

Description

An extremely versatile range of rocker switch/thermal circuit breakers (S-type TO CBE to EN 60934 with trip free mechanism) offering the choice of single pole, double pole with single pole protection, and double pole with protection on both poles. Designed for snap-in panel mounting with versions available for three different panel cut-out sizes. Illumination is optional and there is a range of colours and markings for the rocker.

Add on modules:

- Under voltage release coil (for double pole versions only).
- Magnetic trip coil for short circuit protection.
- Magnetic trip coil for remote relay trip.
- Auxiliary contacts for status signalling.

Approved to CBE standard EN 60934 (IEC 60934).

Meets the requirements regarding fire resistance of EN 60335-1 : 2007-02 Safety of household and similar electrical appliances.

Typical applications

Motors, transformers, solenoids, extra low voltage wiring systems, office machines, electro-medical equipment, power supplies, communications systems, medical equipment to EN 60601.

Standard current ratings and typical internal resistance values

Current rating (A)	Internal resistance per pole (Ω)	Current rating (A)	Internal resistance per pole (Ω)
0.1	94	4	0.0435
0.2	24	4.5	0.0435
0.3	12	5	0.0325
0.4	5.30	6	0.0215
0.5	4.20	7	0.0165
0.6	2.90	8	0.0165
0.8	1.50	10	< 0.02
1	0.9	12	< 0.02
1.2	0.80	14	< 0.02
1.5	0.45	15	< 0.02
2	0.27	16	< 0.02
2.5	0.0785	18	< 0.02
3	0.0595	20	< 0.02
3.5	0.0565		

Illumination voltage/power consumption

operating voltage	power consumption		
	Y	R	G
12 V DC	5,2 mA	2 mA	1,4 mA
24 V DC	4,5 mA	2,2 mA	1,6 mA
115 V AC	2,8 mA	1,1 mA	1 mA
230 V AC	2,2 mA	0,9 mA	0,9 mA

Approvals

Authority	Voltage ratings	Current ratings
VDE (EN 60934)	AC 240 V; DC 28 V DC 50 V DC 50 V	0.1...20 A 0.1...20 A 2-pole 0.1...10 A 1-pole
UL, CSA	AC 250 V; DC 50 V	0.1...20 A
CCC	AC 240 V; DC 50 V	0.1...20 A



Technical data

For further details please see chapter: Technical Information

Voltage rating	AC 240 V; DC 50 V (AC 415 V to special order) (UL: AC 250 V; DC 50 V)	
Current ratings	0.1...20 A (up to 30 A to special order, single pole only)	
Typical life	1-pole AC 240 V: 0.1...20 A 30,000 operations at 1 x I _N , inductive DC 50 V: 0.1...4 A 30,000 operations at 1 x I _N , inductive 4.5...16 A 30,000 operations at 1 x I _N , resistive DC 28 V: 0.1...20 A 30,000 operations at 1 x I _N , inductive 2-pole AC 415 V: 0.1...16 A 10,000 operations at 1 x I _N , inductive AC 240 V: 0.1...16 A 50,000 operations at 1 x I _N , inductive 17...20 A 30,000 operations at 1 x I _N , inductive DC 50 V: 0.1...16 A 50,000 operations at 1 x I _N , inductive 17...20 A 10,000 operations at 1 x I _N , inductive	
Ambient temperature	-30...+60 °C (-22...+140 °F)	
Insulation co-ordination (IEC 60664 and 60664 A)	rated impulse withstand voltage 2.5 kV reinforced insulation in operating area	pollution degree 2
Dielectric strength (IEC 60664 and 60664A) operating area between poles (2-pole)	test voltage AC 3,000 V AC 1,500 V	
Insulation resistance	> 100 MΩ (DC 500 V)	
Interrupting capacity I _{cn}	0.1...2 A 10 x I _N 2.5...20 A 250 A 2-pole, or 150 A 1-pole	
Interrupting capacity (UL 1077)		

	I _N	U _N	I _{nc}
1, 2-pole	0.1...20 A	AC 250 V	5000 A
1, 2-pole	0.1...20 A	DC 50 V	1000 A

Degree of protection (IEC 60529/DIN 40050)	operating area IP40 (IP54 with water splash protection) terminal area IP00
Vibration	8 g (57-500 Hz), ± 0.61 mm (10-57 Hz) to IEC 60068-2-6, test Fc 10 frequency cycles/axis
Shock	30 g (11 ms) to IEC 60068-2-27, test Ea
Corrosion	96 hours at 5 % salt mist, to IEC 60068-2-11, test Ka
Humidity	240 hours at 95 % RH, to IEC 60068-2-78, test Cab
Mass	approx. 33 g (double pole) approx. 27 g (single pole)

Ordering information

Type No.

3120 rocker switch/circuit breaker

Mounting

F snap in frame

Size of frame

- 3** to fit mounting cut-out 50.5 x 21.5 mm
panel thickness: 1-6.35 mm (.039-.250 in)
- 5** to fit mounting cut-out 44.5 x 22 mm
panel thickness: 1-4 mm (.039-.157 in)
- 7** to fit mounting cut-out 44.5 x 22 mm
panel thickness: 1-4 mm (.039-.157 in)

Number of poles

- 0** 2-pole, unprotected, switch only
- 1** 1-pole, thermally protected
- 2** 2-pole, thermally protected
- 5** 2-pole, 1-pole thermally protected

Mounting frame design (F3 & F5)

- 1** collar height 1 mm
- 3** collar height 9 mm
- 4** collar height 2 mm with water splash protection (IP54)

Mounting frame design (F7)

- R** black
- T** black with snap-on splash cover

Terminal configuration

- P7** blade terminals, standard for curve T1
(thermal circuit breaker)
- H7** as P7, terminals 11 and 21 with flat head screws M3.5
– standard for units with undervoltage release module
- N7** as P7, but with additional shunt terminals 12(i) and 22(i) –
standard for version Q1 (switch only)

Characteristic curve

- T1** thermal 1.01 - 1.4 x I_N
- Q1** switch only

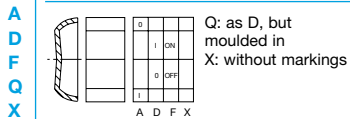
Actuator style

- W** standard rocker (F3 & F5)
- A** specially designed rocker (F7)

Colour and Illumination

- 01 .** rocker black opaque without illumination
- 02 .** rocker white opaque without illumination
- 04 .** rocker red opaque without illumination
- 14 . R** rocker red translucent with LED-illumination
- 15 . Y** rocker orange translucent with LED-illumination
- 19 . G** rocker green translucent with LED-illumination

Rocker markings for F3 and F5



Rocker markings for F7

»I« and »O« moulded in
Illumination voltage range

- 1** 10 - 14 V DC
- 2** 20 - 28 V DC
- 3** 90 - 140 V AC
- 4** 185 - 275 V AC

Current ratings

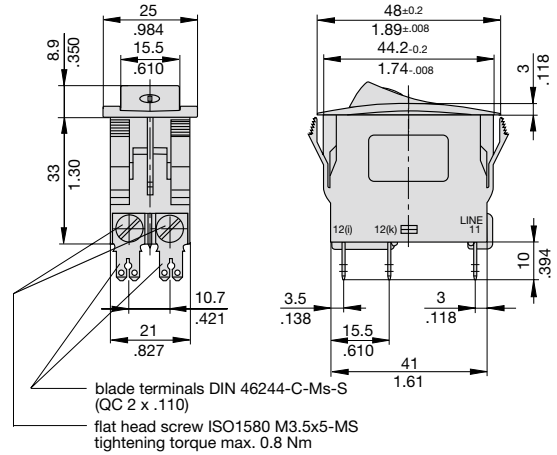
0.1...20 A

3120 - F 7 2 R - P7 T1 - A 14 QR 4 - 10 A ordering example

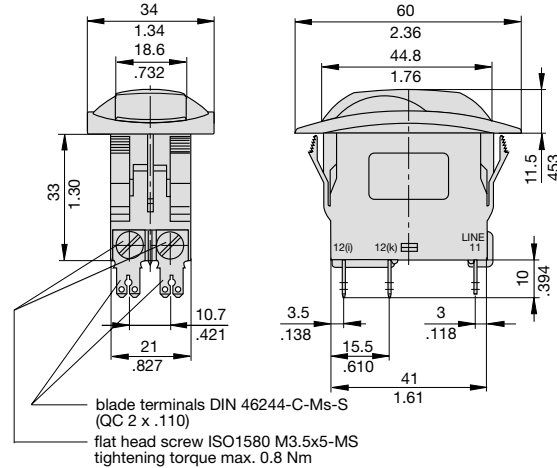
3120 - F . 0 . - N7 Q1 -W.. . . - 20 A (switch)

Dimensions

Style F7.R



Style F7.T



Preferred types

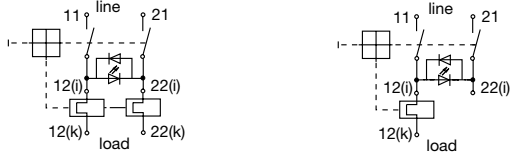
Preferred types	Standard current ratings (A)												
	0.5	1	2	3	4	5	6	8	10	12	15	16	20
Preferred types F3/1-pole protected													
3120-F311-P7T1-W02D-		x			x	x	x	x	x		x		x
Preferred types F3/2-pole protected													
3120-F321-P7T1-W01D-	x	x	x	x	x	x	x	x	x	x	x	x	x
Preferred types F5/2-pole protected													
3120-F521-P7T1-W01D-		x	x	x	x	x	x	x	x	x	x	x	x

Preferred types

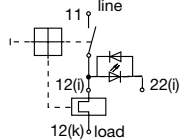
Preferred types F7/2-pole protected	Standard current ratings (A)													
	0.5	1	1.5	2	3	4	5	6	8	10	12	15	16	20
3120-F72R-P7T1-A14QR4	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Internal connection diagrams

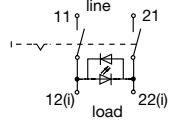
2-pole, thermally protected on both poles **2-pole, thermally protected on one pole only**



1-pole, thermally protected

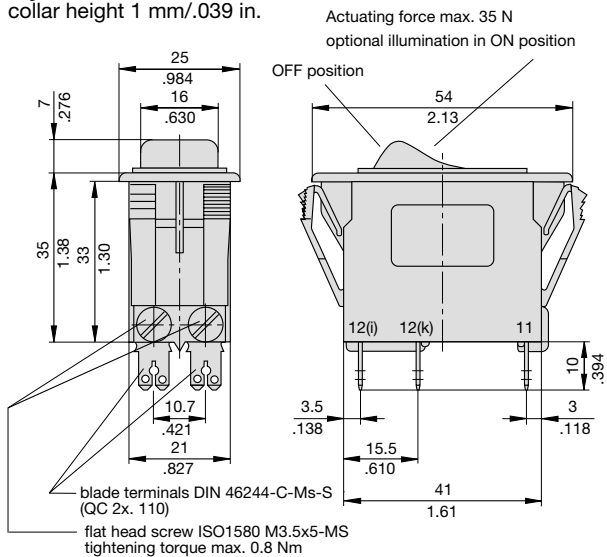


2-pole, unprotected

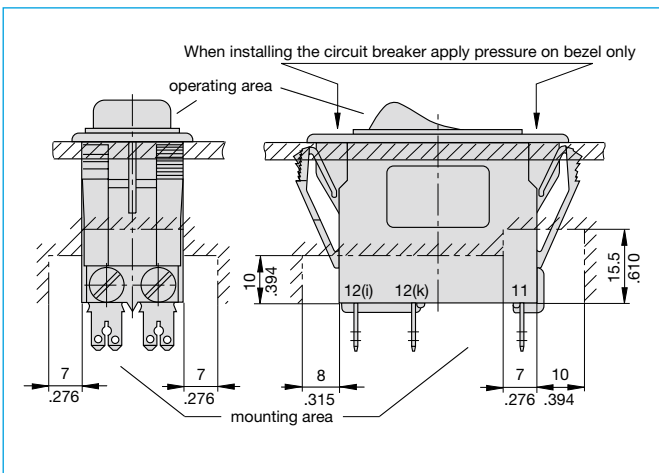


Dimensions

Style F3.1
collar height 1 mm/.039 in.



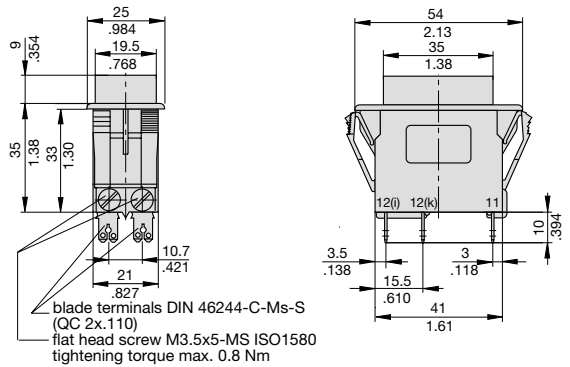
Installation drawing



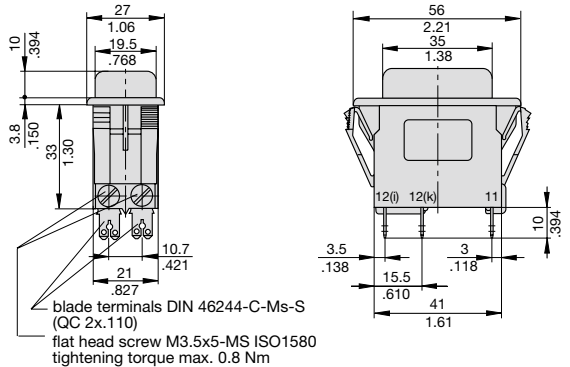
This is a metric design and millimeter dimensions take precedence (mm/inch)

Mounting style variants

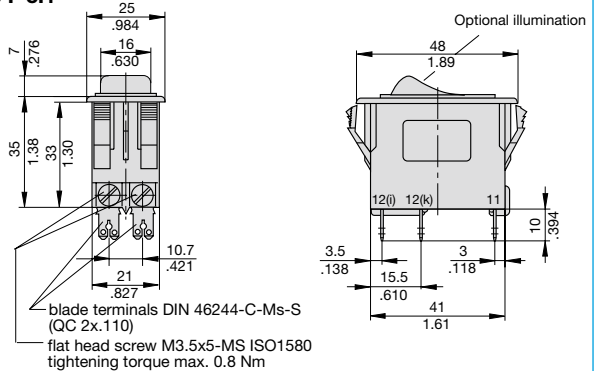
Style F 3.3 collar height 9 mm (.354 in.)



Style F 3.4
collar height 2 mm (.079 in.), with water splash protection

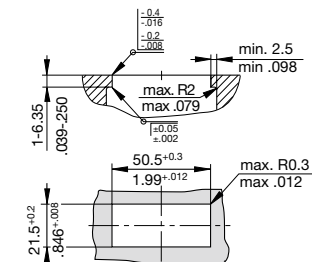


Style F 5.1

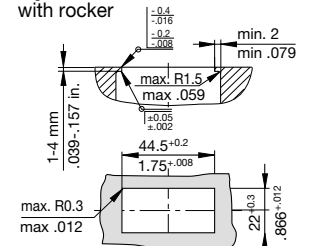


Cut-out dimensions

Cut-out for mounting style -F3
with rocker and push button



Cut-out for mounting style -F5/-F7
with rocker



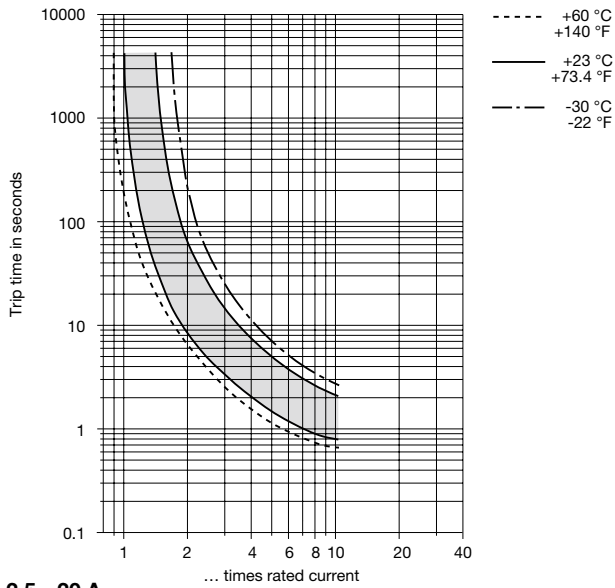
panel thickness	mm	1.2 ^{+0.4}	1.6 ^{+0.8}	2.4 ⁺¹
	inch	.047 ^{+0.016}	.063 ^{+0.031}	.094 ^{+0.039}
dimension	mm	45 ^{+0.2}	45 ^{+1.1}	45 ^{+2.2}
	inch	1.77 ^{+0.008}	1.77 ^{+0.043}	1.77 ^{+0.087}

Edges of working parts: ISO 13715

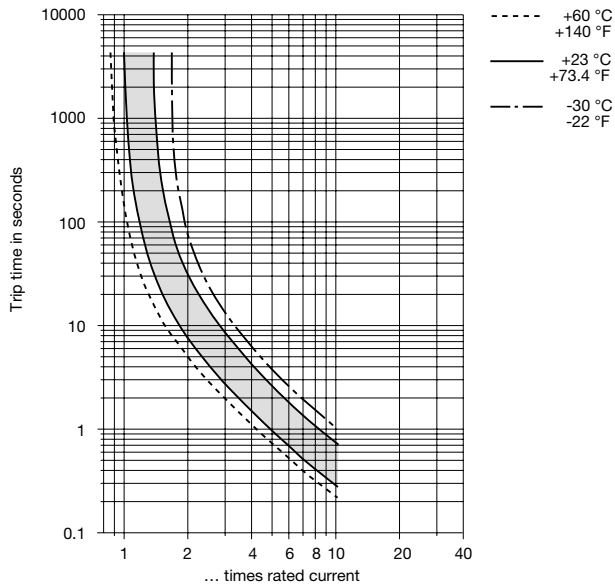
Typical time/current characteristics

single or double pole load

0.1...2 A



2.5...20 A



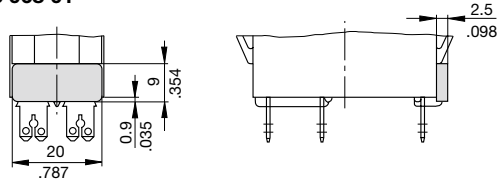
The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping, please multiply the circuit breaker current ratings by the derating factor shown below. See also section Technical information.

Ambient temperature	°F	-22	-4	+14	+32	+73.4	+104	+122	+140
°C		-30	-20	-10	0	+23	+40	+50	+60
Derating factor		0.8	0.76	0.84	0.92	1	1.08	1.16	1.24

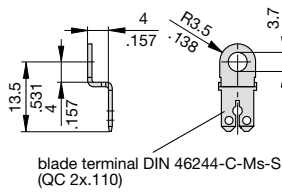
2

Accessories

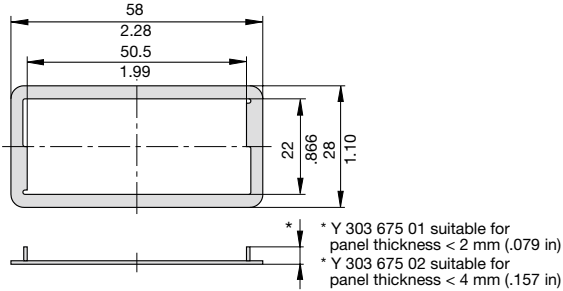
**Insulated cover
Y 303 068 01**



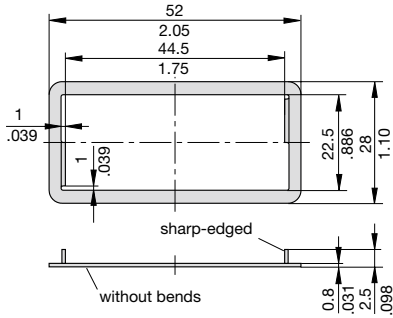
**Terminal adapter
Y 303 862 01**



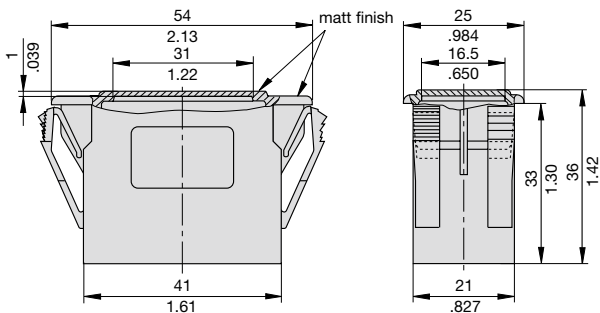
**Spacer for 3120-F3...
Y 303 675 01/02**



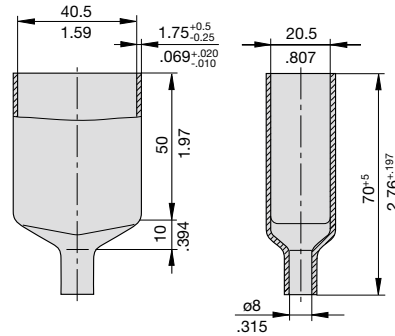
**Spacer for 3120-F5...
Y 303 676 01**



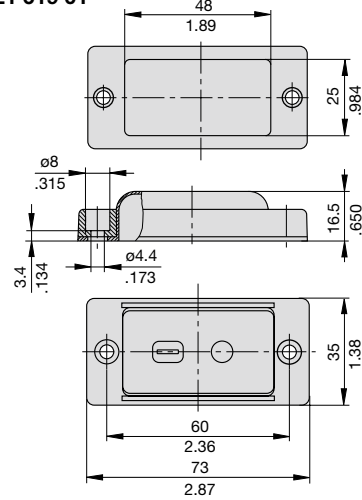
**Blanking piece in -F3 frame
Y 303 885 31**



**Rear terminal shroud black (IP64)
Y 304 275 01**



**Water splash cover, transparent (IP66)
for style -F5..
X 221 619 01**



This is a metric design and millimeter dimensions take precedence (mm/inch)

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

