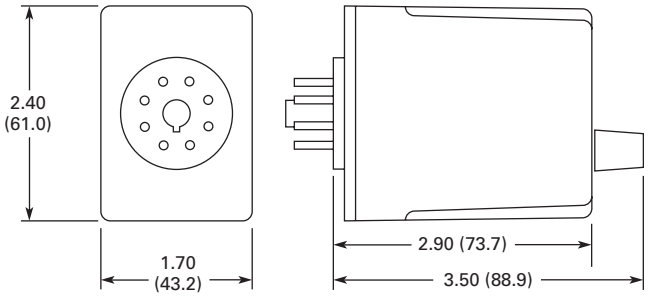
TMR6 Time Delay Relays

Description	Specification
Voltage tolerance	
AC operation	+10/–15% of nominal at 50/60 Hz
DC operation	+10/–15% of nominal
Load burden	2 VA
Setting accuracy	
Maximum setting (adjustable)	+5%, –0%
Minimum setting (adjustable)	+0%, –50%
Repeat accuracy (constant voltage and temperature)	±0.1% or 50 ms, whichever is greater
Temperature	–18 to 150°F (–28 to 65°C)
Insulation voltage	2,000V
Output contacts	DPDT 10A @ 240 Vac/30 Vdc, 1/2 hp @ 120/240 Vac (NO contacts) 1/3 hp @ 120/240 Vac (NC contacts) B300 and R300; AC-15 and DC-13
Life	
Mechanical	2,000,000 operations
Full load	100,000 operations

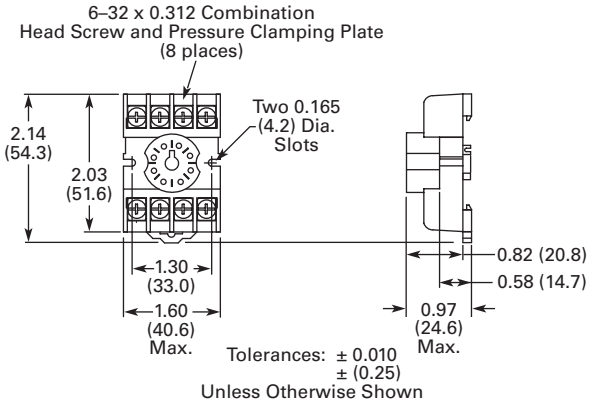
Dimensions

Approximate Dimensions in Inches (mm)

TMR6



D3PA2 Socket



TMRP Series

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E5-248—Battery-Powered LCD Time Control	**T40-186**

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TMRP Series

Product Description

Eaton's TMRP Series timers combine flexibility with ease of use and installation to make the most versatile timer in our offering. The thumb-wheel setting design allows for quick selection and review of up to 10 timing functions and seven timing ranges. The TMRP units can be mounted in a 1/16 DIN cutout or on a DIN rail with our D3 series sockets. Input voltage is 12–240 Vac/Vdc to work with all popular control voltages.

Application Description

A timing relay is a simple form of time-based control, allowing the user to open or close the contacts based on a specified timing function. The TMRP series is equipped with a set of thumb-wheel style selector switches, which can easily be set to a specific function and time, thereby reducing the number of product variations required. The universal input voltage of 12–240 Vac/Vdc further reduces the number of product variations.

The TMRP timers are ideal for high-variability operations, such as systems integrators, distributors, and small equipment manufacturers. The flexible enclosure design allows for back-panel mounting, through-panel mounting, or DIN rail mounting.

Features

- Multiple user-selectable timing functions and timing ranges in a single unit reduce product variations and stock keeping units (SKUs)
- Universal input voltages from 12–240 Vac/Vdc eliminate the need to order and stock separate coil voltages
- Timing ranges up to 9990 hours
- Dual LED indication makes troubleshooting easy
- Flexible design for back-panel, through-panel (45 mm x 45 mm cutout), or DIN rail mounting
- SPDT or DPDT contacts with 12A ratings
- Plastic dust cover keeps out contaminants and eliminates accidental set point changes
- Use with standard Eaton D3 sockets—see Technical Data and Specifications

LED Indicator

LED Description	Function
Solid green "Input"	Supply voltage present
Solid red "Output"	Relay energized
Slowly flashing red "Output"	Timing cycle activated, relay not energized
Rapidly flashing red "Output"	Timing cycle activated, relay energized

Standards and Certifications

- UL recognized
- CE marked
- RoHS compliant

Product Selection

TMRP5100

TMRP Timing Relays

Supply Voltage	Description	Catalogue Number
10-Function		
12–240 Vac/Vdc	Control switch trigger, DPDT	**TMRP5100**
	Control switch trigger, SPDT	**TMRP5101**
	Power trigger, DPDT	**TMRP5102**

Technical Data and Specifications

TMRP Timing Relays

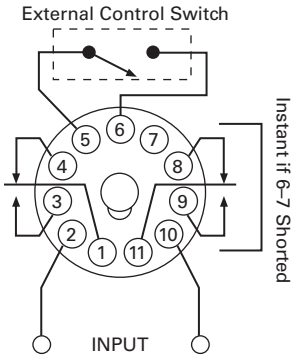
Description	TMRP5100	TMRP5101	TMRP5102
Functions ①	A, B, C, D, E, F, G, H, I, J	A, B, C, D, E, F, G, H, I, J	A, B, C
Time range	0.1 sec to 9,990 hours	0.1 sec to 9,990 hours	0.1 sec to 9,990 hours
Input			
Supply voltage	12–240 Vac/Vdc	12–240 Vac/Vdc	12–240 Vac/Vdc
Supply voltage tolerance	±15%	±15%	±15%
Rated consumption	2.5 VA (2W) maximum	2.5 VA (2W) maximum	2.5 VA (2W) maximum
Reset time	150 ms	150 ms	150 ms
Reverse polarity protection	Yes	Yes	Yes
Operate time	25 ms maximum	25 ms maximum	25 ms maximum
Release time	25 ms maximum	25 ms maximum	25 ms maximum
Rated surge voltage	4 kV	4 kV	4 kV
Output			
Contact configuration	DPDT	SPDT	DPDT
Contact rating (AC)	12A resistive at 120, 240 UL 508	12A resistive at 120, 240 UL 508	12A resistive at 120, 240 UL 508
Contact rating (DC)	12A resistive at 30 UL 508	12A resistive at 30 UL 508	12A resistive at 30 UL 508
Contact rating horsepower	1/2 at 120 Vac, 1 at 240 Vac	1/2 at 120 Vac, 1 at 240 Vac	1/2 at 120 Vac, 1 at 240 Vac
Contact rating pilot duty	A300, 720 VA at 240 Vac	A300, 720 VA at 240 Vac	A300, 720 VA at 240 Vac
Minimum load	12V/100 mA	12V/100 mA	12V/100 mA
Contact material	Silver-nickel 90/10	Silver-nickel 90/10	Silver-nickel 90/10
Contact resistance	100 milliohms max. at 1A 12 Vdc	100 milliohms max. at 1A 12 Vdc	100 milliohms max. at 1A 12 Vdc
Mechanical life—full load	10 million operations	10 million operations	10 million operations
Electrical life—full load	100,000 operations	100,000 operations	100,000 operations
Control Signal			
Minimum control pulse length	50 ms minimum	50 ms minimum	50 ms minimum
Accuracy			
Repetition accuracy	0.10% at constant voltage and temperature	0.10% at constant voltage and temperature	0.10% at constant voltage and temperature
Physical			
Ambient temperature	–10 to 55°C	–10 to 55°C	–10 to 55°C
Storage temperature	–40 to 85°C	–40 to 85°C	–40 to 85°C
Mounting	Use with D3PA3 socket	Use with D3PA2 socket	Use with D3PA2 socket

Note

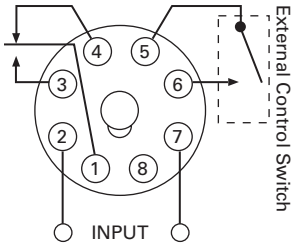
① Refer to Function Code Cross-Reference Guide on **Page T40-165** for function details.

Wiring Diagrams

TMRP5100



TMRP5101



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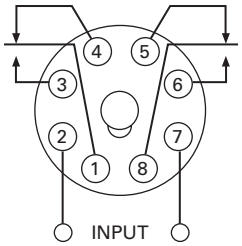
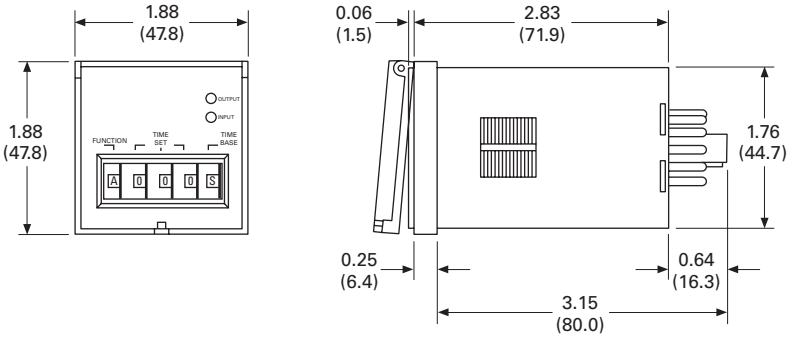
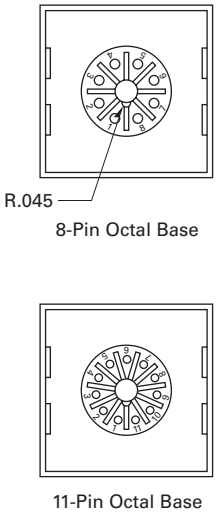


Dimensions

Approximate Dimensions in Inches (mm)

TMRP Series





E5-248—Battery-Powered LCD Time Control

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TMR5 Series	**T40-177**
TMR6 Series	**T40-181**
TMRP Series	**T40-183**
E5-248—Battery-Powered LCD Time Control	
Product Selection	**T40-186**
Dimensions	**T40-186**

E5-248—Battery-Powered LCD Time Control

Product Description

The E5-248-C1420 is an advanced timing relay capable of performing a wide variety of timing functions without the need for external power. The through-panel mount design and LCD display allow easy access for set-point and function changes. Programmable activation modes effectively triple the functionality, and the relay can be configured for normally open or normally closed operation.

Features

- No external voltage supply, because of internal replaceable lithium battery
- High contrast, 2-line LCD display, 5-digit with many symbols for easy operation and reading
- Nine programmable time ranges from 0.20 seconds up to 99.999 hours
- Resolution up to 0.01 seconds
- Inputs for start and reset; universal inputs for 12–260 Vac/Vdc
- Eight timing modes—
  - ON Delay, OFF Delay, One Shot and Single Shot
  - Repeat cycle modes: Delay, Cycle, Symmetrical delay
- Three programmable activation modes
- Relay contacts rated at 8A programmable to NO or NC
- Protection IP65
- Plug-in connector

Standards and Certifications

- CE marked

CE

Product Selection

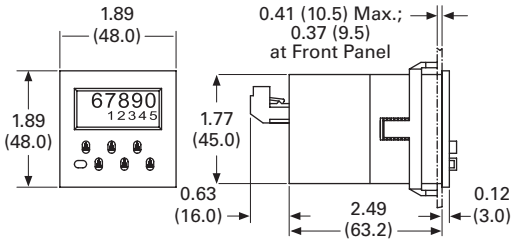
Battery-Powered LCD Time Control

Description	Catalogue Number
Battery-powered LCD time control, 1.89 x 1.89 in (48.0 x 48.0 mm)	**E5-248-C1420**

Dimensions

Approximate Dimensions in Inches (mm)

Battery-Powered LCD Time Control



Panel cutout is 1.77 + 0.02 in sq. (45 + 0.6 mm sq.).

D85 Series—Alternating Relays

Contents

Description	*Page*
D85 Series—Alternating Relays	
Product Selection	**T40-188**
Accessories	**T40-188**
Technical Data and Specifications	**T40-189**
Wiring Diagrams	**T40-189**
Dimensions	**T40-191**

Product Description

Alternating relays are used in applications where the optimization of load usage is required by equalizing the run time of two loads. They are also used where additional capacity is required in case of excess load requirements. This alternating action is initiated by a control switch—such as a float switch, manual switch, timing relay, pressure switch or other isolated contact. Each time the initiating switch is opened, the output relay contacts will change state, thus alternating the two loads. Two LED indicators show the status of the output relay.

The D851 and D852 Series Relays are used with one control switch and are available in either SPDT or DPDT output configurations with or without a selector switch to lock in one sequence. The D852X Series Relays are available in DPDT cross-wired output configurations for use with one or two control switches (LEAD and LAG).

The D853 Series is designed for use with three-switch applications (LEAD, LAG and STOP). The D853 Series combines a standard DPDT Cross-Wired alternating relay, contactor auxiliary contacts, and a control relay into one compact and economical product. This saves space and labor, while reducing the number of components needed. The D853 Series uses Sequence On–Simultaneous Off (S.O.S.O.) operation, where the two loads are energized sequentially, but remain on together until the STOP switch is opened. This device also protects against failure of the STOP and LEAD switches. If both switches fail, the two pump motors will be energized simultaneously when the LAG switch is closed.

Each of the D85 Series alternating relays is available with an optional three-position selector switch, which allows the unit to alternate the two loads as normal, or lock the relay to one load or the other. By locking the alternating relay to one load, the other load can be removed for service without rewiring the first load for continuous operation. The selector switch has a low profile to prevent any accidental actuation.

Features

- For duplex loads
- Works with one-, two-, or three-switch applications
- Compact plug-in design using industry standard sockets
- 10A SPDT or DPDT output configurations
- Optional low profile selector switch to lock in one sequence
- Two LEDs indicate relay status
- D853 Series replaces separate components in duplex panel—saving space and reducing labor

Standards and Certifications

- CE
- cRUus
- UL listed ①
- RoHS compliant

Listed

Note

① When used with appropriate Eaton socket.

Product Selection

D85 Series—Alternating Relays ①

Output Contacts	Control Voltage	Socket	Catalogue Number
SPDT	12 Vac	8-pin	**D851NR**
SPDT	24 Vac	8-pin	**D851NT**
SPDT	120 Vac	8-pin	**D851NA**
SPDT	240 Vac	8-pin	**D851NB**
SPDT w/selector switch	12 Vac	8-pin	**D851LR**
SPDT w/selector switch	24 Vac	8-pin	**D851LT**
SPDT w/selector switch	120 Vac	8-pin	**D851LA**
SPDT w/selector switch	240 Vac	8-pin	**D851LB**
DPDT	12 Vac	11-pin	**D852NR**
DPDT	24 Vac	11-pin	**D852NT**
DPDT	120 Vac	11-pin	**D852NA**
DPDT	240 Vac	11-pin	**D852NB**
DPDT w/selector switch	12 Vac	11-pin	**D852LR**
DPDT w/selector switch	24 Vac	11-pin	**D852LT**
DPDT w/selector switch	120 Vac	11-pin	**D852LA**
DPDT w/selector switch	240 Vac	11-pin	**D852LB**
DPDT cross-wired	12 Vac	8-pin	**D852XNR**
DPDT cross-wired	24 Vac	8-pin	**D852XNT**
DPDT cross-wired	120 Vac	8-pin	**D852XNA**
DPDT cross-wired	240 Vac	8-pin	**D852XNB**
DPDT cross-wired w/selector switch	12 Vac	8-pin	**D852XLR**
DPDT cross-wired w/selector switch	24 Vac	8-pin	**D852XLT**
DPDT cross-wired w/selector switch	120 Vac	8-pin	**D852XLA**
DPDT cross-wired w/selector switch	240 Vac	8-pin	**D852XLB**

Accessories

D85 Series—Alternating Relays

Description	Standard Pack	Catalogue Number
8-pin socket	10	**D3PA2**
11-pin socket	10	**D3PA3-A2**
Hold-down spring	10	**D65CHDS**

Note

① Contact Eaton for relays for 3-switch applications (Lead-Lag-Stop).

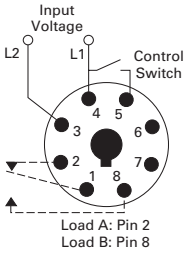
Technical Data and Specifications

D85 Series—Alternating Relays

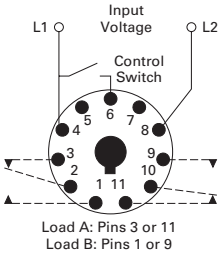
Description	Specification
Voltage tolerance	+10%/-15% of control voltage at 50/60 Hz
Load (burden)	Less than 3 VA
Output contacts	10A resistive at 240 Vac / 30 Vdc, 1/2 hp at 120/240 Vac (NO), 1/3 hp at 120/240 Vac (NC)
Mechanical life	10,000,000 operations
Electrical life	100,000 operations
Temperature	–20˚ to 150˚F (–28˚ to 65˚C)
Transient protection	10,000 volts for 20 microseconds
Indicator LEDs	2 LEDs marked LOAD A and LOAD B
Optional selector switch settings	ALTERNATE, LOCK LOAD A, LOCK LOAD B

Wiring Diagrams

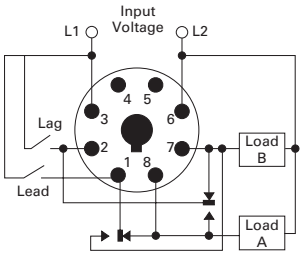
D851 Series Relays, SPDT



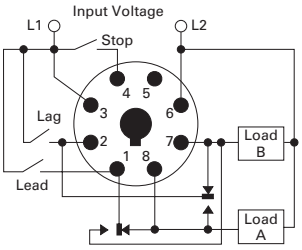
D852 Series Relays, DPDT



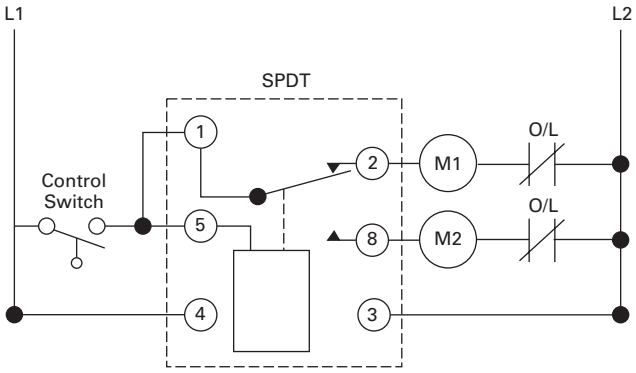
D852X Series Relays, DPDT Cross-Wired



D853 Series Relays, Three-Switch Applications



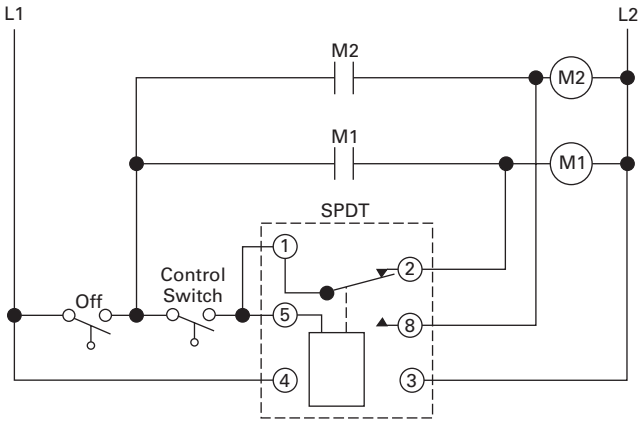
Typical Installations for SPDT and DPDT Alternating Relays, Standard Installation



In the OFF state (standard installation), the control switch is open, the alternating relay is in the LOAD A position, and both loads (M1 and M2) are off. When the control switch closes, it energizes the first load (M1). The red LED marked "LOAD A" glows. As long as the control switch remains closed, M1 remains energized.

When the control switch opens, the first load (M1) is turned off and the alternating relay toggles to the LOAD B position. When the control switch closes again, it energizes the second load (M2). The red LED marked "LOAD B" glows.

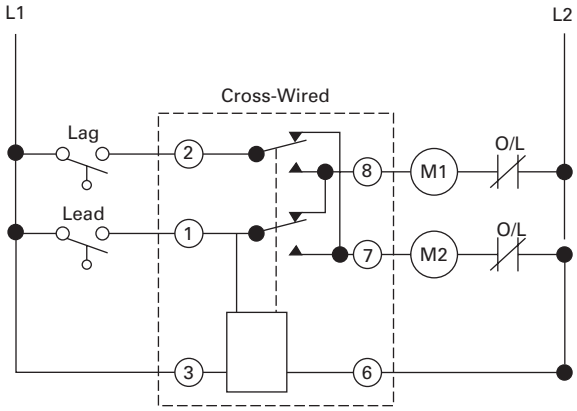
Typical Installations for SPDT and DPDT Alternating Relays, Anti-Bounce Installation



When the control switch opens, the second load (M2) is turned off, the alternating relay toggles back to the LOAD A position, and the process can be repeated again. On relays with DPDT contacts, two pilot lights can be used for remote indication of LOAD A or LOAD B status.

To eliminate any bounce condition of the control switch, the addition of a second switch (OFF) along with two auxiliary contacts is recommended as shown in the Anti-Bounce Installation.

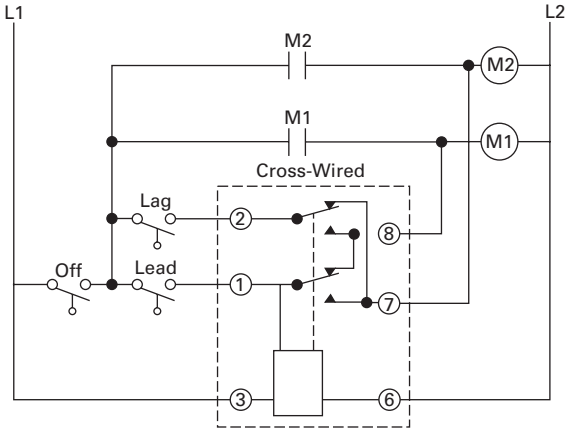
Typical Installations for DPDT Cross-Wired Alternating Relays, Standard Installation



In the OFF state, both the LEAD control switch and the LAG control switch are open, the alternating relay is in the LOAD A position, and both loads are off. When the LEAD control switch closes, it energizes the first load (M1). The red LED marked "LOAD A" glows. As long as the LEAD control switch remains closed, M1 remains energized. If the LAG control switch closes, it energizes the second load (M2).

When the LAG control switch opens, the second load (M2) is turned off. When the LEAD control switch opens, the first load (M1) is turned off and the alternating relay toggles to the LOAD B position.

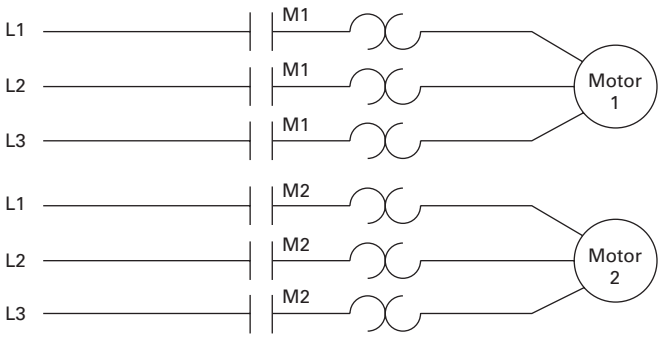
Typical Installations for DPDT Cross-Wired Alternating Relays, Anti-Bounce Installation



When the LEAD control switch closes, it turns on the second load (M2). The red LED marked "LOAD B" glows. If the LAG control switch closes, it will energize the first load (M1). When the LAG control switch opens, the first load (M1) is turned off. When the LEAD control switch opens, the second load (M2) is turned off, the alternating relay toggles back to the LOAD A position, and the process can be repeated again.

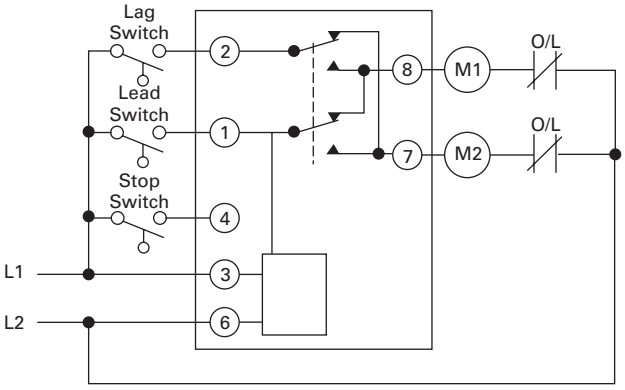
To eliminate any bounce condition of the control switch, the addition of a second switch (OFF) along with two auxiliary contacts is recommended as shown in the Anti-Bounce Installation.

Typical Installations for DPDT Cross-Wired Relays for Three-Switch Applications



In the OFF state, all three switches are open, the alternating relay is in the LOAD A position, and both loads are off. No action happens with the alternating relay or either load when the STOP switch closes. When the LEAD switch closes, Load #1 (M1) turns on. When the LAG switch closes, Load #2 (M2) turns on. Both loads remain on as long as all three switches are closed.

When the LAG switch opens, Load #2 (M2) remains on because the STOP switch is still closed. When the LEAD switch opens, Load #1 (M1) remains on because the STOP switch is still closed. When the STOP switch opens, both Load #1 (M1) and Load #2 (M2) are turned off simultaneously.



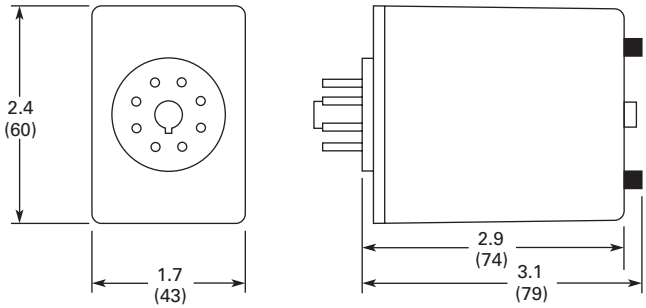
The alternating relay toggles to the LOAD B position. The entire cycle is then repeated, but with Load #2 (M2) energized first followed by Load #1 (M1). This type of operation is known as "Sequence On–Simultaneously Off (S.O.S.O.)"—the two loads are energized sequentially, but remain on together until the STOP switch is opened.

If both the STOP switch and LEAD switch fail to close and turn on the first load, both loads will be turned on simultaneously when the LAG switch is closed.

Dimensions

Approximate Dimensions in Inches (mm)

D85 Series—Alternating Relays



Safety Relays

Contents

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Safety Relays	
Product Selection	**T40-193**
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Product Description

Safety relays are intended to reliably monitor the signals from safety devices at all times and switch off quickly and reliably in an emergency. Single-channel and dual channel versions are available for the construction of safety applications. The internal logic of the safety relays monitors the safety circuits (emergency stop, guard door, and so on) and activates the enable paths in a fault-free condition. Upon actuation of the safety device or in the event of a fault, the enable paths are switched off. Any faults that occur in the control circuit, such as ground fault, cross connection fault or wire breakage are also detected.

Application Description

Eaton's ESR5 safety relays provide optimal safety and a high degree of reliability on plant machinery. Applications that meet the highest safety requirements in accordance with EN 954-1, EN ISO 13849-1 up to PL e and accordance with IEC 62061 up to SILCL 3 can be realized with the ESR5 safety relay.

Compatible with a wide variety of safety devices:

- Emergency stops
- Rope pulls
- Two-hand control stations
- Light curtain (OSSD)
- Gate enable device
- Safety switches

Features

- Use for the highest safety requirements in accordance with EN 954-1 EN ISO 13849-1, IEC 62061 and EC 61508
- Suitable for the world market with UL, cUL certifications and TÜV Rhineland functional safety certifications
- Applicable for EN 60204 stop categories 0 or 1
- Plug-in screw terminals for fast and fault-free replacement
- Multi-voltage versions (24–230 Vac/Vdc) for a flexible range of application
- Delayed and non-delayed contact expansions accommodate a wide variety of applications

Standards and Certifications

- UL 508; CSA-C22.2 No 14-95; CE Marked
- UL/cUL file number: E29184
- Degree of protection: IP20
- TÜV Rhineland certified
- UL/cULus listed

Listed

Product Selection

Safety Relays

Technical Overview

Single Channel	Dual Channel	Safety Output (NO)	Safety Output (NO) (Delayed)	Output Delay	Signal Output (NC)	Feedback Output	Control Voltage	Removable Terminal Blocks	Type of Unit	Catalogue Number
■	—	4	—	—	1	—	24 Vac/Vdc	■	Main	**ESR5-NO-41-24VAC-DC**
■	■	2	—	—	1	—	24 Vac/Vdc	■	Main	**ESR5-NO-21-24VAC-DC**
■	■	3	—	—	1	—	24 Vac/Vdc	■	Main	**ESR5-NO-31-24VAC-DC**
■	■	3	—	—	1	—	230 Vac	■	Main	**ESR5-NO-31-230VAC**
■	■	3	—	—	1	—	24–230 Vac/Vdc	■	Main	**ESR5-NO-31-AC-DC**
■	■	2	2	0.1–30s	—	—	24 Vdc	■	Main	**ESR5-NV3-30**
—	■	2	—	—	1	—	24 Vac/Vdc	■	Main	**ESR5-NZ-21-24VAC-DC**
■	—	5	—	—	1	1	24 Vac/Vdc	■	Expansion	**ESR5-NE-51-24VAC-DC**
■	—	—	4	0.3–3s	1	1	24 Vdc	■	Expansion	**ESR5-VE3-42**

Application Overview

Emergency Stop	Safety Switches	Light Curtain/ OSSD ①	Two-Hand Control (EN 574 Type III C)	Contact Expansion	Off-Delayed	Cross Circuit Recognition	Monitored Manual Reset ②	Catalogue Number
■	■	—	—	—	—	—	—	**ESR5-NO-41-24VAC-DC**
■	■	—	—	—	—	■	—	**ESR5-NO-21-24VAC-DC**
■	■	—	—	—	—	■	—	**ESR5-NO-31-24VAC-DC**
■	■	—	—	—	—	■	■	**ESR5-NO-31-230VAC**
■	■	—	—	—	—	■	■	**ESR5-NO-31-AC-DC**
■	■	■	—	—	■	■	■	**ESR5-NV3-30**
—	■	—	■	—	—	■	—	**ESR5-NZ-21-24VAC-DC**
—	—	—	—	■	—	—	—	**ESR5-NE-51-24VAC-DC**
—	—	—	—	■	■	—	—	**ESR5-VE3-42**

Application Overview, continued

Single Channel	Dual Channel	Stop Category EN 60204	Control Category to EN 954-1	Achievable PL per ISO 13849-1	Achievable SIL per EN IEC 62061	Catalogue Number
■	—	0	2	PL d	SIL 3	**ESR5-NO-41-24VAC-DC**
■	■	0	4	PL e	SIL 3	**ESR5-NO-21-24VAC-DC**
■	■	0	4	PL e	SIL 3	**ESR5-NO-31-24VAC-DC**
■	■	0	4	PL e	SIL 3	**ESR5-NO-31-230VAC**
■	■	0	4	PL e	SIL 3	**ESR5-NO-31-AC-DC**
■	■	0/1	4	PL e	SIL 3	**ESR5-NV3-30**
—	■	0	4	PL e	SIL 3	**ESR5-NZ-21-24VAC-DC**
■	—	0	4	PL e	SIL 3	**ESR5-NE-51-24VAC-DC**
■	—	1	3	PL d	SIL 2	**ESR5-VE3-42**

Notes

① Laser scanners or light curtains with OSSD outputs.

② All main units can also be reset automatically or manually.

Technical Data and Specifications

Safety Relay

Description	Unit	ESR5-NO-21_	ESR5-NO-41_	ESR5-NO-31-24VAC-DC	ESR5-NZ-21_
General					
Standards		EN ISO 13849-1, IEC 62061, IEC 61508, DIN EN 50178, UL/CUL listed	EN ISO 13849-1, IEC 62061, IEC 61508, DIN EN 50178, UL/CUL listed	EN ISO 13849-1, IEC 62061, IEC 61508, DIN EN 50178, UL/CUL listed	EN ISO 13849-1, IEC 62061, IEC 61508, DIN EN 50178, UL/CUL listed
Type-dependent standards		—	—	—	EN 574 Part no. IIIC
Lifespan, mechanical—c (contacts)	x 10^6	10	10	10	10
Maximum operating frequency	Ops/h	3600	3600	3600	3600
Climatic proofing		Cold according to EN 60068-2-1, dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3	Dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3	Cold according to EN 60068-2-1, dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3	Dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3
Ambient temperature	°F (°C)	–4° to 131° (–20° to 55°)	–4° to 131° (–20° to 55°)	–4° to 131° (–20° to 55°)	–4° to 131° (–20° to 55°)
Ambient temperature storage	°F (°C)	–13° to 167° (–25° to 75°)	–13° to 167° (–25° to 75°)	–13° to 167° (–25° to 75°)	–13° to 167° (–25° to 75°)
Mounting position		Any	Any	Any	Any
Vibration resistance (IEC/EN 60068-2-6)		2g, frequency: 10–150 Hz, amplitude: 0.15 mm	2g, frequency: 10–150 Hz, amplitude: 0.15 mm	2g, frequency: 10–150 Hz, amplitude: 0.15 mm	2 g, frequency: 10–150 Hz, amplitude: 0.15 mm
Shock resistance (IEC 60068-2-27)		—	—	—	—
Protection type					
Housing		IP20	IP20	IP20	IP20
Terminals		IP20	IP20	IP20	IP20
Protection against direct contact when actuated from front (IEC 0106 Part 100)		Finger- and back-of-hand proof	Finger- and back-of-hand proof	Finger- and back-of-hand proof	Finger- and back-of-hand proof
Weight	kg	0.17	0.22	0.17	0.22
Terminal capacity					
Solid or flexible	mm^2	1 x (0.2–2.5) 2 x (0.2–1)	1 x (0.2–2.5) 2 x (0.2–1)	1 x (0.2–2.5) 2 x (0.2–1)	1 x (0.2–2.5) 2 x (0.2–1)
Flexible with ferrule	mm^2	1 x (0.25–2.5) 2 x (0.25–1)	1 x (0.25–2.5) 2 x (0.25–1)	1 x (0.25–2.5) 2 x (0.25–1)	1 x (0.25–2.5) 2 x (0.25–1)
Solid or stranded	AWG	24–12	24–12	24–12	24–12
Terminal screw					
Pozidriv screwdriver	Size	2	2	2	2
Flat-blade screwdriver	mm	0.6 x 3.5	0.6 x 3.5	0.6 x 3.5	0.6 x 3.5
Max. tightening torque	Nm	0.6	0.6	0.6	0.6
Main Contacts					
Rated impulse withstand voltage—U_{imp}	Vac	6000	4000	4000	6000
Overvoltage category/pollution degree					
Outside		III/2	III/2	III/2	III/2
Inside		—	—	—	—
Rated insulation voltage—U_i	Vac	250	250	250	250
Rated operating voltage—U_e	Vac	230	230	230	230
Rated operation current					
AC-15					
230V (360 ops./h)—I_e	A	5	4	5	4
230V (3600 ops./h)—I_e	A	3	3	3	3
DC-13					
24V (360 ops./h)—I_e	A	6	4	6	4
24V (3600 ops./h)—I_e	A	3	2.5	3	2.5
Max. summation current of all poles					
24 Vac/Vdc devices	A	72	72	72	72
230 Vac devices	A	—	—	—	—
Square of the total current (and total current) of all current paths		72 A^2 (6 + 6)	72 A^2 (4.2 + 4.2 + 4.2 + 4.2)	72 A^2 (4.9 + 4.9 + 4.9)	72 A^2 (6 + 6)
Short-circuit protection					
Max. fuse	A gG/gL	10	6	10	6

Safety Relay, continued

Description	Unit	ESR5-NO-21_	ESR5-NO-41_	ESR5-NO-31-24VAC-DC	ESR5-NZ-21_
Power Supply Circuit					
Actuating voltage 50/60 Hz	Vac	24	24	24	24
Actuating voltage—U_s	Vdc	24	24	24	24
Voltage tolerance pick-up voltage	x_e	0.85–1.1	0.85–1.1	0.85–1.1	0.85–1.1
Power consumption					
AC operated 50/60 Hz	VA	—	—	—	—
AC operated 50/60 Hz	W	3.4	3.4	3.4	3
DC operated	W	1.6	1.6	1.6	1.5
Fuse for control circuit supply					
24V		Short-circuit proof	Short-circuit proof	Short-circuit proof	Short-circuit proof
115/230V		—	—	—	—
Control Circuit					
Rated output voltage	Vdc	24	24	24	24
Rated operational current	mA	S12, S22: 30, S34: 45	S12: 65, S34: 40	S12, S22: 30, S34: 45	S11, S21: 60, Y2: 45
Resistance—R		50	22	50	22
Short-circuit current	A	2.3	2.3	2.3	2.3
Response time	ms	100	65	100	50
Recovery time	ms	—	—	—	—
Response time with reset monitoring—t_{A1}	ms	—	—	—	—
Response time without reset monitoring—t_{A2}	ms	100	65	100	50
Reset time—t_R/t_{R1}	ms	Single-channel 45; dual-channel 10	45	Single-channel 45; dual-channel 10	20
Minimum on duration—t_M	ms	—	—	—	—
Recovery time—t_W	ms	Approx. 1000	Approx. 1000	Approx. 1000	Approx. 1000
Synchronous monitoring time—t_S	ms	—	—	—	500
Electromagnetic Compatibility (EMC)					
Emitted interference		EN 61000-6-4	EN 61000-6-4	EN 61000-6-4	EN 61000-6-4
Interference immunity		According to EN 61000-6-2, EN 62061	According to EN 61000-6-2	According to EN 61000-6-2, EN 62061	According to EN 61000-6-2

Safety Relay, continued

Description	Unit	ESR5-NO-31-230VAC	ESR5-NO-31-24V-230VAC-DC	ESR5-NV3_	ESR5-VE3_	ESR5-NE-51_
General						
Standards		EN ISO 13849-1, IEC 62061, IEC 61508, DIN EN 50178, UL/CUL listed	EN ISO 13849-1, IEC 62061, IEC 61508, DIN EN 50178, UL/CUL listed	EN ISO 13849-1, IEC 62061, IEC 61508, DIN EN 50178, UL/CUL listed	EN ISO 13849-1, IEC 62061, IEC 61508, DIN EN 50178, UL/CUL listed	EN ISO 13849-1, IEC 62061, IEC 61508, DIN EN 50178, UL/CUL listed
Type-dependent standards		EN 60204 (if applicable)	EN 60204 (if applicable)	EN 60204 (if applicable)	—	—
Lifespan, mechanical—c (contacts)	x 10^6	10	10	10	10	10
Maximum operating frequency	Ops/h	3600	3600	3600	900	3600
Climatic proofing		Dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3	Dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3	Cold in accordance with: EN 60068-2-1, dry heat in accordance with EN 60068-2-2, humidity storage test in accordance with 60068-2-78	Dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3	Dry heat according to EN60068-2-2, damp heat according to EN 60068-2-3
Ambient temperature	°F (°C)	–4° to 131° (–20° to 55°)	–4° to 131° (–20° to 55°)	–4° to 113° (–20° to 45°)	–4° to 131° (–20° to 55°)	–4° to 131° (–20° to 55°)
Ambient temperature storage	°F (°C)	–13° to 167° (–25° to 75°)	–13° to 167° (–25° to 75°)	–13° to 167° (–25° to 75°)	–13° to 167° (–25° to 75°)	–13° to 167° (–25° to 75°)
Mounting position		Any	Any	Any	Any	Any
Vibration resistance (IEC/EN 60068-2-6)		2g, frequency: 10–150 Hz, amplitude: 0.15 mm	2g, frequency: 10–150 Hz, amplitude: 0.15 mm	2g, frequency: 10–150 Hz, amplitude: 0.15 mm	2g, frequency: 10–150 Hz, amplitude: 0.15 mm	2g, frequency: 10–150 Hz, amplitude: 0.15 mm
Shock resistance (IEC 60068-2-27)		—	—	—	—	—
Protection type						
Housing		IP40	IP40	IP20	IP20	IP20
Terminals		IP20	IP20	IP20	IP20	IP20
Protection against direct contact when actuated from front (IEC 0106 Part 100)		Finger- and back-of-hand proof	Finger- and back-of-hand proof	Finger- and back-of-hand proof	Finger- and back-of-hand proof	Finger- and back-of-hand proof
Weight	kg	0.3	0.3	0.17	0.17	0.22
Terminal capacity						
Solid or flexible	mm^2	1 x (0.2–2.5) 2 x (0.2–1)	1 x (0.2–2.5) 2 x (0.2–1)	1 x (0.2–2.5) 2 x (0.2–1)	1 x (0.2–2.5) 2 x (0.2–1)	1 x (0.2–2.5) 2 x (0.2–1)
Flexible with ferrule	mm^2	1 x (0.25–2.5) 2 x (0.25–1)	1 x (0.25–2.5) 2 x (0.25–1)	1 x (0.25–2.5) 2 x (0.25–1)	1 x (0.25–2.5) 2 x (0.25–1)	1 x (0.25–2.5) 2 x (0.25–1)
Solid or stranded	AWG	24–12	24–12	24–12	24–12	24–12
Terminal screw						
Pozidriv screwdriver	Size	2	2	2	2	2
Flat-blade screwdriver	mm	0.6 x 3.5	0.6 x 3.5	0.6 x 3.5	0.6 x 3.5	0.6 x 3.5
Max. tightening torque	Nm	0.6	0.6	0.6	0.6	0.6
Main Contacts						
Rated impulse withstand voltage—U_{imp}	Vac	6000	6000	4000	4000	4000
Overvoltage category/pollution degree						
Outside		III/2	III/2	III/2	III/2	III/2
Inside		—	—	—	—	—
Rated insulation voltage—U_i	Vac	250	250	250	250	250
Rated operating voltage—U_e	Vac	230	230	230	230	230
Rated operation current						
AC-15						
230V (360 ops./h)—I_e	A	4	4	—	5	4
230V (3600 ops./h)—I_e	A	3	3	3	3	3
DC-13						
24V (360 ops./h)—I_e	A	4	4	—	6	4
24V (3600 ops./h)—I_e	A	2.5	2.5	3	3	2.5
Max. summation current of all poles						
24 Vac/Vdc devices	A	50	50	49	50	50
230 Vac devices	A	50	50	—	—	—
Square of the total current (and total current) of all current paths		50 A^2 (4 + 4 + 4)	50 A^2 (4 + 4 + 4)	50 A^2 (4 + 4 + 4)	49 A^2 (3.5 + 3.5 + 3.5 + 3.5)	50 A^2 (3.7 + 3.7 + 3.7 + 3.7 + 3.7)
Short-circuit protection						
Max. fuse	A gG/gL	6	6	10	10	6

Safety Relay, continued

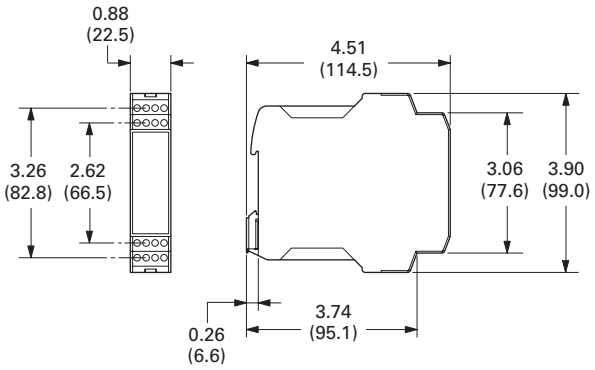
Description	Unit	ESR5-NO-31-230VAC	ESR5-NO-31-24V-230VAC-DC	ESR5-NV3_	ESR5-VE3_	ESR5-NE-51_
Power Supply Circuit						
Actuating voltage 50/60 Hz	Vac	230	24–230	—	—	24
Actuating voltage—U_s	Vdc	—	230	24	24	24
Voltage tolerance pick-up voltage	x_e	0.85–1.1	0.85–1.1	0.85–1.1	0.85–1.1	0.8–1.1
Power consumption						
AC operated 50/60 Hz	VA	—	—	—	—	—
AC operated 50/60 Hz	W	5.8	5.8	—	—	2.2
DC operated	W	2.9	2.9	1.8	2	2.2
Fuse for control circuit supply						
24V		—	Short-circuit proof	—	—	—
115/230V		Short-circuit proof	Short-circuit proof	—	—	—
Control Circuit						
Rated output voltage	Vdc	24	24	24	24	24
Rated operational current	mA	S10, S12, S22: 35, S34, S35: 45	S10, S12, S22: 35, S34, S35: 45	S12, S22: 3.5, S34, S35: 7	A1, A2: 84, K1/K2: 5	A1, A2: 92
Resistance—R		11	11	500	—	—
Short-circuit current	A	0.7	0.7	0.1	—	—
Response time	ms	250	250	150	20	20
Recovery time	ms	—	—	—	—	—
Response time with reset monitoring—t_{A1}	ms	60	60	150	20	20
Response time without reset monitoring—t_{A2}	ms	250	250	150	20	20
Reset time—t_R/t_{R1}	ms	20	20	20 (non-delayed enable paths); 100 (min. delayed enable paths)	0.3–3 s (+50%) adjustable	20
Minimum on duration—t_M	ms	—	—	—	—	—
Recovery time—t_W	ms	Approx. 1000	Approx. 1000	Approx. 330	Approx. 1000	—
Synchronous monitoring time—t_S	ms	—	—	—	—	—
Electromagnetic Compatibility (EMC)						
Emitted interference		EN 61000-6-4	EN 61000-6-4	EN 61000-6-4	EN 61000-6-4	EN 61000-6-4
Interference immunity		According to EN 61000-6-2	According to EN 61000-6-2	According to EN 61000-6-2, EN 62061	According to EN 61000-6-2	According to EN 61000-6-2

Dimensions

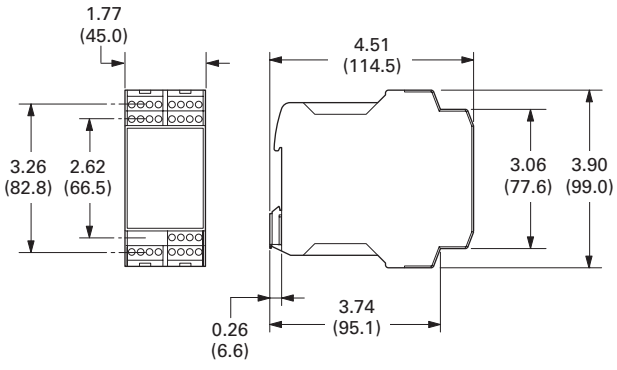
Approximate Dimensions in Inches (mm)

Safety Relays, Contact Expansion Modules

ESR5_ 24 Vac/Vdc



ESR5_ 230 Vac



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Terminal Blocks, Fuse Blocks and Fuse Holders

Screw Connection

Spring Cage

Insulation Displacement Connection

42.1 IEC—*XB* Series

IEC—***XB*** Series Overview **T42-2**
Screw Connection Terminal Blocks **T42-4**
Spring Cage Terminal Blocks **T42-31**
Pluggable Spring Cage Connection Terminal Blocks **T42-58**
IDC Terminal Blocks **T42-67**
Miniature Circuit Breakers **T42-82**
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42.2 NEMA

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Power Distribution Overview **T42-116**
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42.4 Fuse Blocks and Fuse Holders

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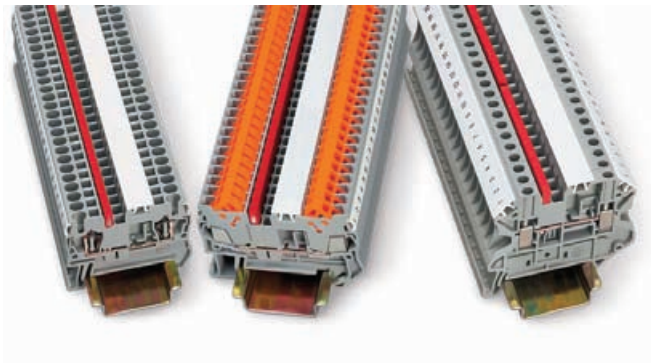
IEC—*XB* Series



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IEC—*XB* Series Overview

Product Description

The ***XB*** Series from Eaton offers a complete terminal block system with a universal range of accessories. Marking, bridging and testing accessories are standardized across the different termination technologies—reducing inventory and logistics costs. The modular terminal block design allows for use of the different terminal block types together or individually, providing the highest degree of flexibility.

Application Description

The metal portion of the ***XB*** Series terminal blocks are made from high-grade, strain-crack and corrosion-proof copper alloys. They won't experience any electrolytic corrosion or rusting, even when moisture is present. The metal surfaces are protected with a lead-free, galvanic nickel or tin plating. The good electrical conductivity permits only a low temperature rise. The Polyamide 6.6 housings allow for operating temperatures up to 257˚F (125˚C) and are certified for inflammability Class V0 in accordance with UL 94.

Features

Global acceptance—The ***XB*** Series terminal blocks are designed to worldwide standards and meet the latest international requirements.

Flexible Plug-in bridge system—All three technologies (screw, spring and IDC) use the same bridge system, allowing for individual potential distribution and quickly bridged connections among the same terminal block type or across different types. The ***XB*** Series terminal blocks have two bridge shafts arranged in one line, making flexible chain bridging and skip bridging between non-adjacent terminal blocks possible. Plug-in bridges are available from 2 to 50 positions. Reducing bridges are also available to connect a larger terminal block to a smaller one.

Large surface area for marking—All ***XB*** Series terminal blocks have generously sized surface areas for labeling. This allows for clearly labeled wiring that results in reduced startup time and simplifies activities such as testing and maintenance. There are provisions for marking individual terminal blocks and end stops, strips of terminal blocks, and large groups of terminal blocks.

Standardized testing system—All test plugs make contact in one of the easily accessible bridge shafts. A 2.3 mm diameter test plug is available for individual measuring wires. Modular test plugs are also available for more advanced testing.

Standards and Certifications

- UL® and cUL® recognized—File No. E67464
- CE approved
- LVD ①
  - EN 60947-7-1
  - EN 60947-7-2
  - EN 60998-2-3
  - EN 60352-4/A1
- ATEX approval (Eex e applications)

Note

① Not all standards apply to all terminal blocks. Contact Eaton for details.

Technical Data and Specifications

IEC—*XB* Series

Description	Specification
Insulation material	Polyamide 6.6
Dielectric strength	600 kV/cm
Creep resistance	600 CTI
Internal insulation resistance	10^{12} ohms cm
Surface resistance	10^{10} ohms
Flammability rating	UL 94 V0
Continuous operating temperature	–40 to 257°F (–40 to 125°C)

Modular Terminal Blocks for Potentially Explosive Environments

The standard modular terminal blocks from Eaton are approved for potentially explosive environments. In addition to the usual approvals, they also have been approved by a testing centre authorized by the EU. No extra approval is required in Intrinsic Safety type applications.

Modular terminal blocks on www.eaton.com fulfill the requirements for "Increased Safety" protection type when installation instructions are followed, and have a type examination certificate in accordance with the Ex directive Ex-RL 94/9/EU.

These test certificates are recognized in all the EU member states and beyond.

The modular terminal blocks are approved for fitting in Zone 1, the Ex environment, as well as Zone 2. Zone 1 fitting is conditional upon terminal blocks being used in connection boxes approved for EEx e type protection and having the equivalent of at least IP54 protection.

The EEx approved modular terminal blocks can be divided into the following groups:

- Screw connection terminal blocks
- Spring-cage connection terminal blocks
- Insulation Displacement Connection terminal blocks
- Mini terminal blocks
- Terminal blocks for specialized applications

More detailed information on modular terminal blocks in the EEx e area is available on the Internet at www.eaton.com for downloading.

Here you will find the following:

- Technical data in accordance with EN 50 019
- Approved accessories
- Important installation instructions and mounting diagrams
- EU type examination certificates
- General information on Ex protection

Identifications

Explosion protected electrical equipment must be marked so that the safety characteristics are identifiable. The identification of electrical equipment is described in the harmonized standard EN 50014, as shown in the following example:

EN 50014 Standard Example

Description	Identification
Manufacturer or trademark	Eaton
Type designation	XBUT25
Abbreviation of explosion protection	EEx e II
Protection type increased safety "e"	e
Equipment group	II
Mark of the testing body	KEMA
Approval number	05ATEX2158 U

Identification in Accordance with ATEX-RL

Electrical equipment that is certified in accordance with the ATEX 100a guideline also receives identification describing the site for use.

ATEX Guideline Example

Description	Identification
Manufacturing data	02.01.2004
Address of the manufacturer	Duncan, SC
Number of the appointed dept.	344
Common marking	Ex symbol
Equipment group	II
Category	2
Use in gas and/or dust atmospheres	G D

Screw Connection

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Multi-Conductor Ground Blocks	**T42-14**
Double Level	**T42-16**
Triple Level Sensor/Actuator	**T42-18**
Fuse Terminal Blocks	**T42-21**
Disconnect and Component Terminal Blocks	**T42-24**
High Current Blocks	**T42-27**
Mini Screw Connection	**T42-29**

42

Screw Connection Terminal Blocks Overview

Product Description

The XBUT Series uses a screw connection system that is accepted worldwide and is suitable in most applications. The maintenance-free connection provides the reliability you expect from Eaton.

Application Description

Designed for applications with high demands, the XBUT Series screw terminal block has a maintenance-free wire connection. re-tightening of the terminal screws is not necessary to ensure proper operation. The screw locking technique prevents the screws from backing out. Copper wires can be clamped without pre-treatment or ferrules can be used for splicing protection. Multiple conductors can be connected in the same clamping mechanism, saving space.

Features

- Maintenance-free connections
- Global acceptance
- Multi-conductor connections
- Flexible Plug-in bridge system
- Large surface area for marking
- Standardized testing system
- Metal parts made of tin-plated copper alloy

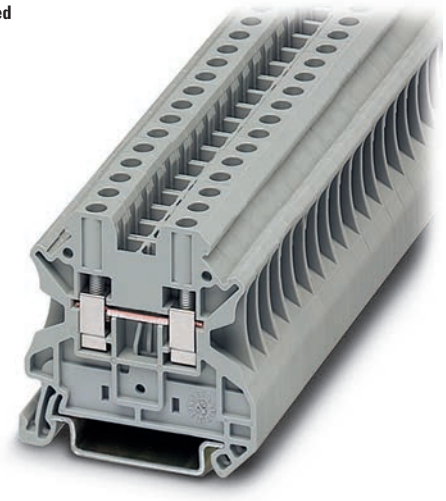
Standards and Certifications

- UL and cUL recognized—File No. E67464
- CE approved
- LVD ①:
  - EN 60947-7-1
  - EN 60947-7-2
  - EN 60998-2-3
  - EN 60352-4/A1
- ATEX approval (Eex e applications)

Note

① Not all standards apply to all terminal blocks. Contact Eaton for details.

Single Level—Through-Feed



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Fuse Terminal Blocks	**T42-21**
Disconnect and Component Terminal Blocks	**T42-24**
High Current Blocks	**T42-27**
Mini Screw Connection	**T42-29**

Single Level—Through-Feed

Product Description

The XBUT terminal blocks feature a compact design and maintenance-free screw connection. There is a double bridge shaft providing maximum flexibility.

The double bridge shaft can accommodate individual chain bridging and step-down bridging from other terminal blocks. There are numerous options for accessories, including those for testing and marking. Terminal blocks are available for wire cross-sections ranging from 12 AWG (2.5 mm^2) to 2/0 AWG (150 mm^2).

Product Selection

XBUT4

Screw Connection Single Level—Through-Feed

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	800/32/26–12	750/22/28/26–12	600/20/26–12	Gray	50	**XBUT25**
					Blue	50	**XBUT25BU**
6.2 mm	10 AWG/4 mm^2	800/41/26–10	750/30/38/26–10	600/30/26–10	Gray	50	**XBUT4**
					Blue	50	**XBUT4BU**
					Orange	50	**XBUT4OR**
					Yellow	50	**XBUT4YE**
					Red	50	**XBUT4RD**
					White	50	**XBUT4WH**
					Black	50	**XBUT4BK**
					Green	50	**XBUT4GN**
8.2 mm	8 AWG/6 mm^2	800/57/24–8	750/40/50/24–8	600/50/24–8	Gray	50	**XBUT6**
					Blue	50	**XBUT6BU**
10.2 mm	6 AWG/10 mm^2	1000/76/20–6	750/54/69/20–6	600/65/20–6	Gray	50	**XBUT10**
					Blue	50	**XBUT10BU**
					Orange	50	**XBUT10OR**
					Yellow	50	**XBUT10YE**
					Red	50	**XBUT10RD**
12 mm	4 AWG/16 mm^2	1000/101/17–4	—	600/85/16–4	Gray	50	**XBUT16**
					Blue	50	**XBUT16BU**
16 mm	0 AWG/35 mm^2	1000/150/15–0	—	600/150/14–1/0	Gray	50	**XBUT35**
					Blue	50	**XBUT35BU**

Note

① EU type—examination certificate number: KEMA 05ATEX2158 U.

Accessories

Screw Connection Single Level—Through-Feed

Description	Colour	Number of Positions	Standard Pack	XBUT25 Catalogue Number	XBUT4 Catalogue Number	XBUT6 Catalogue Number	XBUT10 Catalogue Number	XBUT16 Catalogue Number	XBUT35 Catalogue Number
End cover	Gray	—	10	**XBACUT10**	**XBACUT10**	**XBACUT10**	**XBACUT10**	**XBACUT16**	①
Partition plate	Gray	—	10	**XBATUT10**	**XBATUT10**	**XBATUT10**	**XBATUT10**	—	—
Plug-in bridge— for cross connections in the bridge shaft	Red	2	10	**XBAFBS25**	**XBAFBS26**	**XBAFBS28**	**XBAFBS210**	**XBAFBS212**	**XBAFBS216**
		3	10	**XBAFBS35**	**XBAFBS36**	—	—	—	—
		5	10	**XBAFBS55**	**XBAFBS56**	—	—	—	—
		10	10	**XBAFBS105**	**XBAFBS106**	—	—	—	—
		50	10	**XBAFBS505**	**XBAFBS506**	—	—	—	—
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**	—	—	—
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①	—	—	—	—
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS6**	**XBATSPS8**	—	—	—
Blank marker strip (strip of 10)	White	—	10	**XBMZB5** ②	**XBMZB6** ②	**XBMZB8** ②	**XBMZB10** ②	**XBMZB12** ②	**XBMZB15** ②

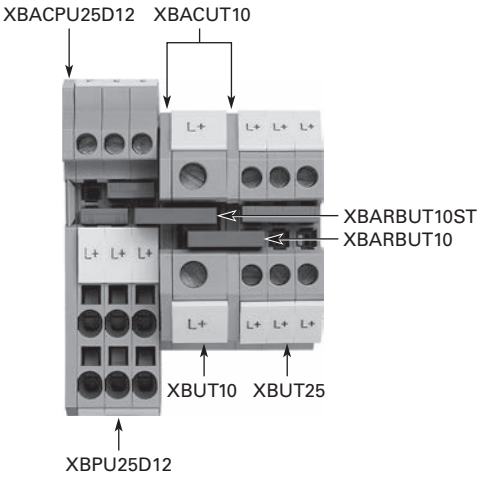
Notes

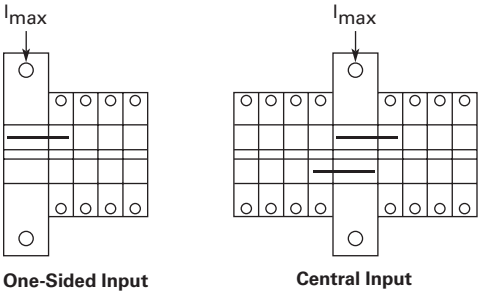
① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

XBUT with Reducing Bridge





Step-Down Bridge with Standard Feed-Through Terminal Blocks

Input Terminal Blocks	Cross-Section	Pick-Off Terminal Blocks	Cross-Section AWG (mm^2)	One-Sided Input I_{max}	Central Input I_{max}	Bridge Catalogue Number
XBUT10	6 AWG (10 mm^2)	XBUT25	12 (2.5)	40	65	**XBARBUT10**
		XBUT4	10 (4)	45	65	**XBARBUT10**
		XBPT25	12 (2.5)	40	65	**XBARBUT10ST**
		XBPT4	10 (4)	45	65	**XBARBUT10ST**
		XBQT15	14 (1.5)	35	65	**XBARBUT10ST**
		XBQT25	12 (2.5)	40	65	**XBARBUT10ST**
XBUT16	4 AWG (16 mm^2)	XBUT25	12 (2.5)	40	80	**XBARBUT16**
		XBUT4	10 (4)	45	90	**XBARBUT16**
		XBPT25	12 (2.5)	40	80	**XBARBUT16ST**
		XBPT4	10 (4)	45	90	**XBARBUT16ST**
		XBQT15	14 (1.5)	35	70	**XBARBUT16ST**
		XBQT25	12 (2.5)	40	80	**XBARBUT16ST**

Technical Data and Specifications

Screw Connection Single Level—Through-Feed

Description	XBUT25	XBUT4	XBUT6	XBUT10	XBUT16	XBUT35
Technical Data in Accordance with IEC						
Maximum load current in A/cross-section in mm^2	32/4	41/6	57/10	76/16	101/25	150/50
Rated surge voltage in kV/contamination class	8/3	8/3	8/3	8/3	8/3	8/3
Surge voltage category/insulating material group	III/II	III/I	III/I	III/I	III/I	III/I
Connection Capacity						
Stranded with ferrule/with ferrule and plastic sleeve in mm^2	0.25–2.5/0.25–2.5	0.25–4/0.25–4	0.25–6/0.25–6	0.5–10/0.5–10	1.0–16/1.0–16	1.5–35/1.5–35
Multi-Conductor Connection (same cross-section)						
Solid/stranded in mm^2	0.14–1.5/0.14–1.5	0.14–1.5/0.14–1.5	0.2–2.5/0.2–2.5	0.5–4/0.5–4	1.0–6/1.0–4	1.5–16/1.5–10
Stranded with ferrules without plastic sleeve in mm^2	0.25–1.5	0.25–1.5	0.25–1.5	0.5–2.5	1.0–4	1.5–10
Stranded with twin ferrule with plastic sleeve in mm^2	0.5–1.5	0.5–2.5	0.5–4	0.5–6	0.75–10	1.5–10
Stripping length in inches (mm)	0.35 (9)	0.35 (9)	0.39 (10)	0.39 (10)	0.39 (10)	0.63 (16)
Thread	M3	M3	M4	M4	M5	M6
Torque in in-lb (Nm)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)	13.3–15.9 (1.5–1.8)	13.3–15.9 (1.5–1.8)	22.1–26.6 (2.5–3)	28.3–32.7 (3.2–3.7)

Dimensions

Approximate Dimensions in Inches (mm)

Screw Connection Single Level—Through-Feed

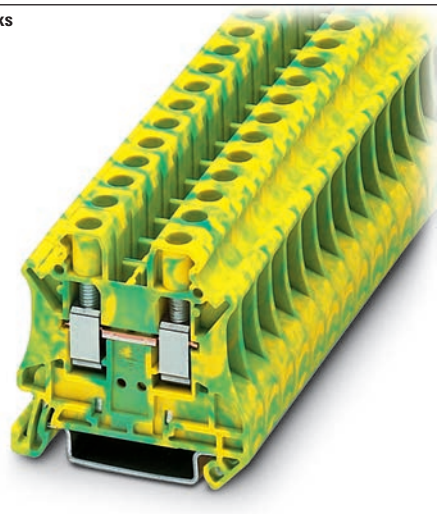
Catalogue Number	Width	Length	Cover Width	Height for— 35 x 7.5 in	35 x 15 in
XBUT25	0.20 (5.2)	1.85 (46.9)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT4	0.24 (6.2)	1.85 (46.9)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT6	0.32 (8.2)	1.85 (46.9)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT10	0.40 (10.2)	1.85 (46.9)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT16	0.47 (12.0)	2.08 (52.8)	0.09 (2.2)	2.16 (54.8)	2.45 (62.3)
XBUT35	0.63 (16.0)	2.37 (60.2)	—	2.59 (65.7)	2.88 (73.2)

Notes

① XBUT35 has an enclosed design. The use of an end cover is not required.

② For information on Printed Marking Tag Options, see **Page T42-98**.

Single Level—Ground Blocks



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Single Level—Ground Blocks

Product Description

The ground terminal blocks have the same shape and pitch as the standard terminal block, in a green-yellow housing. They easily snap onto the DIN rail to make a reliable mechanical and electrical contact that meets all requirements of IEC 60-947-7-2.

Product Selection

XBUT6PE

Screw Connection Single Level—Ground Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	—/—/26–12	—/—/26–12	—/—/26–12	Green/Yellow	50	**XBUT25PE**
6.2 mm	10 AWG/4 mm^2	—/—/26–10	—/—/26–10	—/—/26–10	Green/Yellow	50	**XBUT4PE**
8.2 mm	8 AWG/6 mm^2	—/—/24–8	—/—/24–8	—/—/24–8	Green/Yellow	50	**XBUT6PE**
10.2 mm	6 AWG/10 mm^2	—/76/20–6	—/54/69/20–6	—/—/20–6	Green/Yellow	50	**XBUT10PE**
12 mm	4 AWG/16 mm^2	—/101/15–4	—	—/—/16–4	Green/Yellow	50	**XBUT16PE**
16 mm	2 AWG/35 mm^2	—/125/15–2	—	—/—/14–1/0	Green/Yellow	50	**XBUT35PE**

Note

① EU type—examination certificate number: KEMA 05ATEX2158 U.

Accessories

Screw Connection Single Level—Ground Blocks

Description	Colour	Number of Positions	Standard Pack	XBUT25PE Catalogue Number	XBUT4PE Catalogue Number	XBUT6PE Catalogue Number	XBUT10PE Catalogue Number	XBUT16PE Catalogue Number	XBUT35PE Catalogue Number
End cover	Gray	—	10	**XBACUT10**	**XBACUT10**	**XBACUT10**	**XBACUT10**	**XBACUT16**	③
Partition plate	—	—	10	**XBATUT10**	**XBATUT10**	**XBATUT10**	**XBATUT10**	—	—
Plug-in bridge— for cross connections in the bridge shaft	Red	2	10	**XBAFBS25**	**XBAFBS26**	**XBAFBS28**	**XBAFBS210**	**XBAFBS212**	**XBAFBS212**
		3	10	**XBAFBS35**	**XBAFBS36**	—	—	—	—
		5	10	**XBAFBS55**	**XBAFBS56**	—	—	—	—
		10	10	**XBAFBS105**	**XBAFBS106**	—	—	—	—
		50	10	**XBAFBS505**	**XBAFBS506**	—	—	—	—
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**	—	—	—
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①	—	—	—	—
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS6**	**XBATSPS8**	—	—	—
Blank marker strip (strip of 10)	White	—	10	**XBMZB5** ②	**XBMZB6** ②	**XBMZB8** ②	**XBMZB10** ②	**XBMZB12** ②	**XBMZB15** ②

Technical Data and Specifications

Screw Connection Single Level—Ground Blocks

Description	XBUT25PE	XBUT4PE	XBUT6PE	XBUT10PE	XBUT16PE	XBUT35PE
Technical Data in Accordance with IEC						
Maximum load current in A/cross-section in mm^2	—	—	—	76/16	101/25	125/50
Rated surge voltage in kV/contamination class	8/3	8/3	8/3	8/3	8/3	8/3
Surge voltage category/insulating material group	III/II	III/I	III/I	III/I	III/I	III/I
Connection Capacity						
Stranded with ferrule/with ferrule and plastic sleeve in mm^2	0.25–2.5/0.25–2.5	0.25–4/0.25–4	0.25–6/0.25–6	0.5–10/0.5–10	1.0–16/1.0–16	1.5–35/1.5–35
Multi-Conductor Connection (same cross-section)						
Solid/stranded in mm^2	0.14–1.5/0.14–1.5	0.14–1.5/0.14–1.5	0.2–2.5/0.2–2.5	0.5–4/0.5–4	1.0–6/1.0–4	1.5–16/1.5–10
Stranded with ferrules without plastic sleeve in mm^2	0.25–1.5	0.25–1.5	0.25–1.5	0.5–2.5	1.0–4	1.5–10
Stranded with twin ferrule with plastic sleeve in mm^2	0.5–1.5	0.5–2.5	0.5–4	0.5–6	0.75–10	1.5–10
Stripping length in inches (mm)	0.35 (9)	0.35 (9)	0.39 (10)	0.39 (10)	0.39 (10)	0.63 (16)
Thread	M3	M3	M4	M4	M5	M6
Torque in in-lb (Nm)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)	13.3–15.9 (1.5–1.8)	13.3–15.9 (1.5–1.8)	22.1–26.6 (2.5–3)	28.3–32.7 (3.2–3.7)

Dimensions

Approximate Dimensions in Inches (mm)

Screw Connection Single Level—Ground Blocks

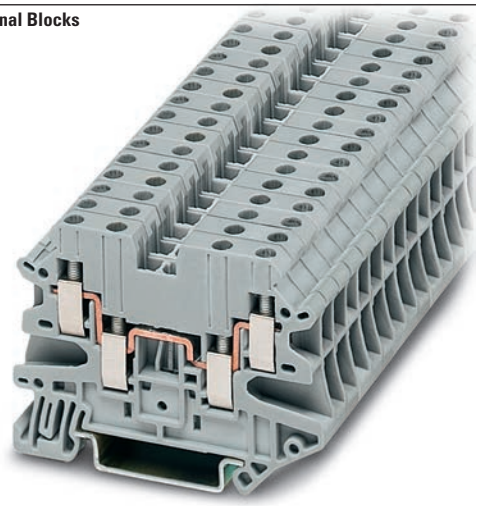
Catalogue Number	Width	Length	Cover Width	Height for— 35 x 7.5 in	35 x 15 in
XBUT25PE	0.20 (5.2)	1.85 (46.9)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT4PE	0.24 (6.2)	1.85 (46.9)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT6PE	0.32 (8.2)	1.85 (46.9)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT10PE	0.40 (10.2)	1.85 (46.9)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT16PE	0.47 (12.0)	2.08 (52.8)	0.09 (2.2)	2.16 (54.8)	2.45 (62.3)
XBUT35PE	0.63 (16.0)	2.37 (60.2)	—	2.59 (65.7)	2.88 (73.2)

Notes

① For ordering information, see **Page T42-105**.
② For information on Printed Marking Tag Options, see **Page T42-98**.
③ XBUT35PE has an enclosed design. The use of an end cover is not required.

For additional accessories, see **Page T42-90**.

Multi-Conductor Terminal Blocks



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Multi-Conductor Terminal Blocks

Product Description

The multi-conductor terminal blocks offer a space-saving alternative to standard feed-through terminal blocks allowing for high density wiring. Often, three connections have to be led to one terminal block. The XBUT…D12 terminal block accomplishes this without any additional terminal blocks or bridging required.

The XBUT…D22 terminal blocks allow four wires to be connected to one potential—and can therefore be used as compact power distributors.

Product Selection

XBUT25D12

Screw Connection Multi-Conductor Terminal Blocks, Three-Wire

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	500/28/26–12	150/20/26–12	Gray	50	**XBUT25D12**
				Blue	50	**XBUT25D12BU**
6.2 mm	10 AWG/4 mm^2	500/39/26–10	150/30/26–10	Gray	50	**XBUT4D12**
				Blue	50	**XBUT4D12BU**

XBUT4D22

Screw Connection Multi-Conductor Terminal Blocks, Four-Wire

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	500/28/26–12	150/20/26–12	Gray	50	**XBUT25D22**
				Blue	50	**XBUT25D22BU**
6.2 mm	10 AWG/4 mm^2	500/39/26–10	150/30/26–10	Gray	50	**XBUT4D22**
				Blue	50	**XBUT4D22BU**

Accessories

Screw Connection Multi-Conductor Terminal Blocks

Description	Colour	Number of Positions	Standard Pack	XBUT25D12 Catalogue Number	XBUT4D12 Catalogue Number	XBUT25D22 Catalogue Number	XBUT4D22 Catalogue Number
End cover	Gray	—	10	**XBACUT4D12**	**XBACUT4D12**	**XBACUT4D22**	**XBACUT4D22**
End cover segment	Gray	—	10	**XBASUT4**	**XBASUT4**	**XBASUT4**	**XBASUT4**
Partition plate	—	—	10	**XBATUTD12**	**XBATUTD12**	**XBATUTD22**	**XBATUTD22**
Plug-in bridge—for cross connections in the bridge shaft	Red	2	10	**XBAFBS25**	**XBAFBS26**	**XBAFBS25**	**XBAFBS26**
		3	10	**XBAFBS35**	**XBAFBS36**	**XBAFBS35**	**XBAFBS36**
		5	10	**XBAFBS55**	**XBAFBS56**	**XBAFBS55**	**XBAFBS56**
		10	10	**XBAFBS105**	**XBAFBS106**	**XBAFBS105**	**XBAFBS106**
		50	10	**XBAFBS505**	**XBAFBS506**	**XBAFBS505**	**XBAFBS506**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS6**	**XBATSPS5**	**XBATSPS6**
Blank marker strip (strip of 10)	White	—	10	**XBMZB5** ②	**XBMZB6** ②	**XBMZB5** ②	**XBMZB6** ②

Technical Data and Specifications

Screw Connection Multi-Conductor Terminal Blocks

Description	XBUT25D12	XBUT4D12	XBUT25D22	XBUT4D22
Technical Data in Accordance with IEC				
Maximum load current in A/cross-section in mm^2	28/4	39/6	28/4	39/6
Rated surge voltage in kV/contamination class	6/3	6/3	6/3	6/3
Surge voltage category/insulating material group	III/I	III/I	III/I	III/I
Connection Capacity				
Stranded with ferrule/with ferrule and plastic sleeve in mm^2	0.25–2.5/0.25–2.5	0.25–4/0.25–4	0.25–2.5/0.25–2.5	0.25–4/0.25–4
Multi-Conductor Connection (same cross-section)				
Solid/stranded in mm^2	0.14–1.0/0.14–1.0	0.14–1.0/0.14–1.5	0.14–1.0/0.14–1.0	0.14–1/0.14–1.5
Stranded with ferrules without plastic sleeve in mm^2	0.25–1.0	0.25–1.5	0.25–1.0	0.25–1.5
Stranded with twin ferrule with plastic sleeve in mm^2	0.5–1.0	0.5–1.0	0.5–1.0	0.5–1.0
Stripping length in inches (mm)	0.31 (8)	0.31 (8)	0.31 (8)	0.31 (8)
Thread	M3	M3	M3	M3
Torque in in-lb (Nm)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)

Dimensions

Approximate Dimensions in Inches (mm)

Screw Connection Multi-Conductor Terminal Blocks

Catalogue Number	Width	Length	Cover Width	Height for— 35 x 7.5 in	35 x 15 in
XBUT25D12	0.20 (5.2)	2.24 (56.8)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT4D12	0.24 (6.2)	2.24 (56.8)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT25D22	0.20 (5.2)	2.52 (64.1)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT4D22	0.24 (6.2)	2.52 (64.1)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)

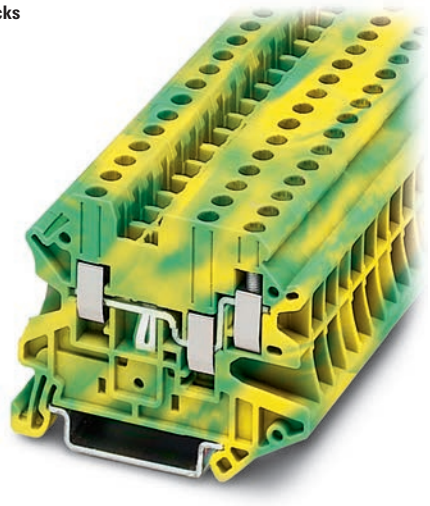
Notes

① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Multi-Conductor Ground Blocks



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Multi-Conductor Ground Blocks

Product Description

The ground terminal blocks have the same shape and pitch as the standard terminal block, in a green-yellow housing. They easily snap onto the DIN rail to make a reliable mechanical and electrical contact that meets all requirements of IEC 60-947-7-2.

Product Selection

XBUT4D12PE

Screw Connection Multi-Conductor Ground Blocks—Three-Wire

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	—/—/26–12	—/—/26–12	Green/Yellow	50	**XBUT25D12PE**
6.2 mm	10 AWG/4 mm^2	—/—/26–10	—/—/26–10	Green/Yellow	50	**XBUT4D12PE**

XBUT25D22PE

Screw Connection Multi-Conductor Ground Blocks—Four-Wire

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	—/—/26–12	—/—/26–12	Green/Yellow	50	**XBUT25D22PE**
6.2 mm	10 AWG/4 mm^2	—/—/26–10	—/—/26–10	Green/Yellow	50	**XBUT4D22PE**

Accessories

Screw Connection Multi-Conductor Ground Blocks

Description	Colour	Number of Positions	Standard Pack	XBUT25D12PE Catalogue Number	XBUT4D12PE Catalogue Number	XBUT25D22PE Catalogue Number	XBUT4D22PE Catalogue Number
End cover	Gray	—	10	**XBACUT4D12**	**XBACUT4D12**	**XBACUT4D22**	**XBACUT4D22**
End cover segment	Gray	—	10	**XBASUT4**	**XBASUT4**	**XBASUT4**	**XBASUT4**
Partition plate	—	—	10	**XBATUTD12**	**XBATUTD12**	**XBATUTD22**	**XBATUTD22**
Plug-in bridge—for cross connections in the bridge shaft	Red	2	10	**XBAFBS25**	**XBAFBS26**	**XBAFBS25**	**XBAFBS26**
		3	10	**XBAFBS35**	**XBAFBS36**	**XBAFBS35**	**XBAFBS36**
		5	10	**XBAFBS55**	**XBAFBS56**	**XBAFBS55**	**XBAFBS56**
		10	10	**XBAFBS105**	**XBAFBS106**	**XBAFBS105**	**XBAFBS106**
		50	10	**XBAFBS505**	**XBAFBS506**	**XBAFBS505**	**XBAFBS506**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS6**	**XBATSPS5**	**XBATSPS6**
Blank marker strip (strip of 10)	White	—	10	**XBMZB5** ②	**XBMZB6** ②	**XBMZB5** ②	**XBMZB6** ②

Technical Data and Specifications

Screw Connection Multi-Conductor Ground Blocks

Description	XBUT25D12PE	XBUT4D12PE	XBUT25D22PE	XBUT4D22PE
Technical Data in Accordance with IEC				
Maximum load current in A/cross-section in mm^2	—	—	—	—
Rated surge voltage in kV/contamination class	6/3	6/3	6/3	6/3
Surge voltage category/insulating material group	III/I	III/I	III/I	III/I
Connection Capacity				
Stranded with ferrule/with ferrule and plastic sleeve in mm^2	0.25–2.5/0.25–2.5	0.25–4/0.25–4	0.25–2.5/0.25–2.5	0.25–4/0.25–4
Multi-Conductor Connection (same cross-section)				
Solid/stranded in mm^2	0.14–1.0/0.14–1.0	0.14–1.0/0.14–1.5	0.14–1.0/0.14–1.0	0.14–1.0/0.14–1.5
Stranded with ferrules without plastic sleeve in mm^2	0.25–1.0	0.25–1.5	0.25–1.0	0.25–1.5
Stranded with twin ferrule with plastic sleeve in mm^2	0.5–1.0	0.5–1.0	0.5–1	0.5–1
Stripping length in inches (mm)	0.31 (8)	0.31 (8)	0.31 (8)	0.31 (8)
Thread	M3	M3	M3	M3
Torque in in-lb (Nm)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)

Dimensions

Approximate Dimensions in Inches (mm)

Screw Connection Multi-Connector Ground Blocks

Catalogue Number	Width	Length	Cover Width	Height for— 35 x 7.5 in	35 x 15 in
XBUT25D12PE	0.20 (5.2)	2.24 (56.8)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT4D12PE	0.20 (5.2)	2.24 (56.8)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT25D22PE	0.20 (5.2)	2.52 (64.1)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBUT4D22PE	0.24 (6.2)	2.52 (64.1)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)

Notes

① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Double Level

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Double Level

Product Description

The potentials of the XBUTT double-level terminal blocks are on two levels to reduce space requirements by 50% over single-level terminal blocks. The XBUTT Series can be bridged on both levels for maximum flexibility. Marking can be provided at each termination point.

Product Selection

XBUTT4

Screw Connection Double Level Blocks, XBUTT4

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Screw Connection Double Level Blocks						
6.2 mm	10 AWG/4 mm^2	800/36/26–10	300/30/26–10	Gray	50	**XBUTT4**
				Blue	50	**XBUTT4BU**
				Red	50	**XBUTT4RD**
Screw Connection Double Level Block (terminal block with potential distribution between the levels)						
6.2 mm	10 AWG/4 mm^2	800/36/26–10	300/30/26–10	Gray	50	**XBUTT4PV**

XBUTT4PE

Screw Connection Double Level Ground Block, XBUTT4PE

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Screw Connection Double Level—Ground Blocks						
6.2 mm	10 AWG/4 mm^2	—/—/26–10	—/—/26–10	Green/Yellow	50	**XBUTT4PE**

Accessories

Screw Connection Terminal/Ground Blocks, Double Level

Description	Colour	Number of Positions	Standard Pack	XBUTT4 Catalogue Number	XBUTT4PE Catalogue Number
End cover	Gray	—	10	**XBACUTT4**	**XBACUTT4**
End cover segment	Gray	—	10	**XBDPUTT4**	**XBDPUTT4**
Partition plate	—	—	10	**XBATUTT4**	**XBATUTT4**
Plug-in bridge—for cross connections in the bridge shaft	Red	2	10	**XBAFBS26**	**XBAFBS26**
		3	10	**XBAFBS36**	**XBAFBS36**
		5	10	**XBAFBS56**	**XBAFBS56**
		10	10	**XBAFBS106**	**XBAFBS106**
		50	10	**XBAFBS506**	**XBAFBS506**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①
Modular test plug	—	—	10	**XBATSPS6**	**XBATSPS6**
Blank marker strip (strip of 10)	White	—	10	**XBMZB6** ②	**XBMZB6** ②

Technical Data and Specifications

Screw Connection Double Level

Description	XBUTT4	XBUTT4PE
Technical Data in Accordance with IEC		
Maximum load current in A/cross-section in mm^2	30/6	—/6
Rated surge voltage in kV/contamination class	8/3	6/3
Surge voltage category/insulating material group	III/I	III/I
Connection Capacity		
Stranded with ferrule/with ferrule and plastic sleeve in mm^2	0.25–4/0.25–4	0.25–4/0.25–4
Multi-Conductor Connection (same cross-section)		
Solid/stranded in mm^2	0.14–1.5/0.14–1.5	0.14–1.5/0.14–1.5
Stranded with ferrules without plastic sleeve in mm^2	0.25–1.5	0.25–1.5
Stranded with twin ferrule with plastic sleeve in mm^2	0.5–2.5	0.5–2.5
Stripping length in inches (mm)	0.35 (9)	0.35 (9)
Thread	M3	M3
Torque in in-lb (Nm)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)

Dimensions

Approximate Dimensions in Inches (mm)

Screw Connection Double Level

Catalogue Number	Width	Length	Cover Width	Height for— 35 x 7.5 in	35 x 15 in
XBUTT4	0.24 (6.2)	2.75 (69.9)	0.09 (2.2)	2.56 (65.0)	2.85 (72.5)
XBUTT4PE	0.24 (6.2)	2.75 (69.9)	0.09 (2.2)	2.56 (65.0)	2.85 (72.5)

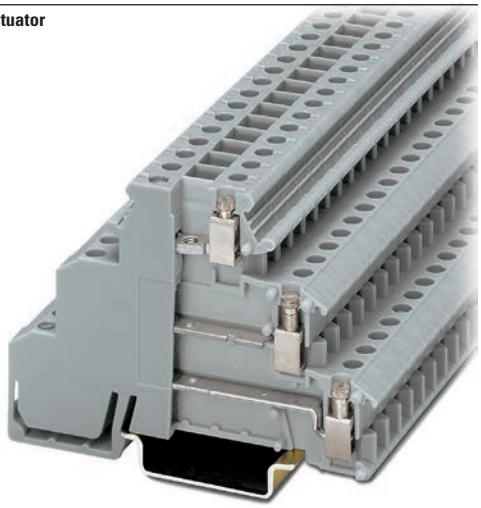
Notes

① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Triple Level Sensor/Actuator



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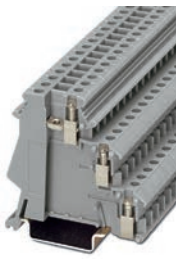
Triple Level Sensor/Actuator

Product Description

The XB3UK sensor terminal blocks reduce installation time by terminating three-wire devices such as photoelectric and proximity sensors in a single terminal block. The XB3UK Series accommodates a design where the positive and negative connections are grouped so that only the signal lines and one pair of wires for the power supply need to be wired between the terminal box and the control. The upper level accommodates the markable feed-through terminals for the signal line. The two lower terminal points can be bridged. These are used for the sensor power supply. The positive and negative potential can be fed into the bridges with XB3UKF25. The first sensor can also be connected to this three-wire feed-through block.

Product Selection

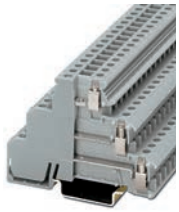
XB3UKA25



Screw Connection Triple Level Sensor/Actuator

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	IEC 60 947-7-1 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Screw Connection Triple Level							
6.2 mm	14 AWG/2.5 mm^2	250/26/24–12	—	300/15/30–14	Gray	50	**XB3UKA25**
Screw Connection Triple Level with Red LED, 15–30 Vdc, 2.5–7.5A							
6.2 mm	14 AWG/2.5 mm^2	250/26/24–12	—	300/15/30–14	Gray	50	**XB3UKA25L24**

XB3UKF25



Screw Connection Triple Level Sensor/Actuator

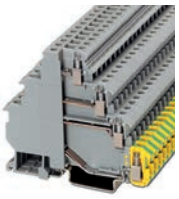
Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	IEC 60 947-7-1 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Screw Connection Triple Level							
6.2 mm	14 AWG/2.5 mm^2	—	250/30/24–12	300/15/30–14	Gray	50	**XB3UKF25**

XB3UKA25PE

Screw Connection Triple Level Sensor/Actuator

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Screw Connection Triple Level						
6.2 mm	14 AWG/2.5 mm^2	250/26/24–12	300/15/30–14	Gray	50	**XB3UKA25PE**
Screw Connection Triple Level with Red LED, 15–30 Vdc, 2.5–7.5A						
6.2 mm	14 AWG/2.5 mm^2	250/26/24–12	300/15/30–14	Gray	50	**XB3UKA25PEL24**

XB3UKF25PE



Screw Connection Triple Level Sensor/Actuator

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Screw Connection Triple Level						
6.2 mm	14 AWG/2.5 mm^2	—	300/15/30–14	Gray	50	**XB3UKF25PE**

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Accessories

Screw Connection Triple Level Sensor/Actuator

Description	Colour	Number of Positions	Standard Pack	XB3UKA25 Catalogue Number	XB3UKF25 Catalogue Number	XB3UKA25PE Catalogue Number	XB3UKF25PE Catalogue Number
Insertion bridge	Blue	80	1	**XBAEB80DIKB**	**XBAEB80DIKB**	**XBAEB80DIKB**	**XBAEB80DIKB**
	Red	80	1	**XBAEB80DIKR**	**XBAEB80DIKR**	**XBAEB80DIKR**	**XBAEB80DIKR**
Insertion bridge	Blue	10	10	**XBAEB10DIKB**	**XBAEB10DIKB**	**XBAEB10DIKB**	**XBAEB10DIKB**
	Red	10	10	**XBAEB10DIKR**	**XBAEB10DIKR**	**XBAEB10DIKR**	**XBAEB10DIKR**
Blank marker strip (strip of 10)	White	—	10	**XBMZB6** ①	**XBMZB6** ②	**XBMZB6** ②	**XBMZB6** ②

Notes

① For information on Printed Marking Tag Options, see **Page T42-98**.

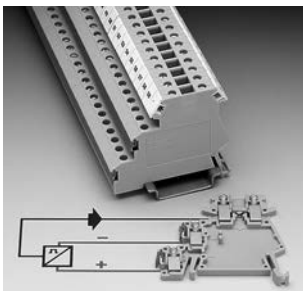
For additional accessories, see **Page T42-90**.

Technical Data and Specifications

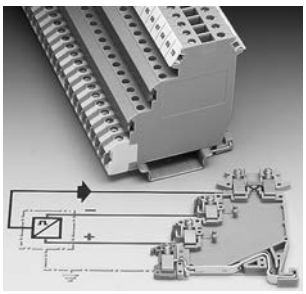
Screw Connection Triple Level Sensor/Actuator

Description	XB3UKA25	XB3UKF25	XB3UKA25PE	XB3UKF25PE
Technical Data in Accordance with IEC				
Maximum load current in A/cross-section in mm^2	26/2.5	30/4	26/2.5	26/2.5
Maximum cross section with insertion bridge solid/stranded in mm^2	4/2.5	4/2.5	4/2.5	4/2.5
Rated surge voltage in kV/contamination class	4/3	4/3	4/3	6/3
Surge voltage category/insulating material group	III/I	III/I	III/I	III/I
Connection Capacity				
Stranded with ferrule/with ferrule and plastic sleeve in mm^2	0.25–2.5/0.25–2.5	0.25–2.5/0.25–2.5	0.25–2.5/0.25–2.5	0.25–2.5/0.25–2.5
Multi-Conductor Connection (same cross-section)				
Solid/stranded in mm^2	0.2–1.0/0.2–1.0	0.2–1.0/0.2–1.0	0.2–1.0/0.2–1.0	0.2–1.0/0.2–1.0
Stranded with ferrules without plastic sleeve in mm^2	0.25–1.0	0.25–1.0	0.25–1.0	0.25–1.0
Stranded with twin ferrule with plastic sleeve in mm^2	0.5–1.0	0.5–1.0	0.5–1.0	0.5–1.0
Stripping length in inches (mm)	0.31 (8)	0.31 (8)	0.31 (8)	0.31 (8)
Thread	M3	M3	M3	M3
Torque in in-lb (Nm)	4.4–5.3 (0.5–0.6)	4.4–5.3 (0.5–0.6)	4.4–5.3 (0.5–0.6)	4.4–5.3 (0.5–0.6)

Wiring for Three-Level Sensor Terminal Blocks



Wiring for Four-Level Sensor Terminal Blocks



Dimensions

Approximate Dimensions in Inches (mm)

Screw Connection Triple Level Sensor/Actuator

Catalogue Number	Width	Length	Height for— 35 x 7.5 in	35 x 15 in
XB3UKA25	0.24 (6.2)	2.17 (55.0)	2.15 (54.5)	2.44 (62.0)
XB3UKF25	0.24 (6.2)	2.85 (72.5)	2.15 (54.5)	2.44 (62.0)
XB3UKA25PE	0.24 (6.2)	2.46 (62.5)	2.76 (70.0)	3.05 (77.5)
XB3UKF25PE	0.24 (6.2)	3.25 (82.5)	2.76 (70.0)	3.05 (77.5)

Fuse Terminal Blocks

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Fuse Terminal Blocks

Product Description

The UT Series fuse terminal blocks come in two varieties—lever type and cap. Each performs two functions. They act as a fuse carrier for most common North American and European fuses and they allow for potential distribution with the double bridge shaft. The terminal blocks therefore allow bypass routing of two separate potentials next to each other. This has the advantage of a time-saving potential infeed and a correct, functional configuration of the terminal strip. For signaling a triggered fuse, fuse terminal blocks with light indicators are available (for both AC and DC voltage).

Product Selection

XBUT4FBE

Screw Connection Fuse Terminal Blocks, for 5 x 20 mm Fuse

Terminal Width	Maximum Wire Size	IEC 60 947-7-3 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Fuse Terminal Blocks						
6.2 mm	10 AWG/4 mm^2	①/6.3/26–10	600/6.3/26–10	Black	50	**XBUT4FBE**
Fuse Terminal Blocks with LED 12–30V, 1–2.5 mA						
6.2 mm	10 AWG/4 mm^2	①/6.3/26–10	600/6.3/26–10	Black	50	**XBUT4FBEL24**
Fuse Terminal Blocks with LED 30–60V, 0.8–2.0 mA						
6.2 mm	10 AWG/4 mm^2	①/6.3/26–10	600/6.3/26–10	Black	50	**XBUT4FBEL60**
Fuse Terminal Blocks with LED 110–250V, 0.5–2.5 mA						
6.2 mm	10 AWG/4 mm^2	①/6.3/26–10	600/6.3/26–10	Black	50	**XBUT4FBEL250**

Note

① As disconnect terminal block 400V, as fuse terminal block 250V.

XBUT6FBN

Screw Connection Fuse Terminal Blocks for 6.3 x 32 mm (1/4 in x 1–1/4 in) Fuse

Terminal Width	Maximum Wire Size	IEC 60 947-7-3 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Fuse Terminal Blocks						
8.2 mm	8 AWG/6 mm^2	①/10/24–8	400/10/24–8	Black	50	**XBUT6FBN**
Fuse Terminal Blocks with LED 12–30V, 1–2.5 mA						
8.2 mm	8 AWG/6 mm^2	①/10/24–8	400/10/24–8	Black	50	**XBUT6FBNL24**
Fuse Terminal Blocks with LED 30–60V, 0.8–2.0 mA						
8.2 mm	8 AWG/6 mm^2	①/10/24–8	400/10/24–8	Black	50	**XBUT6FBNL60**
Fuse Terminal Blocks with LED 110–250V, 0.5–2.5 mA						
8.2 mm	8 AWG/6 mm^2	①/10/24–8	400/10/24–8	Black	50	**XBUT6FBNL250**

XBUK10FBCE

Screw Connection Fuse Terminal Blocks, XBUK10FBC

Terminal Width	Maximum Wire Size	IEC 60 947-7-3 with Fuse in V/A/AWG	IEC 60 947-7-3 as Disconnected t.b. in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Fuse Terminal Blocks for 5 x 20 mm fuse							
12 mm	6 AWG/16 mm^2	①/①/20–4	800/10/20–6	300/20/22–6	Black	50	**XBUK10FBCE**
Fuse Terminal Blocks for 6.3 x 32 mm (1/4 in x 1–1/4 in) fuse							
12 mm	6 AWG/16 mm^2	①/①/20–4	800/10/20–6	300/20/22–6	Black	50	**XBUK10FBCN**
Fuse Terminal Blocks with Light Indicator 15–30V, 1–2.5 mA, 5 x 20 mm							
12 mm	6 AWG/16 mm^2	①/①/20–4	800/10/20–6	300/20/22–6	Black	50	**XBUK10FBCEL24**
Fuse Terminal Blocks with Light Indicator 15–30V, 1–2.5 mA, 6.3 x 32 mm							
12 mm	6 AWG/16 mm^2	①/①/20–4	800/10/20–6	300/20/22–6	Black	50	**XBUK10FBCNL24**
Fuse Terminal Blocks with Light Indicator 110–250V, 0.5–1.1A, 5 x 20 mm							
12 mm	6 AWG/16 mm^2	①/①/20–4	800/10/20–6	300/20/22–6	Black	50	**XBUK10FBCEL250**
Fuse Terminal Blocks with Light Indicator 110–250V, 0.5–1.1A, 6.3 x 32 mm							
12 mm	6 AWG/16 mm^2	①/①/20–4	800/10/20–6	300/20/22–6	Black	50	**XBUK10FBCNL250**

Cartridge Fuse Inserts 5 x 20 mm Based on DIN EN 60 947-7-3: 2003-7

Terminal Blocks	U (V)	Overload Protection		Short-Circuit Protection Only		
		Individual	Interconnected	Individual	Interconnected	$I_{max.}$ (A)
XBUT4FBE	250	1.6W	1.6W	4W	2.5W	6.3

Notes

Max. power dissipation at 73.4°F (23°C) based on DIN EN 60 947-7-3: 2003-7.

When selecting cartridge fuse inserts, please ensure that the maximum power dissipation specified above is not exceeded. Details can be obtained from the fuse suppliers.

If the fuse is defective, the downstream circuit is not off load.

① As disconnect terminal block 500V, as fuse terminal block 400V.

Accessories

Screw Connection Fuse Terminal Blocks

Description	Colour	Number of Positions	Standard Pack	XBUT4FBE Catalogue Number	XBUT6FBN Catalogue Number	XBUK10FBCE Catalogue Number
End cover	—	—	—	①	①	—
Plug-in bridge—for cross connections in the bridge shaft	Red	2	10	**XBAFBS26**	**XBAFBS28**	—
		3	10	**XBAFBS36**	**XBAFBS38**	—
		5	10	**XBAFBS56**	**XBAFBS58**	—
		10	10	**XBAFBS106**	**XBAFBS108**	—
		50	10	**XBAFBS506**	—	—
Blank marker strip centre labeling (strip of 10)	White	—	—	**XBMZB5** ②	**XBMZB6** ②	—
Blank marker strip external labeling (strip of 10)	White	—	—	**XBMZB6** ②	**XBMZB8** ②	—
Fixed bridge	—	2	10	—	—	**XBAFBI212**
Screw heads with insulating collar	—	10	10	—	—	**XBAFBI1012**
Blank marker strip (strip of 10)	White	—	10	—	—	**XBMZB6** ②

Technical Data and Specifications

Screw Connection Fuse Terminal Blocks

Description	XBUT4FBE	XBUT4FBN	XBUK10FBCE
Technical Data in Accordance with IEC			
Fuse type/dimensions in (mm)	—	—	G/5 x 20/5 x 25/6.3 x 32
Maximum cross section with insertion bridge solid/stranded in mm^2	6.3/6	10/10	10/10
Rated surge voltage in kV/contamination class	4/3	4/3	4/3
Surge voltage category/insulating material group	III/II	III/II	III/I
Connection Capacity			
Stranded with ferrule/with ferrule and plastic sleeve in mm^2	0.25–4/0.25–4	0.25–6/0.25–6	0.5–10/0.5–10
Multi-Conductor Connection (same cross-section)			
Solid/stranded in mm^2	0.14–1.5/0.14–1.5	—	0.5–4/0.5–4
Stranded with ferrules without plastic sleeve in mm^2	0.25–1.5	—	0.5–4
Stranded with twin ferrule with plastic sleeve in mm^2	0.5–2.5	0.5–4	0.5–10
Stripping length in inches (mm)	0.35 (9)	0.39 (10)	0.43 (11)
Thread	M3	M4	M4
Torque in in-lb (Nm)	5.3–7.1 (0.6–0.8)	13.3–15.9 (1.5–1.8)	13.3–15.9 (1.5–1.8)

Dimensions

Approximate Dimensions in Inches (mm)

Screw Connection Fuse Terminal Blocks

Catalogue Number	Width	Length	Height for— 35 x 7.5 in	35 x 15 in	32 in
XBUT4FBE	0.24 (6.2)	2.24 (56.8)	2.87 (73.0)	3.17 (80.5)	—
XBUT4FBN	0.32 (8.2)	2.24 (56.8)	2.87 (73.0)	3.17 (80.5)	—
XBUK10FBCE	0.47 (12.0)	2.44 (62.0)	2.32 (59.0)	2.62 (66.5)	2.52 (64.0)

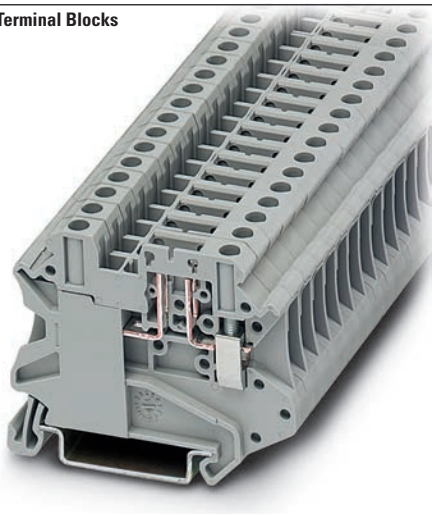
Notes

① XBUT4FBE and XBUT6FBN have an enclosed design. The use of an end cover is not required.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Disconnect and Component Terminal Blocks



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Disconnect and Component Terminal Blocks

Product Description

The ***XB*** Series includes application specific terminal blocks like the XBUT4TG disconnect block that accommodates disconnect component and fuse terminal blocks. It can also be bridged with standard terminal blocks via the double bridge shaft. The component plug XBPCO serves to accommodate different components such as resistors or capacitors.

5 x 20 mm fuses can be inserted into the fuse plug XBPFU, also available with light indication. The XBUT4MT knife disconnect terminal block features a compact design and a high current carrying capacity of 16A. Versions with test socket screws provide a test option for 2.3 mm diameter test plugs on both sides of the disconnect point.

Product Selection

XBUT4TG Disconnect

Screw Connection Disconnect and Component Terminal Blocks

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	UL-cUL Ratings for Disconnect in V/A/AWG	UL-cUL Ratings for Disconnect with Test Sockets in V/A/AWG	Colour	Standard Pack	Catalogue Number
Screw Connection Disconnect							
6.2 mm	10 AWG/4 mm^2	500/16/26–10	600/16/26–10	300/16/26–10	Gray	50	**XBUT4TG**
Screw Connection Disconnect with Test Sockets							
6.2 mm	10 AWG/4 mm^2	500/16/26–10	600/16/26–10	300/16/26–10	Gray	50	**XBUT4TGP**
Component Plug							
6.2 mm	10 AWG/4 mm^2	500/16/26–10	600/16/26–10	300/16/26–10	Gray	10	**XBPCO**
Fuse Plug							
6.2 mm	10 AWG/4 mm^2	500/16/26–10	600/16/26–10	300/16/26–10	Black	10	**XBPFU**
Fuse Plug with Light Indicator for 12–30V, 1–2.5 mA							
6.2 mm	10 AWG/4 mm^2	500/16/26–10	600/16/26–10	300/16/26–10	Black	10	**XBPFUL24**
Fuse Plug with Light Indicator for 110–250V, 0.5–2.5 mA							
6.2 mm	10 AWG/4 mm^2	500/16/26–10	600/16/26–10	300/16/26–10	Black	10	**XBPFUL250**
Screw Connection Disconnect Knife Disconnect							
6.2 mm	10 AWG/4 mm^2	500/16/26–10	600/16/26–10	300/16/26–10	Gray	50	**XBUT4MT**
Screw Connection Disconnect Knife Disconnect with Test Sockets							
6.2 mm	10 AWG/4 mm^2	500/16/26–10	600/16/26–10	300/16/26–10	Gray	50	**XBUT4MTP**
Screw Connection Terminal Blocks with Integrated Diodes							
6.2 mm	12 AWG/4 mm^2	500/32/24–10	600/30/26–10	—	Gray	50	**XBUKK4DIO**

XBTKT25 Thermal Electric Voltage

Screw Connection Thermoelectric Voltage Terminal Blocks

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Copper/Constantan (CU/CUNI44)						
10.4 mm	12 AWG/2.5 mm^2	400/—/24–12	300/10/28–12	Gray	50	**XBTKT25 (Type T)**
Iron/Constantan (FE/CUNI44)						
10.4 mm	12 AWG/2.5 mm^2	400/—/24–12	300/10/28–12	Gray	50	**XBTKJ25 (Type J)**
Nickel-Chrome/Constantan (NICR/CUNI44)						
10.4 mm	12 AWG/2.5 mm^2	400/—/24–12	300/10/28–12	Gray	50	**XBTKE25 (Type E)**
Nickel-Chrome/Nickel (NICRNI)						
10.4 mm	12 AWG/2.5 mm^2	400/—/24–12	300/10/28–12	Gray	50	**XBTKK25 (Type K)**
Copper/Copper Nickel (E-CU/A-CU)						
10.4 mm	12 AWG/2.5 mm^2	400/—/24–12	300/10/28–12	Gray	50	**XBTKR25 (Type R)**

Accessories

Screw Connection Disconnect and Component Terminal Blocks

Description	Colour	Number of Positions	Standard Pack	XBUT4TG Catalogue Number	XBUT4MT Catalogue Number	XBUKK4DI0 Catalogue Number	XBTKT25 Catalogue Number
Plug-in bridge—for cross connections in the bridge shaft	Red	2	10	**XBAFBS26**	**XBAFBS26**	—	—
		3	10	**XBAFBS36**	**XBAFBS36**	—	—
		5	10	**XBAFBS56**	**XBAFBS56**	—	—
		10	10	**XBAFBS106**	**XBAFBS106**	—	—
		50	10	**XBAFBS506**	**XBAFBS506**	—	—
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	—	—
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①	—	—
Modular test plug	—	—	10	**XBATSDPPS6**	**XBATSDPPS6**	—	—
Blank marker strip (strip of 10)	White	—	10	**XBMZB6** ②	**XBMZB6** ②	**XBMZB6** ②	**XBMZB10** ②
End cover	Gray	—	10	—	—	**XBACUKK35**	**XBACTK4**
Spacer cover	Gray	—	10	—	—	**XBADGUKK35**	—
Spacer plate	—	—	10	—	—	**XBADPUKK35**	—
Partition plate	—	—	—	—	—	—	**XBATTK4**
Fixed bridge	—	10	10	—	—	**XBAFBI106**	—

Technical Data and Specifications

Screw Connection Disconnect and Component Terminal Blocks

Description	XBUT4TG	XBUT4MT	XBUKK4DI0	XBTK
Technical Data in Accordance with IEC				
Maximum load current in A/cross-section in mm^2	16/6	16/6	32/4	—
Rated surge voltage in kV/contamination class	6/3	6/3	6/3	—
Surge voltage category/insulating material group	III/I	III/I	III/I	—
Connection Capacity				
Stranded with ferrule/with ferrule and plastic sleeve in mm^2	0.25–4/0.25–4	0.25–4/0.25–4	0.25–4/0.25–2.5	—
Multi-Conductor Connection (same cross-section)				
Solid/stranded in mm^2	0.14–1.5/0.14–1.5	0.14–1.5/0.14–1.5	0.2–1.5/0.2–1.5	—
Stranded with ferrules without plastic sleeve in mm^2	0.25–1.5	0.25–1.5	0.25–1.5	—
Stranded with twin ferrule with plastic sleeve in mm^2	0.5–2.5	0.5–2.5	0.5–1.5	—
Stripping length in inches (mm)	0.35 (9)	0.35 (9)	0.31 (8)	0.28 (7)
Thread	M3	M3	M3	M3
Torque in in-lb (Nm)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)

Dimensions

Approximate Dimensions in Inches (mm)

Screw Connection Disconnect and Component Terminal Blocks

Catalogue Number	Width	Length	Cover Width	Height for— 35 x 7.5 in	35 x 15 in	32 in
XBUT4TG	0.24 (6.2)	2.24 (56.8)	—	1.87 (47.5)	2.17 (55.0)	—
XBUT4MT	0.24 (6.2)	2.24 (56.8)	—	1.87 (47.5)	2.17 (55.0)	—
XBUKK4DI0	0.24 (6.2)	2.20 (56.0)	0.10 (2.5)	2.44 (62.0)	2.74 (69.5)	2.64 (67.0)
XBTK	0.20 (5.2)	1.81 (46.0)	0.04 (1.0)	1.57 (40.0)	1.87 (47.5)	1.77 (45.0)

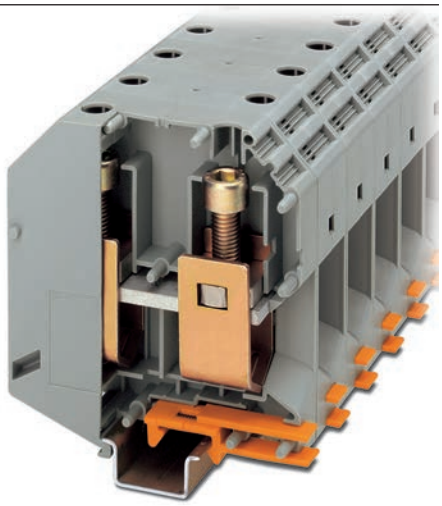
Notes

① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

High Current Blocks



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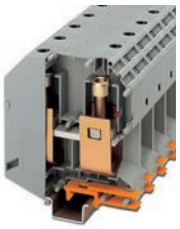
High Current Blocks

Product Description

Eaton's XBUK high current terminal blocks offer a reliable connection via the superior construction that includes three-point centering of the wire in the prism-shaped sleeve base, a fluted contact surface for low contact resistance, and screws secured with spring-loaded elements. The terminal blocks have an enclosed housing made from polyamide 6.6. Green-yellow ground terminal blocks are also available.

Product Selection

XBUK150



Screw Connection High Current Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
20.0 mm	1/0/50 mm^2	1000/150/1/0	750/135/1/0	600/150/1/0	Gray	10	**XBUK50**
					Blue	10	**XBUK50BU**
31.0 mm	300 kcmil/150 mm^2	1000/309/2–300	726/265/2–300	600/285/ 2 AWG–300 kcmil	Gray	10	**XBUK150**

XBUK95PE

Screw Connection High Current Ground Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
25.0 mm	000 AWG/95 mm^2	—/232/4–000	—/—/4–000	—/—/2–4/0	Green/Yellow	10	**XBUK95PE**

Note

① U type—examination certificate number: KEMA 05ATEX2170 U (XBUK50), KEMA 05ATEX2171 U (XBUK150).

Accessories

Screw Connection High Current Blocks

Description	Colour	Number of Positions	Standard Pack	XBUK50 Catalogue Number	XBUK150 Catalogue Number	XBUK95PE Catalogue Number
Fixed bridge, screw heads with insulating colour	—	2	10	**XBAFBI220**	—	—
Insertion bridge	—	2	10	—	**XBAEB231**	—
Blank marker strip external labeling (strip of 10)	White	—	10	**XBMZB10** ①	**XBMZB10** ①	**XBMZB10** ①

Technical Data and Specifications

Screw Connection High Current Blocks

Description	XBUK50	XBUK150	XBUK95PE
Technical Data in Accordance with IEC			
Maximum load current in A/cross-section in mm^2	150/50	309/150	232/95
Maximum cross-section with insertion bridge solid/stranded in mm^2	—/—	150/120	—/—
Rated surge voltage in kV/contamination class	8/3	8/3	8/3
Surge voltage category/insulating material group	III/I	III/I	III/I
Connection Capacity			
Stranded with ferrule/with ferrule and plastic sleeve in mm^2	25–50/25–50	50–150/50–150	35–95/35–95
Multi-Conductor Connection (same cross-section)			
Solid/stranded in mm^2	10–16/10–16	25–50/35–50	25–35/25–35
Stranded with ferrules without plastic sleeve in mm^2	10–16	25–50	16–35
Stripping length in inches (mm)	0.94 (24)	1.57 (40)	1.18 (30)
Thread	M6	M10	M8
Terminal point—thread/torque in in-lb (Nm)	53–71 (6–8)	221–267 (25–30)	133–177 (15–20)
Fastening—thread/torque in in-lb (Nm)	53–71 (6–8)	221–267 (25–30)	133–177 (15–20)

Dimensions

Approximate Dimensions in Inches (mm)

Screw Connection High Current Blocks

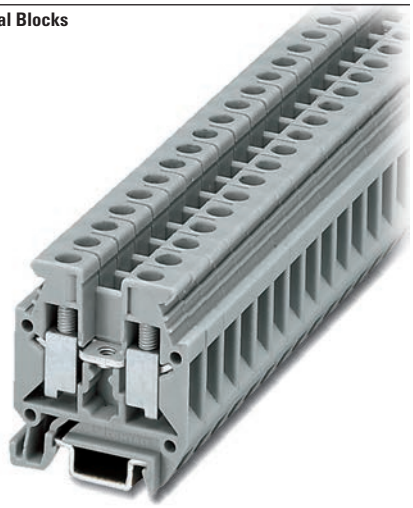
Catalogue Number	Width	Length	Height for— 35 x 7.5 in	35 x 15 in	32 in
XBUK50	0.79 (20.0)	2.78 (70.5)	3.29 (83.5)	3.21 (81.5)	—
XBUK150	1.22 (31.0)	3.94 (100.0)	4.67 (118.5)	4.57 (116.0)	—
XBUK95PE	0.98 (25.0)	3.27 (83.0)	—	3.90 (99.0)	3.80 (96.5)

Notes

① For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Mini Screw Connection Terminal Blocks



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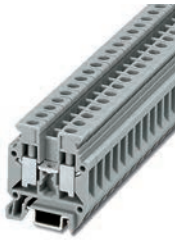
Mini Screw Connection

Product Description

The ***XB*** miniature terminal blocks have a connection cross-section from 2 mm^2 through 4 mm^2 and mount on 15 mm DIN rail. There is an opening for bridging with a fixed bridge in the centre of the terminal blocks. These miniature terminal blocks also offer the same accessories that you would find with the larger blocks—including marking tags, end covers, end stop and ground blocks.

Product Selection

XBMUK4



Mini Screw Connection Terminal Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	400/32/24–12	275/28/21/24–12	600/20/28–12	Gray	50	**XBMUK25**
					Blue	50	**XBMUK25BU**
6.2 mm	10 AWG/4 mm^2	500/41/24–10	—/—/—	600/10/26–10	Gray	50	**XBMUK4**
					Blue	50	**XBMUK4BU**

XBMUK25PE

Mini Screw Connection Ground Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-2 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	—/—/24–12	—/—/30–12	Green/ Yellow	50	**XBMUK25PE**
6.2 mm	10 AWG/2.4 mm^2	—/—/24–10	—/—/26–14	Green/ Yellow	50	**XBMUK4PE**

Note

① EU type—examination certificate number: KEMA 05ATEX2169 U (XBMUK25).

Accessories

Mini Screw Connection Terminal/Ground Blocks

Description	Colour	Number of Positions	Standard Pack	XBMUK25 Catalogue Number	XBMUK4 Catalogue Number	XBMUK25PE Catalogue Number	XBMUK4PE Catalogue Number
End cover	Gray	—	10	**XBACMU254**	**XBACMU254**	—	—
	Blue	—	10	**XBACMU254B**	**XBACMU254B**	—	—
Partition plate	—	—	10	**XBATMU254**	**XBATMU254**	—	—
Fixed bridge	—	10	10	**XBAFBR105N**	—	—	—
Separating plate	—	—	10	**XBATMPKK15**	**XBATMPKK15**	—	—
Blank marker strip (strip of 10)	White	—	10	**XBMZB5** ①	**XBMZB6** ①	**XBMZB5** ①	**XBMZB6** ①

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Technical Data and Specifications

Mini Spring Cage Terminal/Ground Blocks

Description	XBMUK25	XBMUK4	XBMUK25PE	XBMUK4PE
Technical Data in Accordance with IEC				
Maximum load current in A/cross-section in mm^2	32/4	41/6	—	—
Maximum cross-section with insertion bridge (solid/stranded)	2.5/2.5	4/4	—	—
Rated surge voltage in kV/contamination class	6/3	6/3	6/3	6/3
Surge voltage category/insulating material group	III/I	III/I	III/I	III/I
Connection Cross-Section				
Stranded with ferrule with plastic sleeve in mm^2	0.25–1.5	0.25–2.5	0.25–1.5	0.25–2.5
Stranded with ferrule without plastic sleeve in mm^2	0.25–2.5	0.25–4	0.25–2.5	0.25–4
Multi-Conductor Connection (same cross-section)				
Solid/stranded in mm^2	0.2–1.0/0.2–1.5	0.2–1.5/0.2–1.5	0.2–1.0/0.2–1.5	0.2–1.5/0.2–1.5
Stranded with ferrule without plastic sleeve in mm^2	0.25–1.5	0.25–1.5	0.25–1.5	0.25–1.5
Stranded with ferrule with plastic sleeve in mm^2	0.5–1.0	0.5–2.5	0.5–1.5	0.5–2.5
Stripping length in Inches (mm)	0.31 (8)	0.31 (8)	0.31 (8)	0.31 (8)
Thread	M3	M3	M3	M3
Torque in in-lb (Nm)	5.3–7.1 (0.6–0.8)	4.4–5.3 (0.5–0.6)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)

Dimensions

Approximate Dimensions in Inches (mm)

Mini Spring Cage Terminal/Ground Blocks

Catalogue Number	Width	Length	Cover Length	Height for— 15 in
XBMUK25	0.20 (5.2)	1.10 (28.0)	0.04 (1.0)	1.26 (32.0)
XBMUK4	0.24 (6.2)	1.10 (28.0)	0.04 (1.0)	1.26 (32.0)
XBMUK25PE	0.20 (5.2)	1.10 (28.0)	—	1.24 (31.5)
XBMUK4PE	0.24 (6.2)	1.10 (28.0)	—	1.26 (32.0)

Notes

① For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Spring Cage Connection

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Disconnect and Component Terminal Blocks	**T42-51**
Hybrid Terminal Blocks	**T42-54**
Mini Spring Cage	**T42-56**

Spring Cage Terminal Blocks Overview

Product Description

The XBPT Series incorporates a spring cage connection system proven in applications that are sensitive to vibration. The spring mechanism always exerts the same constant force on the wire, resulting in a vibration-proof, gas-tight connection, independent of the user. The space-saving front connection, with the wire and screwdriver coming in parallel from the same direction, allows for simple wiring in places where there is little space available.

Application Description

The connection point is opened with a standard screwdriver. After the wire has been inserted into the wire guide of the terminal block, the screwdriver is removed and the wire automatically makes contact.

Features

- Vibration-resistance
- Global acceptance
- Multi-conductor connections
- Flexible Plug-in bridge system
- Large surface area for marking
- Standardized testing system

Standards and Certifications

- UL recognized—File No. E67464
- CE approved
- LVD ①:
  - EN 60947-7-1
  - EN 60947-7-2
  - EN 60998-2-3
  - EN 60352-4/A1
- ATEX approval (Eex e applications)

Note

① Not all standards apply to all terminal blocks. Contact Eaton for details.

Single Level—Through-Feed

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Single Level—Through-Feed

Product Description

The space-saving design and front entry design make the XBPT Series ideal for control systems where there is little space. Even so, they offer maximum connection space, resulting in fast wiring of stranded and solid conductors with or without ferrules.

XBPT terminal blocks are available with cross-sections from 2.5 mm^2 up to 35 mm^2. The double bridge shaft can accommodate individual chain bridging and step-down bridging from other terminal blocks.

Product Selection

XBPT6

Spring Cage Connection Single Level—Through-Feed

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	800/31/28–12	550/25/21/24–12	600/20/26–12	Gray	50	**XBPT25**
					Blue	50	**XBPT25BU**
					White	50	**XBPT25WH**
					Red	50	**XBPT25RD**
					Black	50	**XBPT25BK**
6.2 mm	10 AWG/4 mm^2	800/40/28–10	550/34/30/24–10	600/30/20–10	Gray	50	**XBPT4**
					Blue	50	**XBPT4BU**
8.2 mm	8 AWG/6 mm^2	800/52/24–8	550/45/36/20–8	600/50/20–8	Gray	50	**XBPT6**
					Blue	50	**XBPT6BU**
10.2 mm	6 AWG/10 mm^2	800/65/24–6	550/50/63/16–6	600/65/16–6	Gray	50	**XBPT10**
					Blue	50	**XBPT10BU**
12 mm	4 AWG/16 mm^2	800/90/24–4	550/65/82/16–4	600/50/16–4	Gray	50	**XBPT16**
					Blue	50	**XBPT16BU**
16 mm	2 AWG/35 mm^2	800/125/14–2	750/108/14–2	600/115/14–2	Gray	50	**XBPT35**
					Blue	50	**XBPT35BU**

Note

① EU type—examination certificate number: KEMA 05ATEX2158 U.

Accessories

Spring Cage Connection Single Level—Through-Feed, XBPT25, XBPT4 an d XBPT6

Description	Colour	Number of Positions	Standard Pack	XBPT25 Catalogue Number	XBPT4 Catalogue Number	XBPT6 Catalogue Number
End cover	Gray	—	10	**XBACPT25**	**XBACPT4**	**XBACPT6**
Partition plate	Gray	—	10	**XBATPT4**	**XBATPT4**	**XBATPT6**
Plug-in bridge—for cross connections in the bridge shaft	Red	2	10	**XBAFBS25**	**XBAFBS26**	**XBAFBS28**
		3	10	**XBAFBS35**	**XBAFBS36**	—
		5	10	**XBAFBS55**	**XBAFBS56**	—
		10	10	**XBAFBS105**	**XBAFBS106**	—
		50	10	**XBAFBS505**	**XBAFBS506**	—
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS6**	**XBATSPS8**
Blank marker strip external labeling	White	—	10	**XBMZBF5** ②	**XBMZBF6** ②	**XBMZF8** ②
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB5** ②	**XBMZB6** ②	**XBMZB8** ②

Spring Cage Connection Single Level—Through-Feed, XBPT10, XBPT16 and XBPT35

Description	Colour	Number of Positions	Standard Pack	XBPT10 Catalogue Number	XBPT16 Catalogue Number	XBPT35 Catalogue Number
End cover	Gray	—	10	**XBACPT10**	**XBACPT16**	③
Plug-in bridge—for cross connections in the bridge shaft	Red	2	10	**XBAFBS210**	**XBAFBS212** ①	**XBAFBS216** ②
2.3 mm diameter test plug	—	—	10	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①
Blank marker strip external labeling	White	—	10	**XBMZF10** ②	**XBMZBF12** ②	**XBMZBF15** ②
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB10** ②	**XBMZB12** ②	**XBMZB15** ②

Notes

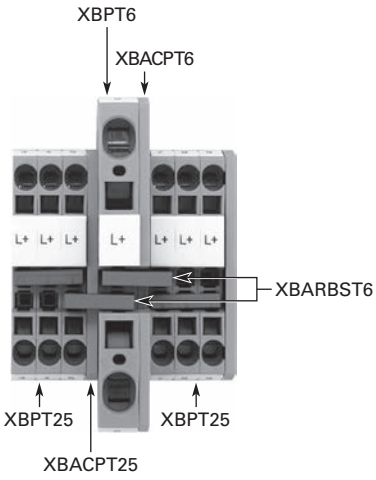
① For ordering information, see **Page T42-105**.

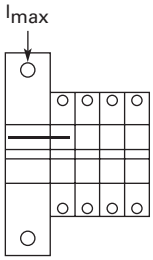
② For information on Printed Marking Tag Options, see **Page T42-98**.

③ XBPT35 has an enclosed design. The use of an end cover is not required.

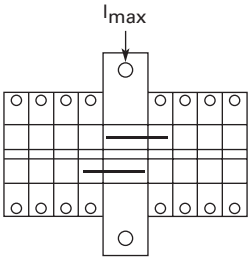
For additional accessories, see **Page T42-90**.

XBPT with Reducing Bridge





One-Sided Input



Central Input

Step-Down Bridge with Standard Feed-Through Terminal Blocks

Input Terminal Blocks	Cross-Section	Pick-Off Terminal Blocks	Cross-Section AWG (mm^2)	One-Sided Input I_{max}	Central Input I_{max}	Bridge Catalogue Number
XBPT6	8 AWG (6 mm^2)	XBPT25	12 (2.5)	40	56	**XBARBST6**
		XBPT4	10 (4)	45	56	**XBARBST6**
		XBQT15	14 (1.5)	35	56	**XBARBST6**
		XBQT25	12 (2.5)	40	56	**XBARBST6**
XBPT10	6 AWG (10 mm^2)	XBPT25	12 (2.5)	40	65	**XBARBST10**
		XBPT4	10 (4)	45	65	**XBARBST10**
		XBQT15	14 (1.5)	35	65	**XBARBST10**
		XBQT25	12 (2.5)	40	65	**XBARBST10**
XBPT16	4 AWG (16 mm^2)	XBPT25	12 (2.5)	40	80	**XBARBST16**
		XBPT4	10 (4)	45	90	**XBARBST16**
		XBQT15	14 (1.5)	35	70	**XBARBST16**
		XBQT25	12 (2.5)	40	80	**XBARBST16**

Technical Data and Specifications

Spring Cage Connection Single Level—Through-Feed

Description	XBPT25	XBPT4	XBPT6	XBPT10	XBPT16	XBPT35
Technical Data in Accordance with IEC						
Maximum load current in A/cross-section in mm^2	31/4	40/6	52/10	65/16	90/25	125/35
Rated surge voltage in kV/contamination class	8/3	8/3	8/3	8/3	8/3	8/3
Surge voltage category/insulating material group	III/I	III/I	III/I	III/I	III/I	III/I
Connection Capacity						
Stranded with ferrule/with ferrule and plastic sleeve in mm^2	0.25–2.5	0.25–4	0.25–6	0.25–10	0.25–16	2.5–35
Stranded with ferrules without plastic sleeve in mm^2	0.25–2.5	0.25–4	0.25–6	0.25–10	0.25–16	2.5–35
Stranded with twin ferrule with plastic sleeve in mm^2	0.5	0.5–1	0.5–1.5	1.5–2.5	1.5–4	2.5–10
Stripping length in inches (mm)	0.39 (10)	0.39 (10)	0.47 (12)	0.71 (18)	0.71 (18)	0.98 (25)

Dimensions

Approximate Dimensions in Inches (mm)

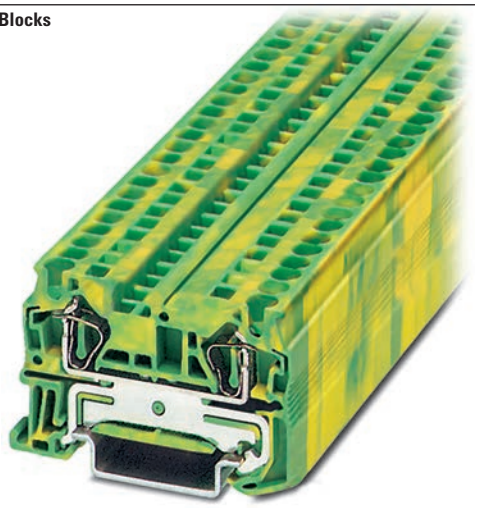
Spring Cage Connection Single Level—Through-Feed

Catalogue Number	Width	Length	Cover Width	Height for— 35 x 7.5 in	35 x 15 in
XBPT25	0.20 (5.2)	1.91 (48.5)	0.09 (2.2)	1.45 (36.8)	1.73 (44.0)
XBPT4	0.24 (6.2)	2.20 (56.0)	0.09 (2.2)	1.45 (36.8)	1.73 (44.0)
XBPT6	0.32 (8.2)	2.74 (69.5)	0.09 (2.2)	1.71 (43.5)	2.01 (51.0)
XBPT10	0.39 (10.0)	2.81 (71.5)	0.09 (2.2)	1.99 (50.5)	2.30 (58.5)
XBPT16	0.47 (12.0)	3.15 (80.0)	0.09 (2.2)	2.01 (51.0)	2.30 (58.5)
XBPT35	0.63 (16.0)	3.94 (100.0)	①	2.32 (59.0)	2.62 (66.5)

Note

① XBPT35 has an enclosed design. The use of an end cover is not required.

Single Level—Ground Blocks



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Single Level—Ground Blocks

Product Description

The XBPT ground blocks are the same shape as the feed-through terminal blocks with the same wide range of cross-sections available. They easily snap onto the DIN rail to make a reliable mechanical and electrical contact that meets all requirements of IEC 60-947-7-2.

Product Selection

XBPT4PE

Spring Cage Connection Single Level—Ground Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-2 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	—/—/28–12	—/—/24–12	—/—/26–12	Green/Yellow	50	**XBPT25PE**
6.2 mm	10 AWG/4 mm^2	—/—/28–10	—/—/24–10	—/—/20–10	Green/Yellow	50	**XBPT4PE**
8.2 mm	8 AWG/6 mm^2	—/—/24–8	—/—/20–8	—/—/20–8	Green/Yellow	50	**XBPT6PE**
10.2 mm	6 AWG/10 mm^2	—/65/24–6	—/—/16–6	—/—/16–6	Green/Yellow	50	**XBPT10PE**
12 mm	4 AWG/16 mm^2	—/90/24–4	—/—/16–4 ②	—/—/16–4	Green/Yellow	25	**XBPT16PE**
16 mm	2 AWG/35 mm^2	—/125/14–2	—/—/14–2 ②	—/—/14–2	Green/Yellow	10	**XBPT35PE**

Notes

① EU type—examination certificate number: KEMA 05ATEX2154 U (XBPT25PE), KEMA 05ATEX2155 U (XBPT4PE).

② EU type—examination certificate number: KEMA 05ATEX2156 U.

Accessories

Spring Cage Connection Single Level Ground Blocks, XBPT25PE, XBPT4PE and XBPT6PE

Description	Colour	Number of Positions	Standard Pack	XBPT25PE Catalogue Number	XBPT4PE Catalogue Number	XBPT6PE Catalogue Number
End cover	Gray	—	10	**XBACPT25**	**XBACPT4**	**XBACPT6**
Blank marker strip external labeling	White	—	10	**XBMZBF5** ①	**XBMZBF6** ①	**XBMZBF8** ①
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB5** ①	**XBMZB6** ①	**XBMZB8** ①

Spring Cage Connection Single Level Ground Blocks, XBPT10PE, XBPT16PE and XBPT35PE

Description	Colour	Number of Positions	Standard Pack	XBPT10PE Catalogue Number	XBPT16PE Catalogue Number	XBPT35PE Catalogue Number
End cover	Gray	—	10	**XBACPT10**	**XBACPT16**	②
Plug-in bridge—for cross connections in the bridge shaft	—	2	10	**XBAFBS210**	**XBAFBS212**	**XBAFBS216**
Blank marker strip external labeling	White	—	10	**XBMZBF10** ①	**XBMZBF12** ①	**XBMZBF15** ①
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB10** ①	**XBMZB12** ①	**XBMZB15** ①

Technical Data and Specifications

Spring Cage Connection Single Level Ground Blocks

Description	XBPT25PE	XBPT4PE	XBPT6PE	XBPT10PE	XBPT16PE	XBPT35PE
Technical Data in Accordance with IEC						
Maximum load current in A/cross-section in mm^2	—	—	—	65/16	90/25	125/35
Rated surge voltage in kV/contamination class	8/3	8/3	8/3	8/3	8/3	8/3
Surge voltage category/insulating material group	III/I	III/I	III/I	III/I	III/I	III/I
Connection Capacity						
Stranded with ferrule with plastic sleeve in mm^2	0.25–2.5	0.25–4	0.25–6	0.25–10	0.25–16	2.5–35
Stranded with ferrules without plastic sleeve in mm^2	0.25–2.5	0.25–4	0.25–6	0.25–10	0.25–16	2.5–35
Stranded with twin ferrule with plastic sleeve in mm^2	0.5	0.5–1	0.5–1.5	1.5–2.5	1.5–4	2.5–10
Stripping length in inches (mm)	0.39 (10)	0.39 (10)	0.47 (12)	0.71 (18)	0.71 (18)	0.98 (25)

Dimensions

Approximate Dimensions in Inches (mm)

Spring Cage Connection Single Level Ground Blocks

Catalogue Number	Width	Length	Cover Width	Height for— 35 x 7.5 in	35 x 15 in
XBPT25PE	0.20 (5.2)	1.91 (48.5)	0.09 (2.2)	1.45 (36.8)	1.73 (44.0)
XBPT4PE	0.24 (6.2)	2.20 (56.0)	0.09 (2.2)	1.45 (36.8)	1.73 (44.0)
XBPT6PE	0.32 (8.2)	2.74 (69.5)	0.09 (2.2)	1.71 (43.5)	2.01 (51.0)
XBPT10PE	0.39 (10.0)	2.81 (71.5)	0.09 (2.2)	1.99 (50.5)	2.28 (58.0)
XBPT16PE	0.47 (12.0)	3.15 (80.0)	0.09 (2.2)	2.01 (51.0)	2.30 (58.5)
XBPT35PE	0.63 (16.0)	3.94 (100.0)	—	2.32 (59.0)	2.62 (66.5)

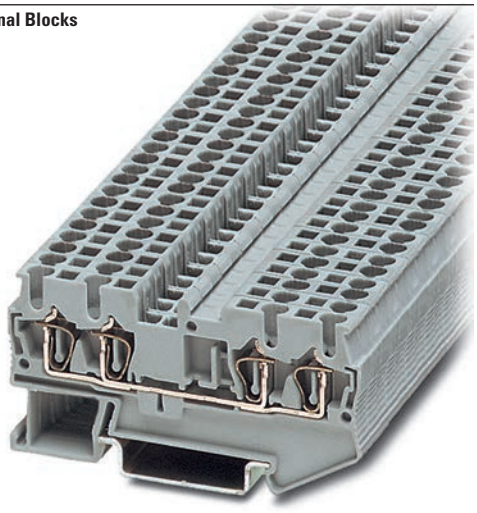
Notes

① For information on Printed Marking Tag Options, see **Page T42-98**.

② XBPT35PE has an enclosed design. The use of an end cover is not required.

For additional accessories, see **Page T42-90**.

Multi-Conductor Terminal Blocks



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Multi-Conductor Terminal Blocks

Product Description

The multi-conductor terminal blocks offer a space-saving alternative to standard feed-through terminal blocks, allowing for high-density wiring. Often, three connections have to be led to one terminal block. The XBPT…D12 terminal block accomplishes this without any additional terminal blocks or bridging required. The XBPT…D22 terminal blocks allow four wires to be connected to one potential—and can therefore be used as compact power distributors. There is also a version, XBPT25D22U or XBPT4D22U, with an interrupted bus bar in the terminal centre. This makes two feed-through terminal blocks available in one level. One side of this block can be bridged using the standard Plug-in bridges. Double marker carriers are available for clear marking of the feed-through levels.

Product Selection

XBPT4D12

Spring Cage Connection Multi-Conductor Terminal Blocks, Three-Wire

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	800/28/28–12	550/25/21/24–12	600/20/26–12	Gray	50	**XBPT25D12**
					Blue	50	**XBPT25D12BU**
6.2 mm	10 AWG/4 mm^2	800/40/28–10	550/34/29/24–10	600/30/20–10	Gray	50	**XBPT4D12**
					Blue	50	**XBPT4D12BU**

Note

① EU type—examination certificate number: KEMA 05ATEX2154 U (XBPT25D12), KEMA 05ATEX2155 U (XBPT4D12).

XBPT25D22

Spring Cage Connection Multi-Conductor Terminal Blocks, Four-Wire

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Spring Cage Multi-Conductor							
5.2 mm	12 AWG/2.5 mm^2	800/28/28–12	550/24/21/24–12	600/20/26–12	Gray	50	**XBPT25D22**
					Blue	50	**XBPT25D22BU**
6.2 mm	10 AWG/4 mm^2	800/40/28–10	550/34/25/24–10	600/30/20–10	Gray	50	**XBPT4D22**
					Blue	50	**XBPT4D22BU**
Spring Cage Multi-Conductor with Interrupted Bus Bar							
5.2 mm	12 AWG/2.5 mm^2	800/28/28–12	550/24/21/24–12	600/20/26–12	Blue	50	**XBPT25D22U**
6.2 mm	10 AWG/4 mm^2	800/40/28–10	550/34/25/24–10	600/30/20–10	Blue	50	**XBPT4D22U**

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Accessories

Spring Cage Connection Multi-Conductor Terminal Blocks

Description	Colour	Number of Positions	Standard Pack	XBPT25D12 Catalogue Number	XBPT4D12 Catalogue Number	XBPT25D22 Catalogue Number	XBPT4D22 Catalogue Number
End cover	Gray	—	10	**XBACPT25D12**	**XBACPT4D12**	**XBACPT25D22**	**XBACPT4D22**
End cover segment	Gray	—	10	**XBASPT25**	**XBASPT4**	**XBASPT25**	**XBASPT4**
Partition plate	—	—	10	**XBATPTD12**	**XBATPTD12**	**XBATPTD22**	**XBATPTD22**
Plug-in bridge—for cross connections in the bridge shaft	Red	2	10	**XBAFBS25**	**XBAFBS26**	**XBAFBS25**	**XBAFBS26**
		3	10	**XBAFBS35**	**XBAFBS36**	**XBAFBS35**	**XBAFBS36**
		5	10	**XBAFBS55**	**XBAFBS56**	**XBAFBS55**	**XBAFBS56**
		10	10	**XBAFBS105**	**XBAFBS106**	**XBAFBS105**	**XBAFBS106**
		50	10	**XBAFBS505**	**XBAFBS506**	**XBAFBS505**	**XBAFBS506**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ②	**XBATSMPS-_** ②	**XBATSMPS-_** ②	**XBATSMPS-_** ②
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS6**	**XBATSPS5**	**XBATSPS6**
Blank marker strip external labeling	White	—	10	**XBMZBF5** ③	**XBMZBF6** ③	**XBMZBF5** ③	**XBMZBF6** ③
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB5** ③	**XBMZB6** ③	**XBMZB5** ③	**XBMZB6** ③

Notes

① EU type—examination certificate number: KEMA 05ATEX2154 U (XBPT25D22), KEMA 05ATEX2155 (XBPT4D22).

② For ordering information, see **Page T42-105**.

③ For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Technical Data and Specifications

Spring Cage Connection Multi-Conductor Terminal Blocks

Description	XBPT25D12	XBPT4D12	XBPT25D22	XBPT4D22
Technical Data in Accordance with IEC				
Maximum load current in A/cross-section in mm^2	28/4	40/6	28/4	40/6
Rated surge voltage in kV/contamination class	8/3	8/3	8/3	8/3
Surge voltage category/insulating material group	III/I	III/I	III/I	III/I
Connection Capacity				
Stranded with ferrule with plastic sleeve in mm^2	0.25–2.5	0.25–4	0.25–2.5	0.25–4
Stranded with ferrules without plastic sleeve in mm^2	0.25–2.5	0.25–4	0.25–2.5	0.25–4
Stranded with twin ferrule with plastic sleeve in mm^2	0.5	0.5–1	0.5	0.5–1
Stripping length in inches (mm)	0.39 (10)	0.39 (10)	0.39 (10)	0.39 (10)

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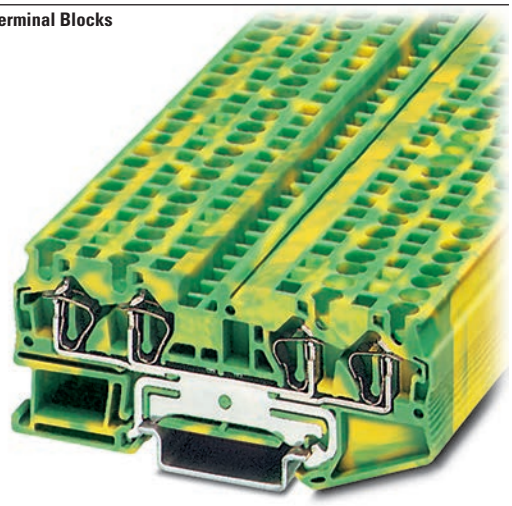
Dimensions

Approximate Dimensions in Inches (mm)

Spring Cage Connection Multi-Conductor Terminal Blocks

Catalogue Number	Width	Length	Cover Width	Height for— 35 x 7.5 in	35 x 15 in
XBPT25D12	0.20 (5.2)	2.38 (60.5)	0.09 (2.2)	1.44 (36.5)	1.73 (44.0)
XBPT4D12	0.24 (6.2)	2.81 (71.5)	0.09 (2.2)	1.44 (36.5)	1.73 (44.0)
XBPT25D22	0.20 (5.2)	2.83 (72.0)	0.09 (2.2)	1.44 (36.5)	1.73 (44.0)
XBPT4D22	0.24 (6.2)	3.43 (87.0)	0.09 (2.2)	1.44 (36.5)	1.73 (44.0)

Multi-Conductor Terminal Blocks



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Disconnect and Component Terminal Blocks	**T42-51**
Hybrid Terminal Blocks	**T42-54**
Mini Spring Cage	**T42-56**

Multi-Conductor Ground Blocks

Product Description

The ground terminal blocks have the same shape and pitch as the standard terminal block, in a green-yellow housing. They easily snap onto the DIN rail to make a reliable mechanical and electrical contact that meets all requirements of IEC 60-947-7-2.

Product Selection

XBPT25D12PE

Spring Cage Connection Multi-Conductor Ground Blocks, Three-Wire

Terminal Width	Maximum Wire Size	IEC 60 947-7-2 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	—/—/28–12	—/—/24–12	—/—/26–12	Green/Yellow	50	**XBPT25D12PE**
6.2 mm	10 AWG/4 mm^2	—/—/28–10	—/—/24–10	—/—/20–10	Green/Yellow	50	**XBPT4D12PE**

XBPT4D22PE

Spring Cage Connection Multi-Conductor Ground Blocks, Four-Wire

Terminal Width	Maximum Wire Size	IEC 60 947-7-2 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	—/—/28–12	—/—/24–12	—/—/26–12	Green/Yellow	50	**XBPT25D22PE**
6.2 mm	10 AWG/4 mm^2	—/—/28–10	—/—/24–10	—/—/20–10	Green/Yellow	50	**XBPT4D22PE**

Note

① EU type—examination certificate number: KEMA 05ATEX2154 U (XBPT25D12PE), KEMA 05ATEX2155 U (XBPT4D12PE).

Accessories

Spring Cage Connection Multi-Conductor Ground Blocks

Description	Colour	Number of Positions	Standard Pack	XBPT25D12PE Catalogue Number	XBPT4D12PE Catalogue Number	XBPT25D22PE Catalogue Number	XBPT4D22PE Catalogue Number
End cover	Gray	—	10	**XBACPT25D12**	**XBACPT4D12**	**XBACPT25D22**	**XBACPT4D22**
End cover segment	Gray	—	10	**XBASPT25**	**XBASPT4**	**XBASPT25**	**XBASPT4**
Blank marker strip external labeling	White	—	10	**XBMZBF5** ①	**XBMZBF6** ①	**XBMZBF5** ①	**XBMZBF6** ①
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB5** ①	**XBMZB6** ①	**XBMZB5** ①	**XBMZB6** ①

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Technical Data and Specifications

Spring Cage Connection Multi-Conductor Ground Blocks

Description	XBPT25D12PE	XBPT4D12PE	XBPT25D22PE	XBPT4D22PE
Technical Data in Accordance with IEC				
Maximum load current in A/cross-section in mm^2	—	—	—	—
Rated surge voltage in kV/contamination class	8/3	8/3	8/3	8/3
Surge voltage category/insulating material group	III/I	III/I	III/I	III/I
Connection Capacity				
Stranded with ferrule with plastic sleeve in mm^2	0.25–2.5	0.25–4	0.25–2.5	0.25–4
Stranded with ferrules without plastic sleeve in mm^2	0.25–2.5	0.25–4	0.25–2.5	0.25–4
Stranded with twin ferrule with plastic sleeve in mm^2	0.5	0.5–1	0.5	0.5–1
Stripping length in inches (mm)	0.39 (10)	0.39 (10)	0.39 (10)	0.39 (10)

Dimensions

Approximate Dimensions in Inches (mm)

Spring Cage Connection Multi-Conductor Ground Blocks

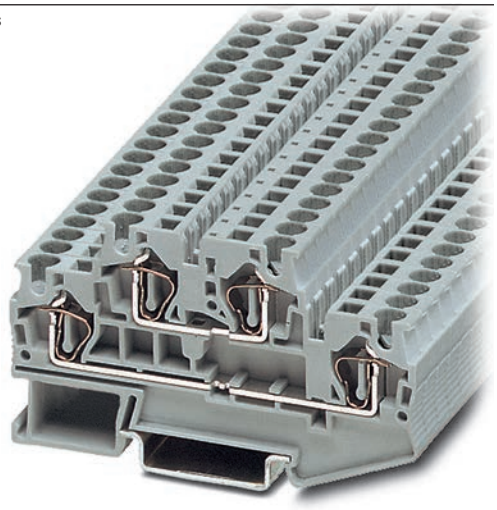
Catalogue Number	Width	Length	Cover Width	Height for— 35 x 7.5 in	35 x 15 in
XBPT25D12PE	0.20 (5.2)	2.38 (60.5)	0.09 (2.2)	1.44 (36.5)	1.73 (44.0)
XBPT4D12PE	0.24 (6.2)	2.81 (71.5)	0.09 (2.2)	1.44 (36.5)	1.73 (44.0)
XBPT25D22PE	0.20 (5.2)	2.83 (72.0)	0.09 (2.2)	1.44 (36.5)	1.73 (44.0)
XBPT4D22PE	0.24 (6.2)	3.43 (87.0)	0.09 (2.2)	1.44 (36.5)	1.73 (44.0)

Notes

① For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Double Level Blocks



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Double Level Blocks

Product Description

The potentials of the ***XB*** double level terminal blocks routed on two levels reduce space requirements by 50% compared with single level terminal blocks.

The XBPTT blocks can be bridged on both levels with the Plug-in bridge system and labeling options are available for each terminal point, resulting in maximum customization for each application. The XBPTT25PV and XBPTT4PV terminal blocks have two interconnected levels.

Equipotential bonding is marked by an imprint on the housing. These terminal blocks can also be bridged and used to construct compact potential distributor blocks.

Product Selection

XBPTT4

Spring Cage Connection Double Level Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Spring Cage Connection Double Level Blocks							
5.2 mm	12 AWG/2.5 mm^2	500/26/28–12	420/23/19/24–12	600/20/26–12	Gray	50	**XBPTT25**
					Blue	50	**XBPTT25BU**
6.2 mm	10 AWG/4 mm^2	500/32/28–10	420/32/27/24–10	300/30/20–10	Gray	50	**XBPTT4**
					Blue	50	**XBPTT4BU**
Spring Cage Connection Double Level Blocks (terminal block with potential distribution between the levels)							
5.2 mm	112 AWG/2.5 mm^2	500/26/28–12	420/23/19/24–12	600/20/26–12	Gray	50	**XBPTT25PV**
6.2 mm	10 AWG/4 mm^2	500/32/28–10	420/32/27/24–10	300/30/20–10	Gray	50	**XBPTT4PV**

XBPTT25PE

Spring Cage Connection Double Level Ground Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-2 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	—/—/28–12	—/—/24–12	—/—/26–12	Green/Yellow	50	**XBPTT25PE**
6.2 mm	10 AWG/4 mm^2	—/—/28–10	—/—/24–10	—/—/20–10	Green/Yellow	50	**XBPTT4PE**

Note

① EU type—examination certificate number: KEMA 05ATEX2154 U (XBPTT25), KEMA 05ATEX2155 U (XBPTT4).

Accessories

Spring Cage Connection Double Level Blocks

Description	Colour	Number of Positions	Standard Pack	XBPTT25 Catalogue Number	XBPTT4 Catalogue Number	XBPTT25PE Catalogue Number	XBPTT4PE Catalogue Number
End cover	Gray	—	10	**XBACPTT25**	**XBACPTT4**	**XBACPTT25**	**XBACPTT4**
Partition plate	—	—	10/50	**XBATPTT4**	**XBATPTT4**	—	—
Plug-in bridge—for cross connections in the bridge shaft	Red	2	10	**XBAFBS25**	**XBAFBS26**	**XBAFBS25**	**XBAFBS26**
		3	10	**XBAFBS35**	**XBAFBS36**	**XBAFBS35**	**XBAFBS36**
		5	10	**XBAFBS55**	**XBAFBS56**	**XBAFBS55**	**XBAFBS56**
		10	10	**XBAFBS105**	**XBAFBS106**	**XBAFBS105**	**XBAFBS106**
		50	10	**XBAFBS505**	**XBAFBS506**	**XBAFBS505**	**XBAFBS506**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	—	—
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS6**	—	—
Blank marker strip (strip of 10)	White	—	10	**XBMZBF5** ①	**XBMZBF6** ①	**XBMZBF5** ①	**XBMZBF6** ①

Technical Data and Specifications

Spring Cage Connection Double Level Blocks

Description	XBPTT25	XBPTT4	XBPTT25PE	XBPTT4PE
Technical Data in Accordance with IEC				
Maximum load current in A/cross-section in mm^2	26/4	32/6	—	—
Rated surge voltage in kV/contamination class	6/3	6/3	6/3	6/3
Surge voltage category/insulating material group	III/I	III/I	III/I	III/I
Connection Capacity				
Stranded with ferrule with plastic sleeve in mm^2	0.25–2.5	0.25–4	0.25–2.5	0.25–4
Stranded with ferrules without plastic sleeve in mm^2	0.25–2.5	0.25–4	0.25–2.5	0.25–4
Stranded with twin ferrule with plastic sleeve in mm^2	0.5	0.5–1	0.5	0.5–1
Stripping length in inches (mm)	0.39 (10)	0.39 (10)	0.39 (10)	0.39 (10)

Dimensions

Approximate Dimensions in Inches (mm)

Spring Cage Connection Double Level Blocks

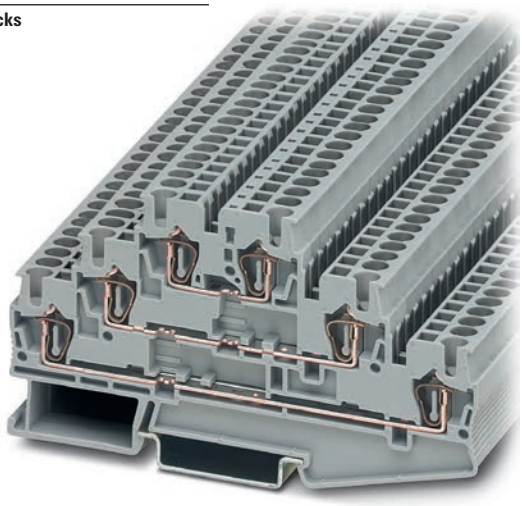
Catalogue Number	Width	Length	Cover Width	Height for— 35 x 7.5 in	35 x 15 in
XBPTT25	0.20 (5.2)	2.66 (67.5)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBPTT4	0.24 (6.2)	3.29 (83.5)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBPTT25PE	0.20 (5.2)	2.66 (67.5)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)
XBPTT4PE	0.24 (6.2)	3.29 (83.5)	0.09 (2.2)	1.87 (47.5)	2.17 (55.0)

Notes

① For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Triple Level Blocks



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Triple Level Blocks

Product Description

The spring cage triple level terminal block incorporates three feed-through levels in a 5.2 mm wide housing. This is ideal for high density wiring, especially important when switchgear space is restricted. There is a bridge shaft on each level allowing use of this block as a compact potential distributor or as a sensor terminal.

The XBPTK25PV has all six terminal points interconnected. All the triple level blocks can be labeled on each level.

Product Selection

XBPTK25

Spring Cage Connection Triple Level Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	500/28/28–12	600/20/26–12	Gray	50	**XBPTK25**
5.2 mm	12 AWG/2.5 mm^2	500/28/28–12	600/20/26–12	Gray	50	**XBPTK25PV** ①

Note

① Terminal block with potential distribution between the levels.

Accessories

Spring Cage Connection Triple Level Blocks

Description	Colour	Number of Positions	Standard Pack	XBPTK25 Catalogue Number	XBPTK25PV Catalogue Number
End cover	Gray	—	10	**XBACPT25K**	**XBACPT25K**
Plug-in bridge—for cross connections in the bridge shaft	Red	2	10	**XBAFBS25**	**XBAFBS25**
		3	10	**XBAFBS35**	**XBAFBS35**
		5	10	**XBAFBS55**	**XBAFBS55**
		10	10	**XBAFBS105**	**XBAFBS105**
		50	10	**XBAFBS505**	**XBAFBS505**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS5**
Blank marker strip (strip of 10)	White	—	10	**XBMZBF5** ①	**XBMZBF5** ①

Technical Data and Specifications

Spring Cage Connection Triple Level Blocks

Description	XBPTK25	XBPTK25PV
Technical Data in Accordance with IEC		
Maximum load current in A/cross-section in mm^2	28/4	28/4
Rated surge voltage in kV/contamination class	6/3	6/3
Surge voltage category/insulating material group	III/I	III/I
Connection Capacity		
Stranded with ferrule with plastic sleeve in mm^2	0.25–2.5	0.25–2.5
Stranded with ferrules without plastic sleeve in mm^2	0.25–2.5	0.25–2.5
Stranded with twin ferrule with plastic sleeve in mm^2	0.5	0.5
Stripping length in inches (mm)	0.39 (10)	0.39 (10)

Dimensions

Approximate Dimensions in Inches (mm)

Spring Cage Connection Triple Level Blocks

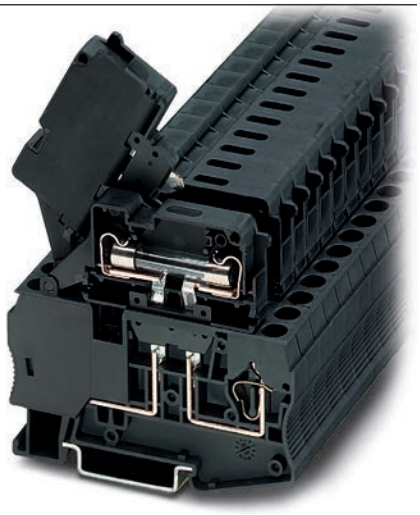
Catalogue Number	Width	Length	Cover Length	Height for— 35 x 7.5 in	35 x 15 in
XBPTK25	0.20 (5.2)	3.92 (99.5)	0.09 (2.2)	2.28 (58.0)	2.58 (65.5)
XBPTK25PV	0.20 (5.2)	3.92 (99.5)	0.09 (2.2)	2.28 (58.0)	2.58 (65.5)

Notes

① For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Fuse Terminal Blocks



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Fuse Terminal Blocks

Product Description

The spring cage fuse terminal blocks act as a fuse carrier for 5 x 20 mm or 6.3 x 32 mm fuses. They also allow for potential distribution with the double bridge shaft. For signaling a triggered fuse, fuse terminal blocks with light indicators are available (for both AC and DC voltage).

Product Selection

XBPT4FBE

Spring Cage Connection Fuse Terminal Blocks, for 5 x 20 mm Fuse

Terminal Width	Maximum Wire Size	IEC 60 947-7-3 with Fuse in V/A/AWG	IEC 60 947-7-3 as Disconnect Terminal Blocks in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Fuse Terminal Blocks							
6.2 mm	10 AWG/4 mm^2	①/①/28–10	250/6.3/28–10	300/6.3/24–10	Black	50	**XBPT4FBE**
Fuse Terminal Blocks with LED 15–30V, 3.5–8.1A							
6.2 mm	10 AWG/4 mm^2	①/①/28–10	250/6.3/28–10	300/6.3/24–10	Black	50	**XBPT4FBEL24**
Fuse Terminal Blocks with LED 30–60V, 0.8–2.0A							
6.2 mm	10 AWG/4 mm^2	①/①/28–10	250/6.3/28–10	300/6.3/24–10	Black	50	**XBPT4FBEL60**
Fuse Terminal Blocks with LED 110–250V, 0.5–1.0A							
6.2 mm	10 AWG/4 mm^2	①/①/28–10	250/6.3/28–10	300/6.3/24–10	Black	50	**XBPT4FBEL250**

Notes

The cartridge fuse holders should be selected according to the maximum power dissipation (self-heating) of the cartridge fuse inserts. The thermal conditions in closed fuse holes should be checked according to the application and installation.

Higher ambient temperatures are an additional strain on fuse inserts. In applications of this kind, the shift of the rated current should be taken into consideration accordingly.

Maximum power dissipation at 73.4°F (23°C) (in accordance with IEC 60 947-7-3).

When selecting cartridge fuse inserts, please ensure that the maximum power dissipation specified at right is not exceeded. Details can be obtained from the fuse suppliers.

Cartridge Fuse Inserts 5 x 20 and 6.3 x 32 mm in accordance. with IEC 60 947-7-3.

① The current is determined by the fuse used, the voltage by the selected light indicator. See **Page T42-49**.

XBPT4FBN

Spring Cage Connection Fuse Terminal Blocks, for 6.3 x 32 mm (1/4 in x 1–1/4 in) Fuse

Terminal Width	Maximum Wire Size	IEC 60 947-7-3 with Fuse in V/A/AWG	IEC 60 947-7-3 as Disconnect Terminal Blocks in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Fuse Terminal Blocks							
8.2 mm	10 AWG/4 mm^2	400/10/28–10	400/10/28–10	300/10/24–10	Black	50	**XBPT4FBN**
Fuse Terminal Blocks with LED 12–30V, 1.0–2.5 mA							
8.2 mm	10 AWG/4 mm^2	400/10/28–10	400/10/28–10	300/10/24–10	Black	50	**XBPT4FBNL24**
Fuse Terminal Blocks with LED 110–250V, 0.5–2.5 mA							
8.2 mm	10 AWG/4 mm^2	400/10/28–10	400/10/28–10	300/10/24–10	Black	50	**XBPT4FBNL250**

Accessories

Spring Cage Connection Fuse Terminal Blocks

Description	Colour	Number of Positions	Standard Pack	XBPT4FBE Catalogue Number	XBPT4FBN Catalogue Number
Partition plate	—	—	10	**XBATPT4**	**XBATQTD12**
Plug-in bridge—for cross connections in the bridge shaft	Red	2	10	**XBAFBS26**	**XBAFBS28**
		3	10	**XBAFBS36**	—
		5	10	**XBAFBS56**	—
		10	10	**XBAFBS106**	—
Blank marker strip external labeling	White	—	10	**XBMZBF6** ①	**XBMZBF8** ①
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB5** ①	**XBMZB6** ①

Notes

The cartridge fuse holders should be selected according to the maximum power dissipation (self-heating) of the cartridge fuse inserts. The thermal conditions in closed fuse holes should be checked according to the application and installation.

Higher ambient temperatures are an additional strain on fuse inserts. In applications of this kind, the shift of the rated current should be taken into consideration accordingly.

Maximum power dissipation at 73.4°F (23°C) (in accordance with IEC 60 947-7-3).

When selecting cartridge fuse inserts, please ensure that the maximum power dissipation specified at right is not exceeded. Details can be obtained from the fuse suppliers.

Cartridge Fuse Inserts 5 x 20 and 6.3 x 32 mm in accordance. with IEC 60 947-7-3.

① For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Technical Data and Specifications

Overload and Short-Circuit Protection

Terminal Blocks	U (V)	Overload Protection		Short-Circuit Protection Only		$I_{max.}$ (A)
		Individual	Interconnected	Individual	Interconnected	
XBPT4FBN	400	1.6W	1.6W	4W	2.5W	10.0
XBPT4FBE	250	1.6W	1.6W	4W	2.5W	6.3

Spring Cage Connection Fuse Terminal Blocks

Description	XBPT4FBE	XBPT4FBN
Technical Data in Accordance with IEC		
Fuse type/dimensions in mm^2	G/5 x 20	G/6.3 x 32
Maximum current with single arrangement in A	6.3	10
Maximum Power Dissipation		
At 73.4°F (23°C) in accordance with IEC 60 947-7-3 in W	①	①
Rated surge voltage in kV/contamination class	4/3	6/3
Surge voltage category/insulating material group	III/I	III/I
Connection Capacity		
Stranded with ferrule/with ferrule and plastic sleeve in mm^2	0.25–4/0.25–4	0.25–4/0.25–4
Stranded with twin ferrule and plastic sleeve in mm^2	0.5	0.5
Stripping length in inches (mm)	0.39 (10)	0.39 (10)

Dimensions

Approximate Dimensions in Inches (mm)

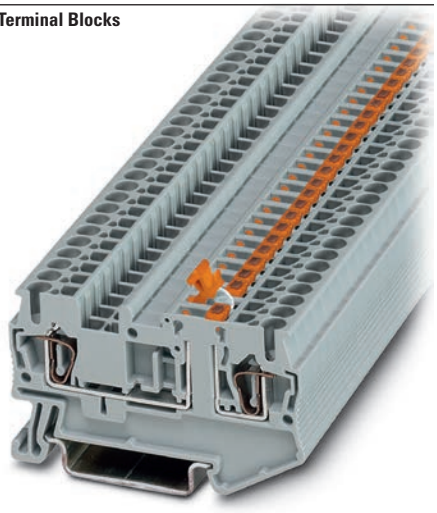
Spring Cage Connection Fuse Terminal Blocks

Catalogue Number	Width	Length	Height for—	
			35 x 7.5 in	35 x 15 in
XBPT4FBE	0.24 (6.2)	2.42 (61.5)	2.46 (62.5)	2.76 (70.0)
XBPT4FBN	0.32 (8.2)	3.01 (76.5)	2.72 (69.0)	3.01 (76.5)

Note

① The current is determined by the fuse used, the voltage by the selected light indicator. See **Page T42-49**.

Disconnect and Component Terminal Blocks



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Disconnect and Component Terminal Blocks

Product Description

The XBPT knife disconnect terminal blocks feature narrow construction and high current carrying capacity. They also have a test connection parallel to the disconnect point for a 2.3 mm diameter test plug. Potential distribution is easily accomplished with the Plug-in bridges. There are front connection spring cage terminal blocks available for multi-conductor connections in the smallest possible space. The XBPT4TG disconnect terminal block accommodates component plugs for resistors, diodes, or capacitors, and fuse plugs with or without indication.

Product Selection

XBPT25MT
Knife Disconnect

Disconnect and Component Terminal Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Single Level Knife Disconnect						
5.2 mm	12 AWG/2.5 mm^2	400/16/28–12	600/16/26–12	Gray	50	**XBPT25MT**
6.2 mm	10 AWG/4 mm^2	400/16/28–10	300/6.3/24–10	Gray	50	**XBPT4MT**
Three-Wire Knife Disconnect						
5.2 mm	12 AWG/2.5 mm^2	400/16/28–12	600/16/26–12	Gray	50	**XBPT25D12MT**
Four-Wire Knife Disconnect						
5.2 mm	12 AWG/2.5 mm^2	400/16/28–12	600/16/26–12	Gray	50	**XBPT25D22MT**
Spring Cage Disconnect/Component Plug						
6.2 mm	10 AWG/4 mm^2	400/16/28–10	300/6.3/24–10	Gray	50	**XBPT4TG**
Component Plug						
6.2 mm	10 AWG/4 mm^2	400/16/28–10	300/6.3/24–10	Gray	10	**XBPCO**
Fuse Plug						
6.2 mm	10 AWG/4 mm^2	400/16/28–10	300/6.3/24–10	Black	10	**XBPFU**
Fuse Plug with Light Indicator for 12–30V, 1–2.5 mA						
6.2 mm	10 AWG/4 mm^2	400/16/28–10	300/6.3/24–10	Black	10	**XBPFUL24**
Fuse Plug with Light Indicator for 110–250V, 0.5–2.5 mA						
6.2 mm	10 AWG/4 mm^2	400/16/28–10	300/6.3/24–10	Black	10	**XBPFUL250**

Accessories

Spring Cage Connection Disconnect and Component Terminal Blocks

Description	Colour	Number of Positions	Standard Pack	XBPT25MT Catalogue Number	XBPT25D12MT Catalogue Number	XBPT25D22MT Catalogue Number	XBPT4MT Catalogue Number	XBPT4TG Catalogue Number
End cover	Gray	—	10	**XBACPT25D12**	**XBACPT25D22**	**XBACPT25D22MT**	③	③
End cover segment	Gray	—	10	—	**XBACPT25**	**XBACPT25**	—	—
Partition plate	—	—	—	**XBATPTD12**	**XBATPTD22**	—	**XBATPT4**	**XBATPT4**
Plug-in bridge—for cross connections in the terminal centre	Red	2	10	**XBAFBS25**	**XBAFBS25**	**XBAFBS25**	**XBAFBS26**	**XBAFBS26**
		3	10	**XBAFBS35**	**XBAFBS35**	**XBAFBS35**	**XBAFBS36**	**XBAFBS36**
		5	10	**XBAFBS55**	**XBAFBS55**	**XBAFBS55**	**XBAFBS56**	**XBAFBS56**
		10	10	**XBAFBS105**	**XBAFBS105**	**XBAFBS105**	**XBAFBS106**	**XBAFBS106**
		50	10	**XBAFBS505**	**XBAFBS505**	**XBAFBS505**	**XBAFBS506**	**XBAFBS506**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS5**	**XBATSPS5**	**XBATSPS6**	**XBATSPS6**
Blank marker strip external labeling	White	—	10	**XBMZBF5** ②	**XBMZBF5** ②	**XBMZBF5** ②	**XBMZBF6** ②	**XBMZBF6** ②
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB5** ②	**XBMZB5** ②	**XBMZB5** ②	**XBMZB6** ②	**XBMZB6** ②

Notes

① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

③ XBPT4MT and XBPT4TG have an enclosed design. The use of an end cover is not required.

For additional accessories, see **Page T42-90**.

Technical Data and Specifications

Spring Cage Connection Disconnect and Component Terminal Blocks, XBPT25MT, XBPT25D12MT and XBPT25D22MT

Description	XBPT25MT	XBPT25D12MT	XBPT25D22MT
Technical Data in Accordance with IEC			
Maximum load current in A/cross-section in mm^2	16/4	16/4	16/4
Rated surge voltage in kV/contamination class	6/3	6/3	6/3
Surge voltage category/insulating material group	III/I	III/I	III/I
Connection Capacity			
Stranded with ferrule with plastic sleeve in mm^2	0.25–2.5	0.25–2.5	0.25–2.5
Stranded with ferrules without plastic sleeve in mm^2	0.25–2.5	0.25–2.5	0.25–2.5
Stranded with twin ferrule with plastic sleeve in mm^2	0.5	0.5	0.5
Stripping length in inches (mm)	0.39 (10)	0.39 (10)	0.39 (10)

Spring Cage Connection Disconnect and Component Terminal Blocks, XBPT25D12MT and XBPT4TG

Description	XBPT4MT	XBPT4TG
Technical Data in Accordance with IEC		
Maximum load current in A/cross-section in mm^2	16/6	16/6
Rated surge voltage in kV/contamination class	6/3	6/3
Surge voltage category/insulating material group	III/I	III/I
Connection Capacity		
Stranded with ferrule with plastic sleeve in mm^2	0.25–4	0.25–4
Stranded with ferrules without plastic sleeve in mm^2	0.25–4	0.25–4
Stranded with twin ferrule with plastic sleeve in mm^2	0.5	0.5
Stripping length in inches (mm)	0.39 (10)	0.39 (10)

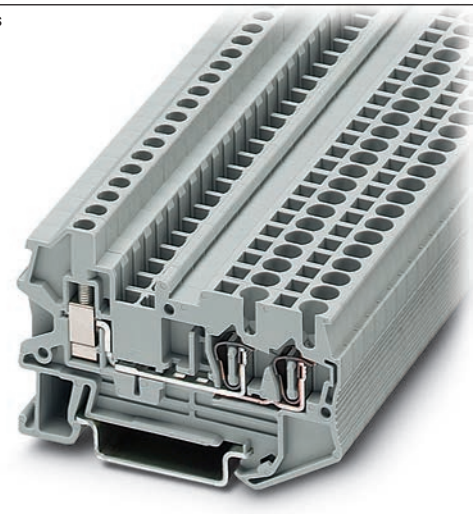
Dimensions

Approximate Dimensions in Inches (mm)

Spring Cage Connection Disconnect and Component Terminal Blocks

Catalogue Number	Width	Length	Cover Length	Height for— 35 x 7.5 in	35 x 15 in
XBPT25MT	0.20 (5.2)	2.38 (60.5)	0.09 (2.2)	1.44 (36.5)	1.73 (44.0)
XBPT25D12MT	0.20 (5.2)	2.83 (72.0)	0.09 (2.2)	1.44 (36.5)	1.73 (44.0)
XBPT25D22MT	0.20 (5.2)	3.31 (84.0)	0.09 (2.2)	1.44 (36.5)	1.73 (44.0)
XBPT4MT	0.24 (6.2)	2.42 (61.5)	—	1.44 (36.5)	1.73 (44.0)
XBPT4TG	0.24 (6.2)	2.42 (61.5)	—	1.44 (36.5)	1.73 (44.0)

Hybrid Terminal Blocks



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Hybrid Terminal Blocks

Product Description

The XBPU spring cage hybrid terminal blocks offer the best of both worlds. One side offers a spring cage connection and the other side offers the universal screw connection. Use the spring cage connection on the internal (factory) control cabinet side and the screw connection on the end customer (field) side. Ground terminal blocks of the same shape are also available.

Product Selection

XBPU25D12

Spring Cage Hybrid Terminal Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 with … Spring in V/A/AWG	IEC 60 947-7-1 with … Screw in V/A/AWG	IEC 60 947-7-2 with … Spring in V/A/AWG	IEC 60 947-7-2 with … Screw in V/A/AWG	UL-cUL Ratings with … Spring in V/A/AWG	UL-cUL Ratings with … Screw in V/A/AWG	Colour	Std. Pack	Catalogue Number
5.2 mm	12 AWG/ 2.5 mm^2	800/28/28–12	800/28/26–14	—	—	600/15/28–12	600/15/26–12	Gray	50	**XBPU25D12**

XBPU25D12PE

Spring Cage Hybrid Ground Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 with … Spring in V/A/AWG	IEC 60 947-7-1 with … Screw in V/A/AWG	IEC 60 947-7-2 with … Spring in V/A/AWG	IEC 60 947-7-2 with … Screw in V/A/AWG	UL-cUL Ratings with … Spring in V/A/AWG	UL-cUL Ratings with … Screw in V/A/AWG	Colour	Std. Pack	Catalogue Number
5.2 mm	12 AWG/ 2.5 mm^2	—	—	—/—/28–12	—/—/26–14	—/—/28–12	—/—/28–12	Green/ Yellow	50	**XBPU25D12PE**

Accessories

Spring Cage Hybrid Terminal/Ground Blocks

Description	Colour	Number of Positions	Standard Pack	XBPU25D12 Catalogue Number	XBPU25D12PE Catalogue Number
End cover	Gray	—	10	**XBACPU25D12**	**XBACPU25D12**
Plug-in bridge—for cross connections in the terminal centre	Red	2	10	**XBAFBS25**	**XBAFBS25**
		3	10	**XBAFBS35**	**XBAFBS35**
		5	10	**XBAFBS55**	**XBAFBS55**
		10	10	**XBAFBS105**	**XBAFBS105**
		50	10	**XBAFBS505**	**XBAFBS505**
Test adapter	—	—	10	**XBATSPAI4**	—
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	—
Modular test plug	—	—	10	**XBATSPS5**	—
Blank marker strip external labeling	White	—	10	**XBMZBF5** ②	**XBMZBF5** ②
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB5** ②	**XBMZB5** ②

Technical Data and Specifications

Spring Cage Hybrid Blocks

Description	XBPU25D12	XBPU25D12PE
Technical Data in Accordance with IEC		
Maximum load current in A/cross-section in mm^2	28/4	—
Rated surge voltage in kV/contamination class	8/3	8/3
Surge voltage category/insulating material group	III/I	III/I
Connection Capacity		
Stranded with ferrule with plastic sleeve in mm^2	0.25–2.5	0.25–2.5
Stranded with ferrules without plastic sleeve in mm^2	0.25–2.5	0.25–2.5
Stranded with twin ferrule with plastic sleeve in mm^2	0.5–1	0.5–1
Stripping length in inches (mm)	0.39 (10)	0.39 (10)

Dimensions

Approximate Dimensions in Inches (mm)

Spring Cage Hybrid Blocks

Catalogue Number	Width	Length	Cover Length	Height for— 35 x 7.5 in	35 x 15 in
XBPU25D12	0.20 (5.2)	2.57 (65.3)	0.09 (2.2)	1.69 (42.8)	1.98 (50.3)
XBPU25D12PE	0.20 (5.2)	2.57 (65.3)	0.09 (2.2)	1.69 (42.8)	1.98 (50.3)

Notes

① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Mini Spring Cage

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Mini Spring Cage

Product Description

The ***XB*** miniature terminal blocks have a connection cross-section from 1.5 mm^2 through 4 mm^2 and mount on 15 mm DIN rail. There is an opening for bridging with a fixed bridge in the centre of the terminal blocks. These miniature terminal blocks also offer the same accessories that you would find with the larger blocks—including marking tags, end covers, end stop and ground blocks.

Product Selection

XBMPK15

Mini Spring Cage Terminal Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	IEC 60 947-7-2 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	14 AWG/1.5 mm^2	800/24/26–14	—	600/15/26–14	Gray	50	**XBMPK15**
					Blue	50	**XBMPK15BU**

XBMPK15PE

Mini Spring Cage Ground Blocks

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	IEC 60 947-7-2 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	14 AWG/1.5 mm^2	—	—/—/26–14	—/—/26–14	Green/ Yellow	50	**XBMPK15PE**

XBMPKK15

Mini Spring Cage Terminal Blocks—Double Level

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	14 AWG/1.5 mm^2	500/20/26–14	600/15/26–14	Gray	50	**XBMPKK15**

Accessories

Mini Spring Cage Terminal/Ground Blocks

Description	Colour	Number of Positions	Standard Pack	XBMPK15 Catalogue Number	XBMPK15PE Catalogue Number	XBMPKK15 Catalogue Number
End cover	Gray	—	10	**XBACMPK15**	**XBACMPK15**	**XBACMPKK15**
Fixed bridge	—	2	10	**XBAFBR25N**	—	**XBAFBR25N**
Separating plate	—	—	10	**XBATMPKK15**	—	**XBATMPKK15**
Blank marker strip	White	—	10	**XBMZBF5** ①	**XBMZBF5** ①	**XBMZBF5** ①

Technical Data and Specifications

Mini Spring Cage Terminal/Ground Blocks

Description	XBMPK15	XBMPK15PE	XBMPKK15
Technical Data in Accordance with IEC			
Maximum load current in A/cross-section in mm^2	24/2.5	—	20/2.5
Rated surge voltage in kV/contamination class	8/3	8/3	6/3
Surge voltage category/insulating material group	III/I	III/I	III/I
Connection Cross-Section			
Stranded with ferrule with plastic sleeve in mm^2	0.25–1.5	0.25–1.5	0.25–1.5
Stranded with ferrule without plastic sleeve in mm^2	0.25–1.5	0.25–1.5	0.25–1.5
Stranded with twin ferrule with plastic sleeve in mm^2	—	—	—
Stripping length in Inches (mm)	0.35 (9)	0.35 (9)	0.35 (9)

Dimensions

Approximate Dimensions in Inches (mm)

Mini Spring Cage Terminal/Ground Blocks

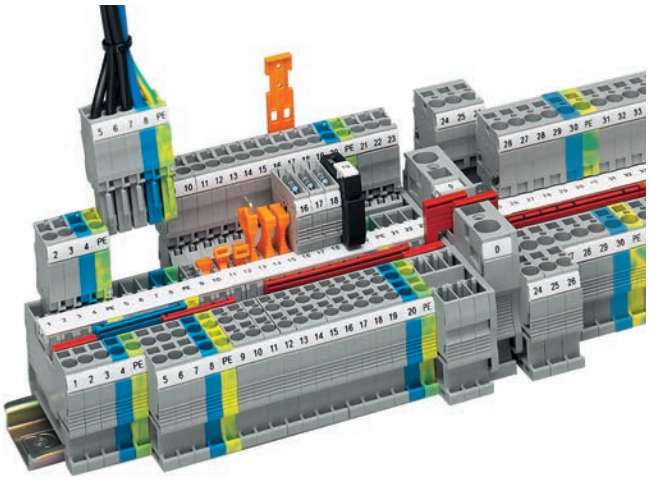
Catalogue Number	Width	Length	Cover Length	Height for— 15 x 5.5 in	35 x 7.5 in	35 x 15 in
XBMPK15	0.20 (5.2)	1.57 (40.0)	0.04 (1.1)	1.36 (34.5)	—	—
XBMPK15PE	0.20 (5.2)	1.57 (40.0)	0.04 (1.1)	1.36 (34.5)	—	—
XBMPKK15	0.20 (5.2)	3.35 (85.0)	0.04 (1.1)	1.65 (42.0)	1.67 (42.5)	1.97 (50.0)

Notes

① For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Pluggable Spring Cage Terminal Blocks



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Pluggable Spring Cage Terminal Blocks Overview

Product Description

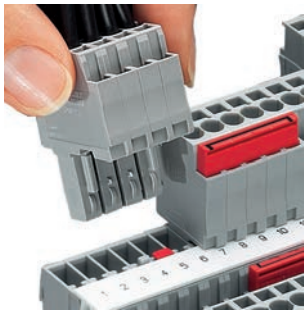
The pluggable spring cage connection terminal blocks allow signal and power wiring to be made pluggable. This complete pluggable system has a spring that provides maximum connection space in a space-saving design. The pluggable system accommodates stranded conductors with a nominal cross-section of 2.5 mm^2, with or without ferrules.

Application Description

For applications requiring pluggable wiring up to a rated current of 32A and a rated voltage of 800V. The integrated overspring meets the most stringent vibration requirements. Also ideal where safety is a concern and flexibility is required. The basic terminal blocks and the plugs are finger-safe, which also means the supply voltage can be input via either the terminal blocks or the plugs. With the XBAPSC receptacles, plug-in contacts can be accommodated safely in cable ducts and distributor shafts using minimal space. A test hole can accommodate a 2.3 mm diameter test plug in each receptacle, providing a practical solution. The XBAPSP plugs are intended for connecting one wire, while the XBAPSPDB plugs are designed to connect two wires and provide an optional bridge.

Features

- Space-saving design
- Powerful contact
- Finger-safe



Pluggability

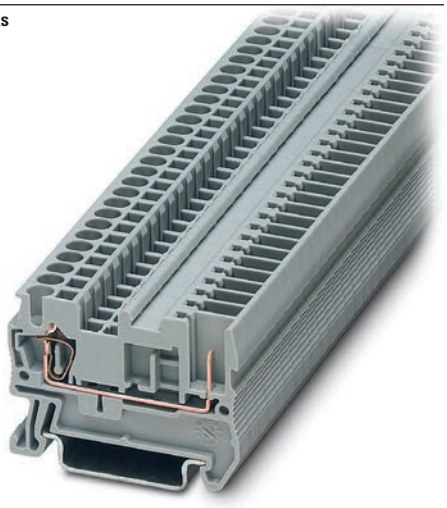
Standards and Certifications

- UL recognized—File No. E67464
- CE approved
- LVD ①:
  - EN 60947-7-1
  - EN 60947-7-2
  - EN 60998-2-3
  - EN 60352-4/A1
- ATEX approval (Eex e applications)

Note

① Not all standards apply to all terminal blocks. Contact Eaton for details.

Connection Terminal Blocks



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Connection Terminal Blocks

Product Description

Contact to the DIN rail is made by simply snapping the terminal block onto the rail.

These blocks act as the stationary position of the pluggable terminal blocks.

Product Selection

XBPT25P

Pluggable Spring Cage Connection Terminal Blocks

Terminal Width	Maximum Wire Size	IEC 61 984 in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Single Level						
5.2 mm	12 AWG/2.5 mm^2	500/24/28–12	300/20/26–12	Gray	50	**XBPT25P**
Three-Wire						
5.2 mm	12 AWG/2.5 mm^2	500/24/28–12	300/20/26–12	Gray	50	**XBPT25PD12**

Accessories

Pluggable Spring Cage Connection Terminal Blocks

Description	Colour	Number of Positions	Standard Pack	XBPT25P Catalogue Number	XBPT25PD12 Catalogue Number
End cover	Gray	—	10	**XBACPT25**	**XBACPT25D12**
End cover segment	Gray	—	10	—	**XBASPT25**
Partition plate	—	—	10	**XBATPT4**	**XBATPTD12**
Plug-in bridge—for cross connections in the terminal centre	Red	2	10	**XBAFBS25**	**XBAFBS25**
		3	10	**XBAFBS35**	**XBAFBS35**
		5	10	**XBAFBS55**	**XBAFBS55**
		10	10	**XBAFBS105**	**XBAFBS105**
		50	10	**XBAFBS505**	**XBAFBS505**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS5**
Blank marker strip external labeling	White	—	10	**XBMZBF5** ②	**XBMZBF5** ②
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB5** ②	**XBMZB5** ②

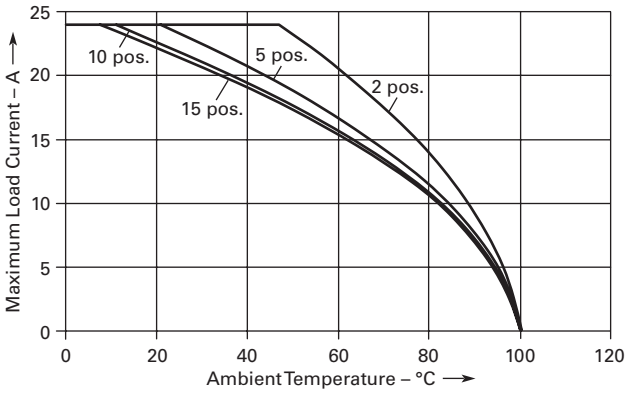
Technical Data and Specifications

Pluggable Spring Cage Connection Terminal Blocks

Description	XBPT25P	XBPT25PD12
Technical Data in Accordance with IEC		
Maximum load current in A/cross-section in mm^2	24/4	24/4
Rated surge voltage in kV/contamination class	6/3	6/3
Surge voltage category/insulating material group	III/I	III/I
Connection Capacity		
Stranded with ferrule with plastic sleeve in mm^2	0.25–2.5	0.25–2.5
Stranded with ferrules without plastic sleeve in mm^2	0.25–2.5	0.25–2.5
Stranded with twin ferrule with plastic sleeve in mm^2	0.5	0.5
Stripping length in inches (mm)	0.39 (10)	0.39 (10)

Derating Curve for Pluggable Terminal Blocks

XBPT25P and XBPT25PD12



Notes

① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

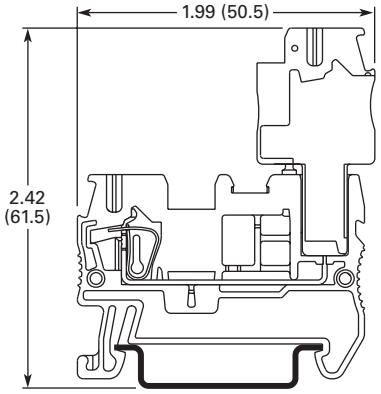
Dimensions

Approximate Dimensions in Inches (mm)

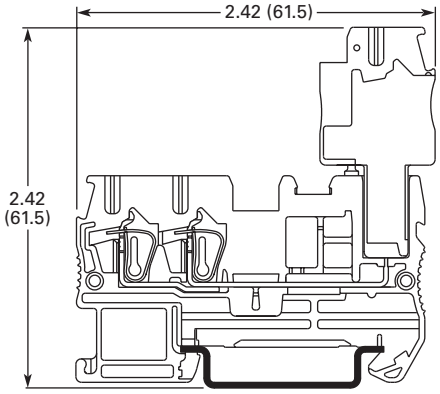
Pluggable Spring Cage Connection Terminal Blocks—Without Plug

Catalogue Number	Width	Length	Cover Length	Height for— 35 x 7.5 in	35 x 15 in
XBPT25P	0.20 (5.2)	1.91 (48.5)	0.09 (2.2)	1.44 (36.5)	1.73 (44.0)
XBPT25PD12	0.20 (5.2)	2.38 (60.5)	0.09 (2.2)	1.44 (36.5)	1.73 (44.0)

XBPT25P



XBPT25PD12



Connection Plugs

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Connection Plugs

Product Description

Just like the basic terminal blocks, the plugs also offer the perfect solution for every application. The XBAPSP25_ plugs are designed for connecting one conductor. The XBAPSPDB25_ plug is designed for connecting two conductors and provides an additional bridging option.

Product Selection

XBAPSP25_

Spring Cage Connection Plugs, Single, Not Bridgeable

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Number of Positions	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	500/24/28–12	300/20/26–12	Gray	1	25	**XBAPSP251**
					2	25	**XBAPSP252**
					3	25	**XBAPSP253**
					4	25	**XBAPSP254**
					5	25	**XBAPSP255**
					6	25	**XBAPSP256**
					7	25	**XBAPSP257**
					8	25	**XBAPSP258**
					9	25	**XBAPSP259**
					10	25	**XBAPSP2510**
					11	10	**XBAPSP2511**
					12	10	**XBAPSP2512**

XBAPSPDB25_

Spring Cage Connection Plugs, Double, Bridgeable

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Number of Positions	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	500/24/28–12	300/20/26–12	Gray	1	25	**XBAPSPDB251**
					2	25	**XBAPSPDB252**
					3	25	**XBAPSPDB253**
					4	25	**XBAPSPDB254**
					5	25	**XBAPSPDB255**
					6	25	**XBAPSPDB256**
					7	25	**XBAPSPDB257**
					8	25	**XBAPSPDB258**
					9	25	**XBAPSPDB259**
					10	25	**XBAPSPDB2510**
					11	10	**XBAPSPDB2511**
					12	10	**XBAPSPDB2512**

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Accessories

Spring Cage Connection Plugs

Description	Colour	Number of Positions	Standard Pack	XBAPSP25_ Catalogue Number	XBAPSPDB25_ Catalogue Number
Plug-in bridge—for cross connections in the terminal centre	Red	2	10	—	**XBAFBS25**
		3	10	—	**XBAFBS35**
		5	10	—	**XBAFBS55**
		10	10	—	**XBAFBS105**
Snap-lock fitting and strain relief	Orange	2	10	**XBAPPRZ**	**XBAPPRZ**
Snap-lock fitting	Orange	1	10	**XBAPPR**	**XBAPPR**
	Orange	2	10	**XBAPPR2**	**XBAPPR2**
Strain relief	Black	2	10	**XBAPPZ2**	**XBAPPDZ2**
	Black	4	10	**XBAPPZ4**	**XBAPPDZ4**
Blank marker strip	White	—	10	**XBMZBF5** ①	**XBMZBF5** ①

Technical Data and Specifications

Spring Cage Connection Plugs

Description	XBAPSP25_	XBAPSPDB25_
Technical Data in Accordance with IEC		
Maximum load current in A/cross-section in mm^2	24/4	24/4
Rated surge voltage in kV/contamination class	6/3	6/3
Surge voltage category/insulating material group	III/I	III/I
Connection Capacity		
Stranded with ferrule with plastic sleeve in mm^2	0.25–2.5	0.25–2.5
Stranded with ferrules without plastic sleeve in mm^2	0.25–2.5	0.25–2.5
Stranded with twin ferrule with plastic sleeve in mm^2	0.5	0.5
Stripping length in inches (mm)	0.39 (10)	0.39 (10)

Dimensions

See **Page T42-61** for dimensions.

Notes

① For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Connection Receptacles

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Connection Receptacles

Product Description

With the XBAPSC25_, Plug-in contacts can be accommodated safely in cable ducts and distributor shafts without using much space. The standard strain reliefs can also be used. Large-surface labeling makes it possible to mark the terminal points and the entire receptacle. A test hole can accommodate a 2.3 mm diameter test plug in each receptacle element, providing a practical solution.

Product Selection

XBAPSC25_

Pluggable Spring Connection Receptacles

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Number of Positions	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	500/24/28–12	300/20/26–12	Gray	2	25	**XBAPSC252**
					3	25	**XBAPSC253**
					4	25	**XBAPSC254**
					5	25	**XBAPSC255**
					6	25	**XBAPSC256**
					7	25	**XBAPSC257**
					8	25	**XBAPSC258**
					9	25	**XBAPSC259**
					10	25	**XBAPSC2510**
					11	10	**XBAPSC2511**
					12	10	**XBAPSC2512**

Accessories

Pluggable Spring Connection Receptacles

Description	Colour	Number of Positions	Standard Pack	XBAPSC25_ Catalogue Number
2.3 mm diameter test plug	Red	—	—	**XBATSMPS-_** ①
Strain relief	Black	2	10	**XBAPPDZ2**
	Black	4	10	**XBAPPDZ4**
Blank marker strip	White	—	10	**XBMZBF5** ②

Technical Data and Specifications

Spring Cage Connection Plugs

Description	XBAPSP25_
Technical Data in Accordance with IEC	
Maximum load current in A/cross-section in mm^2	24/4
Rated surge voltage in kV/contamination class	6/3
Surge voltage category/insulating material group	III/I
Connection Capacity	
Stranded with ferrule with plastic sleeve in mm^2	0.25–2.5
Stranded with ferrules without plastic sleeve in mm^2	0.25–2.5
Stranded with twin ferrule with plastic sleeve in mm^2	0.5
Stripping length in inches (mm)	0.39 (10)

Dimensions

Approximate Dimensions in Inches (mm)

Spring Cage Connection Plugs

Catalogue Number	Width	Length	Cover Length	Height
XBAPSP25_	0.20 (5.2)	1.46 (37.2)	0.09 (2.2)	0.71 (18.0)

Receptacle Widths

Catalogue Number	Width	Catalogue Number	Width
XBAPSC252	0.41 (10.4)	**XBAPSC258**	1.64 (41.6)
XBAPSC253	0.61 (15.6)	**XBAPSC259**	1.84 (46.8)
XBAPSC254	0.82 (20.8)	**XBAPSC2510**	2.05 (52.0)
XBAPSC255	1.02 (26.0)	**XBAPSC2511**	2.25 (57.2)
XBAPSC256	1.23 (31.2)	**XBAPSC2512**	2.46 (62.4)
XBAPSC257	1.43 (36.4)		

Notes

① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Connection Accessories

Product Description

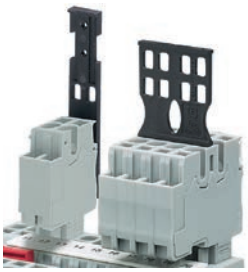
The pluggable XBPT series features an extensive range of application-oriented accessories. Strain reliefs are available for the plugs and can be snapped on at the required points as an option. The snap-lock fitting can be used for all plug variants. It is snapped into the outside of the plug housing as an option and hooks onto the terminal block housing when the plug is snapped on.

Product Selection

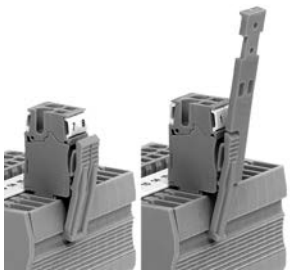
Pluggable Spring Cage Connection Accessories

	Description	Number of Positions	Standard Pack	Catalogue Number
XBAPPZ2	Strain relief for single plugs	2	10	**XBAPPZ2**
		4	10	**XBAPPZ4**
XBAPPDZ4	Strain relief for double plugs and receptacles	2	10	**XBAPPDZ2**
		4	10	**XBAPPDZ4**
XBAPPR2	Snap-lock fitting for plugs	1	10	**XBAPPR**
		2	10	**XBAPPR2**
XBAPPRZ	Snap-lock fitting and strain relief for plugs	2	10	**XBAPPRZ**

Strain Relief



Snap-Lock Fitting



Optional Accessory Recommendations

Number of Positions Receptacle	Strain Relief
2–4	**XBAPPZ2**
5–10	**XBAPPZ4 or (2) XBAPPZ2**
11–15	**(2) XBAPPZ4 or (4) XBAPPZ2**

IDC Terminal Blocks

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IDC (Insulation Displacement Connection) Terminal Blocks Overview

Product Description

The superior design of Eaton's Insulation Displacement Connection (IDC) technology terminal blocks reduces wiring installation time and labor, especially in high-volume applications. IDC terminal blocks are suited for applications in automated equipment and machine tools, packaging and material handling machinery, railway/mass transit systems, petro-chemical, and any other application requiring high-volume connections for low-voltage control and signal circuitry where labor cost reduction and ease of assembly is desired. These terminal blocks are designed for long-term use under demanding conditions.

The XBQT Series allows for wire to be connected without any prior stripping. The quick connection provides up to 60% reduction in wiring time. One turn of a standard screwdriver results in a simple, fast and reliable connection.

Application Description

The XBQT is operated with a standard screwdriver. The switching states are clearly signaled by engagement points in the start and end positions. Solid and stranded wires of 0.25 to 2.5 mm^2 can be wired without the use of ferrules. Stripping the wire is not required—the wire's insulation is cut open when it is properly connected. The wire is securely placed in the end position where it makes large-area, gas-tight contact. Connections are made in seconds!

Features

- Quick connection capability
- Global acceptance
- Flexible plug-in bridge system
- Large surface area for marking
- Standardized testing system

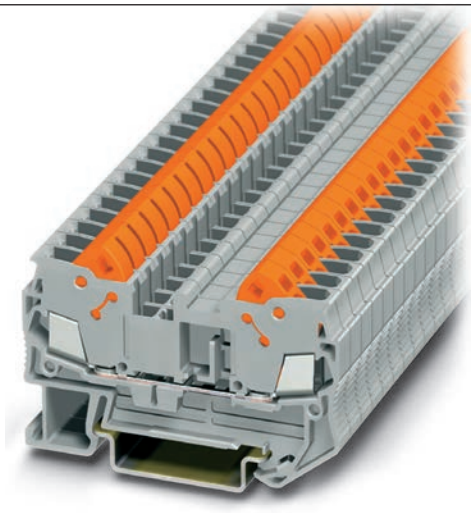
Standards and Certifications

- UL recognized—File No. E67464
- CE approved
- LVD ①
  - EN 60947-7-1
  - EN 60947-7-2
  - EN 60998-2-3
  - EN 60352-4/A1
- ATEX approval (Eex e applications)

Note

① Not all standards apply to all terminal blocks. Contact Eaton for details.

Single Level



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Single Level

Product Description

The XBQT IDC terminal block has the fastest connection time in a compact design. The space-saving front connection design offers additional space for wiring between the cable ducts. The double bridge shaft can accommodate individual chain bridging and step-down bridging from other terminal blocks. The XBQT ground blocks are the same shape as the feed-through terminal blocks with the same wide range of cross-sections available. They easily snap onto the DIN rail to make a reliable mechanical and electrical contact that meets all requirements of IEC 60-947-7-2.

Product Selection

XBQT25

IDC—Single Level Terminal Blocks

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	16 AWG/1.5 mm^2	800/17.5/24–16	550/16/24–16	600/10/24–16	Gray	50	**XBQT15**
					Blue	50	**XBQT15BU**
6.2 mm	14 AWG/2.5 mm^2	800/24/20–14	—	600/15/20–14	Gray	50	**XBQT25**
					Blue	50	**XBQT25BU**

XBQT15PE

IDC—Single Level Terminal Ground Blocks

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	16 AWG/1.5 mm^2	—/—/24–16	—/—/24–16	—/—/24–16	Green/Yellow	50	**XBQT15PE**
6.2 mm	14 AWG/2.5 mm^2	—/—/20–14	—	—/—/20–14	Green/Yellow	50	**XBQT25PE**

Note

① EU type—examination certificate number: KEMA 05ATEX2157 U (XBQT15), KEMA 05ATEX2160 U (XBQT25).

Accessories

IDC—Single Level Terminal/Ground Blocks

Description	Colour	Number of Positions	Standard Pack	XBQT15 Catalogue Number	XBQT25 Catalogue Number	XBQT15PE Catalogue Number	XBQT25PE Catalogue Number
End cover	Gray	—	10	**XBACQT15**	**XBACQT25**	**XBACQT15**	**XBACQT25**
Partition plate	—	—	10	**XBATQT25**	**XBATQT25**	**XBATQT25**	**XBATQT25**
Plug-in bridge	Red	2	10	**XBAFBS25**	**XBAFBS26**	**XBAFBS25**	**XBAFBS26**
		3	10	**XBAFBS35**	**XBAFBS36**	**XBAFBS35**	**XBAFBS36**
		5	10	**XBAFBS55**	**XBAFBS56**	**XBAFBS55**	**XBAFBS56**
		10	10	**XBAFBS105**	**XBAFBS106**	**XBAFBS105**	**XBAFBS106**
		50	10	**XBAFBS505**	**XBAFBS506**	**XBAFBS505**	**XBAFBS506**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS6**	**XBATSPS5**	**XBATSPS6**
Blank marker strip centre and external marking	White	—	10	**XBMZBF5** ②	**XBMZBF6** ②	**XBMZBF5** ②	**XBMZBF6** ②
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB5** ②	**XBMZB6** ②	**XBMZB5** ②	**XBMZB6** ②

Technical Data and Specifications

IDC—Single Level Terminal/Ground Blocks

Description	XBQT15	XBQT25	XBQT15PE	XBQT25PE
Technical Data in Accordance with IEC				
Maximum load current in A/cross-section in mm^2	17.5/1.5	24/2.5	—	—
Rated surge voltage in kV/contamination class	8/3	8/3	8/3	8/3
Surge voltage category/insulating material group	III/I	III/I	III/I	III/I
Connection Cross-Section				
Core insulation	PVC/PE	PVC/PE	PVC/PE	PVC/PE
Single/multiple/fine strand in mm^2	1.5	2.5	1.5	2.5
Halogen-free in mm^2	1.5	2.5	1.5	2.5
Fine strand/superfine strand in AWG (mm^2)	24–16 (0.25–0.34)	20–14 (—)	24–16 (0.25–0.34)	20–14 (—)
Repeated connections minimum 100 x in mm^2	0.25–1.5	0.5–2.5	0.25–1.5	0.5–2.5

Dimensions

Approximate Dimensions in Inches (mm)

IDC—Single Level Terminal/Ground Blocks

Catalogue Number	Width	Length	Cover Length	Height for— 35 x 7.5 in	35 x 15 in
XBQT15	0.20 (5.2)	2.31 (58.8)	0.09 (2.2)	1.55 (39.3)	1.84 (46.8)
XBQT25	0.24 (6.2)	2.46 (62.6)	0.09 (2.2)	1.55 (39.3)	1.84 (46.8)
XBQT15PE	0.20 (5.2)	2.31 (58.8)	0.09 (2.2)	1.55 (39.3)	1.84 (46.8)
XBQT25PE	0.24 (6.2)	2.46 (62.6)	0.09 (2.2)	1.55 (39.3)	1.84 (46.8)

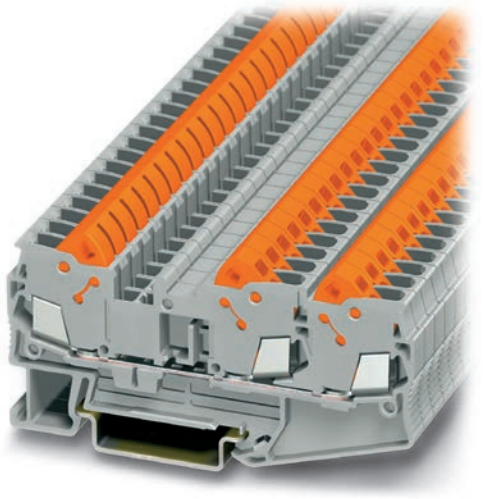
Notes

① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Multi-Conductor



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Multi-Conductor

Product Description

The XBQT IDC terminal block has the fastest connection time in a compact design. The space-saving front connection design offers additional space for wiring between the cable ducts. The double bridge shaft can accommodate individual chain bridging and step-down bridging from other terminal blocks. The XBQT ground blocks are the same shape as the feed-through terminal blocks with the same wide range of cross-sections available. They easily snap onto the DIN rail to make a reliable mechanical and electrical contact that meets all requirements of IEC 60-947-7-2.

Product Selection

XBQT25D12

IDC—Multi-Conductor Terminal Blocks, Three-Wire

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	16 AWG/1.5 mm^2	800/17.5/24–16	550/16/24–16	600/10/24–16	Gray	50	**XBQT15D12**
					Blue	50	**XBQT15D12BU**
6.2 mm	14 AWG/2.5 mm^2	800/24/20–14	—	600/15/20–14	Gray	50	**XBQT25D12**
					Blue	50	**XBQT25D12BU**

XBQT15D22PE

IDC—Multi-Conductor Terminal Blocks, Four-Wire

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	16 AWG/1.5 mm^2	800/17.5/24–16	550/16/24–16	600/10/24–16	Gray	50	**XBQT15D22**
					Blue	50	**XBQT15D22BU**

IDC—Multi-Conductor Terminal Blocks, Four-Wire Ground Blocks

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	16 AWG/1.5 mm^2	—/—/24–16	—/—/24–16	—/—/24–16	Green/Yellow	50	**XBQT15D22PE**

Note

① EU type—examination certificate number: KEMA 05ATEX2157 U (XBQT15), KEMA 05ATEX2160 U (XBQT25).

XBQT15D12PE

IDC—Multi-Conductor Terminal Blocks, Three-Wire Ground Blocks

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	16 AWG/1.5 mm²	—/—/24–16	—/—/24–16	—/—/24–16	Green/Yellow	50	**XBQT15D12PE**
6.2 mm	14 AWG/2.5 mm²	—/—/20–14	—	—/—/20–14	Green/Yellow	50	**XBQT25D12PE**

Accessories

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IDC—Multi-Conductor Terminal Blocks

Description	Colour	Number of Positions	Standard Pack	XBQT15D12 Catalogue Number	XBQT25D12 Catalogue Number	XBQT15D22 Catalogue Number
End cover	Gray	—	10	**XBACQT15D12**	**XBACQT25D12**	**XBACQT15D22**
End cover segment	Gray	—	10	**XBASQT15**	**XBASQT25**	**XBASQT15**
Partition plate	—	—	10	**XBATQTD12**	**XBATQTD12**	**XBATQTD22**
Plug-in bridge—for cross connections in the terminal centre	Red	2	10	**XBAFBS25**	**XBAFBS26**	**XBAFBS25**
		3	10	**XBAFBS35**	**XBAFBS36**	**XBAFBS35**
		5	10	**XBAFBS55**	**XBAFBS56**	**XBAFBS55**
		10	10	**XBAFBS105**	**XBAFBS106**	**XBAFBS105**
		50	10	**XBAFBS505**	**XBAFBS506**	**XBAFBS505**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ②	**XBATSMPS-_** ②	**XBATSMPS-_** ②
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS6**	**XBATSPS5**
Blank marker strip centre and external marking	White	—	10	**XBMZBF5** ③	**XBMZBF6** ③	**XBMZBF5** ③
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB5** ③	**XBMZB6** ③	**XBMZB5** ③

IDC—Multi-Conductor Terminal/Ground Blocks

Description	Colour	Number of Positions	Standard Pack	XBQT15D12PE Catalogue Number	XBQT25D12PE Catalogue Number	XBQT15D22PE Catalogue Number
End cover	Gray	—	10	**XBACQT15D12**	**XBACQT25D12**	**XBACQT15D22**
End cover segment	Gray	—	10	**XBASQT15**	**XBASQT25**	**XBASQT15**
Partition plate	—	—	10	**XBATQTD12**	**XBATQTD12**	**XBATQTD22**
Plug-in bridge—for cross connections in the terminal centre	Red	2	10	**XBAFBS25**	**XBAFBS26**	**XBAFBS25**
		3	10	**XBAFBS35**	**XBAFBS36**	**XBAFBS35**
		5	10	**XBAFBS55**	**XBAFBS56**	**XBAFBS55**
		10	10	**XBAFBS105**	**XBAFBS106**	**XBAFBS105**
		50	10	**XBAFBS505**	**XBAFBS506**	**XBAFBS505**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ②	**XBATSMPS-_** ②	**XBATSMPS-_** ②
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS6**	**XBATSPS5**
Blank marker strip centre and external marking	White	—	10	**XBMZBF5** ③	**XBMZBF6** ③	**XBMZBF5** ③
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB5** ③	**XBMZB6** ③	**XBMZB5** ③

Notes

① EU type—examination certificate number: KEMA 05ATEX2157 U (XBQT15PE), KEMA 05ATEX2160 U (XBQT25PE).

② For ordering information, see **Page T42-105**.

③ For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Technical Data and Specifications

IDC—Multi-Conductor Terminal Blocks

Description	XBQT15D12	XBQT25D12	XBQT15D12PE	XBQT25D12PE	XBQT15D22	XBQT15D22PE
Technical Data in Accordance with IEC						
Maximum load current in A/cross-section in mm^2	17.5/1.5	24/2.5	—	—	17.5/1.5	—
Rated surge voltage in kV/contamination class	8/3	8/3	8/3	8/3	8/3	8/3
Surge voltage category/insulating material group	III/I	III/I	III/I	III/I	III/I	III/I
Connection Cross-Section						
Core insulation	PVC/PE	PVC/PE	PVC/PE	PVC/PE	PVC/PE	PVC/PE
Single/multiple/fine strand in mm^2	1.5	2.5	1.5	2.5	1.5	1.5
Halogen-free in mm^2	1.5	2.5	1.5	2.5	1.5	1.5
Fine strand/superfine strand in AWG (mm^2)	24–16 (0.25–0.34)	20–14 (—)	24–16 (0.25–0.34)	20–14 (—)	24–16 (0.25–0.34)	24–16 (0.25–0.34)
Repeated connections minimum 100 x in mm^2	0.25–1.5	0.5–2.5	0.25–1.5	0.5–2.5	0.25–1.5	0.25–1.5

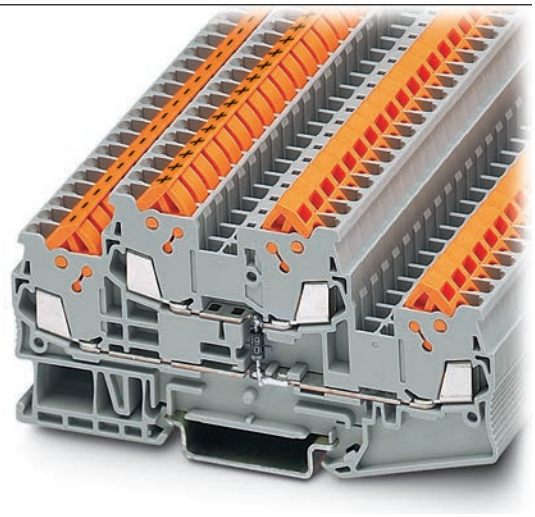
Dimensions

Approximate Dimensions in Inches (mm)

IDC—Multi-Conductor Terminal Blocks

Catalogue Number	Width	Length	Cover Length	Height for— 35 x 7.5 in	35 x 15 in
XBQT15D12	0.20 (5.2)	3.01 (76.4)	0.09 (2.2)	1.55 (39.3)	1.84 (46.8)
XBQT25D12	0.24 (6.2)	3.25 (82.5)	0.09 (2.2)	1.69 (42.8)	1.98 (50.3)
XBQT15D12PE	0.20 (5.2)	3.01 (76.4)	0.09 (2.2)	1.55 (39.3)	1.84 (46.8)
XBQT25D12PE	0.20 (5.2)	3.25 (82.5)	0.09 (2.2)	1.69 (42.8)	1.98 (50.3)
XBQT15D22	0.20 (5.2)	3.70 (94.0)	0.09 (2.2)	1.55 (39.3)	1.84 (46.8)
XBQT15D22PE	0.20 (5.2)	3.70 (94.0)	0.09 (2.2)	1.55 (39.3)	1.84 (46.8)

Double Level



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Double Level

Product Description

The XBQTT IDC terminal block has the fastest connection time in a compact design. The space-saving front connection design offers additional space for wiring between the cable ducts. The double bridge shaft, found in each level, can accommodate individual chain bridging and step-down bridging from other terminal blocks. The XBQTT ground blocks are the same shape as the feed-through terminal blocks with the same wide range of cross-sections available. They easily snap onto the DIN rail to make a reliable mechanical and electrical contact that meets all requirements of IEC 60-947-7-2.

Product Selection

XBQTT15

IDC—Double Level Terminal Blocks

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	16 AWG/1.5 mm^2	800/17.5/24–16	420/15/24–16	600/10/24–16	Gray	50	**XBQTT15**
					Blue	50	**XBQTT15BU**

XBQTT15PE

IDC—Double Level Ground Blocks

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
6.2 mm	14 AWG/2.5 mm^2	—/—/24–16	—/—/24–16	—/—/24–16	Green/Yellow	50	**XBQTT15PE**

Note

① EU type—examination certificate number: KEMA 05ATEX2157 U (XBQT15), KEMA 05ATEX2160 U (XBQT25).

Accessories

IDC—Double Level Terminal/Ground Blocks

Description	Colour	Number of Positions	Standard Pack	XBQTT15 Catalogue Number	XBQTT15PE Catalogue Number
End cover	Gray	—	10	**XBACQTT15**	**XBACQTT15**
Partition plate	—	—	10	**XBATQTT15**	**XBATQTT15**
Plug-in bridge—for cross connections in the terminal centre	Red	2	10	**XBAFBS25**	**XBAFBS25**
		3	10	**XBAFBS35**	**XBAFBS35**
		5	10	**XBAFBS55**	**XBAFBS55**
		10	10	**XBAFBS105**	**XBAFBS105**
		20	10	**XBAFBS505**	**XBAFBS505**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS5**
Blank marker strip	White	—	10	**XBMZBF5** ②	**XBMZBF5** ②

Technical Data and Specifications

IDC—Double Level Terminal/Ground Blocks

Description	XBQTT15	XBQTT15PE
Technical Data in Accordance with IEC		
Maximum load current in A/cross-section in mm^2	17.5/1.5	—
Rated surge voltage in kV/contamination class	6/3	6/3
Surge voltage category/insulating material group	III/I	III/I
Connection Cross-Section		
Core insulation	PVC/PE	PVC/PE
Single/multiple/fine strand in mm^2	1.5	1.5
Halogen-free in mm^2	1.5	1.5
Fine strand/superfine strand in AWG (mm^2)	24–16 (0.25–0.34)	24–16 (0.25–0.34)
Repeated connections minimum 100 x in mm^2	0.25–1.5	0.25–1.5

Dimensions

Approximate Dimensions in Inches (mm)

IDC—Double Level Terminal/Ground Blocks

Catalogue Number	Width	Length	Cover Length	Height for— 35 x 7.5 in	35 x 15 in
XBQTT15	0.20 (5.2)	3.92 (99.6)	0.09 (2.2)	1.96 (49.9)	2.26 (57.4)
XBQTT15PE	0.20 (5.2)	3.92 (99.6)	0.09 (2.2)	1.96 (49.9)	2.26 (57.4)

Notes

① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Fuse Terminal Blocks

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Fuse Terminal Blocks

Product Description

The XBQT lever-type fuse terminal blocks perform two main functions. It is a carrier for a 5 x 20 mm cartridge fuse insert and can also allow for potential distribution via the double bridge shaft.

This means that two potentials can be carried separately alongside each other. Versions with light indication (AC and DC voltage) are available to signal a triggered fuse.

Product Selection

XBQT25FB

IDC—Fuse Terminal Blocks

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
IDC Fuse Terminal Blocks						
6.2 mm	14 AWG/2.5 mm^2	①/6.3/20–14	300/15/20–14	Black	50	**XBQT25FBE**
IDC Fuse Terminal Blocks with LED 12–30V, 1–2.5 mA						
6.2 mm	14 AWG/2.5 mm^2	①/6.3/20–14	300/15/20–14	Black	50	**XBQT25FBEL24**
IDC Fuse Terminal Blocks with LED 30–60V, 0.8–2.0 mA						
6.2 mm	14 AWG/2.5 mm^2	①/6.3/20–14	300/15/20–14	Black	50	**XBQT25FBEL60**
IDC Fuse Terminal Blocks with LED 110–250V, 0.5–2.5 mA						
6.2 mm	14 AWG/2.5 mm^2	①/6.3/20–14	300/15/20–14	Black	50	**XBQT25FBEL250**

Note

① As disconnect terminal block, 400V; as fuse terminal blocks 250V.

Accessories

IDC—Fuse Terminal Blocks

Description	Colour	Number of Positions	Standard Pack	XBQT25FBE Catalogue Number
End cover	Gray	—	10	**XBACQT25D12**
Partition plate	—	—	10	**XBATQTD12**
Plug-in bridge—for cross connections in the terminal centre	Red	2	10	**XBAFBS26**
		3	10	**XBAFBS36**
		5	10	**XBAFBS56**
		10	10	**XBAFBS106**
Test adapter	—	—	10	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①
Modular test plug	—	—	10	**XBATSPS5**
Blank marker strip centre and external marking	White	—	10	**XBMZBF6** ②
Blank marker strip lever labeling	White	—	10	**XBMZB5** ②
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB6** ②

Technical Data and Specifications

IDC—Fuse Terminal Blocks

Description	XBQT25FBE
Technical Data in Accordance with IEC	
Maximum load current in A/cross-section in mm^2	6.3/2.5
Rated surge voltage in kV/contamination class	4/3
Surge voltage category/insulating material group	III/I
Connection Cross-Section	
Core insulation	PVC/PE
Single/multiple/fine strand in mm^2	2.5
Halogen-free in mm^2	2.5
Fine strand/superfine strand in AWG (mm^2)	24–14 (—)
Repeated connections minimum 100 x in mm^2	0.5–2.5

Dimensions

Approximate Dimensions in Inches (mm)

IDC—Fuse Terminal Blocks

Catalogue Number	Width	Length	Cover Length	Height for— 35 x 7.5 in	35 x 15 in
XBQT25FBE	0.24 (6.2)	3.25 (82.5)	0.09 (2.2)	1.69 (42.8)	1.98 (50.3)

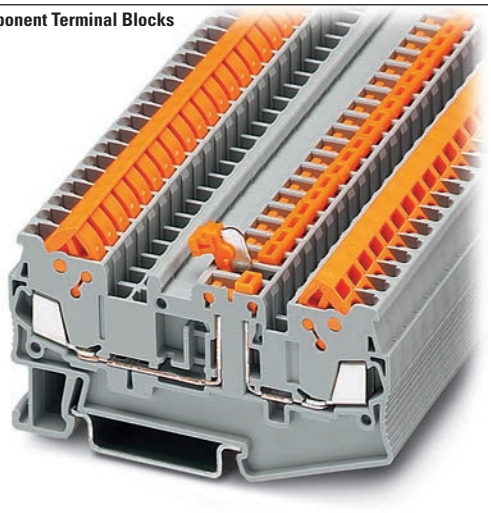
Notes

① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Disconnect and Component Terminal Blocks



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Disconnect and Component Terminal Blocks

Product Description

The ***XB*** Series includes application specific terminal blocks like disconnect blocks. The knife disconnect terminal blocks (XBQT15MT) has a fitted knife. The XBQT15TG can accommodate component plugs for resistors or capacitors and fuse plugs for 5 x 20 mm fuses with or without a light indicator for signaling a triggered fuse. Both terminal blocks have three bridge shafts—two in the standard positions and one on the other side of the disconnect point.

Product Selection

XBQT15MT
Knife Disconnect

IDC—Disconnect and Component Terminal Blocks

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	UL-cUL Ratings in V/A/AWG	UL-cUL Ratings for Disconnect in V/A/AWG	UL-cUL Ratings for Disconnect with Test Sockets in V/A/AWG	Colour	Standard Pack	Catalogue Number
Knife Disconnect								
5.2 mm	16 AWG/1.5 mm^2	400/16/24–16	600/10/24–16	—	—	Gray	50	**XBQT15MT**
Component Disconnect								
5.2 mm	16 AWG/1.5 mm^2	400/16/24–16	600/10/24–16	—	—	Gray	50	**XBQT15TG**
6.2 mm	14 AWG/2.5 mm^2	400/16/20–14	300/10/20–14	—	—	Gray	50	**XBQT25TG**
Component Plug								
6.2 mm	10 AWG/4 mm^2	500/16/26–10	—	600/16/26–10	300/16/26–10	Gray	10	**XBPCO**
Fuse Plug								
6.2 mm	10 AWG/4 mm^2	500/16/26–10	—	600/16/26–10	300/16/26–10	Black	10	**XBPFU**
Fuse Plug with Light Indicator for 12–30V, 1–2.5 mA								
6.2 mm	10 AWG/4 mm^2	500/16/26–10	—	600/16/26–10	300/16/26–10	Black	10	**XBPFUL24**
Fuse Plug with Light Indicator for 110–250V, 0.5–2.5 mA								
6.2 mm	10 AWG/4 mm^2	500/16/26–10	—	600/16/26–10	300/16/26–10	Black	10	**XBPFUL250**

Accessories

IDC—Disconnect and Component Terminal Blocks

Description	Colour	Number of Positions	Standard Pack	XBQT15MT Catalogue Number	XBQT15TG Catalogue Number	XBQT25TG Catalogue Number
End cover	Gray	—	10	**XBACQT15D12**	**XBACQT15D12**	**XBACQT25D12**
End cover segment	Gray	—	10	**XBASQT15**	**XBASQT15**	**XBASQT25**
Partition plate	—	—	10	**XBATQTD12**	**XBATQTD12**	**XBATQTD12**
Plug-in bridge	Red	2	10	**XBAFBS25**	**XBAFBS25**	**XBAFBS26**
		3	10	**XBAFBS35**	**XBAFBS35**	**XBAFBS36**
		5	10	**XBAFBS55**	**XBAFBS55**	**XBAFBS56**
		10	10	**XBAFBS105**	**XBAFBS105**	**XBAFBS106**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS5**	**XBATSPS5**
Blank marker strip centre and external marking	White	—	10	**XBMZBF5** ②	**XBMZBF5** ②	**XBMZBF6** ②
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB5** ②	**XBMZB5** ②	**XBMZB6** ②

Technical Data and Specifications

IDC—Disconnect and Component Terminal Blocks

Description	XBQT15MT	XBQT15TG	XBQT25TG
Technical Data in Accordance with IEC			
Maximum load current in A/cross-section in mm^2	16/1.5	16/1.5	16/2.5
Rated surge voltage in kV/contamination class	6/3	6/3	6/3
Surge voltage category/insulating material group	III/I	III/I	III/I
Connection Cross-Section			
Core insulation	PVC/PE	PVC/PE	PVC/PE
Single/multiple/fine strand in mm^2	1.5	1.5	2.5
Halogen-free in mm^2	1.5	1.5	2.5
Fine strand/superfine strand in AWG (mm^2)	24–16 (0.25–0.34)	24–16 (0.25–0.34)	20–14 (—)
Repeated connections minimum 100 x in mm^2	0.25–1.5	0.25–1.5	0.5–2.5

Dimensions

Approximate Dimensions in Inches (mm)

IDC—Disconnect and Component Terminal Blocks

Catalogue Number	Width	Length	Cover Length	Height for— 35 x 7.5 in	35 x 15 in
XBQT15MT	0.20 (5.2)	3.01 (76.4)	0.09 (2.2)	1.55 (39.3)	1.84 (46.8)
XBQT15TG	0.20 (5.2)	3.01 (76.4)	0.09 (2.2)	1.55 (39.3)	1.84 (46.8)
XBQT25TG	0.24 (6.2)	3.25 (82.5)	0.09 (2.2)	1.69 (42.8)	1.98 (50.3)

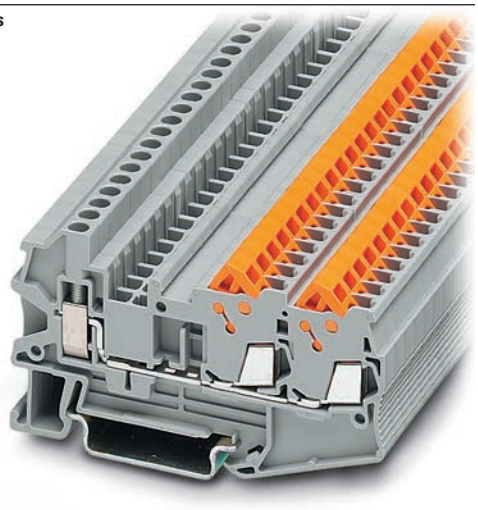
Notes

① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Hybrid Terminal Blocks



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Hybrid Terminal Blocks

Product Description

The XBQT hybrid terminal blocks offer the best of both worlds. One side offers the time-saving advantage of our insulation displacement connection technology, while the other side offers a universal screw connection. Use the IDC side on the internal (factory) control cabinet side and the screw connection on the end customer (field) side. Ground terminal blocks of the same shape are also available

Product Selection

XBQU25

IDC—Hybrid Terminal Blocks, Single Level

Terminal Width	Maximum Wire Size	IEC Screw Connection in V/A/AWG	IEC IDC Connection in V/A/AWG	UL-cUL Screw Connection in V/A/AWG	UL-cUL IDC Connection in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	800/17.5/26–12	800/17.5/24–16	600/10/26–12	600/10/24–16	Gray	50	**XBQU15**
6.2 mm	10 AWG/4 mm^2	800/24/26–10	800/24/20–14	600/15/26–10	600/15/20–14	Gray	50	**XBQU25**

XBQU15D12

IDC—Hybrid Terminal Blocks, Three-Wire

Terminal Width	Maximum Wire Size	IEC Screw Connection in V/A/AWG	IEC IDC Connection in V/A/AWG	UL-cUL Screw Connection in V/A/AWG	UL-cUL IDC Connection in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	800/17.5/26–12	800/17.5/24–16	800/10/26–12	800/10/24–16	Gray	50	**XBQU15D12**
6.2 mm	10 AWG/4 mm^2	800/24/26–10	800/24/20–14	600/15/26–10	600/15/20–14	Gray	50	**XBQU25D12**

XBQU25PE

IDC—Hybrid Terminal/Ground Blocks

Terminal Width	Maximum Wire Size	IEC Screw Connection in V/A/AWG	IEC IDC Connection in V/A/AWG	UL-cUL Screw Connection in V/A/AWG	UL-cUL IDC Connection in V/A/AWG	Colour	Standard Pack	Catalogue Number
5.2 mm	12 AWG/2.5 mm^2	—/—/26–12	—/—/24–16	—/—/26–12	—/—/24–16	Gray	50	**XBQU15PE**
6.2 mm	10 AWG/4 mm^2	—/—/26–10	—/—/20–14	—/—/26–10	—/—/20–14	Gray	50	**XBQU25PE**

Accessories

IDC—Hybrid Terminal Blocks

Description	Colour	Number of Positions	Standard Pack	XBQU15 Catalogue Number	XBQU25 Catalogue Number	XBQU15D12 Catalogue Number	XBQU25D12 Catalogue Number
End cover	Gray	—	10	**XBACQU15**	**XBACQU25**	**XBACQU15D12**	**XBACQU25D12**
End segment	Gray	—	10	**—**	**—**	**XBASQT15**	**XBASQT25**
Partition plate	—	—	10	**XBATQT25**	**XBATQT25**	**XBATQTD12**	**XBATQTD12**
Plug-in bridge—for cross connections in the bridge shaft	Red	2	10	**XBAFBS25**	**XBAFBS26**	**XBAFBS25**	**XBAFBS26**
		3	10	**XBAFBS35**	**XBAFBS36**	**XBAFBS35**	**XBAFBS36**
		5	10	**XBAFBS55**	**XBAFBS56**	**XBAFBS55**	**XBAFBS56**
		10	10	**XBAFBS105**	**XBAFBS106**	**XBAFBS105**	**XBAFBS106**
		50	10	**XBAFBS505**	**XBAFBS506**	**XBAFBS505**	**XBAFBS506**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①	**XBATSMPS-_** ①
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS6**	**XBATSPS5**	**XBATSPS6**
Blank marker strip centre and external marking	White	—	10	**XBMZBF5** ②	**XBMZBF6** ②	**XBMZBF5** ②	**XBMZBF6** ②
Blank marker strip centre labeling (strip of 10)				**XBMZB5** ②	**XBMZB6** ②	**XBMZB5** ②	**XBMZB6** ②

IDC—Hybrid Terminal/Ground Blocks

Description	Colour	Number of Positions	Standard Pack	XBQU15PE Catalogue Number	XBQU25PE Catalogue Number
End cover	Gray	—	10	**XBACQU15**	**XBACQU25**
Partition plate	—	—	10	**XBATQT25**	**XBATQT25**
Plug-in bridge—for cross connections in the bridge shaft	Red	2	10	**XBAFBS25**	**XBAFBS26**
		3	10	**XBAFBS35**	**XBAFBS36**
		5	10	**XBAFBS55**	**XBAFBS56**
		10	10	**XBAFBS105**	**XBAFBS106**
		50	10	**XBAFBS505**	**XBAFBS506**
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS6**
Blank marker strip centre and external marking	White	—	10	**XBMZBF5** ②	**XBMZBF6** ②
Blank marker strip centre labeling (strip of 10)				**XBMZB5** ②	**XBMZB6** ②

Notes

① For ordering information, see **Page T42-105**.

② For information on Printed Marking Tag Options, see **Page T42-98**.

For additional accessories, see **Page T42-90**.

Technical Data and Specifications

Screw Connection Single Level—Through-Feed

Description	XBQU15	XBQU25	XBQU15PE	XBQU25PE	XBQU15D12	XBQU25D12
Technical Data in Accordance with IEC						
Maximum load current in A/cross-section in mm^2	17.5/1.5	24/2.5	—	—	17.5/1.5	24/2.5
Rated surge voltage in kV/contamination class	8/3	8/3	8/3	8/3	8/3	8/3
Surge voltage category/insulating material group	III/I	III/I	III/I	III/I	III/I	III/I
Connection Cross-Section						
Core insulation	PVC/PE	PVC/PE	PVC/PE	PVC/PE	PVC/PE	PVC/PE
Single/multiple/fine strand in mm^2	1.5	2.5	1.5	2.5	1.5	2.5
Halogen-free in mm^2	1.5	2.5	1.5	2.5	1.5	2.5
Fine strand/superfine strand in AWG (mm^2)	24–16 (0.25–0.34)	20–14 (—)	24–16 (0.25–0.34)	20–14 (—)	24–16 (0.25–0.34)	20–14 (—)
Repeated connections minimum 100 x in mm^2	0.25–1.5	0.5–2.5	0.25–1.5	0.5–2.5	0.25–1.5	0.5–2.5
Connection Capacity—Screw Connection						
Stranded with ferrule/with ferrule and plastic sleeve in mm^2	0.25–2.5/0.25–2.5	0.25–4/0.25–4	0.25–2.5/0.25–2.5	0.25–4/0.25–4	0.25–2.5/0.25–2.5	0.25–4/0.25–4
Multi-Conductor Connection (same cross-section)						
Solid/stranded in mm^2	0.14–1.5/0.14–1.5	0.14–1.5/0.14–1.5	0.14–1.5/0.14–1.5	0.14–1.5/0.14–1.5	0.14–1.5/0.14–1.5	0.14–1.5/0.14–1.5
Stranded with ferrules without plastic sleeve in mm^2	0.25–1.5	0.25–1.5	0.25–1.5	0.25–1.5	0.25–1.5	0.25–1.5
Stranded with twin ferrule with plastic sleeve in mm^2	0.5–1.5	0.5–2.5	0.5–1.5	0.5–2.5	0.5–1.5	0.5–2.5
Stripping length in inches (mm)	0.35 (9)	0.35 (9)	0.35 (9)	0.35 (9)	0.35 (9)	0.35 (9)
Thread	M3	M3	M3	M3	M3	M3
Torque in in-lb (Nm)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)	5.3–7.1 (0.6–0.8)

Dimensions

Approximate Dimensions in Inches (mm)

Screw Connection Single Level—Through-Feed

Catalogue Number	Width	Length	Cover Width	Height for— 35 x 7.5 in	35 x 15 in
XBQU15	0.20 (5.2)	2.31 (58.8)	0.09 (2.2)	1.69 (42.8)	1.98 (50.3)
XBQU25	0.24 (6.2)	2.46 (62.6)	0.09 (2.2)	1.69 (42.8)	1.98 (50.3)
XBQU15PE	0.20 (5.2)	2.31 (58.8)	0.09 (2.2)	1.69 (42.8)	1.98 (50.3)
XBQU25PE	0.24 (6.2)	2.46 (62.6)	0.09 (2.2)	1.69 (42.8)	1.98 (50.3)
XBQU15D12	0.20 (5.2)	3.01 (76.4)	0.09 (2.2)	1.69 (42.8)	1.98 (50.3)
XBQU25D12	0.24 (6.2)	3.25 (82.5)	0.09 (2.2)	1.69 (42.8)	1.98 (50.3)

Miniature Circuit Breakers

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Miniature Circuit Breakers Overview

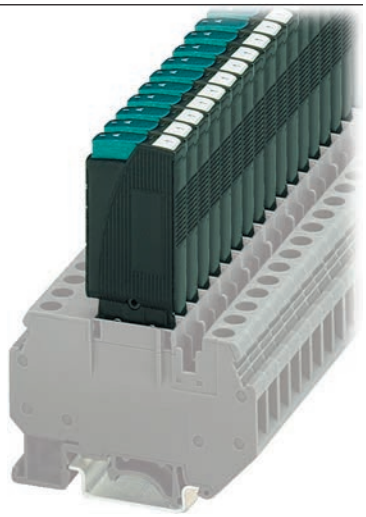
Product Description

The new ***XB*** Series thermal miniature circuit breaker offers convenient overload protection. This space-saving single-pole circuit breaker, available up to 10 amps, can be inserted into a screw connection fuse terminal block, XBUK6FSI, or a spring cage fuse terminal block, XBPT4FSI, which is available with or without light indication. The XBATCP combines the reclosing capability of a circuit breaker with the overload protection of a fuse. The integrated switching function makes it possible to switch the circuit breaker back on immediately, guaranteeing system availability. The device can also be used for switching purposes, as an ON/OFF switch. The Plug-in design allows for quick and efficient replacement.

Standards and Certifications

- UL and cUL recognized
- UL 1077—File No. E301915
- CE approved

Circuit Breakers



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Circuit Breakers

Product Description

The thermal miniature circuit breaker can be switched back on again, has a compact design, and is available in 10 finely graded steps for nominal currents from 0.1 to 10A.

Product Selection

XBAT

Thermal Miniature Circuit Breaker

Connection Data in Vac/Vdc	Nominal Current	Colour	Standard Pack	Catalogue Number
250/65	0.1A	Black	20	**XBATCPT**
	0.25A	Black	20	**XBATCPQ**
	0.5A	Black	20	**XBATCPH**
	1.0A	Black	20	**XBATCP1**
	2.0A	Black	20	**XBATCP2**
	3.0A	Black	20	**XBATCP3**
	4.0A	Black	20	**XBATCP4**
	6.0A	Black	20	**XBATCP6**
	8.0A	Black	20	**XBATCP8**
	10.0A	Black	20	**XBATCP10**

Accessories

Thermal Miniature Circuit Breaker

Description	Colour	Number of Positions	Standard Pack	XBAT Catalogue Number
Blank marker strip	White	—	10	**XBMZBF5** ①
Flat type terminal blocks	—	—	—	**XBUK6FSI**
				XBUK6FSIL12
				XBUK6FSIL24
				XBPT4FSI
				XBPT4FSIL12
				XBPT4FSIL24

Technical Data and Specifications

Thermal Miniature Circuit Breaker

Description	XBAT
Technical Data in Accordance with IEC	
Nominal voltage in Vac/Vdc	250/65
Nominal current in A	0.25–10
Ambient temperature	–4 to 140°F (–20 to 60°C)
Maximum Power Dissipation	
Rated surge voltage in kV/contamination class	2.5/2
Surge voltage category/insulating material group	III/I
Switching Capacity	
Cycles with 1 x I_N (low-induction)	6000
Cycles with 1 x I_N (induction)	3000
Cycles with 2 x I_N (induction)	500
Switching Capacity I CN	
For nominal currents of 0.25–4A/6–10A	6 x I_N/8 x I_N
Switching capacity (UL 1077) 250 Vac/65 Vdc	2000/200

Nominal Currents and Internal Resistances

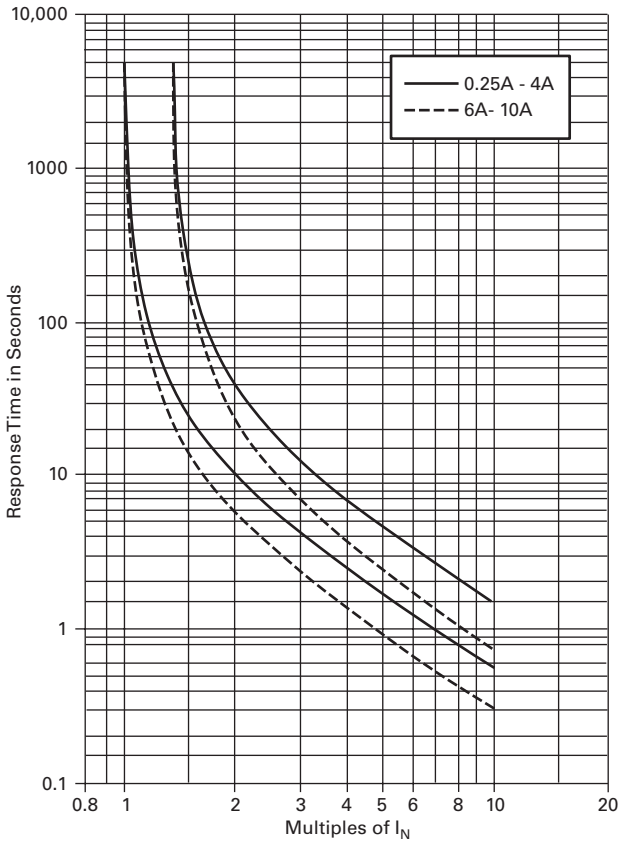
Nominal Current (A)	Internal Resistance (3/4)
0.25	14
0.5	3.4
1.0	0.9
2.0	0.25
3.0	0.11
4.0	0.07
6.0	≤0.05
8.0	≤0.05
10.0	≤0.05

Note

① For information on Printed Marking Tag Options, see **Page T42-98**.

Time/Current Curve

Total Switch-Off Period for Nominal Current, 73.4˚F (23˚C)



Note: When mounted in rows, the nominal current of the devices can only be transmitted at 80% or must be correspondingly over-dimensioned.

Temperature Factor

Ambient Temperature	Temperature Factor
–4˚F (–20˚C)	0.76
14˚F (–10˚C)	0.84
32˚F (0˚C)	0.91
73.4˚F (23˚C)	1.00
104˚F (40˚C)	1.08
122˚F (50˚C)	1.16
140˚F (60˚C)	1.24

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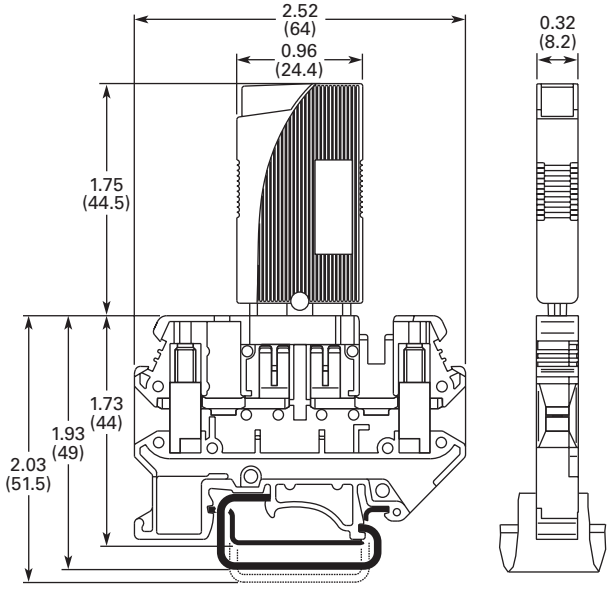
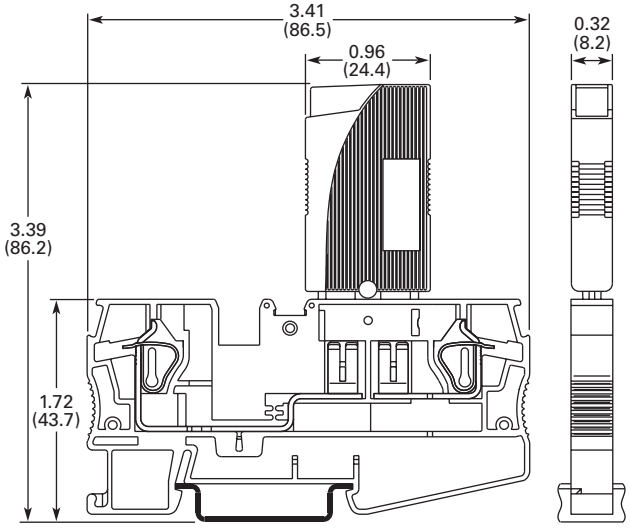
Dimensions

Approximate Dimensions in Inches (mm)

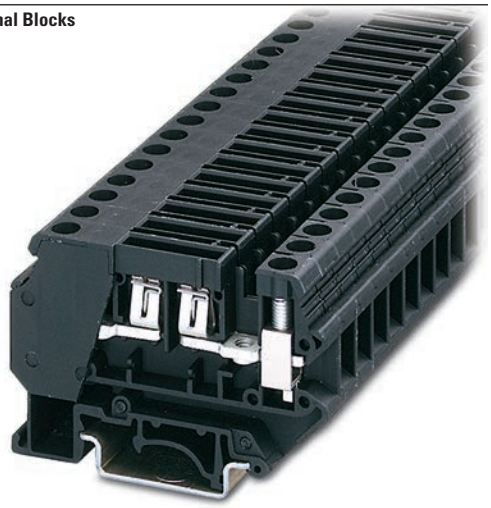
XBUK6FSI with XBAT



XBPT4FSI with XBAT



Flat-Type Fuse Terminal Blocks



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Flat-Type Fuse Terminal Blocks

Product Description

The fuse terminal blocks can be used as a basic terminal blocks for the XBAT overload miniature circuit breaker, see **Page T42-83**.

Product Selection

XBUK6FSI

Screw Connection Flat-Type Fuse Terminal Blocks

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Flat-Type Fuse Terminal Block						
8.2 mm	8 AWG/6 mm^2	250/—/24–8	300/30/26–8	Black	50	**XBUK6FSI**
Flat-Type Fuse Terminal Block with LED, Red 12 Vdc, 2.0 mA						
8.2 mm	8 AWG/6 mm^2	250/—/24–8	300/30/26–8	Black	50	**XBUK6FSIL12**
Flat-Type Fuse Terminal Block with LED, Red 24 Vdc, 2.0 mA						
8.2 mm	8 AWG/6 mm^2	250/—/24–8	300/30/26–8	Black	50	**XBUK6FSIL24**

Accessories

Flat-Type Fuse Terminal Blocks

Description	Colour	Number of Positions	Standard Pack	XBUK6FSI Catalogue Number	XBUK6FSIL_ Catalogue Number
Blank marker strip	White	—	10	**XBMZB8** ①	**XBMZB8** ①

Note

① For information on Printed Marking Tag Options, see **Page T42-98**.

Technical Data and Specifications

Flat-Type Fuse Terminal Blocks

Description	XBUK6FSI	XBUK6FSIL_
Technical Data in Accordance with IEC		
Fuse type ISO	C	C
Maximum current with single arrangement in A	30	30
Maximum Power Dissipation		
Rated surge voltage in kV/contamination class	4/3	4/3
Surge voltage category/insulating material group	III/I	III/I
Connection Capacity		
Stranded with ferrule with plastic sleeve in mm^2	0.25–4	0.25–4
Stranded with ferrule without plastic sleeve in mm^2	0.25–6	0.25–6
Stranded with twin ferrule with plastic sleeve in mm^2	—	—
Multi-Conductor Connection (same cross-section)		
Solid/stranded in mm^2	0.2–2.5/0.2–2.5	0.2–2.5/0.2–2.5
Stranded with ferrules without plastic sleeve in mm^2	0.25–2.5	0.25–2.5
Stranded with twin ferrule with plastic sleeve in mm^2	0.5–4.0	0.5–4.0
Stripping length in inches (mm)	0.39 (10)	0.39 (10)
Thread	M4	M4
Torque in in-lb (Nm)	13.3–14.2 (1.5–1.6)	13.3–14.2 (1.5–1.6)

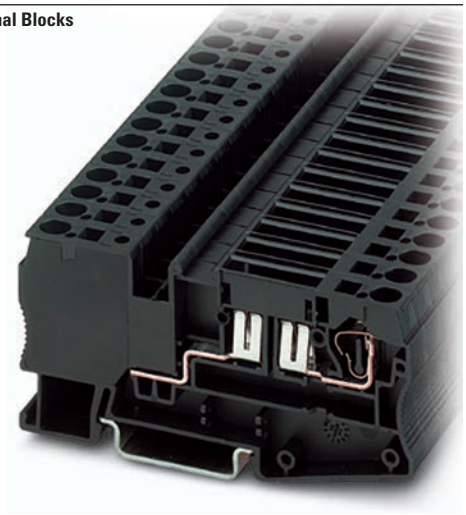
Dimensions

Approximate Dimensions in Inches (mm)

Flat-Type Fuse Terminal Blocks

Catalogue Number	Width	Length	Height for— 32 in	35 x 7.5 in	35 x 15 in
XBUK6FSI	0.32 (8.2)	2.91 (74.0)	2.24 (57.0)	2.05 (52.0)	2.34 (59.5)
XBUK6FSIL12	0.32 (8.2)	2.91 (74.0)	2.24 (57.0)	2.05 (52.0)	2.34 (59.5)
XBUK6FSIL24	0.32 (8.2)	2.91 (74.0)	2.24 (57.0)	2.05 (52.0)	2.34 (59.5)

Spring Cage Fuse Terminal Blocks



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Spring Cage Fuse Terminal Blocks

Product Description

Flat-type fuses or the XBAT miniature circuit breaker (see **Page T42-83**) can be used as the fuse element in these XBPT Spring Cage Fuse Terminal Blocks. Terminal blocks with a light indicator are available for quick error diagnosis.

Product Selection

XBPT4FSI

Spring Cage Fuse Terminal Blocks

Terminal Width	Maximum Wire Size	Connection Data in V/A/AWG	UL-cUL Ratings in V/A/AWG	Colour	Standard Pack	Catalogue Number
Spring Cage Fuse Terminal Block						
8.2 mm	10 AWG/4 mm^2	400/30/28–10	300/30/24–10	Black	50	**XBPT4FSI**
Spring Cage Fuse Terminal Block with LED, Red 12 Vdc, 2.0 mA						
8.2 mm	10 AWG/4 mm^2	400/30/28–10	300/30/24–10	Black	50	**XBPT4FSIL12**
Spring Cage Fuse Terminal Block with LED, Red 24 Vdc, 2.0 mA						
8.2 mm	10 AWG/4 mm^2	400/30/28–10	300/30/24–10	Black	50	**XBPT4FSIL24**

Accessories

Flat-Type Fuse Terminal Blocks

Description	Colour	Number of Positions	Standard Pack	XBPT4FSI Catalogue Number	XBPT4FSIL_ Catalogue Number
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①
Modular test plug	—	—	10	**XBATSPS8**	**XBATSPS8**
Blank marker strip centre and external marking	White	—	10	**XBMZBF8** ②	**XBMZBF8** ②
Blank marker strip centre labeling (strip of 10)	White	—	10	**XBMZB8** ②	**XBMZB8** ②

Notes

① For ordering information, see **Page T42-105**.
② For information on Printed Marking Tag Options, see **Page T42-98**.

Technical Data and Specifications

Flat-Type Fuse Terminal Blocks

Description	XBPT4FSI	XBPT4FSIL_
Technical Data in Accordance with IEC		
Fuse type ISO	C	C
Maximum current with single arrangement in A	30	30
Maximum Power Dissipation		
Rated surge voltage in kV/contamination class	6/3	6/3
Surge voltage category/insulating material group	III/I	III/I
Connection Capacity		
Stranded with ferrule with plastic sleeve in mm^2	0.25–4	0.25–4
Stranded with ferrule without plastic sleeve in mm^2	0.25–4	0.25–4
Stranded with twin ferrule with plastic sleeve in mm^2	0.5	0.5
Stripping length in inches (mm)	0.39 (10)	0.39 (10)

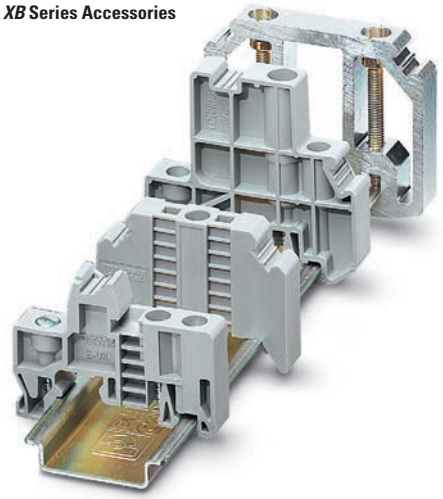
Dimensions

Approximate Dimensions in Inches (mm)

Flat-Type Fuse Terminal Blocks

Catalogue Number	Width	Length	Height for— 35 x 7.5 in	35 x 15 in
XBPT4FSI	0.32 (8.2)	3.41 (86.5)	1.71 (43.5)	2.01 (51.0)
XBPT4FSIL12	0.32 (8.2)	3.41 (86.5)	1.71 (43.5)	2.01 (51.0)
XBPT4FSIL24	0.32 (8.2)	3.41 (86.5)	1.71 (43.5)	2.01 (51.0)

***XB* Series Accessories**



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XB Series Accessories Overview

End Stops

The end stop provides an anchor point at each end of the rail assembly by attaching directly to the DIN rail. A wide range of end stop options are available, including those that mount with one or multiple screws and those that do not require screws for mounting. End stops also have a location for marking material to be placed.

DIN Rail

Eaton offers ways for time-saving and secure mounting of components needed for electrical connections. DIN rail provides the basis for the inner design of the control cabinet and ensures a firm hold of the rail-mountable components. Eaton offers a wide range of standard DIN rails sizes and materials, solid or slotted. Or, contact us about custom lengths of pre-cut rail or ordering pre-drilled rail. The DIN rails are designed in accordance with the European standard EN 60715.

Angled Mounting Brackets

Angled mounting brackets are used to mount DIN rail at a more accessible angle for wiring and troubleshooting.

Ferrules

Ferrules are available with or without an insulating sleeve. The plastic insulating sleeve simplifies the fitting of the conductor and the colour indicates the size of the cross-section. The closer the connections are, the more reliable the insulation is and the less likely the wires are to splice. Twin ferrules are also available allowing two wires to be easily compressed in one ferrule. Chain bridging, frequently used in industry, becomes easier with twin ferrules.

Hand Tools

Eaton offers an array of hand tools to make it easier to work with our terminal blocks. The XBTCUTSTP tool is recommended for cutting and stripping PVC insulated wires. The ergonomically shaped crimping pliers, XBTCRMP66, result in fatigue-free work by spreading the manual force equally between the six jaws. The XBTDVR screwdrivers have a rotating cap that prevents user discomfort even at high torques and allows rapid rotation. The ergonomically shaped handle further aids the user's comfort. The blade is made from CVM steel, hardened and chrome-plated.

Marking Accessories

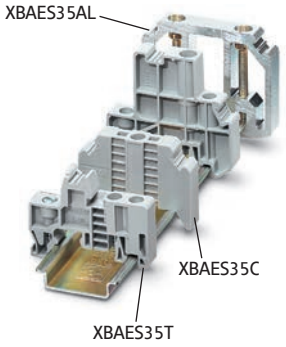
The marking system provides logical and clear identification of the modular terminal blocks and interface modules. The blank marker strip is designed for marking terminal blocks, equipment and smaller modules with marker grooves. The marker strip is available in all common pitches in printed and unprinted versions.

Testing Accessories

The range of test accessories available includes different test plugs, so that an optimum solution can be realized for every application. In addition to pre-assembled test plugs, plugs are also available that can be configured individually to form test adapters.

End Stops

Product Selection



Snap-On End Stop (15 mm)

Standard Pack	Catalogue Number
50	**XBAES15N**

Snap-On End Stop (35 mm)

Standard Pack	Catalogue Number
50	**XBAES35N**

Snap-on end stops for 35 mm and 15 mm DIN rails can be fitted with blank marker strips and adjustable terminal strip markers, parking facility for bridges and testing accessories.

Universal End Stop (15 mm)

Standard Pack	Catalogue Number
50	**XBAES15C**

Universal End Stop (35 mm)

Standard Pack	Catalogue Number
50	**XBAES35T**
50	**XBAES35C**

Screwed on, labeling with blank marker strips and terminal strip markers.

Aluminum End

Standard Pack	Catalogue Number
10	**XBAES35AL**

Snaps on, for end support of 50–240 mm terminal blocks, labeling with XBMZB10.

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Cross-Reference of Terminal Blocks Marking, End Stops

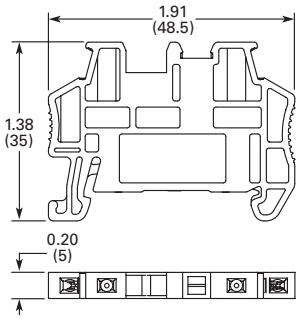
Catalogue Number	XBMKLM2	XBMGLMA	XBMUBE
XBAES35N	X	—	—
XBAES35T	—	X	X

Dimensions

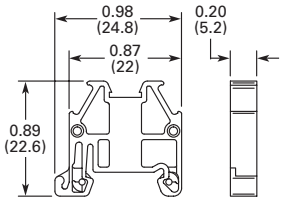
Approximate Dimensions in Inches (mm)

Snap-On End Stop

XBAES35N

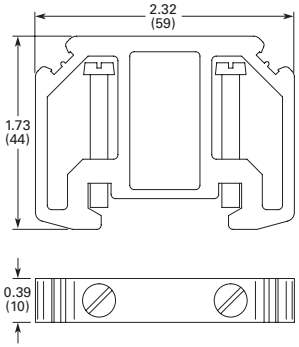


XBAES15N



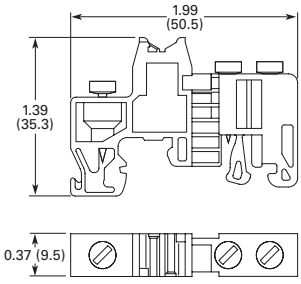
Aluminum End Stop

XBAES35AL

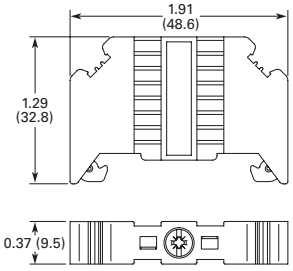


Universal End Stop

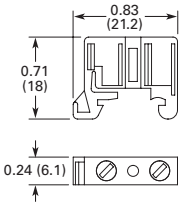
XBAES35T



XBAES35C



XBAES15C



DIN Rails

Product Selection

Perforated and unperforated DIN rails in accordance with E 60715.

Features

- High dimensional accuracy
- Restricted tolerances
- Double surface tempering, galvanized and chromated
- All 2m in length
- Customization available

35 x 7.5 mm x 2m

Standard Pack	Catalogue Number
Slotted	
25	**XBANS3575P**
Solid	
25	**XBANS3575U**

35 x 15 mm x 2m

Standard Pack	Catalogue Number
Slotted	
25	**XBANS3515P**
Solid	
25	**XBANS3515U**

15 x 5.5 mm x 2m

Standard Pack	Catalogue Number
25	**XBANS15P**

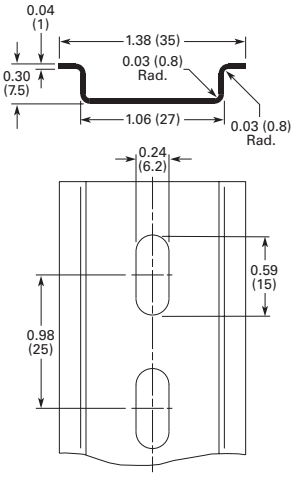
Aluminum DIN Rails (Perforated)

Standard Pack	Catalogue Number
35/7.5/2m	
25	**XBANS3575PL**
35/58/2m	
6	**XBANS35PL**

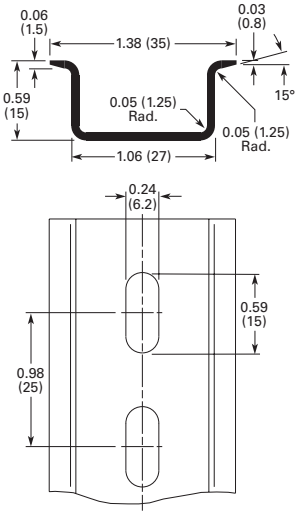
Dimensions

Approximate Dimensions in Inches (mm)

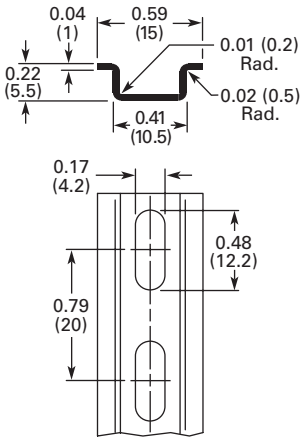
35 x 7.5 mm DIN Rail



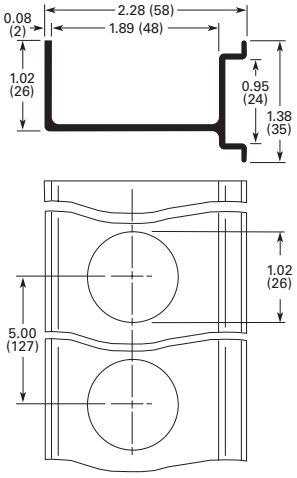
35 x 15 mm DIN Rail



15 x 5.5 mm x 2m DIN Rail



XBANS35PL Raised Rail



Angled Mounting Brackets

Product Selection

The angled brackets enable the DIN rail to be mounted with a spacing or at an angle of 30˚.

Features

- For mounting DIN rail at 30˚ angle
- For use with M6 screw
- Chromated steel
- Provides better visibility

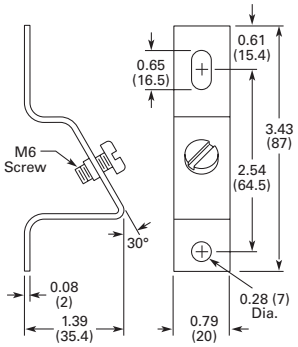
Angled Mounting Bracket

Standard Pack	Catalogue Number
Height Inches (mm) 1.39 (35.4)	
10	**XBANBGS**
Height Inches (mm) 1.81 (46)	
10	**XBANBGSH**

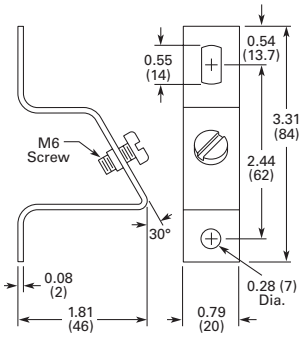
Dimensions

Approximate Dimensions in Inches (mm)

XBANBGS



XBANBGSH



Ferrules

Product Selection

Ferrules are offered in two basic designs—an insulated style available in models for wire sizes 20 through 4 AWG and a non-insulated type available in models for wire sizes 22 through 6 AWG.

Note: UL Ratings do not typically pertain to the use of Ferrules—Ferrules are covered under DIN VDE 0611.

Insulated

- Tube: soft electrolytic copper (E-CU), tin plated
- Plastic sleeve: polypropylene
  - Long-term temperature 105˚C
  - Short-term temperature 120˚C

XBAF1

Insulated Ferrules

Wire Size AWG (mm^2)	Colour ①	Standard Pack ②	Catalogue Number
20 (0.5)	White	100	**XBAF1**
18 (0.75)	Gray	100	**XBAF3**
18 (1)	Red	100	**XBAF4**
16 (1.5)	Black	100	**XBAF6**
14 (2.5)	Blue	100	**XBAF9**
14 (2.5)	Blue	100	**XBAF10**
12 (4)	Gray	100	**XBAF11**
12 (4)	Gray	100	**XBAF12**
10 (6)	Yellow	100	**XBAF13**
10 (6)	Yellow	100	**XBAF14**
8 (10)	Red	100	**XBAF15**
8 (10)	Red	100	**XBAF16**
6 (16)	Blue	100	**XBAF17**
6 (16)	Blue	100	**XBAF18**
4 (25)	Yellow	50	**XBAF19**

Non-Insulated

- Tube: soft electrolytic copper (E-CU), tin plated

XBAF20

Non-Insulated Ferrules

Wire Size AWG (mm^2)	Standard Pack ②	Catalogue Number
20 (0.5)	100	**XBAF20**
18 (0.75)	100	**XBAF21**
18 (1)	100	**XBAF23**
16 (1.5)	100	**XBAF24**
14 (2.5)	100	**XBAF25**
12 (4)	100	**XBAF26**
10 (6)	100	**XBAF27**
8 (10)	100	**XBAF28**
6 (16)	100	**XBAF29**

Special Applications

The twin ferrules allow two conductors to be compressed practically in one ferrule.

The colored coding of the various cross sections corresponds to DIN 46 228-4.

XBAFT1

Non-Insulated Twin Ferrules

Wire Size AWG (mm^2)	Colour ①	Standard Pack ②	Catalogue Number
20 (0.5)	White	100	**XBAFT1**
18 (0.75)	Gray	100	**XBAFT3**
18 (1)	Red	100	**XBAFT4**
16 (1.5)	Black	100	**XBAFT6**
14 (2.5)	Blue	100	**XBAFT9**
12 (4)	Gray	100	**XBAFT11**
10 (6)	Yellow	100	**XBAFT13**
8 (10)	Red	100	**XBAFT15**
6 (16)	Blue	50	**XBAFT18**

Notes

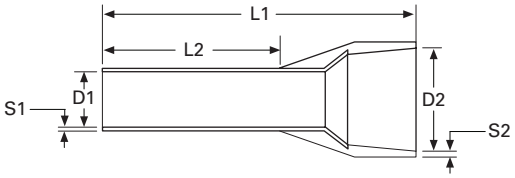
① The colored coding of the various cross-sections corresponds to DIN 46 228-4.

② Standard pack is the number of ferrules that come in each bag. Must order in multiples of standard pack.
Example: **XBAF1**—an order for 200 pieces will receive 2 bags of ferrules, each with 100 pieces.

Dimensions

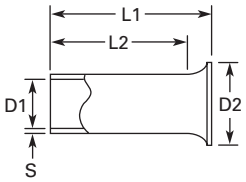
Approximate Dimensions in Inches (mm)

Ferrules with Insulating Collar



Catalogue Number	Approximate Dimensions D1	D2	L1	L2	S1	S2
XBAF1	0.04 (1.1)	0.10 (2.5)	0.55 (14.0)	0.31 (8.0)	0.006 (0.15)	0.010 (0.25)
XBAF3	0.05 (1.3)	0.11 (2.8)	0.55 (14.0)	0.31 (8.0)	0.006 (0.15)	0.010 (0.25)
XBAF4	0.06 (1.5)	0.12 (3.0)	0.55 (14.0)	0.31 (8.0)	0.006 (0.15)	0.012 (0.30)
XBAF6	0.07 (1.8)	0.13 (3.4)	0.55 (14.0)	0.31 (8.0)	0.006 (0.15)	0.012 (0.30)
XBAF9	0.09 (2.3)	0.17 (4.2)	0.55 (14.0)	0.31 (8.0)	0.006 (0.15)	0.012 (0.30)
XBAF10	0.09 (2.3)	0.17 (4.2)	0.94 (24.0)	0.71 (18.0)	0.006 (0.15)	0.012 (0.30)
XBAF11	0.11 (2.8)	0.19 (4.8)	0.67 (17.0)	0.39 (10.0)	0.008 (0.20)	0.012 (0.30)
XBAF12	0.11 (2.8)	0.19 (4.8)	1.02 (26.0)	0.71 (18.0)	0.008 (0.20)	0.012 (0.30)
XBAF13	0.14 (3.5)	0.24 (6.2)	0.79 (20.0)	0.47 (12.0)	0.008 (0.20)	0.012 (0.30)
XBAF14	0.14 (3.5)	0.24 (6.2)	1.02 (26.0)	0.71 (18.0)	0.008 (0.20)	0.012 (0.30)
XBAF15	0.18 (4.6)	0.30 (7.5)	0.87 (22.0)	0.47 (12.0)	0.008 (0.20)	0.012 (0.30)
XBAF16	0.18 (4.6)	0.30 (7.5)	1.10 (28.0)	0.71 (18.0)	0.008 (0.20)	0.012 (0.30)
XBAF17	0.23 (5.8)	0.35 (8.8)	0.94 (24.0)	0.47 (12.0)	0.008 (0.20)	0.016 (0.40)
XBAF18	0.23 (5.8)	0.35 (8.8)	1.10 (28.0)	0.71 (18.0)	0.008 (0.20)	0.016 (0.40)
XBAF19	0.29 (7.3)	0.43 (11.0)	1.26 (32.0)	0.71 (18.0)	0.008 (0.20)	0.020 (0.50)

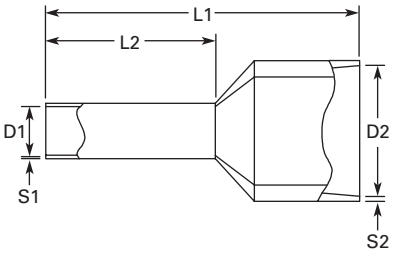
Ferrules without Insulating Collar



Catalogue Number	Approximate Dimensions D1	D2	L1	L2	S
XBAF20	0.04 (1.0)	0.08 (2.1)	0.24 (6.0)	0.21 (5.3)	0.006 (0.15)
XBAF21	0.05 (1.2)	0.09 (2.3)	0.24 (6.0)	0.21 (5.3)	0.006 (0.15)
XBAF23	0.06 (1.4)	0.10 (2.5)	0.24 (6.0)	0.21 (5.3)	0.006 (0.15)
XBAF24	0.07 (1.7)	0.11 (2.8)	0.28 (7.0)	0.24 (6.0)	0.006 (0.15)
XBAF25	0.09 (2.2)	0.13 (3.4)	0.28 (7.0)	0.24 (6.0)	0.006 (0.15)
XBAF26	0.11 (2.8)	0.16 (4.0)	0.35 (9.0)	0.31 (8.0)	0.008 (0.20)
XBAF27	0.14 (3.5)	0.19 (4.7)	0.47 (12.0)	0.35 (9.0)	0.008 (0.20)
XBAF28	0.18 (4.5)	0.23 (5.8)	0.47 (12.0)	0.43 (10.8)	0.008 (0.20)
XBAF29	0.23 (5.8)	0.30 (7.5)	0.47 (12.0)	0.41 (10.5)	0.008 (0.20)

Approximate Dimensions in Inches (mm)

Twin Ferrules



Catalogue Number	Approximate Dimensions					
	D1	D2	L1	L2	S1	S2
XBAFT1	0.06 (1.5)	0.10 (2.5)	0.59 (15.0)	0.31 (8.0)	0.006 (0.15)	0.010 (0.25)
XBAFT3	0.07 (1.8)	0.11 (2.8)	0.59 (15.0)	0.31 (8.0)	0.006 (0.15)	0.010 (0.25)
XBAFT4	0.08 (2.1)	0.13 (3.4)	0.59 (15.0)	0.31 (8.0)	0.006 (0.15)	0.012 (0.30)
XBAFT6	0.09 (2.3)	0.14 (3.6)	0.63 (16.0)	0.31 (8.0)	0.006 (0.15)	0.012 (0.30)
XBAFT9	0.11 (2.9)	0.17 (4.2)	0.73 (18.5)	0.39 (10.0)	0.008 (0.20)	0.012 (0.30)
XBAFT11	0.15 (3.8)	0.19 (4.9)	0.91 (23.0)	0.47 (12.0)	0.008 (0.20)	0.012 (0.30)
XBAFT13	0.19 (4.9)	0.23 (5.9)	0.98 (25.0)	0.55 (14.0)	0.008 (0.20)	0.016 (0.40)
XBAFT15	0.26 (6.5)	0.28 (7.2)	1.02 (26.0)	0.55 (14.0)	0.008 (0.20)	0.016 (0.40)
XBAFT18	0.33 (8.5)	0.35 (8.8)	1.22 (31.0)	0.63 (16.0)	0.008 (0.20)	0.020 (0.50)

Hand Tools

Stripping Tools

Product Selection

Stripping Tools

Standard Pack	Catalogue Number
1	**XBTCUTSTP**

Technical Data and Specifications

Conductor/Cable Stripping Range

Description	Specification
Conductor/cable	0.2–6 mm^2/24–10 AWG
Wire cutter	6 mm^2/10 AWG

Dimensions

Approximate Dimensions in Inches (mm)

Stripping Tools

Length	Stripping Length	Weight In lbs (g)
8.07 (205)	Up to 18 mm	0.44 (200)

Crimping Pliers

The crimping pliers deform the ferrules hexagonally. For 0.25–6 mm^2 ferrules in accordance with DIN 46 228-1: 1992-08 and DIN 46 228-4: 1990-09.

Product Selection

Crimping Pliers

Standard Pack	Catalogue Number
1	**XBTCRMP66**

Technical Data and Specifications

Areas of Application

Description	Specification
Conductor	0.25–6 mm^2
Conductor	23–10 AWG

Dimensions

Approximate Dimensions in Inches (mm)

Crimping Pliers

Length	Weight In lbs (g)
6.85 (175)	0.79 (360)

Slotted Screwdrivers

Product Selection

Slotted Screwdrivers

Standard Pack	Catalogue Number
3.5 mm	
1	**XBTDVR35**
4.0 mm	
1	**XBTDVR40**

Marking Accessories

Printed Marking Tag Options

Horizontally Printed Marking Tags and Marking Directions

1	2	3	4	5	6	7	8	9	10

Marking Direction: Horizontal

1	2	3	4	5	6	7	8	9	10

Marking Direction: Vertical

Marking Tags for 5.2 mm Wide Terminal Blocks

Standard Pack	Number Sequence	Catalogue Number
ZB5 Tags Vertically Numbered		
10	1–10 ①	**XBMZB5V/1**
10	11–20	**XBMZB5V/11**
10	21–30	**XBMZB5V/21**
10	31–40	**XBMZB5V/31**
10	41–50	**XBMZB5V/41**
10	51–60	**XBMZB5V/51**
10	61–70	**XBMZB5V/61**
10	71–80	**XBMZB5V/71**
10	81–90	**XBMZB5V/81**
10	91–100	**XBMZB5V/91**
ZBF5 Tags Vertically Numbered		
10	1–10 ①	**XBMZBF5V/1**
10	11–20	**XBMZBF5V/11**
10	21–30	**XBMZBF5V/21**
10	31–40	**XBMZBF5V/31**
10	41–50	**XBMZBF5V/41**
10	51–60	**XBMZBF5V/51**
10	61–70	**XBMZBF5V/61**
10	71–80	**XBMZBF5V/71**
10	81–90	**XBMZBF5V/81**
10	91–100	**XBMZBF5V/91**

Marking Tags for 6.2 mm Wide Terminal Blocks

Standard Pack	Number Sequence	Catalogue Number
ZB6 Tags Vertically Numbered		
10	1–10 ①	**XBMZB6V/1**
10	11–20	**XBMZB6V/11**
10	21–30	**XBMZB6V/21**
10	31–40	**XBMZB6V/31**
10	41–50	**XBMZB6V/41**
10	51–60	**XBMZB6V/51**
10	61–70	**XBMZB6V/61**
10	71–80	**XBMZB6V/71**
10	81–90	**XBMZB6V/81**
10	91–100	**XBMZB6V/91**
ZBF6 Tags Vertically Numbered		
10	1–10 ①	**XBMZBF6V/1**
10	11–20	**XBMZBF6V/11**
10	21–30	**XBMZBF6V/21**
10	31–40	**XBMZBF6V/31**
10	41–50	**XBMZBF6V/41**
10	51–60	**XBMZBF6V/51**
10	61–70	**XBMZBF6V/61**
10	71–80	**XBMZBF6V/71**
10	81–90	**XBMZBF6V/81**
10	91–100	**XBMZBF6V/91**

Note

① For text printed horizontally, change "V" in catalogue number to "H."

Marking Tags for 8.2 mm Wide Terminal Blocks

Standard Pack	Number Sequence	Catalogue Number
ZB8 Tags Vertically Numbered		
10	1–10 ①	**XBMZB8V/1**
10	11–20	**XBMZB8V/11**
10	21–30	**XBMZB8V/21**
10	31–40	**XBMZB8V/31**
10	41–50	**XBMZB8V/41**
10	51–60	**XBMZB6V/51**
10	61–70	**XBMZB8V/61**
10	71–80	**XBMZB8V/71**
10	81–90	**XBMZB8V/81**
10	91–100	**XBMZB8V/91**
ZBF8 Tags Vertically Numbered		
10	1–10 ①	**XBMZBF8V/1**
10	11–20	**XBMZBF8V/11**
10	21–30	**XBMZBF8V/21**
10	31–40	**XBMZBF8V/31**
10	41–50	**XBMZBF8V/41**
10	51–60	**XBMZBF8V/51**
10	61–70	**XBMZBF8V/61**
10	71–80	**XBMZBF8V/71**
10	81–90	**XBMZBF8V/81**
10	91–100	**XBMZBF8V/91**

Marking Tags for 10.2 mm Wide Terminal Blocks

Standard Pack	Number Sequence	Catalogue Number
ZB10 Tags Vertically Numbered		
10	1–10 ①	**XBMZB10V/1**
10	11–20	**XBMZB10V/11**
10	21–30	**XBMZB10V/21**
ZBF10 Tags Vertically Numbered		
10	1–10 ①	**XBMZBF10V/1**
10	11–20	**XBMZBF10V/11**
10	21–30	**XBMZBF10V/21**

Marking Tags for 12 mm Wide Terminal Blocks

Standard Pack	Number Sequence	Catalogue Number
ZB12 Tags Vertically Numbered		
10	1–10 ①	**XBMZB12V/1**
10	11–20	**XBMZB12V/11**
10	21–30	**XBMZB12V/21**
ZBF12 Tags Vertically Numbered		
10	1–10 ①	**XBMZBF12V/1**
10	11–20	**XBMZBF12V/11**
10	21–30	**XBMZBF12V/21**

Marking Tags for 16 mm Wide Terminal Blocks

Standard Pack	Number Sequence	Catalogue Number
ZB15 Tags Vertically Numbered		
10	1–10 ①	**XBMZB15V/1**
10	11–20	**XBMZB15V/11**
10	21–30	**XBMZB15V/21**
ZBF15 Tags Vertically Numbered		
10	1–10 ①	**XBMZBF15V/1**
10	11–20	**XBMZBF15V/11**
10	21–30	**XBMZBF15V/21**

Note

① For text printed horizontally, change "V" in catalogue number to "H."

Pre-Printed Marking Tags

Terminal Blocks Marking Tags

The tags are made of white self-extinguishing polyamide 6.6 and the imprint is hot stamped with rubproof black ink.

- White marking strip available preprinted. Strip covers 10 terminals. Marking 1 – 10, 11–20, up to 991–999. Contact Eaton for more options.
  - XBMZB5 or XBMZBF5 for terminal blocks 5.2 mm wide
  - XBMZB6 or XBMZBF6 for terminal blocks 6.2 mm wide
  - XBMZB8 or XBMZBF8 for terminal blocks 8.2 mm wide
  - XBMZB10 or XBMZBF10 for terminal blocks 10.2 mm wide
  - XBMZB12 or XBMZBF12 for terminal blocks 12 mm wide
  - XBMZB15 or XBMZBF15 for terminal blocks 16 mm wide

Marking Tag Sizes

Note: Marking Tag Sizes are for all catalogue numbers starting with given prefix, EXCEPT FUSE TERMINAL Blocks.

Proper Marking Tag Size

XBMZB5	XBMZBF5	XBMZB6	XBMZBF6	XBMZB8	XBMZBF8	XBMZB10	XBMZBF10	XBMZB12	XBMZBF12	XBMZB15	XBMZBF15	XBMSSZB
XBUT25	XBPT25 ②	XBUT4	XBPT4 ②	XBUT6	XBPT6 ②	XBUT10	XBPT10 ②	XBPT16 ①	XBPT16 ②	XBUT35	XBPT35 ②	XBMKLMZ
XBUT4FBE ①	XBPTT25	XBUTT4	XBPTT4	XBPT6 ①	XBPT4FBN ②	XBUT16	—	—	—	XBPT35 ①	—	—
XBUT6FBN ①	XBPTK	XB3UKA	XBPT4FBE ②	XBUK6	XBPT4FSI ②	XBTK	—	—	—	—	—	—
XBPT25 ①	XBPU25 ②	XB3UKF	XBQT25 ③	XBPT4FSI ①	—	XBUK50	—	—	—	—	—	—
XBPT4FBE ①	XBAP …	XBUT4FBE ②	XBQT25FBE ③	—	—	XBUK150	—	—	—	—	—	—
XBPU25 ①	XBQT15 ③	XBUT6FBN ②	XBQU25 ③	—	—	XBUK95	—	—	—	—	—	—
XBQT15 ①	XBQTT15	XBUK10	—	—	—	XBPT10 ①	—	—	—	—	—	—
XBQT25FBE ④	XBQU15 ③	XBUKK4	—	—	—	XBMKLMZ ⑤	—	—	—	—	—	—
XBQU15 ①	XBMPK15	XBPT4 ①	—	—	—	—	—	—	—	—	—	—
XBMUK25	XBMPKK15	XBPT4FBN ①	—	—	—	—	—	—	—	—	—	—
—	XBATCP…	XBQT25 ①	—	—	—	—	—	—	—	—	—	—
—	—	XBQT25FBE ①	—	—	—	—	—	—	—	—	—	—
—	—	XBQU25 ①	—	—	—	—	—	—	—	—	—	—
—	—	XBMUK4	—	—	—	—	—	—	—	—	—	—

Notes

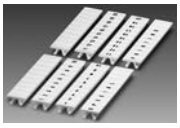
① For centre labeling.
② For external labeling.
③ For centre and outside labeling.
④ For lever labeling.
⑤ Two (2) XBMZB10 tags fit in one (1) XBMKLMZ.

Marker Strips and Sheets (for use with XBAPLT2006K1 plotter)

The ***XB*** Series marking system provides logical and clear identification of the modular terminal blocks and interface modules.

Product Selection

XBMZB_



Marker Strips (Strip of 10)

Terminal Width	Standard Pack	Catalogue Number
Blank Strips		
5.2 mm	10	**XBMZB5**
6.2 mm	10	**XBMZB6**
8.2 mm	10	**XBMZB8**
10.2 mm	10	**XBMZB10**
12 mm	10	**XBMZB12**
16 mm	10	**XBMZB15** ①
Flat Strips		
5.2 mm	10	**XBMZBF5**
6.2 mm	10	**XBMZBF6**
8.2 mm	10	**XBMZBF8**
10.2 mm	10	**XBMZBF10**
12 mm	10	**XBMZBF12**
16 mm	10	**XBMZBF15**

XBMPZB_

Marker Sheets (Strip of 10)

Terminal Width)	Colour	Stnd. Pack	Catalogue Number
Marker Sheets (10 rows of 12)			
5.2 mm	White	50	**XBMPZB5**
	Blue	50	**XBMPZB5BU**
	Red	50	**XBMPZB5RD**
	Yellow	50	**XBMPZB5YE**
	Green	50	**XBMPZB5GN**
Marker Sheets (10 rows of 10)			
6.2 mm	White	50	**XBMPZB6**
	Blue	50	**XBMPZB6BU**
	Red	50	**XBMPZB6RD**
	Yellow	50	**XBMPZB6YE**
	Green	50	**XBMPZB6GN**

XBMPZBF_

Flat Marker Sheets (10 rows of 10)			
5.2 mm	White	10	**XBMPZBF5**
	Orange	10	**XBMPZBF5OG**
	White	10	**XBMPZBF6**
	Orange	10	**XBMPZBF6OG**
	White	10	**XBMPZBF8**

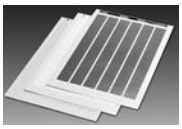
Label Sheets for Laser Printers

The XBM labels have been specially developed for laser printers and have considerable advantages:

- Can be printed on all commercially available laser printers
- Or can use plotter or pen for printing
- Good adhesive properties
- A4 size
- XBMKL25X12WH designed to fit XBGBS2512 group marker
- XBMLMAL447 is perforated for terminal strip marker XBMGLMA and is 44 x 7 mm

Product Selection

XBM_



Label Sheets

Standard Pack	Catalogue Number
10	**XBMKL25X12WH**
10	**XBMLMAL447**

Note

① All markers are strips of 10, except XBMZB15, which is a strip of 5.

Terminal Block Group Marking

Terminal block groups are marked using marking labels that are snapped into the marker strip groove of the terminal blocks. The group is marked using either labels or insert markers.

Product Selection

XBGBS2512

Terminal Block Group Marking ①

Standard Pack	Catalogue Number
100	**XBGBS2512**

Terminal Strip Markers

Adjustable height for end bracket labeling.

Product Selection

XBM_

Terminal Strip Markers ①

Standard Pack	Catalogue Number
20 x 8 mm Wide	
10	**XBMKLM2**
44 x 7 mm Wide	
10	**XBMGLMA**

Terminal Strip Marker Carriers

For labeling terminal groups, for mounting on DIN rail. Lettering field is 40 x 17 mm.

Product Selection

XBMUB_

Terminal Strip Marker Carriers

Standard Pack	Catalogue Number
10	**XBMUBE**
10	**XBMUBED**

Insert Markers for Laser Printers

One sheet = 56 labels. Lettering field is 40 x 17 mm.

Product Selection

XBMUBEL4017

Insert Markers for XBMUBE(D)

Standard Pack	Catalogue Number
10	**XBMUBEL4017**

Refillable Marker Pen

Refillable marker pen for manual labeling, line thickness 0.35 mm.

Product Selection

XBMXPEN

Terminal Strip Markers ①

Standard Pack	Catalogue Number
Pen	
1	**XBMXPEN**
Ink Cartridge	
1	**XBMINK**

Non-Refillable Marker Pen

For manual labeling, line thickness 0.5 mm.

Product Selection

XBMUBE

Non-Refillable Marker Pen

Standard Pack	Catalogue Number
1	**XBMBSTIFT**

Note

① See **Page T42-101** for insert labels.

Marking Plotter

The automatic Prepare Pen function ensures optimum marking results right from the first character.

Pens can remain in the pen station even for prolonged intervals without drying out.

Custom Marking Tag System

This plotter system uses Windows®-based software to interface with a PC, allowing custom printing on standard terminal blocks marking tags. These standard marking tags provide circuit identification for Eaton DIN rail mount terminal blocks.

Features

- Enter tag text directly into EMARK software program or import file from AutoCAD or Excel®
- Selectable font sizes, types and colors including common symbols for circuit identification (ground, ~ etc.)
- Various text formatting options including copy, paste, increment functions, text alignment, etc.
- Durable templates allow printing of four different tag sizes at the same time
- Automatic prepare pen function for optimum results

Technical Data and Specifications

Marking Plotter

Description	Specification
Plotter	
Plotter type	Flatbed plotter
Maximum plotting surface	440 mm x 296 mm
Maximum material height	10.5 mm
Maximum plotting speed	40 cm/sec
Pen station	Four depots with double sealing
Drive	Two-phase impulse-driven motor
Interfaces	Parallel (Centronics)/USB Level 1.1
Electronics	
Command language	Based on HP-GL 7475A
Data buffer	16 MB
Addressable resolution	0.01 mm
Repeat accuracy	0.05 mm
Repeat accuracy on pen change	0.05 mm with optimum pen
Power Supply	
Power supply	Via separate power supply unit with exchangeable mains feeder cable
Power supply unit input voltage	100–240 Vac/50–60 Hz
Power supply unit input current (maximum)	0.3A at 230V~
Power supply unit output voltage	24 Vdc
Power supply unit output current (maximum)	1.4A
Environmental conditions	
Operation	50˚ to 95˚F (10˚ to 35˚C) 35% to 75% relative humidity
Storage	14˚ to 122˚F (–10˚ to 50˚C) 10% to 90% relative humidity

Dimensions

Approximate Dimensions in Inches (mm)

Marking Plotter

L	W	H	Approx. Weight In Lbs (kg)
25.98 (660)	17.32 (440)	4.92 (125)	18 (8)

Marking Plotter

Description	Standard Pack	Catalogue Number
Plotter kit ①	1	**XBAPLT2006K1**
Pen station sealing set	1	**XBMP1PENDEPOT**
Plotter pen preparation plate	1	**XBMP1PREPLATES**
Template for marker strips	1	**XBMP1MZB**
Template for flat marker strips	1	**XBMP1MZBF**
Template for XBMPZB marker sheets	1	**XBMP1MPZB**
Template for XBMPZBF marker sheets	1	**XBMP1MPZBF**
Template for Weidmuller multicard sheet	1	**XBMP1MCSF46**
Template for Weidmuller multicard sheet universal	1	**XBMP1MCU**
Template for Entrelec sheets	1	**XBMP1MRC**
0.25 mm disposal pen	1	**XBMDPEN25R**
0.35 mm disposal pen	1	**XBMDPEN35R**
0.25 mm pen	1	**XBMPEN25**
0.35 mm pen	1	**XBMPEN35**
Ink Cartridge	2	**XBMINK**
Pen cleaning set	1	**XBMRSET**
Cleaning cartridges	2	**XBMRMEKFC2**

EMARK Software

Eaton's EMARK software makes labeling your terminal blocks quick and simple. You can import your data from ECHART, any other CAD/CAE program, or enter text directly into EMARK. The software allows marking tags to be printed on the PLT2006 plotter in a professional manner.

Note

① Plotter kit includes PLT2006 plotter system with EMARK software and user manual, starter ink and cleaning sets, and templates for marking all XBMZB and XBMZBF tags.

Testing Accessories

Test Adapter

For 4 mm diameter test plug and 4 mm diameter safety test plug. Makes contact in the bridge shaft.

Product Selection

XBATSPAI4

Test Adapter

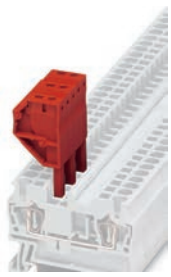
Standard Pack	Catalogue Number
1	**XBATSPAI4**

Modular Test Plugs

For individual assembly of test plug strips.

Product Selection

XBATS_



Modular Test Plugs

Standard Pack	Catalogue Number
Test Plugs	
10	**XBATSPS5**
10	**XBATSPS6**
10	**XBATSPS8**
Spacer Plate	
10	**XBATSDPPS5**
10	**XBATSDPPS6**
10	**XBATSDPPS8**

Test Plugs

Consisting of metal part for socket hole and insulating sleeve.

Product Selection

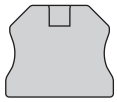
XBATSMP_

XBATSMP_

Test Plugs

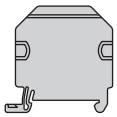
Standard Pack		Catalogue Number
2.3 mm		
10	—	**XBATSMPSMT**
10	Blue	**XBATSMPSIHBU**
10	White	**XBATSMPSIHWH**
10	Red	**XBATSMPSIHRD**
10	Black	**XBATSMPSIHBK**
4 mm		
10	—	**XBATSPSMT**
10	Blue	**XBATSPSIHBU**
10	White	**XBATSPSIHWH**
10	Red	**XBATSPSIHRD**
10	Black	**XBATSPSIHBK**

Separating Plates, Covers and Bridges



End Cover

Used to cover an open end of terminal block when changing sizes within an assembly and/or for last terminal block in a row.

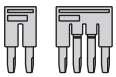


Partition Plate

Protrudes over the terminal block and is used to increase electrical clearance between terminals. Also provides visual indications of the functions of terminal blocks. For example, terminal blocks between two partition plates may provide an exact location for test points.

End Cover Segment

Covers protruding terminal block segments of three- and four-wire terminal blocks when next to a two wire blocks. This ensures that all is touch-proof and saves space over using a standard end cover.



Jumper/Bridge

Provides the ability to electrically connect terminal blocks. Non-adjacent blocks may be bridged by snapping off the contact tabs of the standard bridge. The reducing bridge permits simple connection of terminal blocks with different nominal cross-sections.

Note

See these accessories as listed with terminal blocks for more information.

NEMA

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NEMA	
C381 Series Terminal Blocks, Rail Mounted	**T42-107**
TB Series Terminal Blocks, Modular	**T42-111**

NEMA Overview

Product Description

NEMA terminal blocks provide a panel or DIN rail mount block that can be assembled from modular pieces. These blocks accommodate wire from 22 to 1/0 AWG and up to 175A and 600V.

Standards and Certifications

- UL File #E67464 and #E56797

C381 Series Terminal Blocks, Rail Mounted

Contents

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C381 Series Terminal Blocks, Rail Mounted	
Product Selection	**T42-108**
Accessories	**T42-109**
Modifications	**T42-109**
Technical Data and Specifications	**T42-110**
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TB Series Terminal Blocks, Modular	**T42-111**

C381 Series Terminal Blocks, Rail Mounted

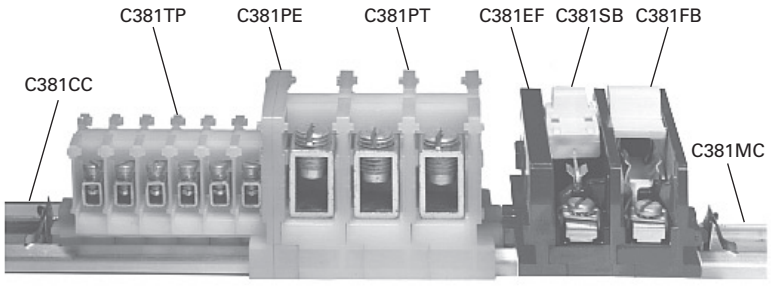
Product Description

- 600V
- Snap-fit nylon sections
  - Control circuit blocks
  - Power circuit blocks
  - Fuse blocks
  - Switch blocks
- Sections can be interlocked in any quantity and any mixture for direct panel mounting or channel mounting
- Three terminal choices in control circuit blocks, up to 32 circuits per foot
- Power circuit blocks for heavy-duty applications, up to 16 circuits per foot
- Fuse blocks accommodate any 0.406 x 1.5 in (10.3 x 38.1 mm) ferrule type cartridge fuse up to 30A
- Switch blocks have removable blade for extra safety

Standards and Certifications

- UL File #E67464

A Typical Mixture of Control Circuit Blocks, Power Blocks, Switch and Fuse Blocks in a Mounting Channel



Product Selection

When Ordering Specify

Catalogue number and quantity, which must be in a multiple of the available minimum standard package.

Examples:
- 200 Cat. No. C381ST
- 20 Cat. No. C381PT
- 100 Cat. No. C381CC

Catalogue number and quantity of end sections also in minimum quantity standard package.

Example:
- 25 Cat. No. C381ES.

Control, Power, Switch and Fuse Blocks ①

	Description	AWG Wire Size	Standard Pack ②	Catalogue Number
	Control Circuit Terminal Blocks—Rated 50A			
C381ST	Type ST (screw terminal)	22–14 AWG	100	**C381ST**
C381TP	Type TP (tubular pressure plt)	22–10	100	**C381TP**
C381TS	Type TS (tubular screw) end section	18–8	100	**C381TS**
C381ES	End section	—	25	**C381ES**
	Power Circuit Terminal Blocks—Rated 155A			
C381PT	Type PT (tubular screw)	10–1/0	10	**C381PT**
C381PE	End section	—	10	**C381PE**
	Switch Blocks—Rated 15A and Fuse Blocks—Rated 30A			
C381SB	Switch blocks	18–8	10	**C381SB**
C381FB	Fuse blocks	18–8	10	**C381FB**
C381EF	End section	—	10	**C381EF**

Notes

① Available only in minimum quantity standard packages.

② Must be ordered in standard package quantity or in multiples of these quantities.

Accessories

C381 Series Terminal Blocks, Rail Mounted ①

Description	Standard Pack ②	Catalogue Number
Aluminum mounting channel—6 ft (1.8m) lengths	25	**C381MC**
Screw type channel clamp (one required each end) ③	100	**C381VC**
Spring type channel clamp (one required each end) ③	100	**C381CC**
Vinyl marking strip—3/8 in x 25 ft (9.5 mm x 7.6m) coil	1	**C381MS**
Marking paper—pressure sensitive—5/16 x 11-11/16 in (7.9 x 296.9 mm), 24 strips/sheet	5 sheets	**C381MP**
Marking strip retainer (one required/grouping)		
For use on control circuit blocks	100	**C381SR**
For use on power circuit blocks	100	**C381SP**
Fanning strip—for type TP and/or TS	50	**C381TF**
Fanning strip—for type ST	50	**C381SF**
Terminal jumper (two-pole) ④	100	**C381TJ**
Ganging rod—1/8 in x 6 in (3.2 mm x 152.4 mm) ⑤	10	**C381GR**

Modifications

Pull Apart Terminal Blocks ①

Description	AWG Wire Size	Standard Pack ②	Catalogue Number
One-pole stationary section (tubular pressure plt)	22–10	100	**C381PS**
Three-pole movable section (tubular pressure plt)	22–10	12	**C381PM**
End section	—	25	**C381ES**
Polarizing plug (promotes alignment of poles) ⑥	—	100	**C381PP**

Pull Apart Terminal Blocks

Illustrates: One–Three-Pole Movable Section, Three–One-Pole Stationary Sections and One–End Piece

Notes

① Available only in minimum quantity standard packages.
② Must be ordered in standard package quantity or in multiples of these quantities.
③ C381CC is a snap-in, one time use disposable type. C381VC can be readjusted or reused as desired.
④ For use on adjacent Type TP and/or TS control circuit sections.
⑤ May be used on section covers or to gang fuse and/or switch blocks.
⑥ L shaped plug installs in end of stationary section, Catalogue Number C381PS, and prevents incorrect installation of movable section, Catalogue Number C381PM.

Technical Data and Specifications

Formulas for Calculating Blocks and Channel Lengths

N = Number of Blocks

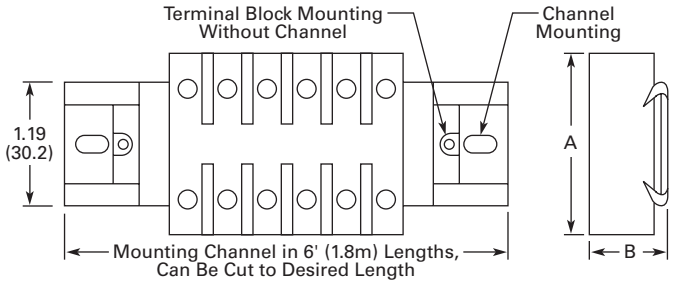
C381 Series Terminal Blocks, Rail Mounted

Description	Blocks Length
Control blocks and pull apart blocks	0.762 + (0.375 x N)
Power circuit blocks	0.812 + (0.750 x N)
Fuse and switch blocks	0.812 + (0.755 x N)
Mounting channel (minimum channel length)	0.75 + blocks length

Dimensions

Approximate Dimensions in Inches (mm)

C381 Series Terminal Blocks, Rail Mounted



Block	A	B
Control circuit blocks	1.25 (31.8)	1.55 (39.4)
Power circuit blocks	1.75 (44.5)	2.00 (50.8)
Fuse blocks	2.75 (69.9)	2.00 (50.8)
Switch blocks	2.75 (69.9)	2.00 (50.8)
Pull apart blocks	1.88 (47.8)	2.75 (69.9)

TB Series Terminal Blocks, Modular

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Dimensions	**T42-115**

TB Series Terminal Blocks, Modular

Product Description

TBA and TBD modular terminal blocks are designed to conserve space, while allowing maximum flexibility and ease of installation. Available as one-, two- and three-pole circuits, simple and uniform installation is possible because their design is based on 5/8 in (15.9 mm) modules. Standard blocks are white nylon.

Breathing Action Clamping Collar

The unique design of the clamping collar permits the collar to breathe as the wire expands and contracts, maintaining a constant and permanent clamping pressure. This eliminates loose connections resulting from the gradual flattening of conductors and joint deterioration caused by heating and cooling cycles.

Features

Blocks—Design Features

- Compact design permits mounting 48–600V or 90–300V terminals per foot
- Fully shielded construction, 600V spacings
- Nylon construction provides anti-tracking and impact resistance
- TBA types are available in rail mounted, base mounted and power distribution types
- Terminal blocks easily snap on or off mounting rails; not necessary to disturb adjacent units
- No end pieces or backing plates are needed when rail mounting
- A 12 circuit subminiature blocks, rated 20A at 300V, is available for "high density" applications
- Popular blocks are also available in dual mount for use with standard TBA or 35 mm DIN rails

Terminals—Design Features

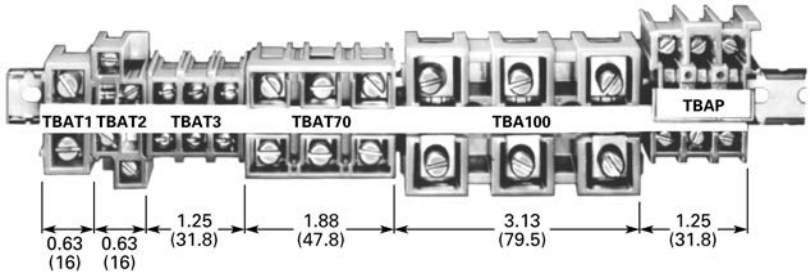
- Insulated walls of lug guide wire into lug
- Blocks are shipped with clamping screw backed out
- Constant locking torque keeps terminal screws in position
- Terminal screws are captive; cannot be lost in shipment or handling
- Hardened stainless steel clamping collar eliminates stripped threads
- Large opening in clamping collar accommodates oversized conductors; smallest collar will accept three 14 AWG stranded conductors

Standards and Certifications

- UL recognized: File No. E56797
- CE approved

Product Selection

TBA Modular Terminal Blocks



Rail and Base Mounted Terminal Blocks

Description	AWG Wire Size	Number of Poles	Ampacity (per Circuit) ①	Carton Quantity ②	TBA Rail Catalogue Number	DIN Rail ③ Catalogue Number
Rail Mounted—600V						
Subminiature blocks	(2) 14–12	12	5A	100	**TBDSM12** ④	**TBDSM12** ④
Miniature blocks	22–10	4	30A	100	**TBDV4**	**TBDV4**
Standard blocks—screw terminals with tang clamping collars	18–2	1	90A	100	—	**TBDT1**
	22–8	2	40A	100	**TBAT2**	—
	22–8	3	40A	20	**TBAT3-20**	**TBDT3-20**
	18–4	3	90A	100	**TBDT70**	**TBDT70**
High current blocks	14–2/0	3	175A	12	**TBA100** ⑤	—
Standard blocks—plug-in terminals	22–8	3	40A	20	**TBAP**	—
	18–4	3	70A	20	**TBAP70**	—
	14–8	3	40A	20	**TBAPL70**	—
Panel mount blocks	22–10	3	30A	100	**TBAL30**	—
	8–4	3	115A	12	**TBAL90**	—
Disconnect blocks—for 1/4 in (6.4 mm) dia. by 1–1-7/16 in (25.4–36.5 mm) fuse	22–8	1	30A	50	**TBAD**	—
Fuse blocks—for 13/32 in (10.3 mm) dia. by 1-1/2 in (38.1 mm) fuse	22–8	1	30A	50	**TBDTF**	**TBDTF**
Base Mounted—600V						
Miniature blocks—screw terminals with tang clamping collars	22–10	4	30A (600V)	90	**TBBT4**	—
Standard blocks—standard screw terminals	22–8	3	40A	80	**TBABT3**	—
Universal mounting blocks	8 maximum	4	50A ⑥	25	**TBU4**	—
	8 maximum	6	50A ⑥	60	**TBU6**	—
	8 maximum	8	50A ⑥	45	**TBU8**	—
	8 maximum	12	50A ⑥	35	**TBU12**	—

Notes

① Based on 50°C rise, test at 25°C ambient while using maximum wire size.
② Must be ordered in standard package quantity or in multiples of these quantities.
③ Dual mounting blocks—mount on either TMR/TBA rail or 35 mm DIN rail.
④ May also be mounted on mini-DIN rail (15 mm). Catalogue Number C383TS15.
⑤ May also be base mounted.
⑥ TBU Series = 60A with crimped wire.

Accessories

TB Series Terminal Blocks, Modular

Description	Length ①	Number of Poles	Carton Quantity ②	Catalogue Number
Mounting Rail				
Aluminum	12.5 (317.5)	—	25	**TMR12**
	37.5 (952.5)	—	25	**TMR37**
	72.0 (1828.8)	—	25	**TBATR72**
35 mm DIN—steel	1m	—	20	**MC382MA1-20**
Marking Strips				
Miniature blocks—TBDV4 and TBBT4	6.0 (152.4)	—	50	**TMS6**
TBU Series—matte finish	7.5 (190.5)	—	25	**TMSU**
All other blocks	12.5 (317.5)	—	50	**TMS**
Jumpers				
TBAT1 and TBAP70	—	2-pole	100	**TJ1**
TBAT2	—	2-pole	100	**TJ2**
TBAT3, TBABT3, TBAP and TBBP	—	2-pole	100	**TJ3**
TBDV4 and TBBT4	—	4-pole	100	**TJ4**
TBAD and TBATF	—	2-pole	100	**TJ5**
TBAL30	—	2-pole	100	**TJ6**
TBU	—	12-pole	10	**TJ7**
TBDT3	—	2-pole	100	**TJ8**
Miscellaneous				
End piece for TBABT3 and TBBP	—	—	50	**TAD**
Lug shield for TBA100 and TBAL90	—	—	50	**TAS**
Fuse puller	—	—	50	**TBP**
Lighted fuse puller—blown fuse indication	—	—	25	**TBLP**

Notes

① Length in inches (mm) except as noted.

② Must be ordered in standard package quantity or in multiples of these quantities.

Technical Data and Specifications

TB Series Terminal Blocks, Modular

Description	Specification
Continuous temperature	212°F (100°C)
Tensile strength	10,000–12,000 psi
Impact resistance	2.0 ft-lb/in (arc)
Arc resistance	140 seconds

- Chemical resistance to:
  - Acetone
  - Ammonia gas
  - Benzene
  - Gasoline
  - Mineral oil
  - Sodium bisulfate
  - Sodium chloride
  - Sodium nitrate
  - Water up to 50°C

Flashover Voltages

Catalogue Number	Vac rms, 60 Hz Opposite Polarity	To Ground
TBAT1	9100	6600
TBAT2	9600	7300
TBAT3	8600	7300

Recommended Terminal Tightening Torque

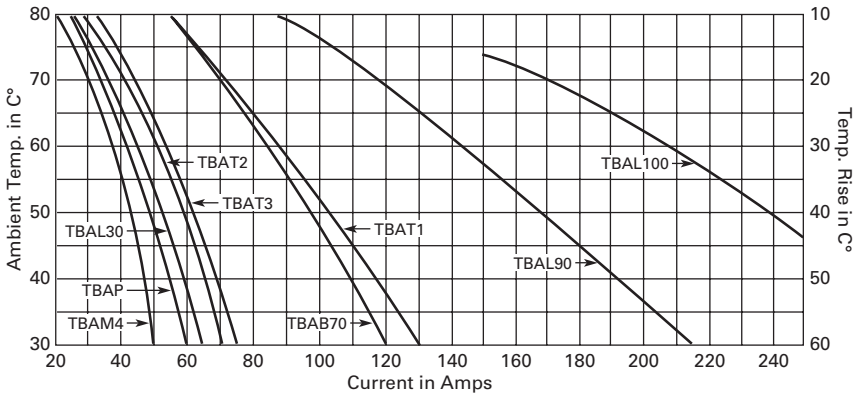
Wire Size	Torque
Up to 8 AWG	20 lb-in
Up to 4 AWG	35 lb-in
Up to 2/0 AWG	50 lb-in

To find a current rating, place a straight edge horizontally at the value of anticipated maximum internal panel ambient (scale on the left), and read the current rating for the device on the bottom scale. *Example:* at 60°C, TBAT3 is rated 54 amperes.

Ampere rating is based on maximum allowable temperature—ambient temperature plus temperature rise due to current.

Ratings based on 90°C total temperature of a three-pole block with each pole carrying current and wired with largest size conductors.

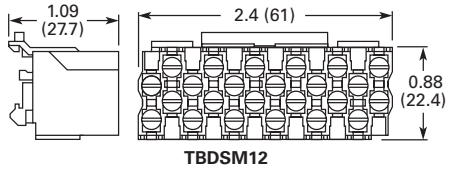
Temperature Rating



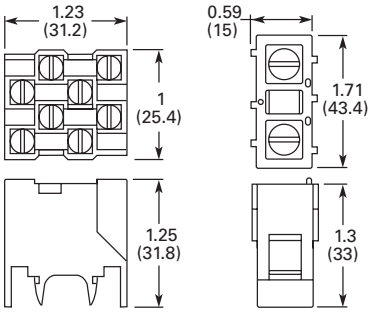
Dimensions

Approximate Dimensions in Inches (mm)

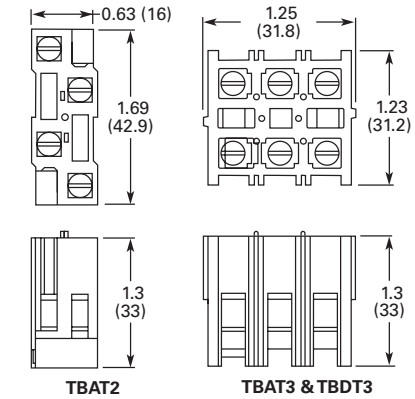
TB Series Terminal Blocks, Modular



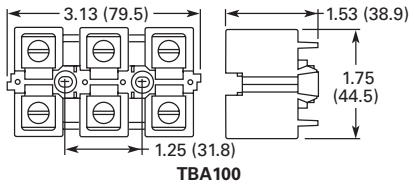
TBDSM12



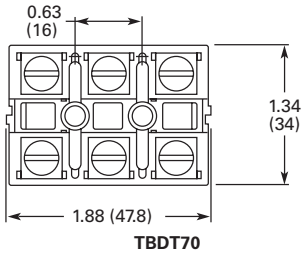
TBDV4 TBDT1



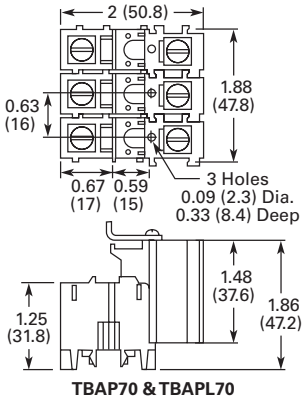
TBAT2 TBAT3 & TBDT3



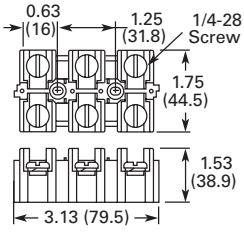
TBA100



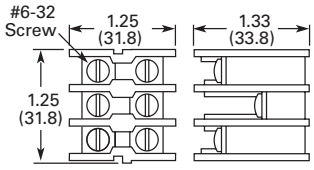
TBDT70



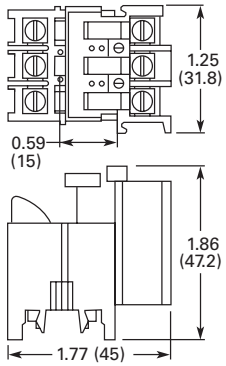
TBAP70 & TBAPL70



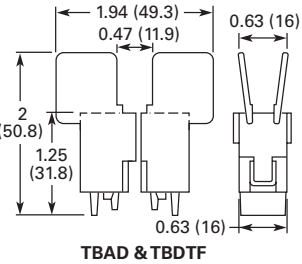
TBAL90



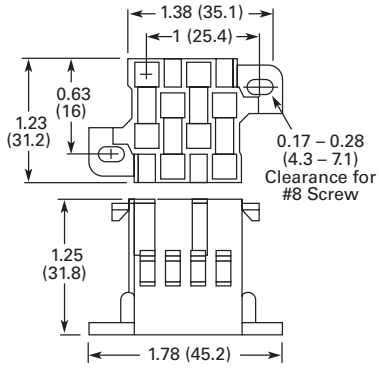
TBAL30



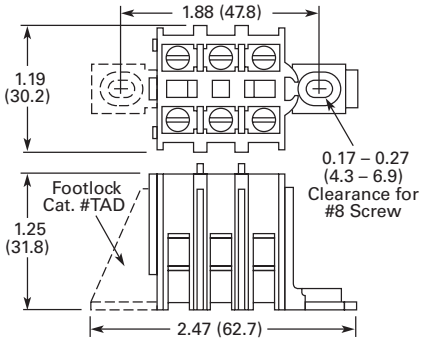
TBAP



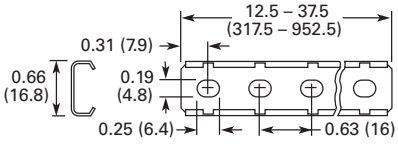
TBAD & TBDTF



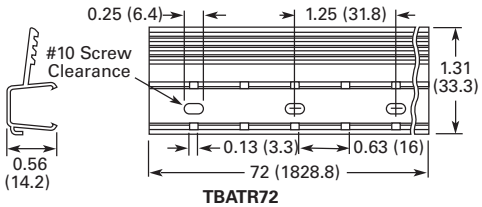
TBBT4



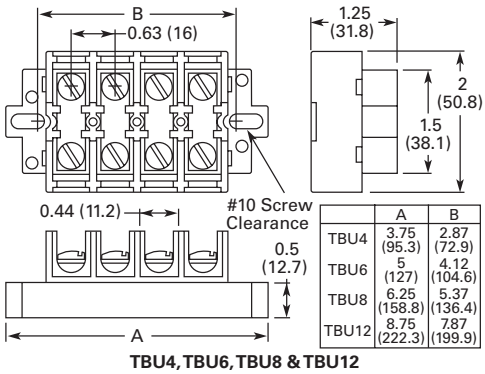
TBABT3



TMR12 & TMR37



TBATR72



	A	B
TBU4	3.75 (95.3)	2.87 (72.9)
TBU6	5 (127)	4.12 (104.6)
TBU8	6.25 (158.8)	5.37 (136.4)
TBU12	8.75 (222.3)	7.87 (199.9)

TBU4, TBU6, TBU8 & TBU12

Power Distribution Products

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Power Distribution Overview

Product Selection Guide

Series	Current Range	UL Certification	High Short Circuit Current Rating ①	UL 508A Approved for Industrial Control Panels		
				Branch Circuits	Feeder Circuits	HVAC UL 1995
CH162	115–175A	UL 1059 Recognized	No	Yes	No ②	Yes
CH163	175–420A	UL 1059 Recognized	No	Yes	No ②	Yes
CH165	620–840A	UL 1059 Recognized	No	Yes	No ②	Yes
CHDB	175–570A	UL 1953 Listed	Yes	Yes	Yes	Yes

Notes

① Refer to **Page T42-118** to determine short circuit current ratings with fuses and **Pages T42-119** and **T42-120** to determine short circuit current ratings in conjunction with specific Eaton circuit breakers.

② Single-pole units, when installed with proper spacings, may meet requirements for UL 508A feeder circuits.

CHDB Series—Power Distribution Blocks, Enclosed and Open

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CHDB Series—Power Distribution Blocks

Product Description

Eaton's CHDB Series of Power Distribution Blocks was designed for high short circuit current rating (SCCR) applications up to 200,000 amperes. They are assembled with the minimum spacing to meet UL 1953 requirements for feeder circuits in UL 508A industrial control panels, and provide significant wiring flexibility.

Available in three-pole open style and single-pole enclosed style with a variety of terminal arrangements and current-carrying capability up to 570 amperes.

Features and Benefits

Enclosed Style

- IP20 finger-safe enclosure
- 600 Vac or Vdc (UL 1953), 690 Vac or Vdc
- DIN rail or panel mount
- Captive termination screws prevent lost screws
- Single-pole, gang mountable for multi-pole applications
- Tin plated Al connections suitable for Cu conductors
- Flammability, UL 94V-0

Open Style

- 600 Vac or Vdc (UL 1953)
- Panel mount
- Three-pole open design for easy wiring
- Tin-plated Al connections suitable for Cu conductors
- Flammability, UL 94V-0
- Available covers for additional protection (does not meet IP20)

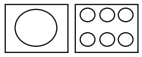
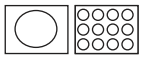
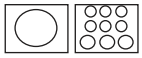
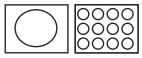
Standards and Certifications

- UL Listed 1953, Guide QPQS, File E256146
- CSA Certified, Class 6228-01, File 15364 (enclosed style)
- CE Component IEC 60947-7-1 (enclosed style)
- IEC 60529, IP20 (finger-safe) under specific wiring conditions (enclosed style)

Listed

Product Selection

CHDB Series—Power Distribution Blocks

	Line Connection	Load Connection	Configuration	Amperes	Style	Poles	Catalogue Number
CHDB2203 (Open)	2/0–#8 AWG	(4) #4–#14 AWG		175	Open	3	**CHDB2203**
	2/0–#8 AWG	(6) #4–#14 AWG		175	Open	3	**CHDB3213**
	300 kcmil–#4 AWG	(6) #4–#12 AWG		310	Open	3	**CHDB3233**
	300 kcmil–#4 AWG	(12) #4–#14 AWG		310	Open	3	**CHDB3703**
	300 kcmil–#4 AWG	(6) #2–#12 AWG		310	Open	3	**CHDB3713**
		(3) 1/0–#12 AWG		310	Open	3	**CHDB3713**
CHDB204F (Enclosed)	2/0–#8 AWG	2/0–#8 AWG		175	Enclosed ①	1	**CHDB204F**
	500 kcmil–#6 AWG	(6) #2–#14 AWG		380	Enclosed ①	1	**CHDB330F**
	300 kcmil–#4 AWG	(12) #4–#14 AWG		570	Enclosed ①	1	**CHDB377F**

Technical Data and Specifications

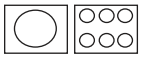
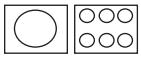
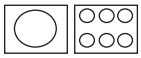
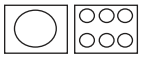
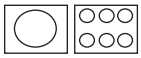
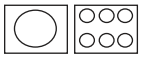
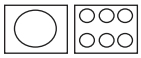
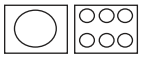
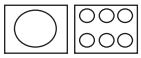
Power Terminal Block Short-Circuit Current Ratings (SCCR) with Fuses

Catalogue Number	Terminal Copper Conductors		Maximum Fuse Class and Amperes J	T	RK-1	RK-5	
	Line	Load	LPJ	JJS/JJN	LPS-RK/LPN-RK	FRS-R/FRN-R	SCCR (kA)
CHDB2203	2/0–#8 AWG	#4–#12 AWG	200	200	200	60	200
		#4–#14 AWG	175	175	100	60	100
			200	200	100	60	50
CHDB3213	2/0–#8 AWG	#4–#12 AWG	400	400	200	100	200
			400	400	400	100	100
		#4–#14 AWG	175	175	100	60	100
CHDB3233	300 kcmil–#4 AWG	#4–#8 AWG	400	400	200	100	200
			400	400	400	100	100
		#4–#12 AWG	175	175	100	60	100
CHDB3703	300 kcmil–#4 AWG	#4–#8 AWG	400	400	200	100	200
		#4–#14 AWG	400	400	400	100	100
			175	175	100	60	100
CHDB3713	300 kcmil–#4 AWG	1/0–#6 AWG	400	400	200	100	200
		#4–#12 AWG	400	400	400	100	100
			175	175	100	60	100
CHDB204F	2/0–#8 AWG	2/0–#8 AWG	200	200	100	60	200
CHDB330F	500 kcmil–#6 AWG	#2–#6 AWG	400	400	200	100	200
		#2–#14 AWG	200	200	100	30	50
			175	175	100	30	100
CHDB377F	300 kcmil	#4–#8 AWG	600	600	400	200	200
	300 kcmil–#4 AWG	#4 AWG	600	600	400	200	50
		#4–#14 AWG	200	200	100	30	50

Note

① Finger-safe.

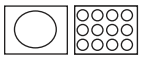
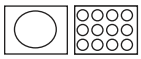
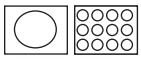
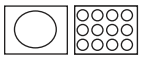
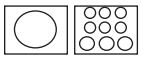
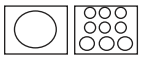
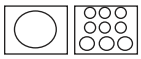
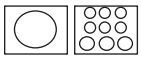
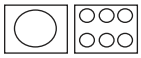
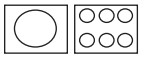
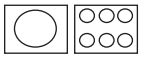
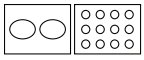
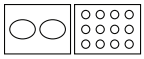
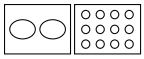
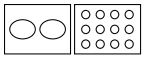
Power Terminal Block Short-Circuit Ratings (SCCR) for UL 508A Applications with Circuit Breakers

Catalogue Number	Description	Enclosure Size in Inches (mm)	Current Rating	Opening per Pole		Line Conductors Cu	Load Conductors Cu	SCCR @ 480V (Load Side)	Eaton Breaker	Available Breaker Current Ratings
				Line	Load					
CHDB2203	Feeder Listed Open PDB	16.00 x 16.00 x 6.75 (406.4 x 406.4 x 171.5)	175			2/0–#8	#4–#10 #12 #14	18 kA 18 kA 14 kA	EGB125	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB2203	Feeder Listed Open PDB	16.00 x 16.00 x 6.75 (406.4 x 406.4 x 171.5)	175			2/0–#8	#4–#10 #12 #14	25 kA 22 kA 14 kA	EGE125	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB2203	Feeder Listed Open PDB	16.00 x 16.00 x 6.75 (406.4 x 406.4 x 171.5)	175			2/0–#8	#4–#10 #12 #14	50 kA 22 kA 14 kA	EGS125	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB2203	Feeder Listed Open PDB	16.00 x 16.00 x 6.75 (406.4 x 406.4 x 171.5)	175			2/0–#8	#4–#10 #12 #14	65 kA 22 kA 14 kA	EGH125	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB2203	Feeder Listed Open PDB	16.00 x 16.00 x 6.75 (406.4 x 406.4 x 171.5)	175			2/0–#8	#4–#10 #12 #14	65 kA 22 kA 14 kA	EGC125 ①	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB3213	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	175			2/0–#8	#4–#10 #12 #14	18 kA 18 kA 18 kA	EGB125	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB3213	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	175			2/0–#8	#4–#10 #12 #14	25 kA 22 kA 18 kA	EGE125	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB3213	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	175			2/0–#8	#4–#10 #12 #14	50 kA 22 kA 18 kA	EGS125	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB3213	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	175			2/0–#8	#4–#10 #12 #14	65 kA 22 kA 18 kA	EGH125	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB3213	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	175			2/0–#8	#4–#10 #12 #14	65 kA 22 kA 18 kA	EGC125 ①	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB204F	Feeder Listed Enclosed PDB	16.00 x 16.00 x 6.75 (406.4 x 406.4 x 171.5)	175			2/0–#8	2/0–#8	18 kA	EGB125	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB204F	Feeder Listed Enclosed PDB	16.00 x 16.00 x 6.75 (406.4 x 406.4 x 171.5)	175			2/0–#8	2/0–#8	25 kA	EGE125	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB204F	Feeder Listed Enclosed PDB	16.00 x 16.00 x 6.75 (406.4 x 406.4 x 171.5)	175			2/0–#8	2/0–#8	35 kA	EGS125	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB204F	Feeder Listed Enclosed PDB	16.00 x 16.00 x 6.75 (406.4 x 406.4 x 171.5)	175			2/0–#8	2/0–#8	65 kA	EGH125	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB204F	Feeder Listed Enclosed PDB	16.00 x 16.00 x 6.75 (406.4 x 406.4 x 171.5)	175			2/0–#8	2/0–#8	65 kA	EGC125 ①	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125
CHDB3233	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	310			350 kmil–#4	#4–#6 #8 #10	25 kA 25 kA 14 kA	JGE250	70, 90, 100, 125, 150, 175, 200, 225, 250
CHDB3233	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	310			350 kmil–#4	#4–#6 #8 #10	35 kA 35 kA 14 kA	JGS250	70, 90, 100, 125, 150, 175, 200, 225, 250
CHDB3233	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	310			350 kmil–#4	#4–#6 #8 #10	65 kA 42 kA 14 kA	JGH250	70, 90, 100, 125, 150, 175, 200, 225, 250
CHDB3233	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	310			350 kmil–#4	#4–#6 #8 #10	65 kA 42 kA 25 kA	JGC250 ①	70, 90, 100, 125, 150, 175, 200, 225, 250

Note

① This breaker frame is marked current limiting and suitable for use as current limiting per UL 508A SB.4.3.2.

Power Terminal Block Short-Circuit Ratings (SCCR) for UL 508A Applications with Circuit Breakers, continued

Catalogue Number	Description	Enclosure Size in Inches (mm)	Current Rating	Opening per Pole		Line Conductors Cu	Load Conductors Cu	SCCR at 480V (Load Side)	Eaton Breaker	Available Breaker Current Ratings
				Line	Load					
CHDB3703	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	310			350 kmil–#4	#4–#6 #8 #10	25 kA 25 kA 14 kA	JGE250	70, 90, 100, 125, 150, 175, 200, 225, 250
CHDB3703	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	310			350 kmil–#4	#4–#6 #8 #10	35 kA 35 kA 14 kA	JGS250	70, 90, 100, 125, 150, 175, 200, 225, 250
CHDB3703	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	310			350 kmil–#4	#4–#6 #8 #10	65 kA 42 kA 14 kA	JGH250	70, 90, 100, 125, 150, 175, 200, 225, 250
CHDB3703	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	310			350 kmil–#4	#4–#6 #8 #10	65 kA 42 kA 25 kA	JGC250 ①	70, 90, 100, 125, 150, 175, 200, 225, 250
CHDB3713	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	310			350 kmil–#4	#4–#6 #8 #10	25 kA 25 kA 14 kA	JGE250	70, 90, 100, 125, 150, 175, 200, 225, 250
CHDB3713	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	310			350 kmil–#4	#4–#6 #8 #10	35 kA 35 kA 14 kA	JGS250	70, 90, 100, 125, 150, 175, 200, 225, 250
CHDB3713	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	310			350 kmil–#4	#4–#6 #8 #10	50 kA 42 kA 14 kA	JGH250	70, 90, 100, 125, 150, 175, 200, 225, 250
CHDB3713	Feeder Listed Open PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	310			350 kmil–#4	#4–#6 #8 #10	65 kA 50 kA 25 kA	JGC250 ①	70, 90, 100, 125, 150, 175, 200, 225, 250
CHDB330F	Feeder Listed Enclosed PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	380			500 kmil–#3	#2–#8	14 kA	LGE400	250, 300, 350, 400
CHDB330F	Feeder Listed Enclosed PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	380			500 kmil–#3	#2–#8	14 kA	LGS400	250, 300, 350, 400
CHDB330F	Feeder Listed Enclosed PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	380			500 kmil–#3	#2–#8	14 kA	LGH400	250, 300, 350, 400
CHDB330F	Feeder Listed Enclosed PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	380			500 kmil–#3	#2–#8	25 kA	LGC400 ①	250, 300, 350, 400
CHDB377F	Feeder Listed Enclosed PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	570			(2) 300 kmil–#2	#4 #6 #8	30 kA 18 kA 14 kA	LGE600	250, 300, 350, 400, 500, 600
CHDB377F	Feeder Listed Enclosed PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	570			(2) 300 kmil–#2	#4 #6 #8	30 kA 18 kA 14 kA	LGS600	250, 300, 350, 400, 500, 600
CHDB377F	Feeder Listed Enclosed PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	570			(2) 300 kmil–#2	#4 #6 #8	30 kA 18 kA 14 kA	LGH600	250, 300, 350, 400, 500, 600
CHDB377F	Feeder Listed Enclosed PDB	24.00 x 20.00 x 6.75 (609.6 x 508.0 x 171.5)	570			(2) 300 kmil–#2	#4 #6 #8	42 kA 35 kA 14 kA	LGC600 ①	250, 300, 350, 400, 500, 600

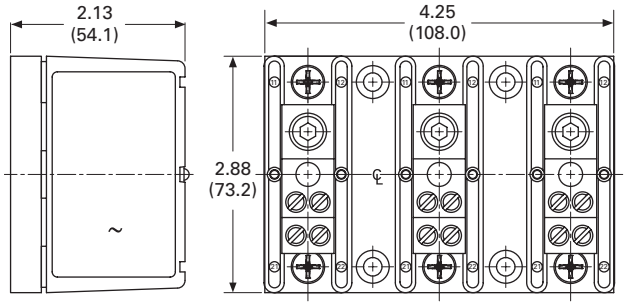
Note

① This breaker frame is marked current limiting and suitable for use as current limiting per UL 508A SB.4.3.2.

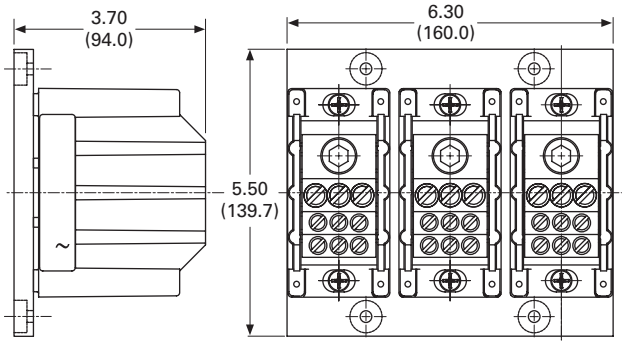
Dimensions

Approximate Dimensions in Inches (mm)

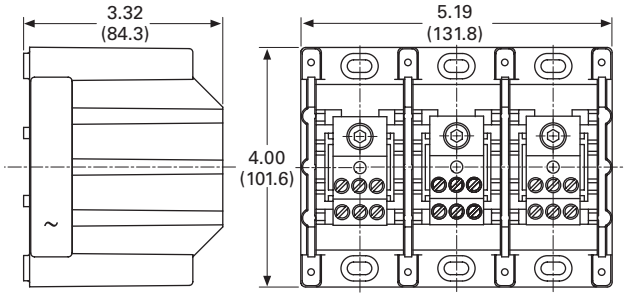
CHDB2203



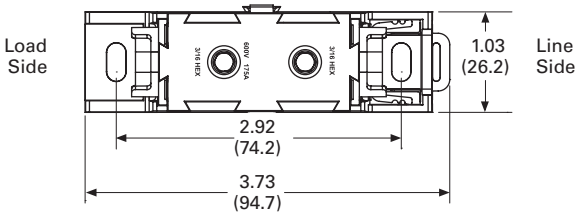
CHDB3713



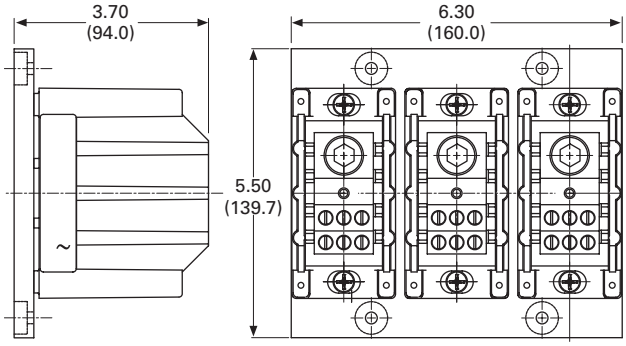
CHDB3213

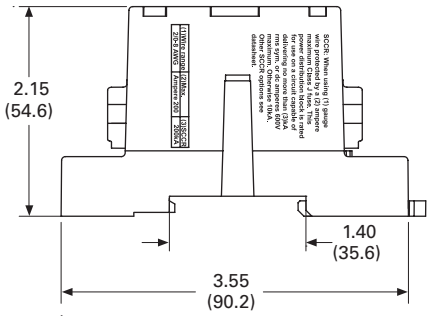


CHDB204F

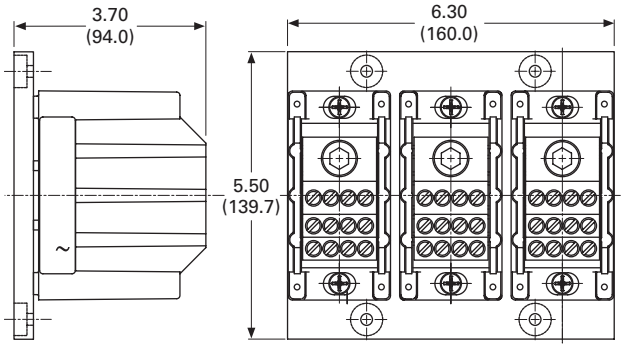


CHDB3233



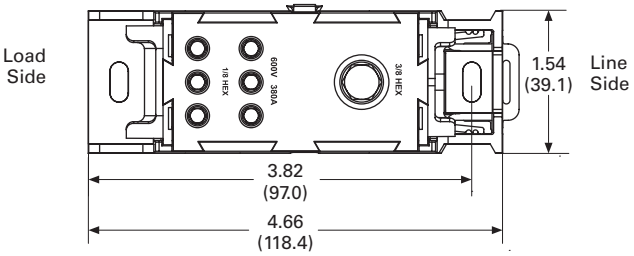


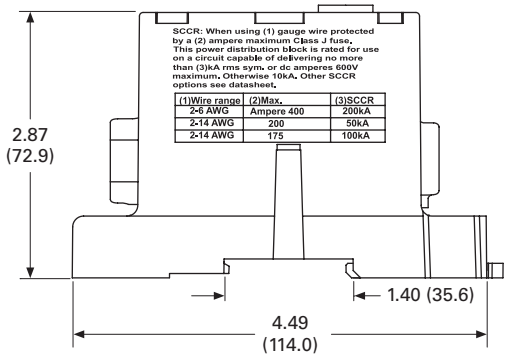
CHDB3703



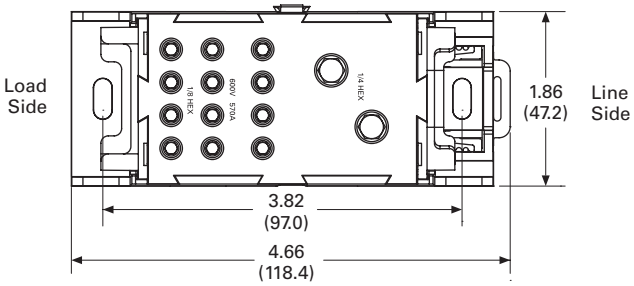
Approximate Dimensions in Inches (mm)

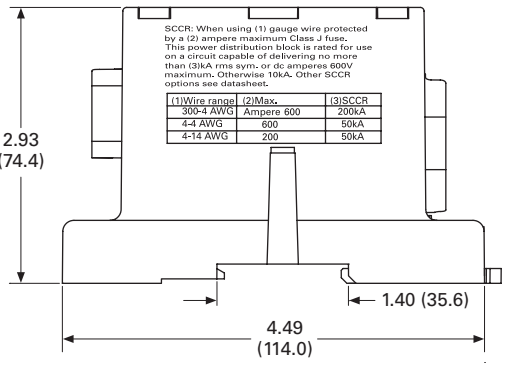
CHDB330F





CHDB377F





CH160 Series—Power Terminal Blocks

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CHDB Series—Power Distribution Blocks	**T42-117**
CH160 Series—Power Terminal Blocks	
Product Selection	**T42-124**
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Dimensions	**T42-125**
Power Terminal Block Accessories	**T42-126**

CH160 Series—Power Terminal Blocks

Product Description

The CH160 Series of Power Terminal Blocks are UL 1059 recognized power terminal blocks for branch circuit applications. All short circuit current ratings (SCCR) are 10 kA per UL 508A Table SB4.1. The blocks are available in a wide variety of wiring configurations, providing excellent flexibility.

Features and Benefits

- Ratings: To 840A, 600V
- Materials
  - Molded material; black, UL rated 94V-0 thermoplastic
- Operating temperature: 302˚F (150˚C)
- Optional cover: See **Page T42-126**

Standards and Certifications

- UL Recognized
- CSA Certified

Product Selection

When Ordering, Specify

- Catalogue number
- Number of poles (up to three-pole available)

CH160 Power Terminal Blocks—CH162 Series

Line Connection	Load Connection	Connector Material and Ampacity	Catalogue Number ①
#2–#14 Cu/#8 Al	#2–#14 Cu/#8 Al	Al 115A	**CH16200_**
1/0–#14 Cu	1/0–#14 Cu	Cu 150A	**CH16201_**
2/0–#8 Cu/Al	2/0–#8 Cu/Al	Al 175A	**CH16204_**
2/0–#14 Cu/#8 Al	(4) #4–#14 Cu/#8 Al	Al 175A	**CH16220_**

CH160 Power Terminal Blocks—CH163 Series

Line Connection	Load Connection	Connector Material and Ampacity	Catalogue Number ①
250 kcmil-#6 Cu	250 kcmil-#6 Cu	Cu 255A	**CH16301_**
350 kcmil-#6 Cu/Al	350 kcmil-#6 Cu/Al	Al 310A	**CH16303_**
500 kcmil-#6 Cu/Al	500 kcmil-#6 Cu/Al	Al 380A	**CH16306_**
2/0–#14 Cu/Al	(6) #4–#14 Cu/#8 Al	Al 175A	**CH16321_**
350 kcmil-#6 Cu/Al	(6) #4–#14 Cu/#8 Al	Al 310A	**CH16323_**
(2) 2/0–#14 Cu/#8 Al	(6) #4–#14 Cu/#8 Al	Al 350A	**CH16325_**
500 kcmil-#6 Cu/Al	(6) #2–#14 Cu/#8 Al	Al 380A	**CH16330_**
350 kcmil-#6 Cu/Al	(3) #2–#14 Cu/#8 Al	Al 310A	**CH16332_**
	(2) 1/0–#14 Cu/#8 Al	Al 310A	**CH16332_**
350 kcmil-#6 Cu/Al	(12) #4–#14 Cu/#8 Al	Al 310A	**CH16370_**
350 kcmil-#6 Cu/Al	(6) #2–#14 Cu/#8 Al	Al 310A	**CH16371_**
	(3) 1/0–#14 Cu/#8 Al	Al 310A	**CH16371_**
350 kcmil-#6 Cu/Al	(21) #10–#14 Cu/#10 Al	Al 310A	**CH16372_**
350 kcmil-#6 Cu/Al	(3) 1/0–#14 Cu/#8 Al	Al 310A	**CH16373_**
	(14) #10–#14 Cu/#8 Al	Al 310A	**CH16373_**
600 kcmil-#2 Cu/Al	(12) #4–#14 Cu/#8 Al	Al 420A	**CH16375_**
600 kcmil-#2 Cu/Al	(6) #2–#14 Cu/#8 Al	Al 420A	**CH16376_**
	(3) 1/0–#14 Cu/#8 Al	Al 420A	**CH16376_**

CH160 Power Terminal Blocks—CH165 Series

Line Connection	Load Connection	Connector Material and Ampacity	Catalogue Number ①
(2) 350 kcmil-4 Cu/Al	(2) 350 kcmil-4 Cu/Al	Al 620A	**CH16500_**
(2) 500 kcmil-#6 Cu/Al	(2) 500 kcmil-#6 Cu/Al	Al 760A	**CH16504_**
(2) 600 kcmil-#2 Cu/Al	(4) 3/0–#8 Cu/Al	Al 840A	**CH16528_**
	(4) #4–#14 Cu/#8 Al	Al 840A	**CH16528_**
(2) 500 kcmil-#6 Cu/Al	(12) #4–#14 Cu/#8 Al	Al 760A	**CH16530_**

Note

① Incomplete catalogue number—add code suffix **-1**, **-2**, **-3** for number of poles.
Example: For a 150A 1/0-#14 Cu to 1/0-#14 Cu three-pole PDB, order CH16201-**3**.

Technical Data and Specifications

CH160 Power Terminal Blocks

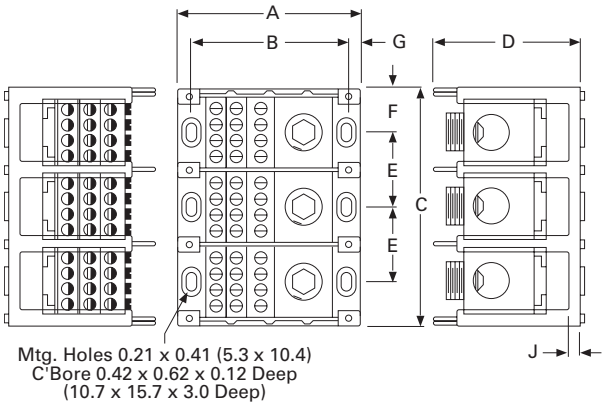
Description	Specification
Ratings	To 840A, 600V
Materials	Molded material; black, UL rated 94V-0 thermoplastic
Operating temperature	302°F (150°C)

Note: For optional cover, see Power Terminal Block Accessories, **Page T42-126**.

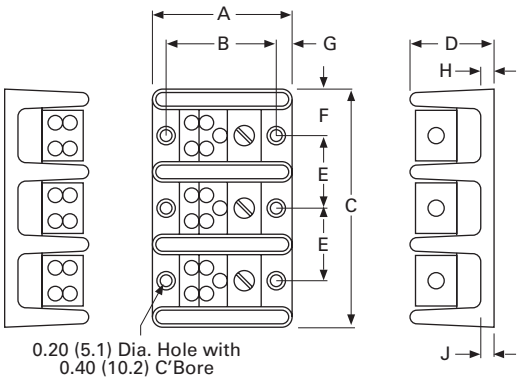
Dimensions

Approximate Dimensions in Inches (mm)

Series CH163 (Single-, Two- and Three-Pole Available)



Series CH162 and CH165 (Single-, Two- and Three-Pole Available)



CH160 Power Terminal Block Dimensions

Series	A	B	C Single-Pole	C Two-Pole	C Three-Pole	D	E4	F	G	H	J
CH162	2.87 (72.9)	2.25 (57.2)	1.06 (26.9)	1.87 (47.5)	2.68 (68.1)	1.75 (44.5)	0.81 (20.6)	0.53 (13.5)	0.31 (7.9)	0.84 (21.3)	0.31 (7.9)
CH163	4.00 (101.6)	3.37 (85.6)	1.96 (49.8)	3.58 (90.9)	5.20 (132.1)	3.32 (84.3)	1.62 (41.1)	0.97 (24.6)	0.31 (7.9)	0.87 (22.1)	0.35 (8.9)
CH165	5.50 (139.7)	4.75 (120.7)	3.12 (79.2)	5.81 (147.6)	8.50 (215.9)	3.12 (79.2)	2.68 (68.1)	1.56 (39.6)	0.37 (9.4)	1.37 (34.8)	0.62 (15.7)

Power Terminal Block Accessories

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CH160 Series—Power Terminal Blocks	**T42-123**
Power Terminal Block Accessories	
Technical Data and Specifications	**T42-127**
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Power Terminal Block Accessories

Product Description

Protective Cover

- Guards against accidental contact
- Clear with write-on surface for field termination identification
- Available in single-, two- and three-pole

Standards and Certifications

TB Series Power Blocks

- Contact Eaton for the latest UL 508A short circuit ratings on terminal blocks
- UL Recognized: File No. E62622
- CSA Certified: File No. LR15364

Product Selection

When Ordering, Specify

- Catalogue number

CH163 Series Cover

Description	Catalogue Number
Single-pole cover	**CHCPDB-1** ①
Two-pole cover	**CHCPDB-2** ①
Three-pole cover	**CHCPDB-3** ①

TB Series Power Blocks

Line Connection	Load Connection	Catalogue Number
#300 kcmil-#6 Cu/Al	(6) #6–#14 Cu/#8Al	**TBAN63**

Note

① Standard pack, five pieces.

Technical Data and Specifications

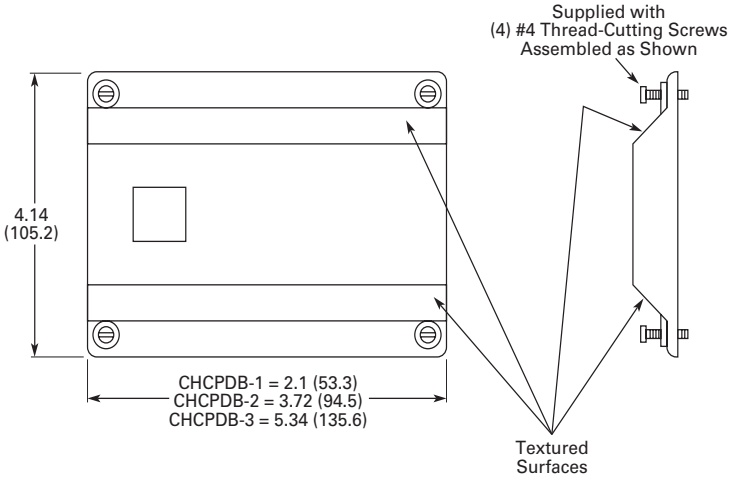
TB Series Power Blocks

Description	Specification
Ratings	285A, 600V; UL/CSA
Materials	Molded material; black, UL rated 94V-2 thermoplastic
Operating temperature	257°F (125°C)

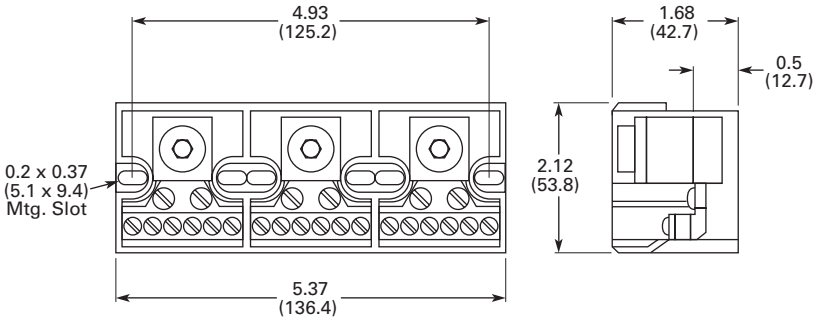
Dimensions

Approximate Dimensions in Inches (mm)

CH163 Series Cover



TB Series Power Blocks



Fuse Blocks and Fuse Holders

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Fuse Blocks and Fuse Holders	
C383 Series Disconnect Fuse Holders	**T42-129**
C350 Series Fuse Blocks and W Series Fuse Holders	**T42-131**

Fuse Blocks and Fuse Holders Overview

Product Description

Available in compact finger safe (C383) and an open (C350) design. Eaton's fuse blocks and holders provide a simple DIN mounting device for protection in control circuits.

Application Description

Fuse holders and blocks available for Class CC, midget, H, M and R.

Standards and Certifications

- UL listed
- CSA certified
  (may not apply to all styles)

Listed

C383 Series Fuse Holders

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C350 Series Fuse Blocks and W Series Fuse Holders	**T42-131**

C383 Series Disconnect Fuse Holders

Product Description

Eaton's C383 Series disconnect fuse holders offer 600V fused circuit protection and subsequently "no load" switching.

These compact disconnects are designed as components in switchboards, panels and control consoles where positive and safe circuit protection is required and where space is at a premium.

The C383 fuse holders mount directly on standard TS35 DIN rails.

Features

- "Finger-Safe" design—Recessed termination screws and a fuse extraction door afford you IP20 grade protection and qualify as "finger-safe" per IEC standards
- Easy to adjust position on rail—Simply unlatch the DIN rail adapter, slide the holder to desired position and relock
- Quick change of fuse—A permanently attached pivoting fuse door simplifies and speeds fuse extraction. No tools or accessories needed
- Class CC model is UL listed and CSA certified for branch circuit protection. Midget models are UL Recognized and CSA certified for supplementary and high-speed protection
- Runs cool—The vented design provides adequate air flow around the holders at all times
- Self-extinguishing UL 94-VO rated polyester material

Standards and Certifications

Rated voltage:

- CSA/UL: 600 Vac/Vdc, 30A
- IEC (midget only): 690 Vac, 32A

Product Selection

C383FH_

Disconnect Fuse Holders

Description	Standard Pack	Catalogue Number
For Class CC Fuse		
Single-pole fuse holder	12	**C383FHCC**
For Midget Fuse (1-1/2 in x 13/32 in)		
Single-pole fuse holder	12	**C383FHMD**

Accessories

Disconnect Fuse Holders

Description	Standard Pack	Catalogue Number
Midget or Class CC Fuse Holder		
Multi-pole connection links	100	**C383MPCL**
Multi-pole handle pins	100	**C383MPHP**

Accessory Details

C383MPCL

Multi-pole connection links can be used to connect fuse holders together for multi-pole applications. Use two per connection.

C383MPHP

Handle pins can be used to connect handles in multi-pole applications.

Technical Data and Specifications

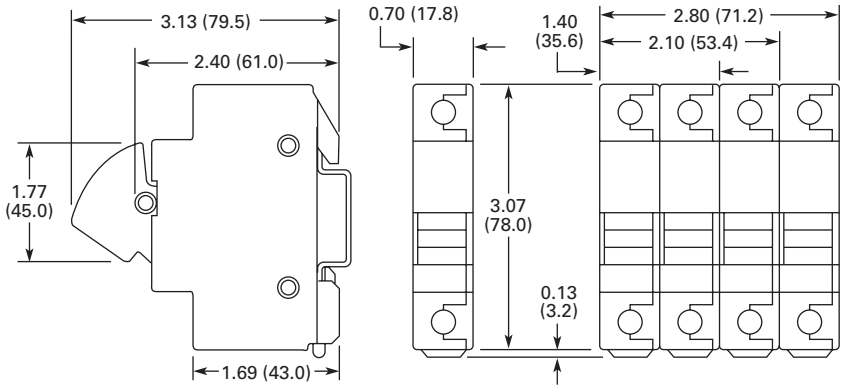
Disconnect Fuse Holders ①

Description	Specification
Housing	Polyester UL 94-V0 rated
Colour	White
Wire size	8–18 AWG ②
Torque	22 lb-in (2.5 Nm)
Fuse size	0.41 x 1.5 in

Dimensions

Approximate Dimensions in Inches (mm)

CH163 Series Cover



Notes

① For additional technical information, consult the Eaton web site or Customer Support Centre.

② UL recognizes both solid and stranded wire. Ferrules are not required. CSA requires ferrules on stranded wire to achieve approval.

C350 Series Fuse Blocks and W Series Fuse Holders

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C350 Series Fuse Blocks and W Series Fuse Holders

Product Description

Fuse Blocks

These space-saving Type C350 Fuse Blocks are UL approved for motor loads and are rated 600V, 30A.

Fuse Holders

- Class H, M and R

Features

Fuse Blocks

- Mount to 35 mm flat and 32 mm asymmetrical DIN rails
- 600V, 30A rated captive pressure plate terminals with copper alloy fuse clips
- Interlocking fuse blocks permit single, double or three-pole application—reduce inventory
- Class CC fuses have an interrupting rating of 200,000A
- Rejection feature prevents insertion of fuses with lower interrupting or voltage ratings

Fuse Holders

- Break-resistant: molded of heat-stabilized nylon
- Fuse clips: spring-reinforced for cool operation
- Fuse clip terminations: one-piece construction
- Universal mounting dimensions, for easy assembly and retrofit
- Breathing action collar: maintenance-free
- Pressure wire connectors: vibration resistant

Standards and Certifications

Contact Eaton for the latest UL 508A short circuit ratings on terminal blocks.

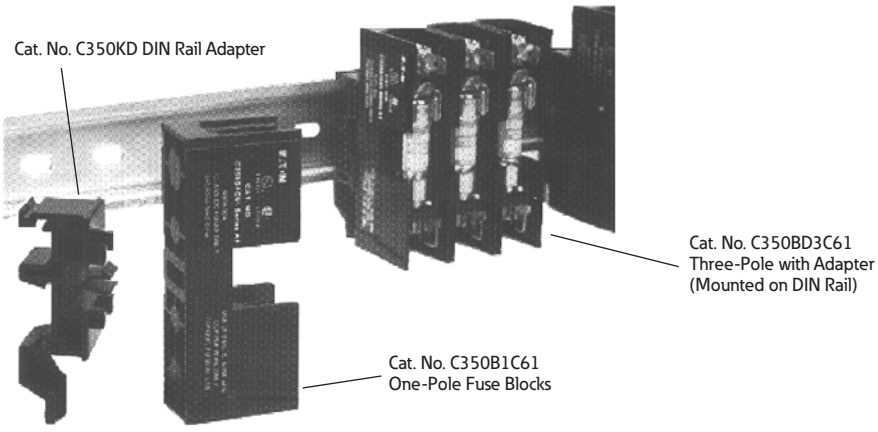
Fuse Blocks

- UL listed
- CSA certified

Fuse Holders

- UL tested for OEM subfeed applications

Fuse Blocks and Adapters



Product Selection

Class CC Fuse Blocks

Type	Catalogue Number
Three-pole ①	**C350BD3C61**
Single-pole	**C350B1C61**
DIN adapter	**C350KD**

Class R, Three-Pole Fuse Holder

Fuse Holders—250V

Wire Termination		Number of Poles	Carton Qty.	30A Catalogue Number	Carton Qty.	60A Catalogue Number
Class H Fuse Holders						
Single collar (box lug)—sized to ampere rating		1	10	**W231HA**	10	**W261HA**
		2	5	**W232HA**	5	**W262HA**
		3	5	**W233HA**	5	**W263HA**
Class R Fuse Holders						
Single collar (box lug)—sized to ampere rating		1	10	**WR231HA**	—	—
		2	—	—	—	—
		3	5	**WR233HA**	1	**WR263HA**

Fuse Holders—600V

Wire Termination		Number of Poles	Carton Qty.	30A Catalogue Number	Carton Qty.	60A Catalogue Number
Class H Fuse Holders						
Single collar (box lug)—sized to ampere rating		1	10	**W631HA**	1	**W661HA**
		2	5	**W632HA**	1	**W662HA**
		3	1	**W633HA**	2	**W663HA**
Class M Fuse Holders						
Combination of double quick-connect, 20A max., and binding head screw, #10 max., Cu/Al		1	10	**WM631F**	—	—
		2	8	**WM632F**	—	—
		3	6	**WM633F**	—	—
Combination of double quick-connect, 20A max., and pressure plate screw, #10 max., Cu only		1	10	**WM631G**	—	—
		2	8	**WM632G**	—	—
		3	6	**WM633G**	—	—
Class R Fuse Holders						
Single collar (box lug)—sized to ampere rating		1	10	**WR631HA**	—	—
		2	5	**WR632HA**	—	—
		3	5	**WR633HA**	5	**WR663HA**
Combination of double quick-connect, 20A max., and binding head screw, #10 max., Cu/Al		1	—	—	—	—
		2	1	**WMR632F**	—	—
		3	6	**WMR633F**	—	—
Combination of double quick-connect, 20A max., and pressure plate screw, #10 max., Cu only		1	10	**WMR631G**	—	—
		3	6	**WMR633G**	—	—
Class R Fuse Holder, Type WRR Control Transformer Fuse Blocks						
Combination of double quick-connect, 20A max., and pressure plate screw, #14–#10 Cu only		3	6	**WRR633G**	—	—

Note

① Three-pole device is supplied with DIN rail adapter.

Accessories

Fuse Holder Accessories

Description	Catalogue Number
Fuse puller	**TBP**
Lighted fuse puller (120 Vac)	**TBLP**

Technical Data and Specifications

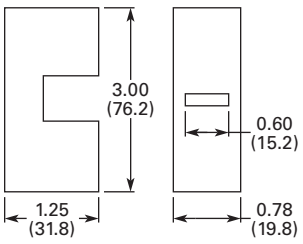
Fuse Blocks

Description	Specification
Voltage rating	600V
Ampere rating	Pressure plate terminals rated for 30A
Dielectric strength	1200V maximum
Ambient temperature	221°F (105°C) maximum
Clip/terminals	Tin-plated copper alloy
Screw and captive pressure plate	Zinc-plated steel
Base	Thermoplastic UL 94VO flammability rating
DIN rail adapter	Thermoplastic UL 94VO flammability rating

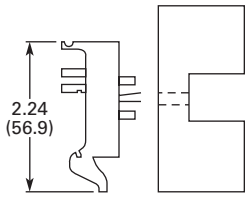
Dimensions

Approximate Dimensions in Inches (mm)

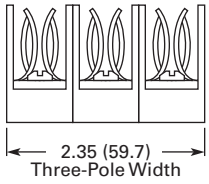
Fuse Blocks



Catalog No. C350 Fuse Block

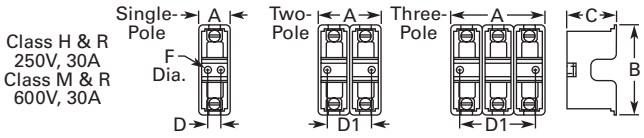


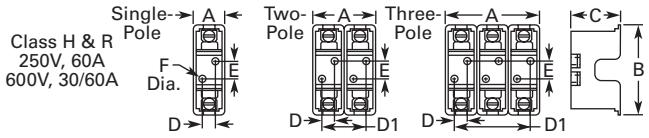
Catalog No. C350 Fuse Block with DIN Rail Adapter



Three-Pole Width

Fuse Holders





Class	Volts/ Amperes	Width A			Height B	Depth C	Mounting Holes			E	Diameter F	Number of Mounting Holes		
		Single-Pole	Two-Pole	Three-Pole			D	Two-Pole D1	Three-Pole D1			Single-Pole	Two-Pole	Three-Pole
H, R	250V, 30A	1.00 (25.4)	2.00 (50.8)	3.00 (76.2)	3.13 (79.5)	1.56 (39.6)	0.38 (9.7)	1.25 (31.8)	2.50 (63.5)	—	0.22 (5.6)	2	2	2
	250V, 60A	1.44 (36.6)	2.88 (73.2)	4.31 (109.5)	4.75 (120.7)	2.06 (52.3)	0.50 (12.7)	1.81 (46.0)	3.13 (79.5)	1.25 (31.8)	0.22 (5.6)	2	4	4
	600V, 30/60A	1.69 (42.9)	3.38 (85.9)	5.06 (128.5)	6.94 (176.3)	2.63 (66.8)	0.63 (16.0)	2.19 (55.6)	3.75 (95.3)	3.13 (79.5)	0.28 (7.1)	2	4	4
M, R	600V, 30A	0.84 (21.3)	1.63 (41.4)	2.41 (61.2)	3.00 (76.2)	1.28 (32.5)	0.38 (9.7)	0.75 (19.1)	1.50 (38.1)	—	0.17 (4.3)	2	2	2

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Appendix 1—Alphabetical Catalogue Number Index

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		Bouton Long	Bouton Court	Bouton Long	Bouton Court	Bouton Long	Bouton Court	Bouton Long	Bouton Court			
		NO. DE. CAT.	NO. DE. CAT.	NO. DE. CAT.	NO. DE. CAT.	NO. DE. CAT.	NO. DE. CAT.	NO. DE. CAT.	NO. DE. CAT.	NO. DE. CAT.	NO. DE. CAT.	NO. DE. CAT.
		E30	E30	E30	E30	E30	E30	E30	E30	E30	E30	E30
Noir	AUTO	---	---	KB101F	KB151F	KC101F	KC151F	KD101F	---	---	---	---
Noir	FERMER	---	---	KB102F	KB152F	KC102F	KC152F	KD102F	KE102F	---	---	---
Noir	EN BAS	---	---	KB103F	KB153F	KC103F	KC153F	KD103F	KE103F	---	---	---
Noir	RAPIDE	---	---	KB105F	KB155F	KC105F	KC155F	KD105F	KE105F	---	---	---
	AVANT	---	---	KB107F	KB157F	KC107F	KC157F	KD107F	KE107F	---	---	---
Noir	HAUT	---	---	KB109F	KB159F	KC109F	KC159F	KD109F	KE109F	---	---	---
Noir	ENTREE	---	---	KB110F	KB160F	KC110F	KC160F	KD110F	KE110F	---	---	---
Noir	REGLAGE	---	---	KB111F	KB161F	KC111F	KC161F	KD111F	KE111F	---	---	---
Noir	A COUPS	---	---	KB112F	KB162F	KC112F	KC162F	KD112F	KE112F	---	---	---
Noir	A COUPS AVANT	---	---	KB113F	KB163F	KC113F	KC163F	KD113F	KE113F	---	---	---
Noir	A COUPS ARRIERE	---	---	KB114F	KB164F	KC114F	KC164F	KD114F	KE114F	---	---	---
Noir	BASSE	---	---	KB115F	KB165F	KC115F	KC165F	KD115F	KE115F	---	---	---
Noir	BAISSER	---	---	KB116F	KB166F	KC116F	KC166F	KD116F	KE116F	---	---	---
Noir	MANUEL	---	---	KB117F	KB167F	KC117F	KC167F	KD117F	---	---	---	---
Noir	EN CIRCUIT	---	---	KB119F	KB169F	KC119F	KC169F	KD119F	KE119F	---	---	---
Noir	OUVERT	---	---	KB120F	KB170F	KC120F	KC170F	KD120F	KE120F	---	---	---
Noir	SORTIE	---	---	KB121F	KB171F	KC121F	KC171F	KD121F	KE121F	---	---	---
Noir	LEVER	---	---	KB122F	KB172F	KC122F	KC172F	KD122F	KE122F	---	---	---
Noir	REENCL	---	---	KB124F	KB174F	KC124F	KC174F	KD124F	KE124F	---	---	---
Noir	ARRIERE	---	---	KB125F	KB175F	KC125F	KC175F	KD125F	KE125F	---	---	---
Noir	MARCHE	---	---	KB126F	KB176F	KC126F	KC176F	KD126F	KE126F	---	---	---
Noir	LENT	---	---	KB128F	KB178F	KC128F	KC178F	KD128F	KE128F	---	---	---
Noir	DEPART	---	KA180F	KB130F	KB180F	KC130F	KC180F	KD130F	KE130F	---	---	---
Noir	ESSAI	---	---	KB132F	KB182F	KC132F	KC182F	KD132F	KE132F	---	---	---
Noir	EN HAUT	---	---	KB134F	KB184F	KC134F	KC184F	KD134F	KE134F	---	---	---
Rouge	ARRET D'URGENCE	KA204F	---	KB204F	---	---	---	---	---	---	---	---
Rouge	HORS CIRCUIT	KA218F	KA268F	KB218F	KB268F	KC218F	---	---	KE218F	---	---	---
Rouge	ARRET	KA231F	KA281F	KB231F	KB281F	KC231F	KC281F	KD231F	KE231F	---	---	---
Vert	DEPART	---	---	KB330F	KB380F	KC330F	KC380F	KD330F	KE330F	---	---	---
BLANC	AUTO	---	---	KB501F	---	---	---	---	---	---	---	---
Rouge	MOTEUR EN MARCHE	---	---	---	---	---	---	---	---	KF11F	KG11F	KJ11F
Rouge	EN CIRCUIT	---	---	---	---	---	---	---	---	KF12F	KG12F	KJ12F
Rouge	SOUS TENSION	---	---	---	---	---	---	---	---	KF13F	KG13F	KJ13F
Rouge	MOTEUR ARRETE	---	---	---	---	---	---	---	---	---	---	KJ14F
Vert	MOTEUR ARRETE	---	---	---	---	---	---	---	---	KF21F	KG21F	KJ21F
Vert	MOTEUR EN MARCHE	---	---	---	---	---	---	---	---	KF23F	KG22F	KJ23F
Vert	HORS CIRCUIT	---	---	---	---	---	---	---	---	KF22F	---	KJ22F
Vert	PRET	---	---	---	---	---	---	---	---	---	KG23F	---
Vert	EN CIRCUIT	---	---	---	---	---	---	---	---	---	---	KJ24F

① Bareme d'escompte LC1 (Discount schedule LC1.)

Table A-2. E30 - Lentilles Type K ①

Couleur		Texte		Numero de Catalogue
Lentille Gauche	Lentille Droite	Lentille Gauche	Lentille Droite	
Rouge	Rouge	EN CIRC.	EN CIRC.	**E30KK12F**
Rouge	Vert	EN CIRC.	HORS CIRC.	**E30KK13F**
Vert	Vert	HORS CIRC.	HORS CIRC.	**E30KK22F**
Vert	Rouge	HORS CIRC.	EN CIRC.	**E30KK23F**

① Vende a paire seulement . (Sold in pairs only.)

Table A-3. 10250T - Boutons Etanches A L'Huile ②

Texte	No. de Cat.	Texte	No. de Cat.	Texte	No. de Cat.	Texte	No. de Cat.
	10250T		**10250T**		**10250T**		**10250T**
A COUPS	**MF19**	DECLENCHE	**MF84**	HAUT	**MF16**	OUVERT	**MF26**
A COUPS ARRIERE	**MF21**	DEPART	**MF33**	HAUT-BAS	**MF40**	OUVERT-FERME	**MF43**
A COUPS AVANT	**MF20**	DEPART-A COUPS	**MF46**	HORS CIRC-EN CIRC	**MF42**	OUVR-HORS CIRC-FERM	**MF53**
A COUPS-MARCHE	**MF41**	DEPART-ARRET	**MF47**	HORS CIRCUIT ③	**MF24**	PLUS LENT	**MF88**
ARRET ③	**MF34**	EN-ARRET-SUR ③	**MF71**	LENT	**MF32**	PLUS VITE	**MF87**
ARRET D'URGENCE ③	**MF13**	EN BAS	**MF12**	LEVER	**MF28**	PRET	**MF86**
ARRIERE	**MF30**	EN CIRCUIT	**MF25**	MAN-HORS CIRC-AUTO	**MF68**	RAPIDE	**MF14**
AUTO-HORS CIRC-MAN	**MF49**	EN HAUT	**MF35**	MANUEL-AUTO	**MF67**	REENCLENCHEMENT	**MF29**
AVANT	**MF15**	EN HAUT-EN BAS	**MF48**	MARCHE	**MF31**	REGLAGE	**MF18**
AVANT-ARRIERE	**MF38**	EN HAUT-HORS CIRC-EN BAS	**MF54**	MARCHE-A-COUPS	**MF44**	SORTIE	**MF27**
AVANT-HORS CIRC-ARR	**MF50**	ENTREE	**MF17**	MARCHE-SUR-A-COUPS	**MF70**	SOUS TENSION	**MF80**
AVANT-SUR-ARR	**MF69**	ESSAI	**MF83**	MOTEUR ARRETE	**MF82**	SUR	**MF85**
BAISSER	**MF23**	FERMER	**MF11**	MOTEUR EN MARCHE	**MF81**	SUR-MARCHE	**MF45**
BASSE	**MF22**						

Table A-4. E34 - Boutons Etanches A L'Huile ②

Texte	No. de Cat.	Texte	No. de Cat.	Texte	No. de Cat.	Texte	No. de Cat.
	E34		**E34**		**E34**		**E34**
A COUPS	**SPF19**	DECLENCHE	**SPF84**	HAUT	**SPF16**	OUVERT	**SPF26**
A COUPS ARRIERE	**SPF21**	DEPART	**SPF33**	HAUT-BAS	**SPF40**	OUVERT-FERME	**SPF43**
A COUPS AVANT	**SPF20**	DEPART-A COUPS	**SPF46**	HORS CIRC-EN CIRC	**SPF42**	OUVR-HORS CIRC-FERM	**SPF53**
A COUPS-MARCHE	**SPF41**	DEPART-ARRET	**SPF47**	HORS CIRCUIT ③	**SPF24**	PLUS LENT	**SPF88**
ARRET ③	**SPF34**	EN-ARRET-SUR ③	**SPF71**	LENT	**SPF32**	PLUS VITE	**SPF87**
ARRET D'URGENCE ③	**SPF13**	EN BAS	**SPF74**	LEVER	**SPF28**	PRET	**SPF86**
ARRIERE	**SPF30**	EN CIRCUIT	**SPF25**	MAN-HORS CIRC-AUTO	**SPF68**	RAPIDE	**SPF75**
AUTO-HORS CIRC-MAN	**SPF49**	EN HAUT	**SPF35**	MANUEL-AUTO	**SPF67**	REENCLENCHEMENT	**SPF29**
AVANT	**SPF15**	EN HAUT-EN BAS	**SPF48**	MARCHE	**SPF31**	REGLAGE	**SPF18**
AVANT-ARRIERE	**SPF38**	EN HAUT-HORS CIRC -EN BAS	**SPF54**	MARCHE-A-COUPS	**SPF44**	SORTIE	**SPF27**
AVANT-HORS CIRC ARR	**SPF50**	ENTREE	**SPF17**	MARCHE-SUR-A-COUPS	**SPF70**	SOUS TENSION	**SPF80**
AVANT-SUR-ARR	**SPF69**	ESSAI	**SPF83**	MOTEUR ARRETE	**SPF82**	SUR	**SPF85**
BAISSER	**SPF23**	FERMER	**SPF73**	MOTEUR EN MARCHE	**SPF81**	SUR-MARCHE	**SPF45**
BASSE	**SPF22**						

② Toutes les etiquettes sont Noires sauf indication contraire. (All legend plates are black unless otherwise indicated).
③ Etiquette rouge. (Red legend plate.)

Table A-5. Type M D26 Relay Replacement Coils

AC					DC					
Coil Voltage and Frequency	Magnet Coil		Latch Coil Part No.	Coil Voltage and Frequency	Magnet Coil		Latch Coil Part No.	Coil Voltage	Magnet Coil		Latch Coil Part No.
	Coil Suffix	Part Number			Coil Suffix	Part Number			Coil Suffix	Part Number	
6V 60 Hz	P	**9-1989-5**	**9-1886-4**	120/110V 60/50 Hz	A	**9-1989-1**	**9-1886-1**	12V	R1	**9-2404-5**	**9-1886-21**
12V 60 Hz	R	**9-1989-6**	**9-1886-5**	240/220V 60/50 Hz	B	**9-1989-2**	**9-1886-2**	24V	T1	**9-2404-4**	**9-1886-20**
24V 60 Hz	T	**9-1989-7**	**9-1886-6**	277V 60 Hz	H	**9-1989-10**	**9-1886-9**	48V	W1	**9-2404-3**	**9-1886-19**
32V 60 Hz	V	**9-1989-8**	**9-1886-7**	480/440V 60/50 Hz	C	**9-1989-3**	**9-1886-3**	120V	A1	**9-2404-1**	**9-1886-17**
208V 60 Hz	E	**9-1989-9**	**9-1886-8**	600/550V 60/50 Hz	D	**9-1989-4**	**9-1886-10**	240V	B1	**9-2404-2**	**9-1886-18**
380V 60 Hz	L	**9-1989-15**	**9-1886-22**								

Table A-6. Type AR Relay Replacement Coils

Voltage	Frequency	Coil Part Number
12V	60 Hz	**176C663G06**
24V	60 Hz	**176C663G07**
48V	60 Hz	**176C663G08**
120/110V	60/50 Hz	**176C663G01**
208V	60 Hz	**176C663G02**
240V	60 Hz	**176C663G03**
277V	60 Hz	**176C663G11**
480/440V	60/50 Hz	**176C663G04**
600/550V	60/50 Hz	**176C663G05**

Table A-8. Type BF Relay Replacement Coils

Voltage	Frequency	Coil Part Number
12V	60 Hz	**178C603G06**
24V	60 Hz	**178C603G15**
48V	60 Hz	**178C603G05**
110V	60 Hz	**178C603G54**
208V	60 Hz	**178C603G17**
120/110V	60/50 Hz	**178C603G01**
240/220V	60/50 Hz	**178C603G02**
277V	60 Hz	**178C603G26**
440V	60 Hz	**178C603G07**

Note: No contact replacement kits are available for BF relays. AR relay replacement cartridges are available. See page T40-152.

Table A-7. Type ARD and BFD Relay Replacement Coils

Voltage	Coil Part Number	
	ARD RELAYS	BFD RELAYS
6V DC	-	**6717C75G12**
12V DC	**1253C48G03**	**6717C75G06**
24V DC	**1253C48G04**	**6717C75G07**
38V DC	-	**6717C75G13**
48V DC	**1253C48G05**	**6717C75G04**
72V DC	**1253C48G12**	**6717C75G03**
95V DC	**1253C48G06**	**6717C75G09**
120V DC	**1253C48G01**	**6717C75G02**
125/130V DC	-	**6717C75G22**
130V DC	**1253C48G10**	-
240V DC	**1253C48G02**	**6717C75G01**

Appendix 4

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