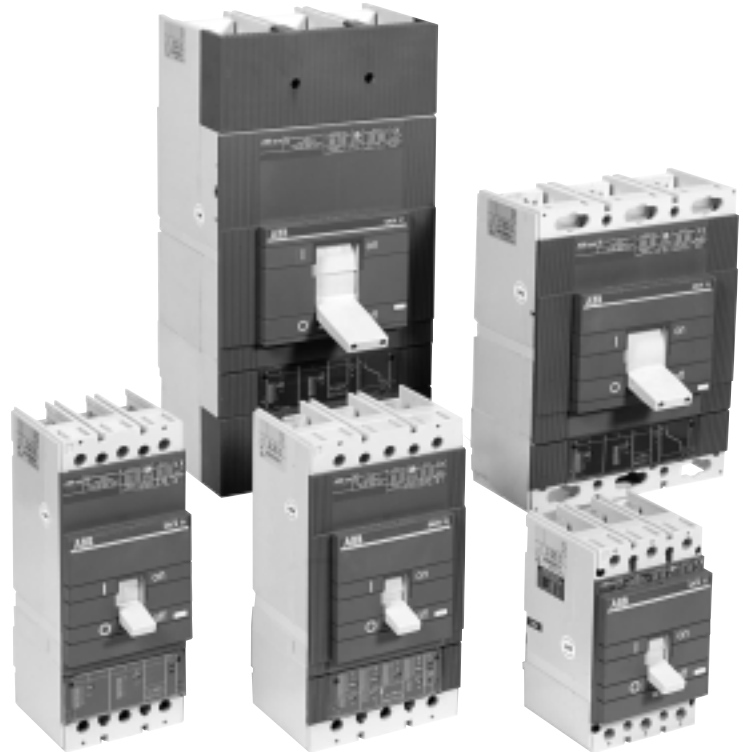




Isomax Molded case circuit breakers



Isomax

Introduction

ABB Isomax molded case circuit breakers are modern, innovative units designed after extensive analysis of the demands of today's market. These new units embody all the experience and advances derived from ABB's previous highly successful and acclaimed range of circuit breakers. ABB Isomax circuit breakers are designed for the total safety of both operators and systems. This complete and versatile series of circuit breakers can satisfy the most demanding system specifications.

ABB Isomax circuit breakers are ideal for all electrical power generation and distribution applications. The Isomax series maximizes safety and dependability for all power users. The new line is particularly suitable for applications involving special protection coordination needs and automated control systems.

ABB Isomax units also satisfy the most demanding requirements for rated current and fault current levels.

With the wide range of optional trip functions total system selectivity can be maximized.

- Continuous currents from 15A to 2500A
- Rated interrupting capacities from 14kA to 85kA (600VAC UL/CSA)
- Extended working life of all mechanical and electrical parts for continuity of operation
- Suitable for isolation applications
- UL/CSA 100% equipment rated versions

Frame sizes — seven basic sizes

The ABB Isomax series includes seven basic frame sizes with continuous rated currents from 15A to 2500A and with 600VAC interrupting capacities up to 85kA. The various versions have the following breaking capacity ratings:

- **B** basic breaking capacity
- **N** normal breaking capacity
- **H** high breaking capacity
- **L, V** very high breaking capacity

Derived versions

- Circuit breakers with selective and non-selective residual current protection
- Switch disconnectors
- Circuit breakers for motor control with adjustable magnetic release
- Circuit breakers for machine tools
- Circuit breakers for direct current

ABB Isomax versions

- Fixed: all models
- Plug-in: up to S5 400A (IEC)
- Withdrawable: from S3 to S7 1200A (IEC)

① Available up to 225A at 480VAC

General information

General ratings and specifications



S1



S3B



S3



S4

Circuit-breaker type			S1			S3B			S3			S4		
Maximum frame continuous rated current	40°C	A	100			225			225			250		
Rated operational voltage	50/60 Hz	V	277/480V			240			600			600		
Test voltage	1 min. 50/60 Hz	V	3000			3000			3000			3000		
Rated impulse withstand voltage		kV	6			6			6			8		
Poles		No.	3			2-3			2-3-4			2-3-4		
Performance level			N			B			N			H		
UL/CSA short-circuit interrupting capacity UL 489, File # E93565 CSA, File # LR90467	240VAC	kA RMS	50			150			65			100		
	480VAC		20^①			—			25			50^②		
	600VAC		—			—			14			14		
	500VDC		—			50			35			50		
	600VDC	—			—			20			35			
IEC-947 rated ultimate short-circuit breaking capacity Icu	220/230VAC	kA RMS	40			150			65			100		
	380/400/415VAC		25			—			35			65		
	440VAC		16			—			30			50		
	500VAC		12			—			25			40		
	660/690VAC	—			—			14			18			
Overcurrent trip unit/relays														
Thermal-magnetic			•			•			•			—		
Microprocessor-based			—			—			—			•		
Dialogue unit			—			—			—			•		
Interchangeability			—			—			—			•		
Version — Terminals														
Fixed — front or rear			•			•			•			•		
Plug-in — front or rear (IEC)			•			•			•			•		
Withdrawable — front or rear (IEC)			—			•			•			•		
Dimensions (fixed circuit-breaker)														
2P & 3P (H x W x D)		in	4.72 x 3.07 x 2.75			6.70 x 4.13 x 4.07			6.70 x 4.13 x 4.07			10.0 x 4.13 x 4.07		
4P IEC (H x W x D)		in	4.72 x 4.09 x 2.75			6.70 x 5.51 x 4.07			6.70 x 5.51 x 4.07			10.0 x 5.51 x 4.07		
Mechanical duration														
Operations		No.	25,000			25,000			25,000			25,000		
Frequency		ops./hour	240			240			120			120		
Weights (Fixed 3P)			lbs			2.42			6.75			6.75		

① For use with thermal-magnetic trip only:
500VDC, 2 poles in series
600 VDC, 3 poles in series

② 15-30A units are 65kA at 480VAC

③ 15A units are 14kA at 480VAC

General information

General ratings and specifications



Circuit-breaker type			S5			S6			S6			S7		S8	
Maximum frame continuous rated current	40°C	A	400			600			800			1200		1600/2000/2500	
Rated operational voltage	50/60 Hz	V-	600			600			600			600		600	
Test voltage	1 min. 50/60 Hz	V-	3000			3000			3000			3000		3000	
Rated impulse withstand voltage		kV	8			8			8			8		8	
Poles		No.	2-3-4			2-3-4			2-3-4			2-3-4		3	
Performance level			N	H	L	N	H	L	N	H	L	H	V		
UL/CSA short-circuit interrupting capacity	240VAC 480VAC	kA RMS	65	150	200	65	150	200	65	150	200	100	125		
UL 489, File # E93565	600VAC		35	65	100	50	65	100	50	65	100	65	100		
CSA, File # LR90467	500VDC		22	22	35	25	35	42	25	35	42	50	85		
	600VDC		35	50	65	35	50	65	35	50	65	—	—		
IEC-947 rated ultimate short-circuit breaking capacity	220/230VAC 380/400/415VAC	kA RMS	65	100	200	65	100	200	65	100	200	100	120		
Icu	440VAC		35	65	100	35	65	100	35	65	100	65	120		
	500VAC		30	50	80	30	50	80	30	50	80	55	100		
	660/690VAC		25	40	65	25	40	65	25	40	65	45	70		
			20	25	30	20	25	35	20	25	35	25	50		
Overcurrent trip unit/relays															
Thermal-magnetic			•			•			•			—		—	
Microprocessor-based			•			•			•			•		•	
Dialogue unit			•			•			•			•		•	
Interchangeability			•			•			•			•		•	
Version-Terminals															
Fixed – front or rear			•			•			•			•		•	
Plug-in – front or rear			•			•			•			—		—	
Withdrawable — front or rear			•			•			•			•		—	
Dimensions (fixed circuit-breaker)															
2P & 3P (H x W x D)		in	13.62 x 5.51 x 4.07			10.55 x 8.27 x 4.07			14.25 x 8.27 x 4.07			15.98 x 8.27 x 5.45		15.75 x 15.98 x 9.25	
4P IEC (H x W x D)		in	13.62 x 7.24 x 4.07			10.55 x 11.0 x 4.07			14.25 x 11.0 x 4.07			15.98 x 11.0 x 5.45		—	
Mechanical endurance															
Operations		No.	20,000			20,000			20,000			10,000		10,000	
Frequency		(ops./hour)	120			120			120			120		20	
Weights	Fixed 3P	lbs.	11.0			21.0			22.0			37.5		135	

Isomax

① For use with thermal-magnetic trip only:
500VDC, 2 poles in series
600 VDC, 3 poles in series

General information

Improved use

ABB Isomax circuit breakers — from Model S4 to S8 and starting from 40A are provided with microprocessor based modular relays.

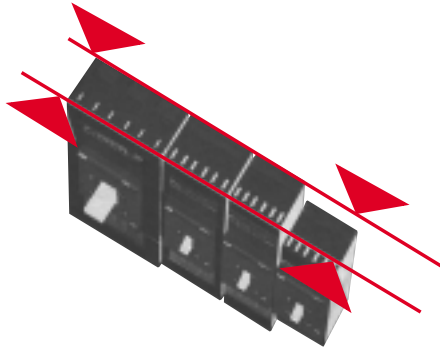
These are available in two versions:

- ABB PR211: with overload and short-circuit protection
- ABB PR212: with overload protection, short-circuit protection, and ground fault protection.

This version can also be fitted with a dialog unit for connection to automation systems.

These reliable and precise relays are unaffected by electromagnetic disturbances. Minimal response tolerances ensure high precision in discrimination computations.

S1, S3 and selected versions of the S5 and S6 breakers are fitted with thermal-magnetic trip releases.



Flexible and modular construction simplify panel design and construction for:

- primary distribution (switchboards)
- motor control (MCC)
- secondary distribution (panelboards)
- panel builders (OEM & users)



- Standard modular dimensions
- Standard circuit breaker depths S3-S6
- Assembly onto DIN profile up to 400 A
- Full range of accessories
- Standard front flange:
 - for DIN 45mm cut-outs on S3-S5
 - for 105mm cut-outs on S3-S7.
- Handle operators:
 - flange type
 - variable depth rotary type
 - fixed depth rotary type

Maximum versatility

ABB Isomax circuit breakers can be fitted with a wide range of terminals for all types of connections.

Modular design also makes installation and assembly extremely simple.

The various terminal options can be fitted in different combinations in the same unit (e.g. one type at the top and another at the bottom). This makes ABB Isomax circuit breakers easy to adapt to any installation.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S1			F P			F P		
S2		F	F P	F		F P		
S3	F	F P W	F P W	F	F	F P W		
S4	F	F P W	F P W	F	F	F P W		
S5	F	F P W	F P W	F	F	F P W		
S6 630	F	F W		F	F	F	W	W
S6 800	F	F W		F	F	F	W	W
S7	F	F W		F (S7 1250)			W	W C C C

- | | |
|--|------------------------------|
| (1) Front | (5) CU rear cables |
| (2) Extended front | (6) Rear threaded |
| (3) CU front cable terminals (saddle type) | (7) Rear horizontal flat bar |
| (4) CU/AL front cables (standard type) | (8) Rear vertical flat bar |

General information

Accessories

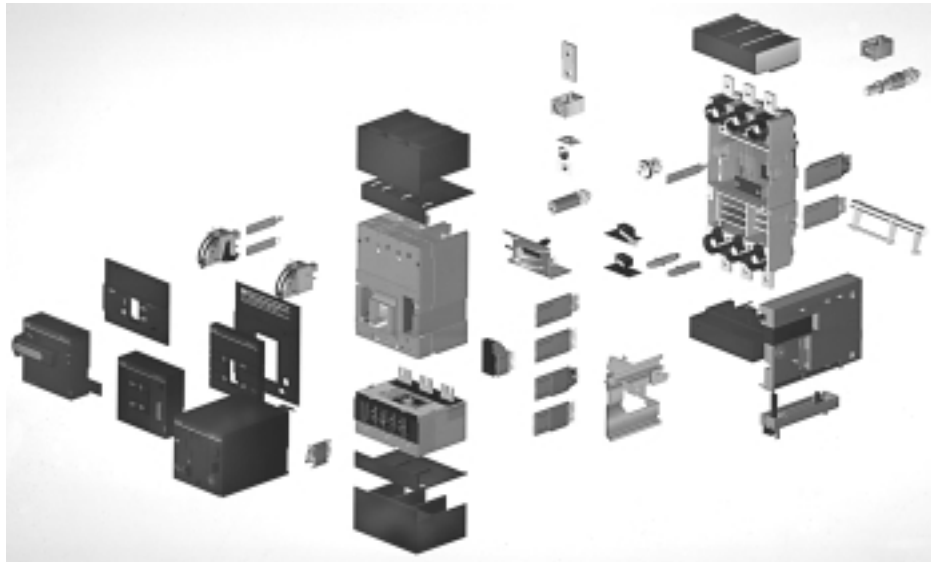
Simplified maintenance

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Complete range of accessories

ABB Isomax circuit breakers are complemented by a complete range of accessories to satisfy the widely differing operational and automation requirements. Accessories are standardized for groups of circuit breakers to streamline storage logistics and simplify installation.

ABB Isomax units can be customized as required under conditions of absolute safety. All accessories for S3 – S7 can be mounted with simple operations without having to remove the circuit breaker power cover and without any accessory adjustments.



Simplified maintenance

Maintenance operations are kept to a minimum. All inspection can be performed quickly and easily.

A dialog unit (optional) can be installed to store operational data for efficient maintenance scheduling.

Reliability is ensured by the high quality of all materials and by advanced manufacturing in automated assembly systems capable of ensuring consistent product quality.

Insulation distances are as required for both UL/CSA 600VAC approvals and also IEC-947 690VAC rating, which ensures safe insulation even under the severest operating conditions.

Double insulation. The cover on S3 – S7 encloses all electrical accessory cavities which are also completely separated from the power circuit.

Moreover:

- positive operation to guarantee safe and reliable signalling.
- optional draw-out with closed-door racking-out for maximum operational safety.
- high and low terminal covers are available to increase operator protection level.



Isomax

General information

Technical and design specifications

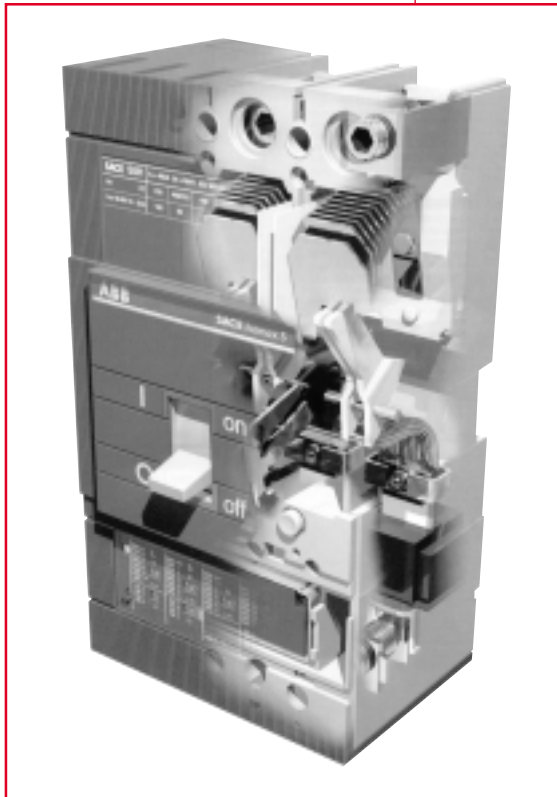
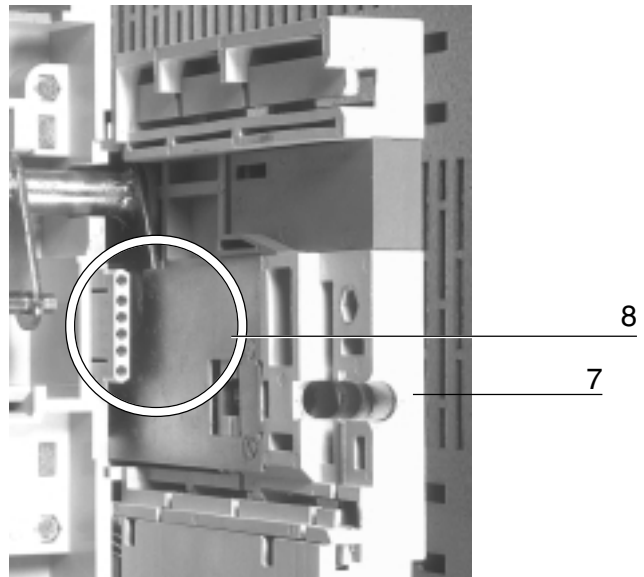
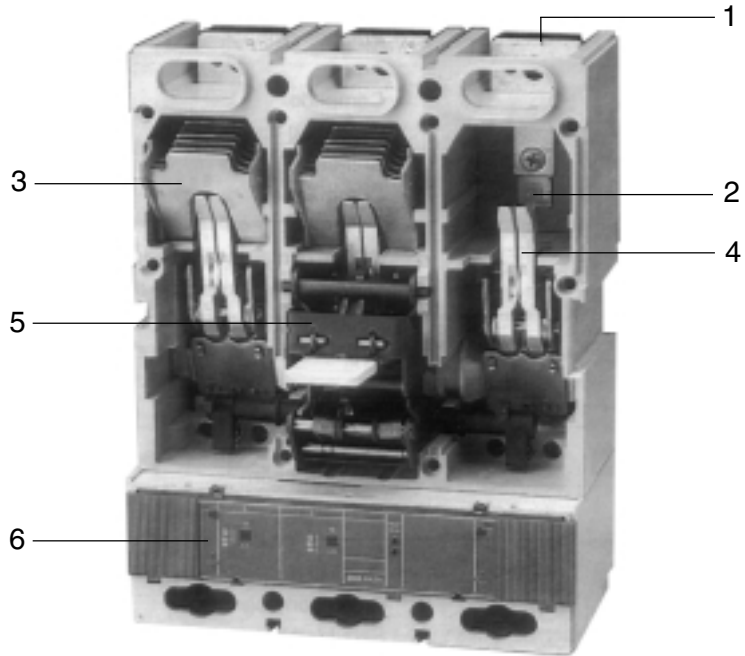
Main component parts

Versions

On request, IEC circuit breakers can be delivered in plug-in or withdrawable, two, three or four pole versions. Units are normally provided with front or rear terminals. Fixed parts are always manufactured to IP20 protection. See Accessories section for details of other optional accessories.

Key

- 1 Terminals
- 2 Fixed contacts
- 3 Arcing chamber
- 4 Moving contacts
- 5 Operating mechanism
- 6 Microprocessor based solid-state relay
- 7 Closed door isolation device
- 8 Plug-in connector for auxiliary circuits



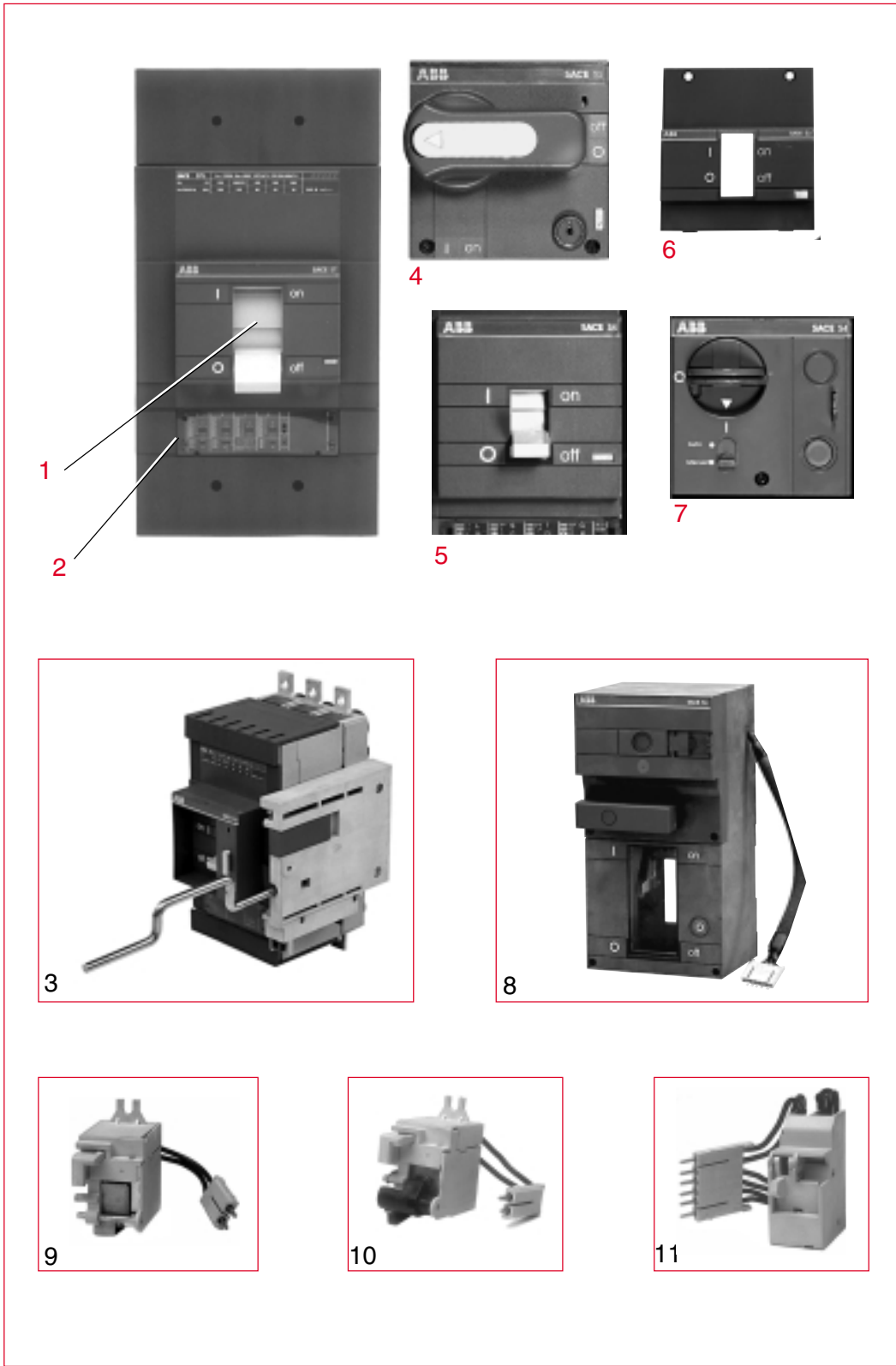
General information

Technical and design specifications

Main component parts



Operating and signalling devices



Key

- 1 Operating lever
- 2 Overcurrent relay adjustments
- 3 Closed door racking-in and racking-out device
- 4 Rotary handle operating mechanism
- 5 Standard front flange (105 mm/4.13" high). Available for circuit-breakers S3 – S7
- 6 Flange (45 mm/1.77" high) for installation of circuit breakers behind standard IEC doors. Available for circuit-breakers up to S5 frame
- 7 Direct acting motor operator S3 – S5
- 8 Stored energy motor operator S6 – S7
- 9 Shunt trip device
- 10 Undervoltage release
- 11 Auxiliary contact switch for circuit breaker position indication

Isomax

General information

Technical and design specifications

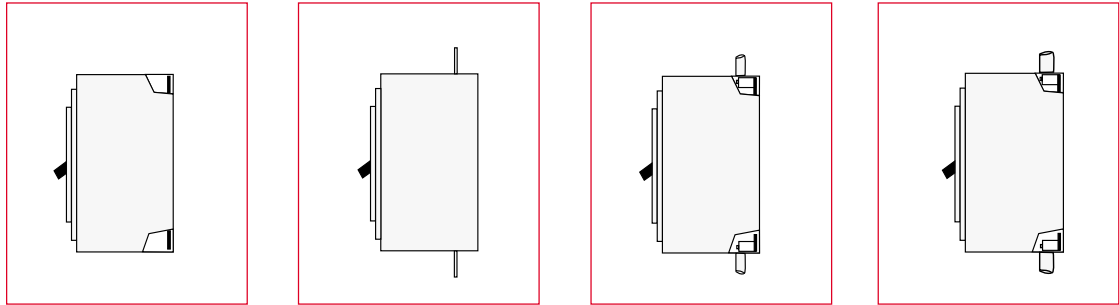
Main component parts

Combinations of terminals

All circuit breaker bus terminations are made of silver-plated copper. Terminals can be provided in different combinations (e.g. one type at the top and another type at the bottom). Various connection schemes are available making ABB Isomax circuit breakers easily adapted to any installation requirements. In particular, this exceptional versatility

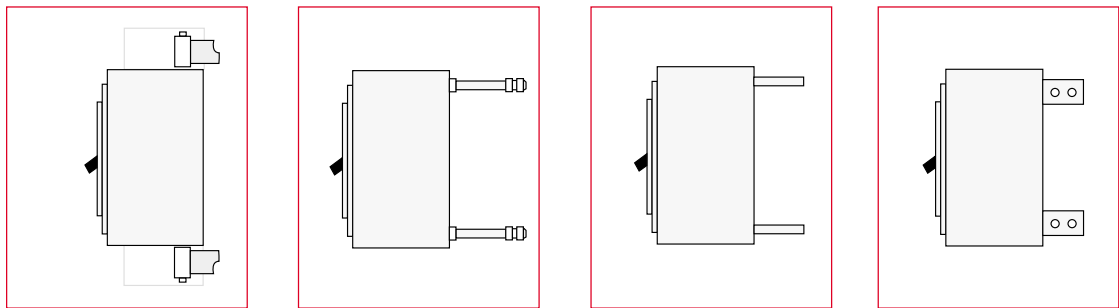
makes ABB Isomax units ideal for wall mounted switchboards with connections accessible from the front and for rear connection switchboards.

Connection type



Circuit-breaker	Front bar			Extended front bar			CU front cable lugs			CU/AL front cable lugs		
	F	P	W	F	P	W	F	P	W	F	P	W
S1	—	—	—	—	—	—	●	◆	—	—	—	—
S3	●	—	—	◆	◆	◆	◆	◆	◆	◆	—	—
S4	●	—	—	◆	◆	◆	◆	◆	◆	◆	—	—
S5	●	—	—	◆	◆	◆	◆	◆	◆	◆	—	—
S6	●	—	—	◆	—	◆	—	—	—	◆	—	—
S7	●	—	—	◆	—	◆	—	—	—	◆	—	—
S8	●	—	—	—	—	—	—	—	—	◆	—	—

Key: F = Fixed P = Plug-in W = Withdrawable ◆ = Optional terminals ● = Standard connections



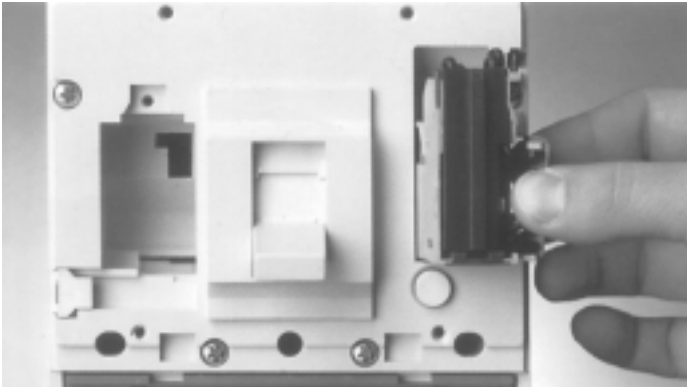
Circuit-breaker	CU rear cable lugs			Rear threaded studs			Rear horizontal flat bus			Rear vertical flat bus		
	F	P	W	F	P	W	F	P	W	F	P	W
S1	—	—	—	◆	◆	—	—	—	—	—	—	—
S3	◆	—	—	◆	◆	◆	—	—	—	—	—	—
S4	◆	—	—	◆	◆	◆	—	—	—	—	—	—
S5	◆	—	—	◆	◆	◆	—	—	—	—	—	—
S6	◆	—	—	◆	—	—	—	—	◆	—	—	◆
S7	—	—	—	—	—	—	◆	—	◆	◆	—	◆
S8	—	—	—	—	—	—	◆	—	—	◆	—	—

Key: F = Fixed P = Plug-in W = Withdrawable ◆ = Optional terminals

General information

Construction characteristics

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Double insulation

The double insulation technique involves the total separation of the power and auxiliary circuits, and is a characteristic of all Isomax switchgear, from size S3 to S7.

The housing of each electrical accessory is completely segregated from the power circuit, thus avoiding all risk of contact with the active parts and hence improving operator safety conditions in plant management and inspection.

In addition, the insulation of the internal active parts, in terms of both the thickness of the materials and the distances, is superior to that required by the IEC Standards and complies with American usage.

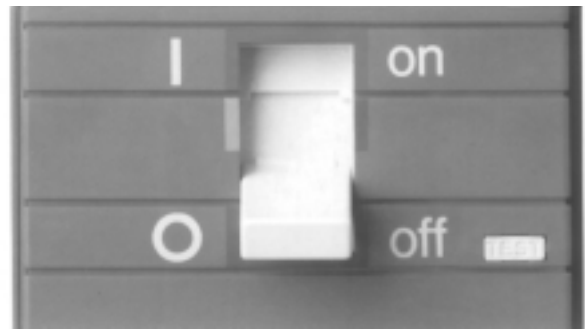


Selectivity

The complete range of releases available makes it possible to coordinate protection functions using current-type, time-type, energy-type or residual-current selectivity chains.

This makes it possible to isolate only those zones affected by faults, ensuring maximum operating continuity.

Circuit-breakers in category B are available from 400 A upwards. (IEC 947-2)



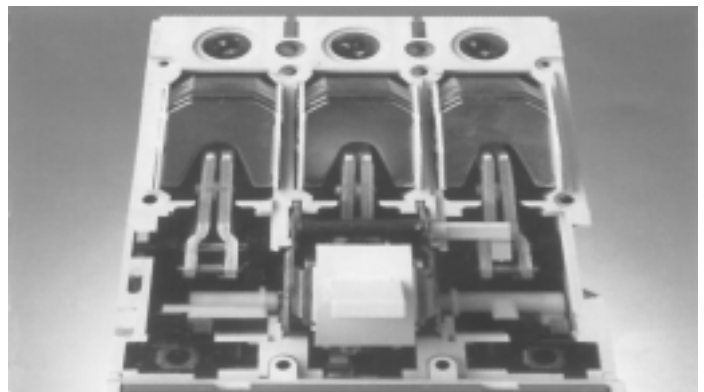
Positive operation

The operating lever always indicates the exact position of the moving contacts in the circuit-breaker, thus guaranteeing safe and reliable indication (I = Closed; O = Open; yellow line = Open due to tripping of releases).

The operating mechanism of the circuit-breaker is trip-free, independently of the pressure on the lever or the speed of operation.

Tripping of the releases automatically opens the moving contacts; to close them again, the operating mechanism has to be reset by pushing the operating lever from the intermediate position fully down to the lower limit of the open position.

In the plug-in or withdrawable circuit breakers, the mobile part can only be detached from the fixed part when the circuit-breaker is open (i.e. moving contacts separate from fixed contacts).



Inspection

A direct check can be made on the state of the internal parts and active components when the circuit-breaker is out of service.

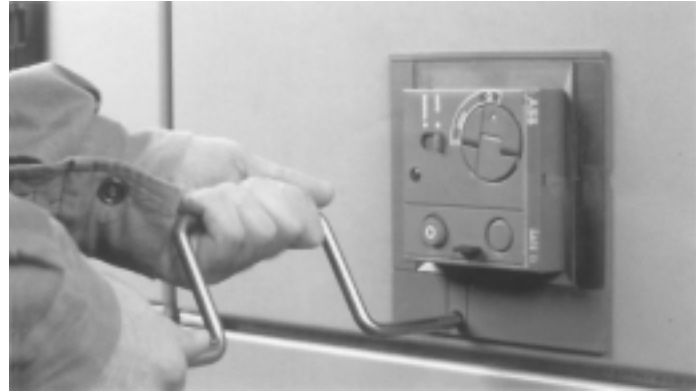
Access can be gained to the arcing chambers and fixed and moving contacts simply by removing the cover of the circuit-breaker.

The operation, made easier by the limited number of components, reduces maintenance times and guarantees a higher level of safety.

Isomax

General information

Construction characteristics



Isolation behavior

In the open position, the circuit-breaker guarantees the isolation of the circuit in accordance with IEC 947-2 specifications.

In the IEC withdrawable or plug-in versions, the power and auxiliary circuits are isolated in the racked out or removed positions, thus guaranteeing that no parts are live.

In these conditions, using suitable connectors, blank tests can be conducted, with the operations on the circuit-breaker being carried out in complete safety.

The redundant insulation distances guarantee the absence of leakage currents and dielectric strength in the event of any overvoltages across the input and output.

Racking-out with the door closed

This system, present for the first time on a series of molded-case circuit-breakers, starting from Isomax S3, allows racking-in and racking-out with the compartment door closed, thus increasing operator safety and allowing the construction of internal-arc-proof low-voltage switchboards.

Racking out can only be done with the circuit-breaker open, using the racking-out crank handle supplied with the withdrawable version of the circuit-breaker.



Electromagnetic compatibility

With the use of the PR211/P microprocessor-based overcurrent releases and the RC211 and RC212 electronic residual current releases, slow non-operation is guaranteed, even in the presence of interference caused by electronic equipment, atmospheric disturbance or discharges of an electrical nature.

Furthermore, the appliances do not generate interference with other electronic equipment in the vicinity.

This is in accordance with IEC 947-2 Addendum F, IEC 1000-4, EN 61000-4, EN 50081-2, European Directive No. 49/12-12-1992 specifications on electromagnetic compatibility EMC.



Tropicalization

The Isomax series of circuit-breakers and accessories comply with the strictest regulations on use in hot-damp saline climates (in conformity with climatographic chart No. 8 of the IEC 721-2-1 specifications), thanks to:

- insulating cases made of fiberglass-reinforced synthetic resins
- corrosion-resistant treatment on all main metal parts (environment C UNI 3564-65)
- Fe/Zn 12 galvanizing (UNI ISO 2081), protected by a conversion layer composed mainly of chromates (UNI ISO 4520).

General information

Construction characteristics

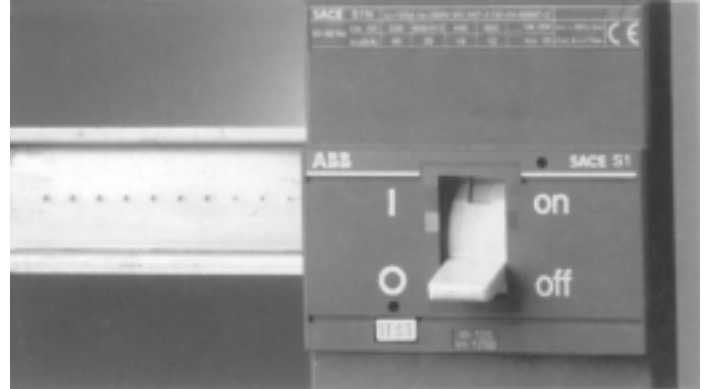
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Protection classes

Various measures have been incorporated in Isomax S circuit-breakers to achieve IP20 protection for the fixed, plug-in and withdrawable versions of the circuit-breaker, excluding the terminals, and IP 30 for the front parts of circuit-breakers installed in switchboards.

The fixed parts are always IP20 protection grade. IP54 protection can be achieved for circuit-breakers installed in switchboards by using door-mounted crank handle operating mechanisms and special insulating gaskets that can be ordered separately.



Mounting on DIN channel up to Isomax S5

The brackets for mounting on the standardized DIN EN 50022 channels for S1 and S2 and on DIN EN 50023 for S3, S4, S5 simplify the fitting for the circuit-breakers on standard switchboards.

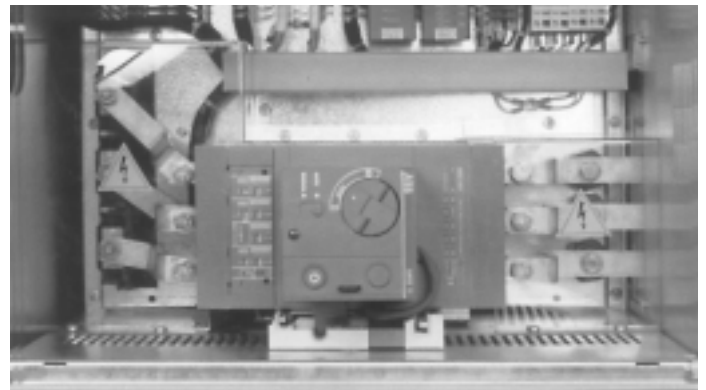
This allows standardized support structures to be installed and simplifies the phase for designing and building the switchboard structure.



Resistance to vibration

The circuit-breakers are unaffected by vibrations generated mechanically or by electromagnetic effects, in compliance with the IEC 68-2-6 standards and the strictest regulations set by the most important classification organizations:

- RINA
- DET Norske Veritas
- Lloyd's Register of Shipping
- Germanischer Lloyd
- Bureau Veritas



Installation positions

The circuit-breakers can be installed in any position with no variations to their rated characteristics.

In compliance with UL and IEC 947-2 standards, Isomax S circuit-breakers can be powered from either their top or bottom terminals, without affecting operation.

They can be installed in switchboards, mounted directly on the base plate or on DIN channels up to size S5.

Isomax



General information

Table of power losses

400 Hz ratings

Table of power losses

Dissipated power (W)		S1		S3		S4		S5		S6		S7		S8
Setting	I _n (A)	F	P	F	P•W	F	P•W	F	P•W	F	P•W	F	P•W	F
R15	15	7	7.3	11.8	13									
R20	20	8.6	8.9	10.8	11.9									
R25	25	7.9	8.3	12	13.2									
R30	30	8.6	8.4	16.9	18.5									
R40	40	8.6	9.5	15.1	16.6									
R50	50	10	11	16.4	18									
R60	60	12.8	13	14.4	16									
R70	70	15.8	17.4	15.8	18.8									
R80	80	13.5	15	17.9	21									
R90	90	17	19	21.9	26									
R100	100	13.8	15.5	21	25									
R125	125			18.5	26									
R150	150			40.5	52									
R175	175			35.9	40									
R200	200			36	46									
R225	225			55	67									
R300	300							52.7	79					
R400	400							66.4	96					
R600	600									83	106			
R800	800									93.2	119			
I _n = 100	100					5.2	8							
I _n = 150	150					13	19							
I _n = 250	250					40	55							
I _n = 300	300							40	57					
I _n = 400	400							60	90					
I _n = 600	600									63	104			
I _n = 800	800									96	125			
I _n = 1000	1000											102	140	
I _n = 1200	1200											151	203	
I _n = 1600	1600													41
I _n = 2000	2000													64
I _n = 2500	2500													100

Isomax

400Hz response

Breaker frame	Breaker rating	Thermal amperes			Magnetic rating	
		Minimum	Maximum	Fixed	Minimum	Maximum
S1	15	—	—	15	—	1000
	20	—	—	19	—	1000
	25	—	—	23	—	1000
	30	—	—	28	—	1000
	40	—	—	37	—	1000
	50	—	—	46	—	1000
	60	—	—	55	—	1200
	70	—	—	65	—	1400
	80	—	—	74	—	1600
	90	—	—	81	—	1800
	100	—	—	90	—	2000
S3	15	—	—	15	—	850
	20	—	—	19	—	850
	25	—	—	23	—	850
	30	—	—	28	—	850
	35	—	—	32.4	—	850
	40	—	—	37	—	850
	50	—	—	46	—	850
	60	—	—	55.5	—	1020
	70	—	—	64.8	—	1190
	80	—	—	74	—	1360
	90	—	—	81	—	1530
	100	—	—	90	—	1700
	125	—	—	112	—	1360
	150	—	—	135	—	1605
	175	—	—	157.5	—	1640
	200	—	—	180	—	1875
	225	—	—	202.5	—	2138
250	—	—	225	—	2400	

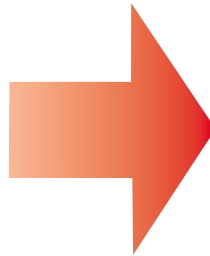
400Hz response

Breaker frame	Breaker rating	Electronic trip headers				
		Thermal amperes			Magnetic rating	
		Minimum x 0.4(.44)	Maximum x 0.8(.88)	Fixed	Minimum x 1.5(1.8)	Maximum x 12(14.4)
S4 ^①	100	44	88	—	180	1440
	150	66	132	—	270	2160
	250	110	180.4	—	450	3600
S5 ^①	300	132	264	—	540	4320
	400	176	352	—	720	5760
S6 ^①	600	264	528	—	1080	8640
	800	352	704	—	1440	11,520
S7 ^①	1000	440	880	—	1800	14,400
	1200	528	1056	—	2160	17,280

① PR211 Trip unit — maximum allowable setting of "L" is 0.8.

Thermal-magnetic S1, S3, S5, S6

The S1 – S3 Isomax series uses a non-interchangeable tripping mechanism with a fixed thermal and magnetic trip. These breakers utilize a heat sensitive bimetal for protection against overload currents. The magnetic element is an instantaneous acting device for protection against short circuit faults. The S5, S6 Isomax series with thermal-magnetic tripping mechanism are adjustable from .7 to 1.



S3 150 – S3 225

Fixed thermal

$I_{th} = 15 - 150A$

$I_{th} = 175 - 225A$

+

Fixed magnetic

$I_3 = 10 \times I_{th}$

500A min.

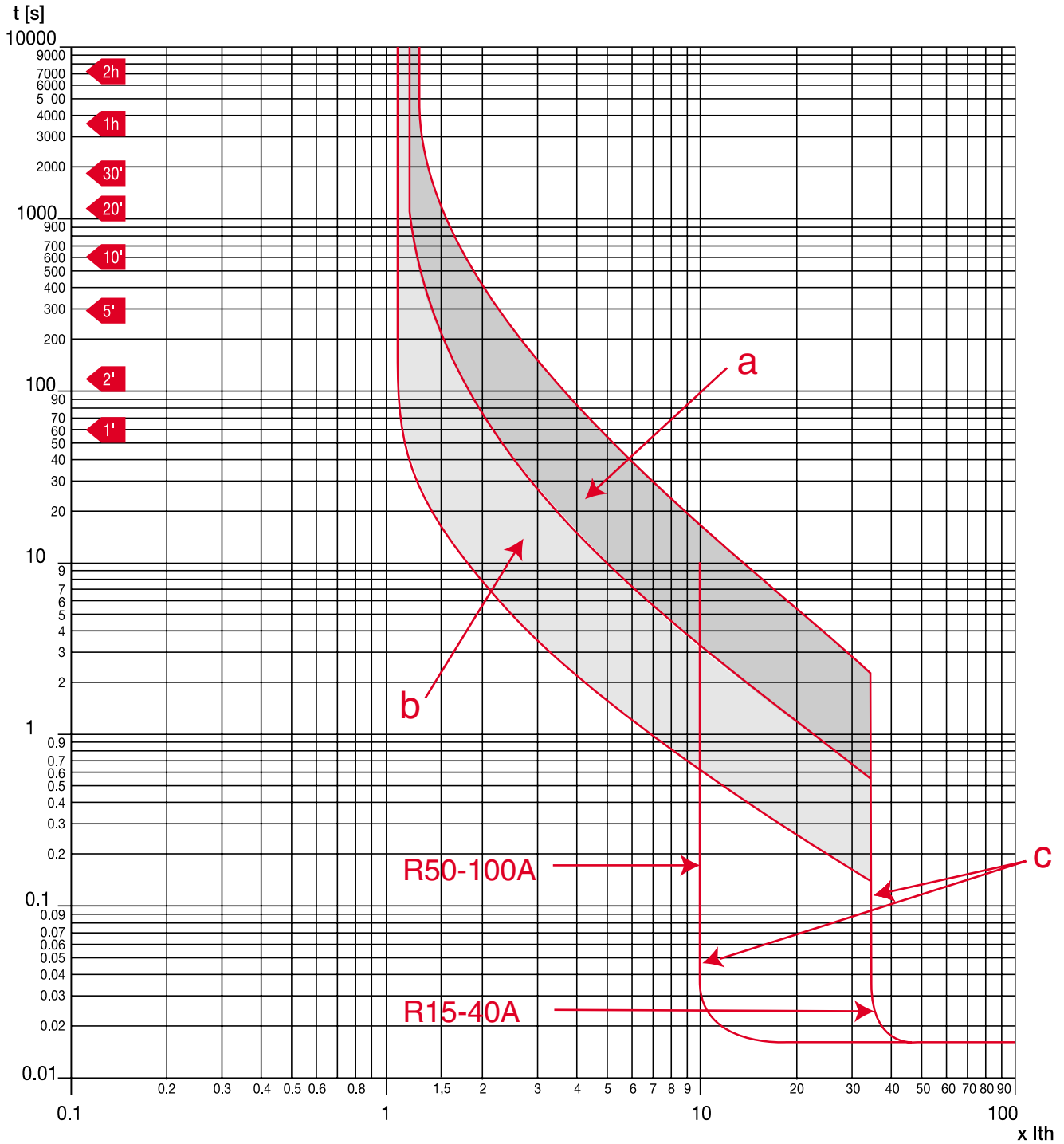
Variation in thermal element setting currents according to ambient temperature

Circuit breaker frame	Trip release	Variation in current					
		10°C	20°C	30°C	40°C	50°C	60°C
S1 100, S3 100	R15	18	17	16	15	14	13
	R20	24	22	21	20	19	17
	R25	30	28	27	25	23	21
	R30	35	33	32	30	28	26
	R35	41	39	37	35	33	30
	R40	47	44	42	40	37	34
	R45	53	50	48	45	42	38
	R50	59	56	53	50	47	43
	R60	71	67	64	60	56	51
	R70	83	78	74	70	66	60
	R80	94	90	85	80	75	68
R90	106	101	95	90	85	77	
R100	118	112	106	100	95	85	
S3 150	R125	148	140	133	125	119	106
	R150	177	168	159	150	143	127
S3 225	R175	207	196	186	175	166	149
	R200	236	224	212	200	190	170
	R225	266	252	239	225	214	191
S5 400	R300	345	328	314	300	286	267
	R400	465	442	420	400	380	355
S6 600	R600	690	656	628	600	572	534
	R800	965	90	855	800	740	670

Protective releases

Thermal magnetic overcurrent release

Time current curves, S1



Key

I_{th} = Rated current of overcurrent release at 40 °C temperature

- multiples of I_{th} for thermal releases
- multiples of I_{th} for magnetic releases

a = Thermal releases cold

b = Thermal releases under operating conditions

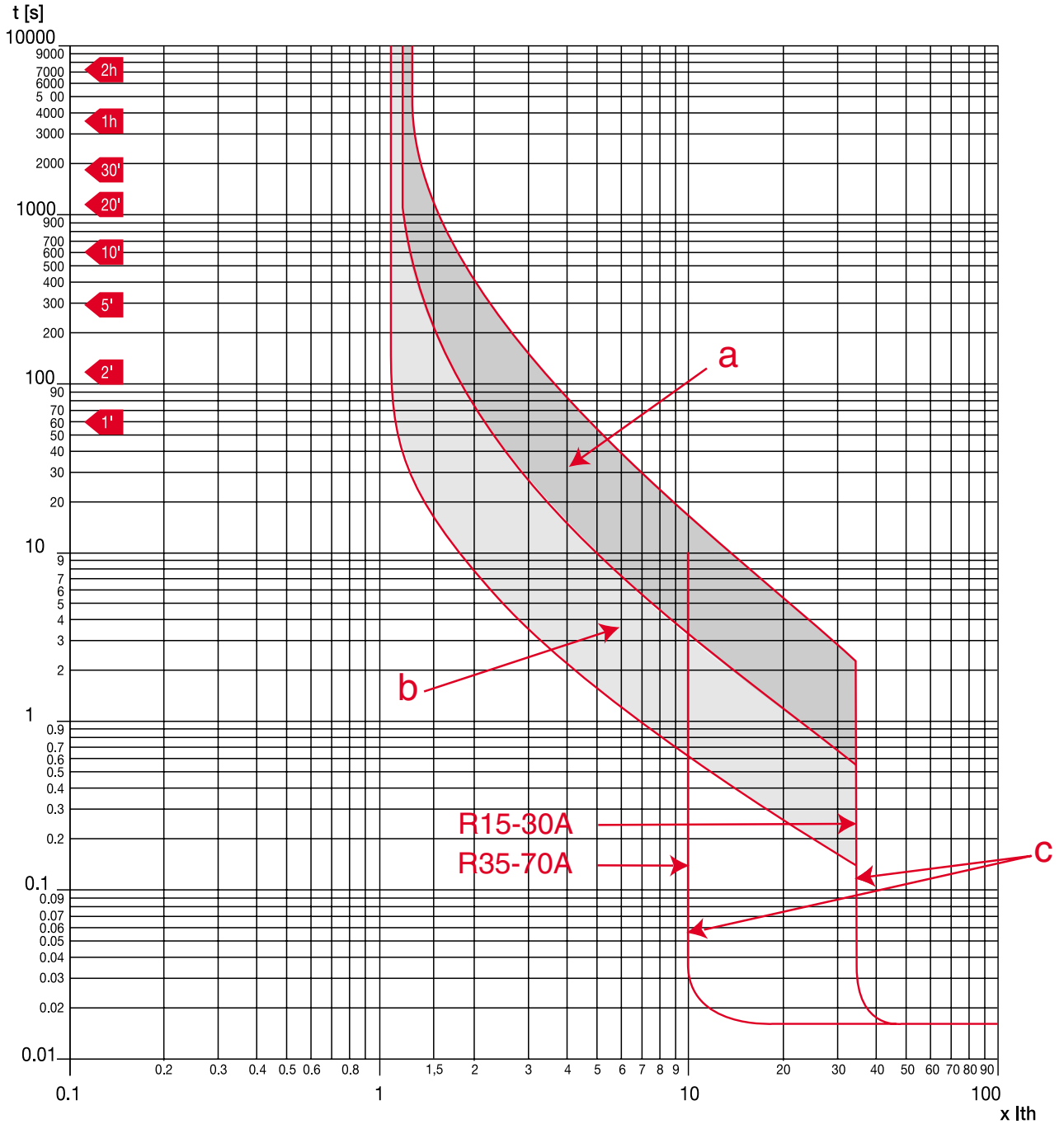
c = Magnetic releases ($\pm 20\%$)

t = Tripping time

Protective releases

Thermal-magnetic overcurrent release

Time-current curves, S3 150 ^①



Isomax

Key

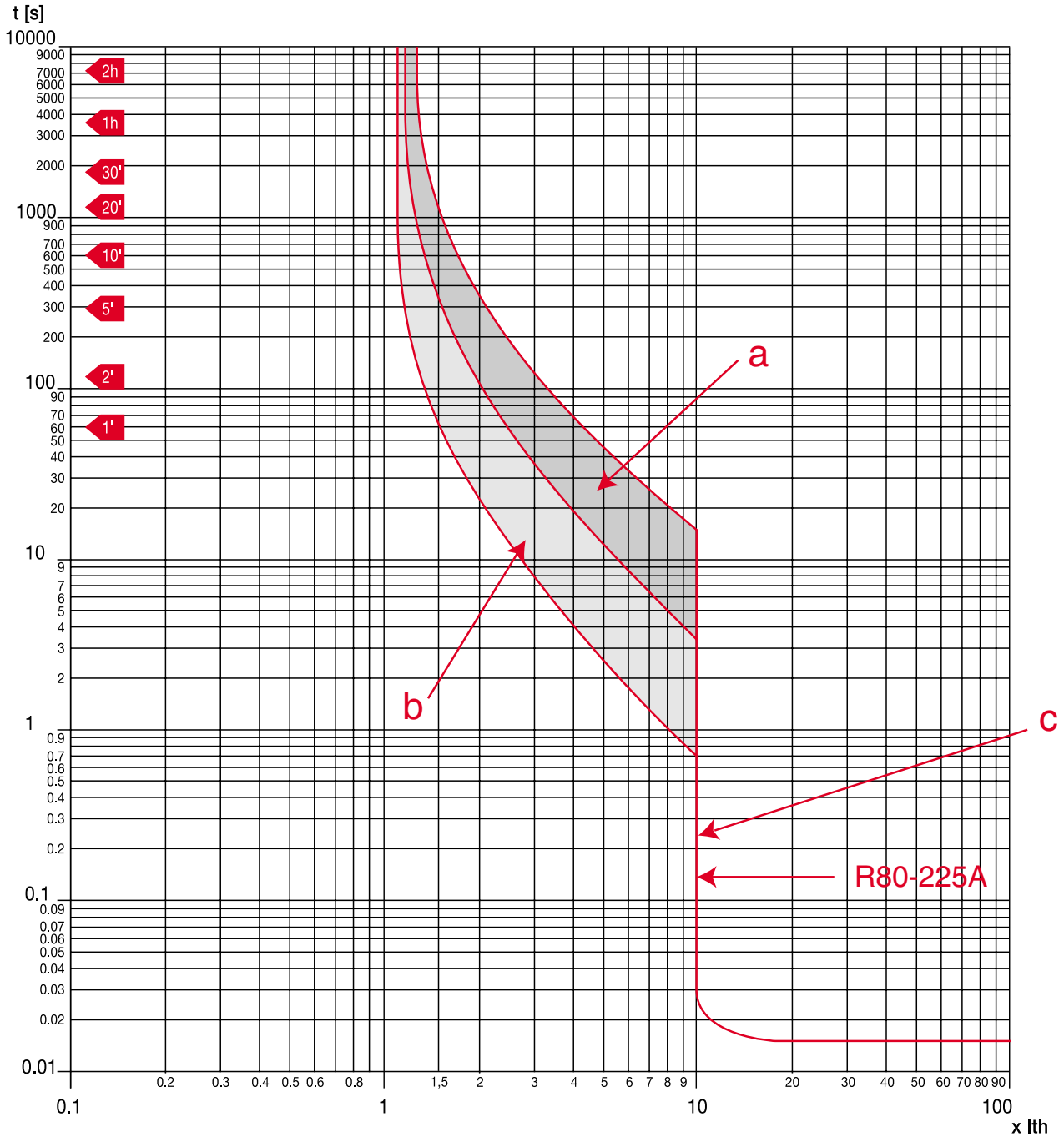
- I_{th}** = Rated current of overcurrent release at 40 °C temperature
 - multiples of I_{th} for thermal releases
 - multiples of I_{th} for magnetic releases
- a** = Thermal releases cold
- b** = Thermal releases under operating conditions
- c** = Magnetic releases ($\pm 20\%$)
- t** = Tripping time

^① Direct current may shift tripping characteristic. Consult ABB.

Protective releases

Thermal-magnetic overcurrent release

Time-current curves, S3 150 – S3 225



Key

I_{th} = Rated current of overcurrent release at 40 °C temperature

- multiples of I_{th} for thermal releases
- multiples of I_{th} for magnetic releases

a = Thermal releases cold

b = Thermal releases under operating conditions

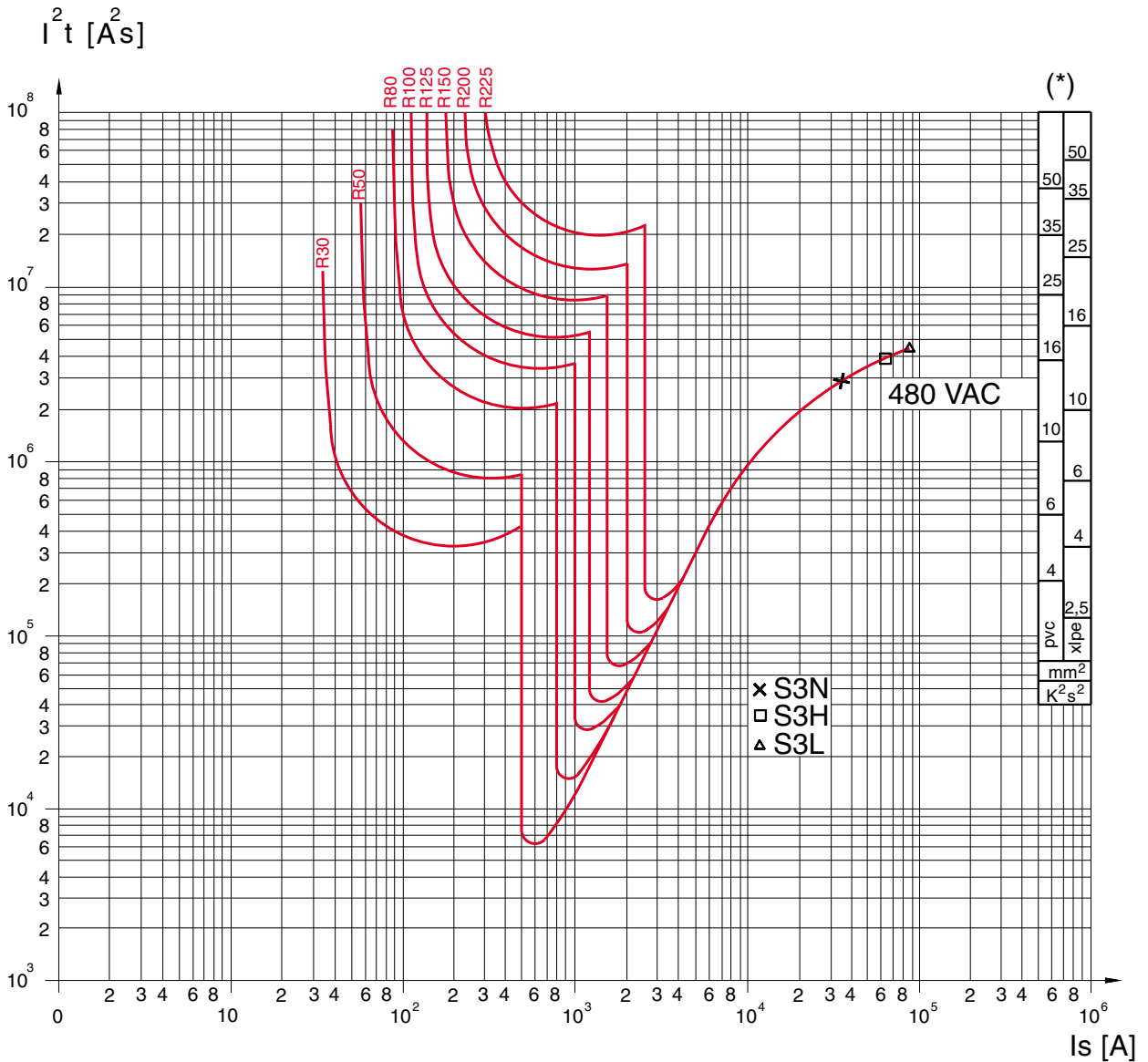
c = Magnetic releases ($\pm 20\%$)

t = Tripping time

Protective releases

Specific let-through energy I^2t curves

S3— TM - $I_{th} = 30A - 225A$



Key
 I_s = Prospective short-circuit symmetrical current
 I_{th} = Rated current of overcurrent release at 40 °C temperature
 I^2t = Specific let-through energy at the voltages shown
 (*) = Section of copper cable

Isomax

Protective releases

Microprocessor trip release

S4, S5, S6, S7, S8

Microprocessor based overcurrent relays for alternating current for S4, S5, S6 and S7 circuit-breakers

The microprocessor based overcurrent relays (actual RMS) for Isomax S circuit-breakers are interchangeable and offer a wide range of current and trip time settings.

They are available in two versions:

PR211/P with overcurrent protection «L» and instant short circuit protection «I». Available with functions «L», «I», or «L+I». L function includes adjustable long-time pick-up and long-time delay.

PR212/P with overcurrent protection «L», selective short circuit protection «S», instant short circuit protection «I» and ground fault protection «G». Available with functions «L+S+I» or «L+S+I+G». Functions «S», «I» and «G» can be excluded manually by means of the trip current threshold selector (OFF position). In its most complete configuration, i.e. with functions «L+S+I+G», the PR212/P relay can be combined, on request, with the following units:

PR212/D — dialog unit

Essential for two-way communication with electrical plant management systems. When the unit is present, it is possible to choose between the manually set parameters (LOC), and the parameters set by the electrical plant control system (REM) by means of the appropriate selector. The dialog unit must be supplied with an auxiliary voltage of 24 V d.c.

The following information is made available through the dialog unit on the field bus:

- protection parameters
- current values of phases, neutral and ground
- circuit-breaker state
- number of operations of circuit-breaker
- interrupted currents
- state of the overcurrent relay with indication of:
 - normal operation
 - pre-alarm (0.9 x I1)
 - overcurrent function «L»
 - trip function «S»
 - trip function «I»
 - trip function «G».

It is possible to provide and/or modify the protection parameters and the circuit-breaker opening/closing controls. In the event of a serial communication error, the overcurrent relay operates in accordance with the last parameters set and in any event always in accordance with the manually programmed setting. The same occurs in the event of a dialog unit fault, and in the absence of auxiliary supply.

The dialog unit is external for circuit breakers S4 and S5 and is located inside the relay box for circuit breakers S6 and S7.

The external dialog unit is connected by means of a cable for supply and communication with the PR212/P protection relay.

The standard version of the dialog interface has the following specifications:

- hardware: EIA RS485 serial transmission line
- communication protocol: ABB INSUM
- transmission speed: 150 – 19200 baud (bit/s).

PR212/K — signalling unit

Can be connected directly to the PR212/P protection relay and provides contacts for the protection unit trip and alarm signals: pre-alarm, overcurrent function «L», trip functions «S», «I» and «G», trip by relay and internal communication error with PR212/P.

PR212/T — actuator unit

Can be installed only if the dialog unit is present, and by means of suitable relays, controls the opening and closing of the circuit-breaker. In order that opening and closing can be actuated, the circuit-breaker must be equipped with a motor operator (direct-acting for S4 and S5; stored energy type for S6 and S7).

Note

The K and T units are always external.

Other important features of the microprocessor based relays are as follows:

- protection of neutral with programmable automatic adjustment, executed by the manufacturer, to 50% (standard) or 100% (on request) of the current value selected for the phases. The optional version has no code in this catalog;
- reliable operation also when one phase only is live;
- individual and simultaneous adjustment on the three phases and neutral;
- no need for auxiliary supply;
- trip specifications not affected by the ambient temperature;
- consistency of specifications and reliability including in contaminated environments;
- signalling of tripped relay (available for all versions) by means of voltage-free contact for 24 V d.c. or a.c. circuits maximum 3 W.

Circuit-breaker rated current change according to ambient temperature. The tripping characteristics of Isomax S4 – S8 with electronic trip units are unaffected by ambient temperatures from -25°C to +60°C. Max operating temperature is 70°C.

400Hz

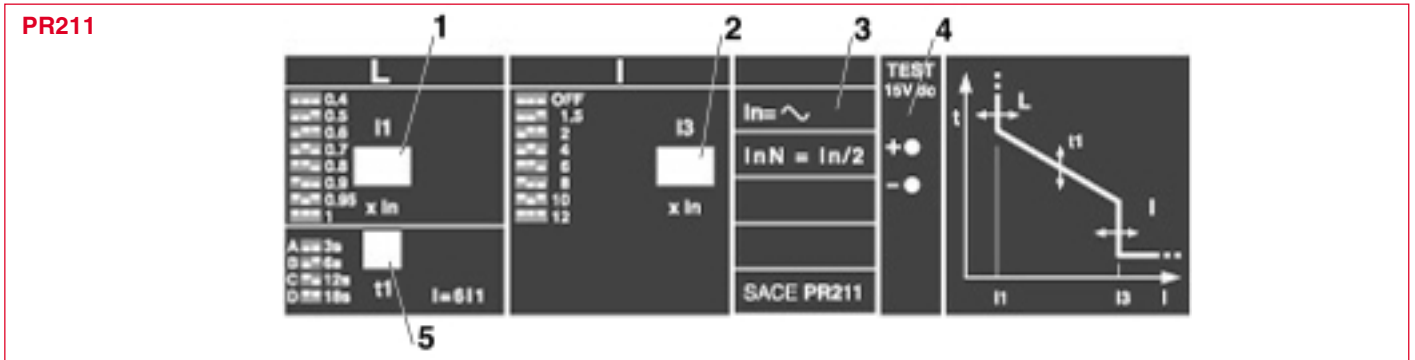
All S1 through S8 breakers are suitable for use in 400Hz power systems.

Protective releases

Microprocessor based overcurrent relays, PR211 for S4, S5, S6 & S7 breakers

Protective functions and set values

Protection against	Trip	Symbol	Set values (manual adjustment in steps)
Overload	Long delay	L	$I1 = 0.4-0.5-0.6-0.7-0.8-0.9-0.95-1 \times I_n$ $t1 = 4 \text{ curves A,B,C,D}$
Short-circuit	Instantaneous adjustment	I	$I3 = 1.5-2-4-6-8-10-12 \times I_n$



Key

- 1 Dip-switch for function L setting
 - 2 Dip-switch for function I setting
 - 3 Rated current of current transformers
 - 4 15 V d.c. input for release functioning check
 - 5 Function L trip time setting dip switch
- I_u = Rated uninterrupted current of circuit-breaker
 I_n = Rated current of current transformers
 $I1$ = Current setting value for relay overload protection (L)
 $I3$ = Current setting value for relay instantaneous short-circuit protection (I)

Rated and setting currents

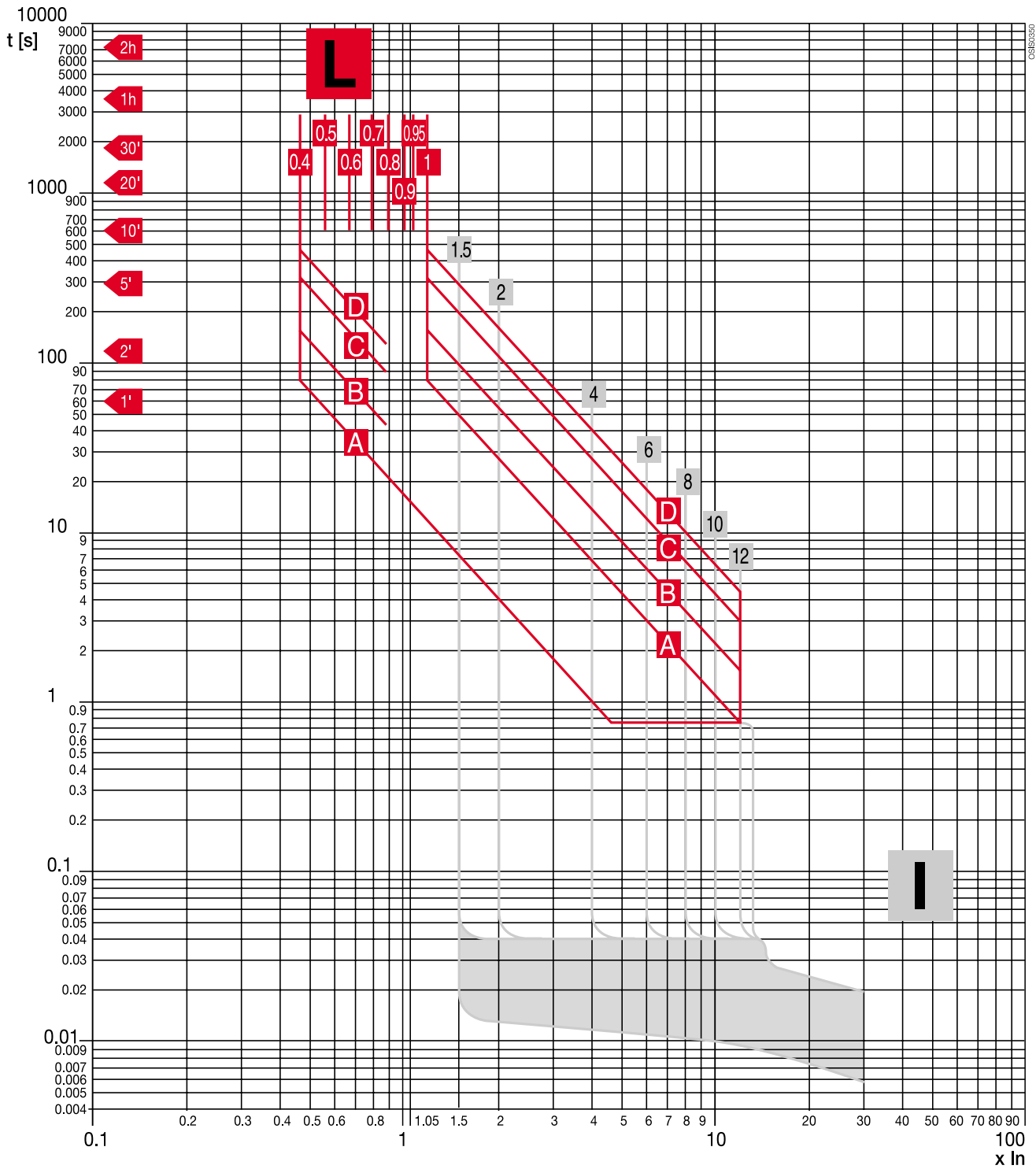
Circuit-breaker	Current transformer	Functions	
		L (I1) A (0.4 – 1 x I_n)	I (I3) A (1.5 – 12 x I_n)
S4	250	40 – 100	150 – 1200
	250	100 – 250	375 – 3000
S5	400	120 – 300	450 – 3600
	400	160 – 400	600 – 4800
S6	600/800	240 – 600	900 – 7200
	800	320 – 800	1200 – 9600
S7	1200	400 – 1000	1000 – 12,000
	1200	480 – 1200	1800 – 14,400

Protective releases

Microprocessor based overcurrent relays, PR211

Time-current curves, S4 – S7

Function L - I



Key

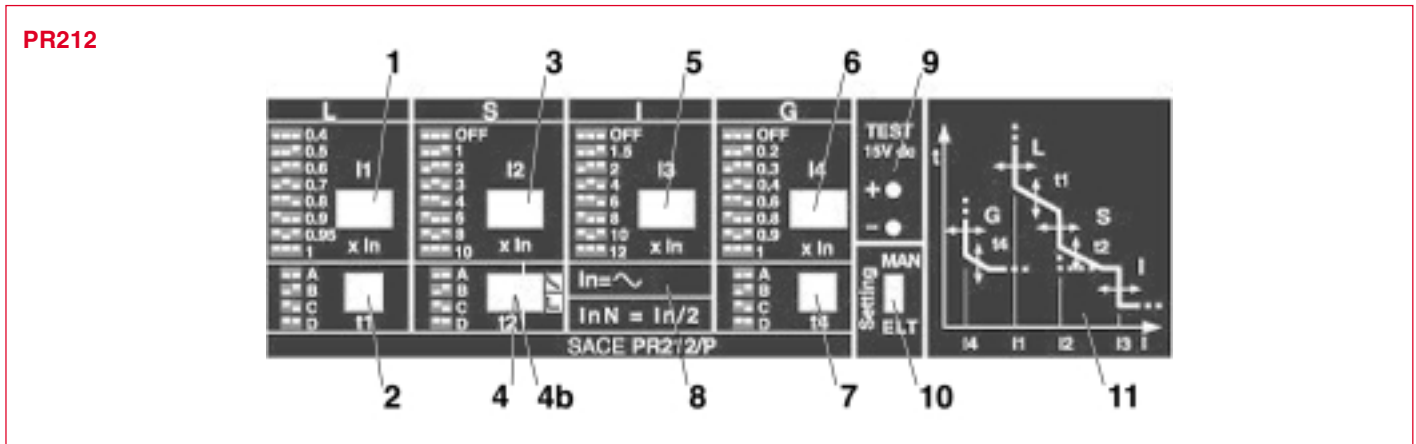
I_n = Rated current of current transformers
 t = Tripping time

Protective releases

Microprocessor based overcurrent relays, PR212 Protection functions and set values, S4 – S8

Protection functions and set values

Protection against	Overload	Short-circuit	Short circuit	Earth fault
Trip	Long delay	Inverse or definite short delay	Instantaneous adjustable	Inverse short delay
Symbol	L	S	I	G ①
Set values (manual adjustment in steps)	I1 = 0.4-0.5-0.6-0.7-0.8-0.9-0.95-1 x In t1 = 4 curves A – D	I2 = 1-2-3-4-6-8-10 OFF x In t2 = 4 curves A – D	I3 = 1.5-2-4-6-8-10-12	I4 = 0.2-0.3-0.4-0.7-0.8-0 t4 = 4 curves A – D
Set values (electronic adjustment)	I1 = 0.4 - 1 x In t1 = 3 - 18s	I2 = 1 ... 10 OFF x In t2 = 0.05 – 0.5	I3 = 1.5-12 OFF x In	I4 = 0.2 – 1 OFF x In t4 = 0.1 – 0.8s



Key

- 1 Function L setting dip-switch
- 2 Function L trip time setting dip-switch
- 3 Function S setting dip-switch
- 4 Function S trip time setting dip-switch
- 4b Fixed/variable trip time selection dip-switch
- 5 Function I setting dip-switch
- 6 Function G setting dip-switch
- 7 Function G trip time setting dip-switch
- 8 Rated current of current transformers
- 9 15 V d.c. input for release functioning check
- 10 Manual/electronic parameter setting selector switch
- 11 Dialogue unit

① S8 it = 0.2 - 0.4

Protective releases

Rated and setting currents, PR212

S4 – S8

Rated and setting currents

Circuit breaker	Current transformer	Functions			
		L (I1) A (0.4 – 1.0 x In)	S (I1) A (1 – 10 x In)	I (I3) A (1.5 – 12 x In)	G (I4) A (0.2 – 1 x In) / S8 (0.2 – 0.4)
S4 250	100	40 – 100	100 – 1000	150 – 1200	20 – 100
	250	100 – 250	250 – 2500	375 – 3000	50 – 250
S5 400	300	120 – 300	300 – 3000	450 – 3600	60 – 300
	400	160 – 400	400 – 4000	600 – 4800	80 – 400
S6 600	600	240 – 600	600 – 6000	900 – 7200	120 – 600
	800	320 – 800	800 – 8000	1200 – 9600	160 – 800
S7 1200	1000	400 – 1000	1000 – 10,000	1500 – 12,000	200 – 1000
	1200	480 – 1200	1200 – 12,000	1800 – 14,400	240 – 1200
S8 1600 – 2500	1600	640 – 1600	1600 – 16,000	2400 – 19,200	320 – 640
	2000	800 – 2000	2000 – 20,000	3000 – 24,000	400 – 800
	2500	1000 – 2500	2500 – 25,000	3750 – 30,000	500 – 1000

Key

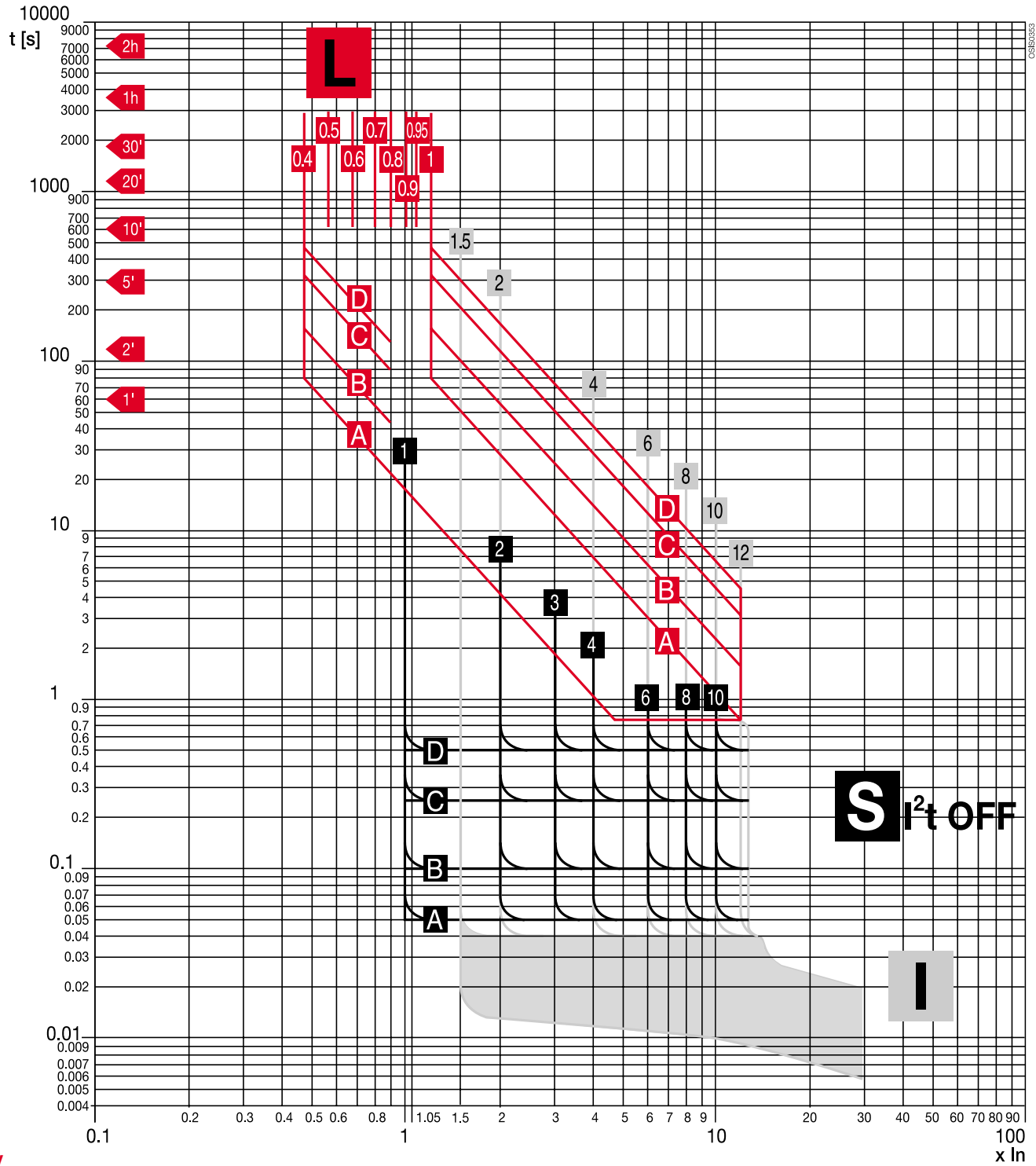
- Iu** = Rated uninterrupted current of circuit-breaker
- In** = Rated current of current transformers
- I1** = Current setting value for relay overload protection
- I2** = Current setting value for relay short-circuit selective protection
- I3** = Current setting value for relay instantaneous short-circuit protection
- I4** = Current setting value for earth fault protection

Protective releases

Microprocessor based overcurrent relays, PR212

Time-current curves, S4 – S8

Function L - S - I



Key
 In = Rated current of current transformers
 t = Tripping time

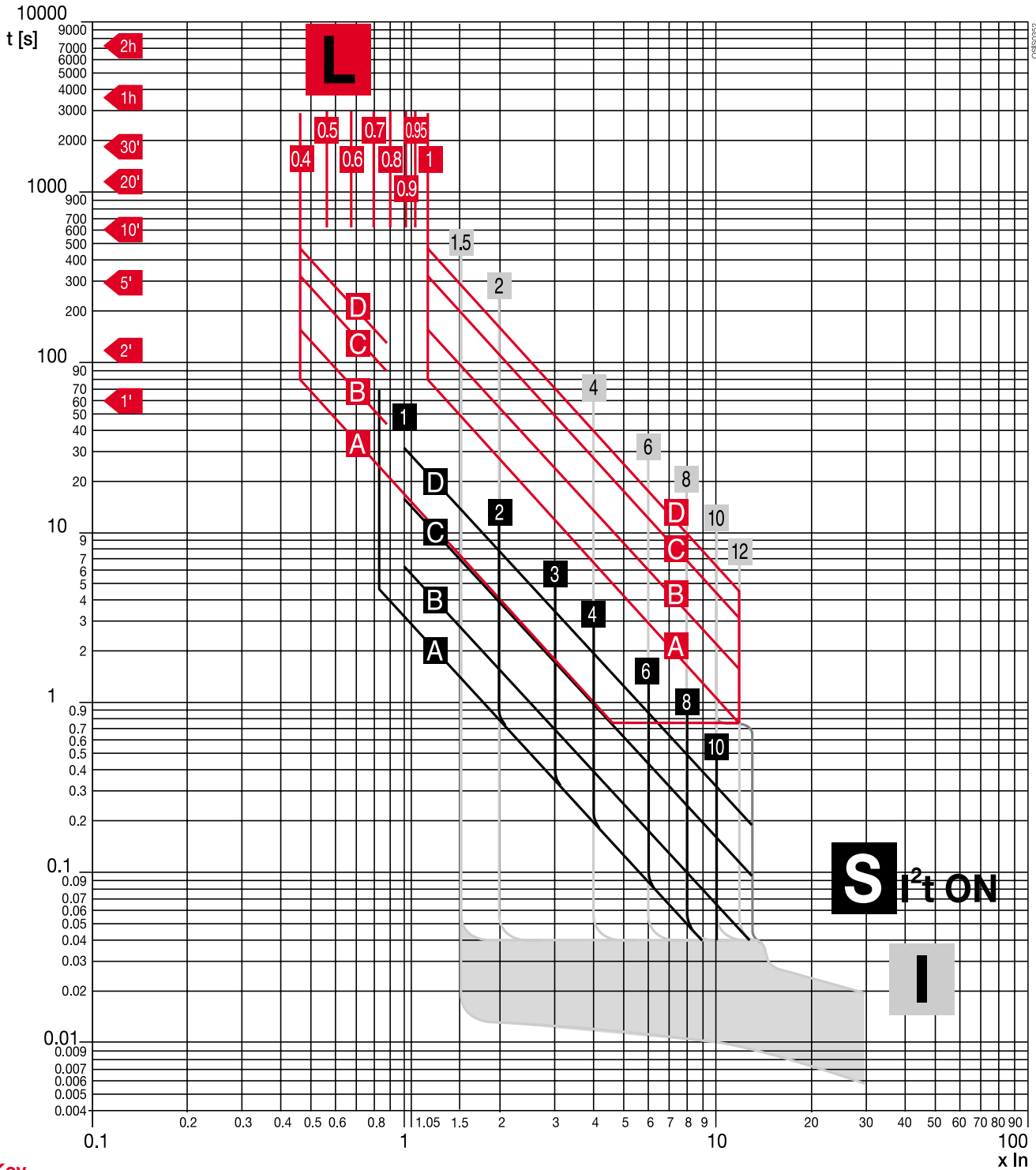
Isomax

Protective releases

Microprocessor based overcurrent relays, PR212

Time-current curves, S4 – S8

Function L - S - I



Key

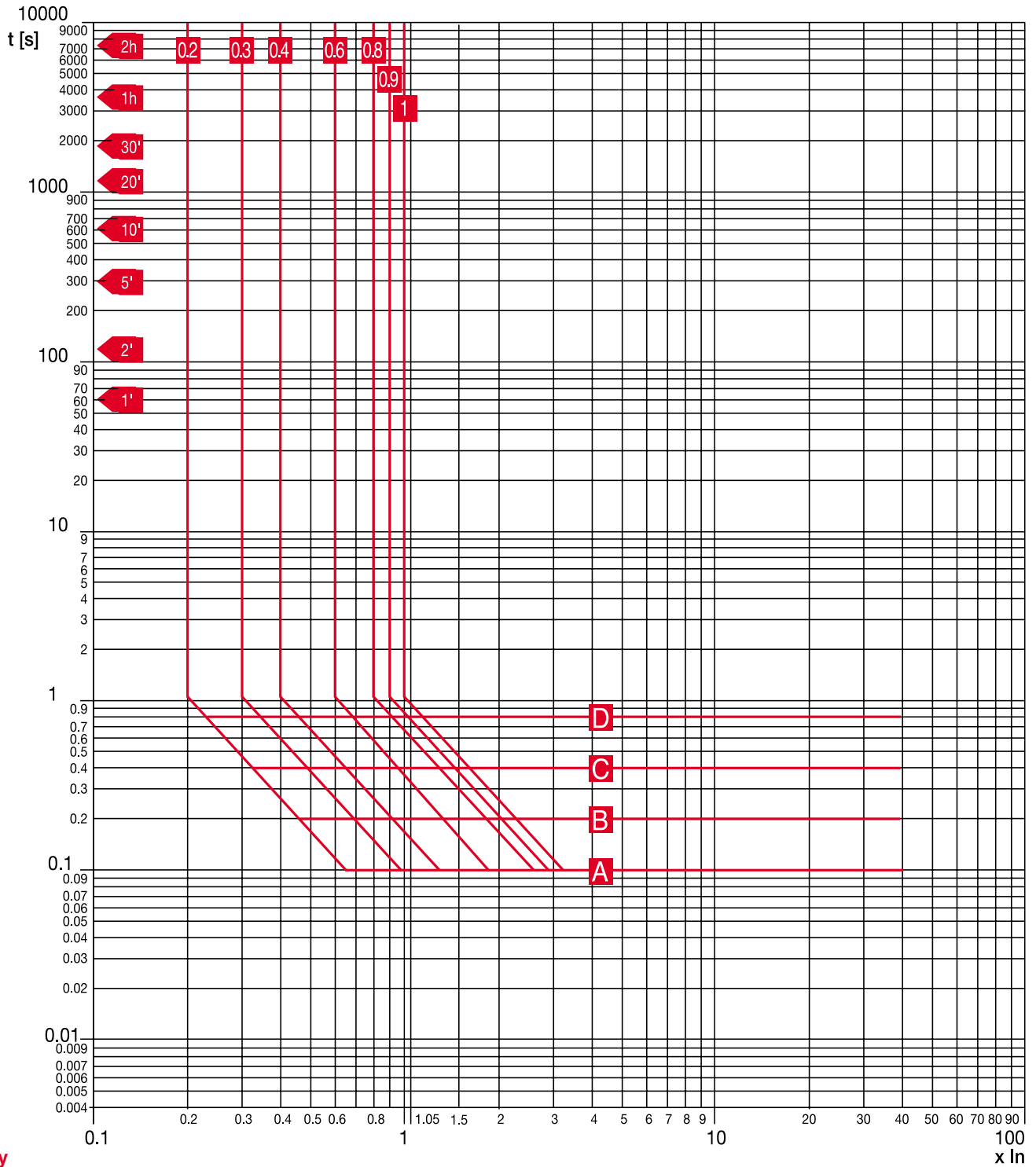
- I_n = Rated current of current transformers
- t = Tripping time

Protective releases

Microprocessor based overcurrent relays, PR212

Time-current curves, S4 – S8

Function G^①



Key
 I_n = Rated current of current transformers
 t = Tripping time

① S8 maximum setting is 0.4 per NEC guidelines.

Motor horsepower ratings

Magnetic trip

1/2HP @ 575V to 100HP @ 575V

Horsepower per NEC 430-50				Motor full Load amps	Isomax Type	MCP Rating	Approximate trip setting % of MFLA						
208V	230V	460V	575V				1.5X	2X	4X	6X	8X	10X	12X
			1/2	0.9	S3	3	—	—	1300	2000	2700	3400	4000
		1/2		1.1	S3	3	—	—	1100	1600	2200	3700	3300
			3/4	1.3	S3	3	—	—	900	1400	1800	2300	2800
		3/4		1.6	S3	3	—	—	800	1100	1500	1900	2300
			1	1.7	S3	3	—	—	700	1100	1400	1800	2100
		1		2.1	S3	5	—	—	1000	1400	1900	2400	2900
	1/2			2.2	S3	5	—	—	900	1400	1800	2300	2700
1/2			1 1/2	2.4	S3	5	—	—	800	1300	1700	2100	2500
			2	2.7	S3	5	—	—	700	1100	1500	1900	2200
		1 1/2		3	S3	5	—	—	700	1000	1300	1700	2000
	3/4			3.2	S3	5	—	—	600	900	1300	1600	1900
		2		3.4	S3	5	—	—	600	900	1200	1500	1800
3/4				3.5	S3	10	—	—	1100	1700	2300	2900	3400
			3	3.9	S3	10	—	—	1000	1500	2100	2600	3100
	1			4.2	S3	10	—	—	1000	1400	1900	2400	2900
1				4.6	S3	10	—	—	900	1300	1700	2200	2600
		3		4.8	S3	10	—	—	800	1300	1700	2100	2500
	1 1/2			6	S3	10	—	—	700	1000	1300	1700	2000
			5	6.1	S3	10	—	—	700	1000	1300	1600	2000
1 1/2				6.6	S3	10	—	—	600	900	1200	1500	1800
	2			6.8	S3	10	—	—	600	900	1200	1500	1800
				7.5	S3	25	—	—	1300	2000	2700	3300	4000
2		5		7.6	S3	25	—	—	1300	2000	2600	3300	3900
			7 1/2	9	S3	25	—	—	1100	1700	2200	2800	3300
	3			9.6	S3	25	—	—	1000	1600	2100	2600	3100
3				10.6	S3	25	—	—	900	1400	1900	2400	2800
		7 1/2	10	11	S3	25	—	—	900	1400	1800	2300	2700
		10		14	S3	25	—	—	700	1000	1400	1800	2100
	5			15.2	S3	25	—	—	700	1000	1300	1600	2000
5				16.7	S3	25	—	—	600	900	1200	1500	1800
			15	17	S3	25	—	—	600	900	1200	1500	1800
		15		21	S3	50	—	—	1000	1400	1900	2400	2800
	7 1/2		20	22	S3	50	—	—	900	1400	1800	2300	2700
7 1/2				24.2	S3	50	—	—	800	1200	1700	2100	2500
		20	25	27	S3	50	—	—	700	1100	1500	1900	2200
	10			28	S3	50	—	—	700	1100	1400	1800	2100
10				30.8	S3	50	—	—	600	1000	1300	1600	1900
		30		32	S3	50	—	—	600	900	1300	1600	1900
		25		34	S3	50	—	—	600	900	1200	1500	1800
		30		40	S3	100	—	—	1000	1500	2000	2500	3000
			40	41	S3	100	—	—	1000	1500	2000	2400	2900
	15			42	S3	100	—	—	1000	1400	1900	2400	2900
15				46.2	S3	100	—	—	900	1300	1700	2200	2600
		40	50	52	S3	100	—	—	800	1200	1500	1900	2300
	20			54	S3	100	—	—	700	1100	1500	1900	2200
20				59.4	S3	100	—	—	700	1000	1300	1700	2000
		60		62	S3	100	—	—	600	1000	1300	1600	1900
		50		65	S3	100	—	—	600	900	1200	1500	1800
	25			68	S3	100	—	—	600	900	1200	1500	1800
25				74.8	S3	150	—	—	800	1200	1600	2000	—
		60	75	77	S3	150	—	—	800	1200	1600	1900	—
	30			80	S3	150	—	—	800	1100	1500	1900	—
30				88	S3	150	—	—	700	1000	1400	1700	—
		75		96	S3	150	—	—	600	900	1300	1600	—
			100	99	S3	150	—	—	600	900	1200	1500	—

Isomax

Motor horsepower ratings
Electronic trip
40HP @ 230V to 500HP @ 460V

Horsepower per NEC 430-50				Motor full Load amps	Isomax Type	MCP Rating	Approximate trip setting % of MFLA						
208V	230V	460V	575V				1.5X	2X	4X	6X	8X	10X	12X
					Electronic trip		%	%	%	%	%	%	%
	40			104	S4	250	350	500	1000	1400	1900	2400	2900
40				114	S4	250	350	450	900	1300	1800	2200	2600
		100		124	S4	250	300	400	800	1200	1600	2000	2400
			125	125	S4	250	300	400	800	1200	1600	2000	2400
	50			130	S4	250	300	400	800	1200	1500	1900	2300
50				143	S4	250	250	350	700	1000	1400	1700	2100
			150	144	S4	250	250	350	700	1000	1400	1700	2100
	60			154	S4	250	250	300	600	1000	1300	1600	1900
		125		156	S4	250	250	300	600	1000	1300	1600	1900
60				169	S4	250	200	300	600	900	1200	1500	1800
		150		180	S5	400	350	450	900	1300	1800	2200	2700
	75			192	S5	400	300	400	800	1300	1700	2100	2500
75				211	S5	400	300	400	800	1100	1500	1900	2300
		200		240	S5	400	250	350	700	1000	1300	1700	2000
			250	242	S5	400	250	350	700	1000	1300	1700	2000
	100			248	S5	400	250	300	600	1000	1300	1600	1900
100				273	S6	600	350	450	900	1300	1800	2200	2600
			300	289	S6	600	300	400	800	1200	1700	2100	2500
		250		302	S6	600	300	400	800	1200	1600	2000	2400
	125			312	S6	600	300	400	800	1200	1500	1900	2300
			350	336	S6	600	250	350	700	1100	1400	1800	2100
125				343	S6	600	250	350	700	1100	1400	1700	2100
	150			360	S6	600	250	350	700	1000	1300	1700	2000
		300		361	S6	600	250	350	700	1000	1300	1700	2000
			400	362	S6	600	250	300	600	900	1300	1600	1900
150				396	S6	600	250	300	600	900	1200	1500	1800
			450	412	S6	800	300	400	800	1200	1600	1900	2300
		350		414	S6	800	300	400	800	1200	1600	1900	2300
			500	472	S6	800	250	350	700	1000	1400	1700	2000
		400		477	S6	800	250	350	700	1000	1300	1700	2000
	200			480	S6	800	250	350	700	1000	1300	1700	2000
		450		515	S6	800	250	300	600	900	1200	1600	1900
200				528	S6	800	250	300	600	900	1200	1500	1800
		500		590	S7	1000	250	350	700	1000	1400	1700	2000

Isomax

Notes



Isomax

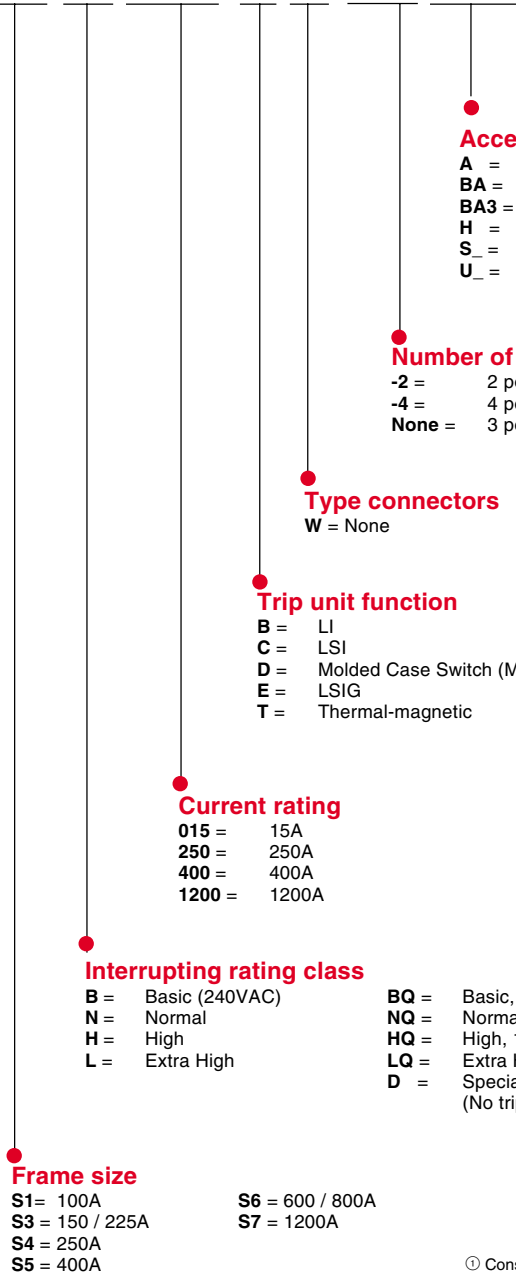
Molded case circuit breakers

S1 – S8



Isomax

S4 N 250 BW - 2xxx



Accessories (added in alpha-numeric order) [Ⓞ]

- A** = Auxiliary Switch
- BA** = Bell Alarm
- BA3** = Bell Alarm (S6/S7 only)
- H** = Fixed Rotary Handle mounted on CB
- S_** = Shunt trip with voltage code
- U_** = Undervoltage release with voltage code

Number of poles

- 2** = 2 pole
- 4** = 4 pole
- None** = 3 pole

Type connectors

- W** = None

Trip unit function

- | | |
|-------------------------------------|--------------------------------|
| B = LI | F = LSIG/K |
| C = LSI | H = LSIG/D |
| D = Molded Case Switch (MCS) | J = LSIG/DT |
| E = LSIG | K = LSIG/DTK |
| T = Thermal-magnetic | M = Magnetic only (MCP) |

Current rating

- 015** = 15A
- 250** = 250A
- 400** = 400A
- 1200** = 1200A

Interrupting rating class

- | | |
|---------------------------|---|
| B = Basic (240VAC) | BQ = Basic, 100% rated |
| N = Normal | NQ = Normal, 100% rated |
| H = High | HQ = High, 100% rated |
| L = Extra High | LQ = Extra High, 100% rated |
| | D = Special molded case switch (No trip IEC) |

Frame size

- | | |
|------------------------|------------------------|
| S1 = 100A | S6 = 600 / 800A |
| S3 = 150 / 225A | S7 = 1200A |
| S4 = 250A | |
| S5 = 400A | |

[Ⓞ] Consult ABB for factory installed accessories.



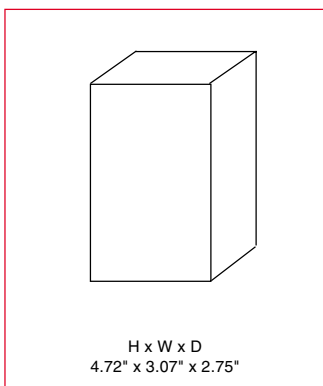
S1

100A

Standard thermal-magnetic



S1



H x W x D
4.72" x 3.07" x 2.75"

General

The S1 breaker family ranges from 15 through 100 amperes. The S1 trip mechanisms are non-interchangeable and use sensitive electromagnetic relays for overcurrent trip protection. Heat sensitive bimetal are used for thermal rating of the breaker. Lugs are included with the S1 breaker.

Number of poles

The S1 is available in three pole or four pole versions. The four pole version is IEC only. For price estimate of a four pole device, add 35% to list price of selected version three pole breaker, contact ABB Control for details.

Accessory mounting

Shunt trips or undervoltage releases mount in the left cavity. Auxiliary or bell alarm switches mount in the right cavity.

Reverse feeding

All versions of the S1 family are suitable for reverse feed applications.

UL489 / CSA C22.2 Interrupting capacity (kA RMS)

Voltage	Continuous rating	N
240VAC	15 – 100A	50kA
277/480VAC	15A 20 – 100A	14kA 20kA

IEC-947 Interrupting capacity (kA RMS)

Voltage	Continuous rating	N
230VAC 380/400/415VAC 440VAC 500VAC	15 – 100A	40kA 25kA 16kA 12kA

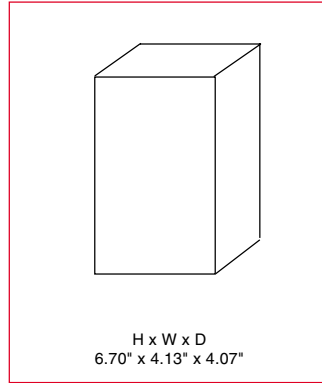
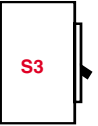
S1N

Breaker	IC at 480 VAC	Rating	Magnetic	3 pole catalog number	List price
S1N	14kA	15A	500A	S1N015TL	\$ 392
		20A 25A 30A 40A 50A 60A	500A 500A 500A 500A 500A 600A	S1N020TL S1N025TL S1N030TL S1N040TL S1N050TL S1N060TL	392
	20kA	70A 80A 90A 100A	700A 800A 900A 1000A	S1N070TL S1N080TL S1N090TL S1N100TL	459

S3

150/225A

Standard thermal-magnetic



Standard S3 package includes complete circuit breaker and mounting hardware. **Order cable lugs as a separate item, copper/aluminum (Cu/Al) lugs are no charge when ordered with breaker.**

General

The S3 breaker family ranges from 15 through 225 amperes. The S3 trip mechanisms are non-interchangeable and use sensitive electromagnetic relays for overcurrent trip protection. Heat sensitive bimetal are used for thermal overcurrent protection. Short circuit current protection begins at 10 times the thermal rating of the breaker and uses a magnetic coil principle.

Versions

To meet all application needs, the S3 is available in various versions:

- T = Thermal-magnetic
- Q = 100% UL rated
- D = Molded case switch
- M = Magnetic only (MCP)

Performance level

Each version is also available in different maximum fault interrupting levels

- B = 240VAC
- N = Normal
- H = High
- L = Extra high

Number of poles

In UL/CSA form, the S3 is available in two pole or three pole versions, both with the same dimensions. A four pole version is also available in IEC form. For price estimate, add 35% to list price of selected version three pole breaker, contact ABB Control for details.

Accessory mounting

Internal accessories are UL/CSA approved for both factory or field installation. Accessories require control cable connectors. Shunt trips or UVR's mount in the left cavity. Auxiliary or bell alarm switches mount in the right cavity.

Reverse feeding

All versions of the S3 family are suitable for reverse feed applications.

Molded case switches

UL1087 switches include no overcurrent protection except for a high instantaneous trip mechanism for self protection. IEC type molded case switches with no trip protection are also available.

UL/CSA Interrupting capacity (kA RMS) UL489 / CSA C22.2

Voltage	N	H	L
240VAC	65	100	150
480VAC	25	50	85 ^①
600VAC	14	14	25
500VDC	35	50	65
600VDC	20	35	50

IEC-947 Interrupting capacity (kA RMS)

Voltage	N	H	L
230VAC	65	100	170
380/400/415VAC	35	65	85
440VAC	30	50	65
500VAC	25	40	50
690VAC	14	18	20
500VDC	35	50	65
750VDC	20	35	50

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① 15-30A are 65kA at 480VAC



S3

150/225A

Standard thermal-magnetic

S3B

Breaker	IC at 240VAC	Rating	Magnetic trip	2 pole, 240VAC catalog number	List price	3 pole, 240VAC catalog number	List price
S3B	150kA	175A 200A 225A	1750A 2000A 2250A	S3B175TW-2 S3B200TW-2 S3B225TW-2	\$ 460	S3B175TW S3B200TW S3B225TW	\$ 590

S3N

Breaker	IC at 480VAC	Rating	Magnetic trip	2 pole, 480VAC/500VDC catalog number	List price	3 pole, 600VAC/DC catalog number	List price
S3N	25kA	15A	500A	S3N015TW-2	\$ 316	S3N015TW	\$ 413
		20A	500A	S3N020TW-2		S3N020TW	
		25A	500A	S3N025TW-2		S3N025TW	
		30A	500A	S3N030TW-2		S3N030TW	
		35A	500A	S3N035TW-2		S3N035TW	
		40A	500A	S3N040TW-2		S3N040TW	
		50A	500A	S3N050TW-2	S3N050TW		
		60A	600A	S3N060TW-2	S3N060TW		
		70A	700A	S3N070TW-2	S3N070TW	504	
		80A	800A	S3N080TW-2	S3N080TW		
		90A	900A	S3N090TW-2	S3N090TW		
		100A	1000A	S3N100TW-2	S3N100TW		
125A	1250A	S3N125TW-2	S3N125TW	911	S3N125TW	1131	
150A	1500A	S3N150TW-2	S3N150TW				
175A ^①	1750A	S3N175TW-2	S3N175TW				
200A ^①	2000A	S3N200TW-2	S3N200TW				
225A ^①	2250A	S3N225TW-2	S3N225TW				

S3H

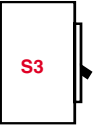
Breaker	IC at 480VAC	Rating	Magnetic trip	2 pole, 480VAC/500VAC catalog number	List price	3 pole, 600VAC/DC catalog number	List price	
S3H	50kA	15A	500A	S3H015TW-2	\$ 527	S3H015TW	\$ 619	
		20A	500A	S3H020TW-2		S3H020TW		
		25A	500A	S3H025TW-2		S3H025TW		
		30A	500A	S3H030TW-2		S3H030TW		
		35A	500A	S3H035TW-2		S3H035TW		
		40A	500A	S3H040TW-2		S3H040TW		
		50A	500A	S3H050TW-2	S3H050TW			
		60A	600A	S3H060TW-2	S3H060TW			
		70A	700A	S3H070TW-2	S3H070TW	617	S3H070TW	702
		80A	800A	S3H080TW-2	S3H080TW			
		90A	900A	S3H090TW-2	S3H090TW			
		100A	1000A	S3H100TW-2	S3H100TW			
125A	1250A	S3H125TW-2	S3H125TW	1376	S3H125TW	1586		
150A	1500A	S3H150TW-2	S3H150TW					
175A ^①	1750A	S3H175TW-2	S3H175TW					
200A ^①	2000A	S3H200TW-2	S3H200TW					
225A ^①	2250A	S3H225TW-2	S3H225TW					

S3L

Breaker	IC at 480VAC	Rating	Magnetic trip	2 pole, 480VAC/500VAC catalog number	List price	3 pole, 600VAC/DC catalog number	List price
S3L	65kA	15A	500A	S3L015TW-2	\$ 634	S3L015TW	\$ 824
		20A	500A	S3L020TW-2		S3L020TW	
		25A	500A	S3L025TW-2		S3L025TW	
		30A	500A	S3L030TW-2		S3L030TW	
	85kA	35A	500A	S3L035TW-2	634	S3L035TW	824
		40A	500A	S3L040TW-2		S3L040TW	
		50A	500A	S3L050TW-2		S3L050TW	
		60A	600A	S3L060TW-2		S3L060TW	
		70A	700A	S3L070TW-2	816	S3L070TW	1010
		80A	800A	S3L080TW-2		S3L080TW	
		90A	900A	S3L090TW-2		S3L090TW	
		100A	1000A	S3L100TW-2		S3L100TW	
125A	1250A	S3L125TW-2	1818	S3L125TW	2260		
150A	1500A	S3L150TW-2		S3L150TW			
175A ^①	1750A	S3L175TW-2		S3L175TW			
200A ^①	2000A	S3L200TW-2		S3L200TW			
225A ^①	2250A	S3L225TW-2		S3L225TW			

① 480VAC maximum

S3
150/225A
100% UL rated



S3NQ

Breaker	IC at 480VAC	Rating	Magnetic trip	3 pole 600VAC/DC catalog number	List price
S3NQ	25kA	15A	500A	S3NQ015TW	\$ 459
		20A	500A	S3NQ020TW	
		25A	500A	S3NQ025TW	
		30A	500A	S3NQ030TW	
		35A	500A	S3NQ035TW	
		40A	500A	S3NQ040TW	
		50A	500A	S3NQ050TW	560
		60A	600A	S3NQ060TW	
		70A	700A	S3NQ070TW	
		80A	800A	S3NQ080TW	1257
		90A	900A	S3NQ090TW	
		100A	1000A	S3NQ100TW	
		125A	1250A	S3NQ125TW	
		150A	1500A	S3NQ150TW	
		175A [Ⓞ]	1750A	S3NQ175TW	
200A [Ⓞ]	2000A	S3NQ200TW			
225A [Ⓞ]	2250A	S3NQ225TW			

S3HQ

Breaker	IC at 480VAC	Rating	Magnetic trip	3 pole catalog number	List price
S3HQ	50kA	15A	500A	S3HQ015TW	\$ 688
		20A	500A	S3HQ020TW	
		25A	500A	S3HQ025TW	
		30A	500A	S3HQ030TW	
		35A	500A	S3HQ035TW	
		40A	500A	S3HQ040TW	
		50A	500A	S3HQ050TW	780
		60A	600A	S3HQ060TW	
		70A	700A	S3HQ070TW	
		80A	800A	S3HQ080TW	1762
		90A	900A	S3HQ090TW	
		100A	1000A	S3HQ100TW	
		125A	1250A	S3HQ125TW	
		150A	1500A	S3HQ150TW	
		175A [Ⓞ]	1750A	S3HQ175TW	
200A [Ⓞ]	2000A	S3HQ200TW			
225A [Ⓞ]	2250A	S3HQ225TW			

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S3LQ

Breaker	IC at 480VAC	Rating	Magnetic trip	3 pole catalog number	List price
S3LQ	65kA	15A	500A	S3LQ015TW	\$ 916
		20A	500A	S3LQ020TW	
		25A	500A	S3LQ025TW	
		30A	500A	S3LQ030TW	
		35A	500A	S3LQ035TW	
	85kA	40A	500A	S3LQ040TW	1123
		50A	500A	S3LQ050TW	
		60A	600A	S3LQ060TW	
		70A	700A	S3LQ070TW	2511
		80A	800A	S3LQ080TW	
		90A	900A	S3LQ090TW	
		100A	1000A	S3LQ100TW	
		125A	1250A	S3LQ125TW	
		150A	1500A	S3LQ150TW	
		175A [Ⓞ]	1750A	S3LQ175TW	
200A [Ⓞ]	2000A	S3LQ200TW			
225A [Ⓞ]	2250A	S3LQ225TW			

Note: When applied correctly, UL tested 100% equipment rated breakers may be applied at full rating rather than on the sizing rules of the NEC where breakers and cable are sized based on actual continuous load current divided by 80%. This 100% rating can save the user the cost of larger cable or bus bar. Please consult the NEC for details and other design factors needed for this application.

Ⓞ 480VAC maximum



S3

150/225A, 600VAC

Magnetic only (MCP)

Magnetic only circuit breakers are instantaneous trip only devices which are Underwriters Laboratories Recognized. MCPs must be used with some other device that will provide overload protection.

Type	Interruption capacity		Amps	Magnetic trip	3 pole catalog number	List price	
S3N	240VAC	35kA	3	12 – 36	S3N003MW S3N005MW S3N010MW	\$ 568	
	480VAC	18kA					
	600VAC	10kA					
	240VAC	35kA	25	100 – 300	S3N025MW		
	480VAC	18kA					
	600VAC	10kA					
	240VAC	75kA	50	200 – 600	S3N050MW S3N100MW S3N125MW S3N150MW		633
	480VAC	35kA					763
	600VAC	14kA					929
		125				929	
		150				929	

Type	Interruption capacity		Amps	Magnetic trip	3 pole catalog number	List price		
S3L	240VAC	50kA	3	12 – 36	S3L003MW S3L005MW S3L010MW	\$ 710		
	480VAC	25kA						
	600VAC	10kA						
	240VAC	50kA	25	100 – 300	S3L025MW			
	480VAC	25kA						
	600VAC	10kA						
	240VAC	150kA	50	200 – 600	S3L050MW S3L100MW S3L125MW S3L150MW		710	
	480VAC	85kA					843	
	600VAC	25kA					1910	
							125	1910
							150	1910
		480VAC	65kA	200 ②	800 – 2400		S3L200MW	1910

Molded case switches

Type	Interruption capacity		Amps	Magnetic trip	3 pole catalog number	List price
S3B-D	240VAC	150KA	225	2250A	S3B225DW	\$ 410
S3H-D	240VAC	100kA	150	1500A 2250A	S3H150DW S3H225DW	892 1254
	480VAC	50kA				
	600VAC	14kA				
	500VDC	65kA				
	600VDC	50kA				
Non-UL switches without overcurrent protection	Withstand rating		100 160 250	none none none	S3D100W S3D160W S3D250W	531 892 1393
	600VAC	6.5kA				

Connection options

Type	Wire range	Amps①	Set of 2 catalog number	List price	Set of 3 catalog number	List price
CU/AL front lugs	14AWG – 2AWG	60	K3TA-2	\$ 4	K3TA	\$ 6
CU/AL front lugs	14AWG – 1/0	100	K4TB-2	4	K4TB	6
CU/AL front lugs	2AWG – 4/0	150	K4TC-2	4	K4TC	6
CU/AL front lugs	4AWG – 300kcmil	225	K4TD-2	10	K4TD	15
CU front lugs (saddle)	14AWG – 250kcmil	250	—	—	Set of 6 catalog number K4TES	30
CU rear lugs	6AWG – 350kcmil	250	—	—	K4TER	
Extended front bar	—	250	—	—	K4ET-250	

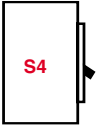
① Suggested lugs for circuit breaker up to amps shown. Cable size and type determine maximum amperage.

② 480VAC maximum.

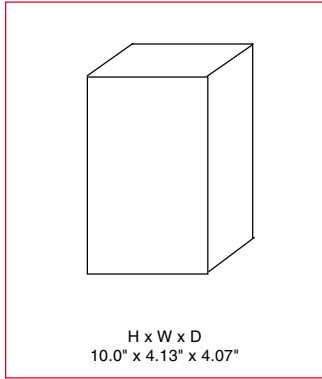
S4

250A, 600VAC

Electronic trip type



S4



H x W x D
10.0" x 4.13" x 4.07"

Standard S4 package includes complete circuit breaker and mounting hardware. **Order cable lugs or other connection scheme as a separate item.**

General

The S4 breaker family is a 250A frame utilizing a microprocessor based overcurrent protective trip system. In the 250A version, the trip unit is adjustable from 100A up to 250A without the addition of any parts or rating plugs. As standard, the S4 includes adjustable long time function for overload protection and adjustable instantaneous function for short circuit protection.

Versions

To meet all application needs, the S4 is available in various versions:

- B = Adjustment LI
- C = Adjustment LSI
- E = Adjustment LSI G
- Q = 100% UL rated
- D = Molded case switch
- M = Magnetic only (MCP)

Trip functions

These tripping functions are available:

- L = Long time
- I = Instantaneous
- S = Short time
- G = Ground fault

Performance level

Each version is also available in different maximum fault interrupting levels:

- N = Normal
- H = High
- L = Extra high

Number of poles

In UL/CSA form, the S4 is available in two pole or three pole versions, both with the same dimensions. A four pole version is also available in UL/IEC form. For price estimate, add 35% to list price of selected version three pole breaker, contact ABB Control for details.

Accessory mounting

Internal accessories are UL/CSA approved for both factory or field installation. Accessories require control cable connectors. Shunt trips or UVR's mount in the left cavity. Auxiliary or bell alarm switches mount in the right cavity.

Reverse feeding

All versions of the S4 family are suitable for reverse feed applications.

Molded case switches

UL1087 switches include no overcurrent protection except for a high instantaneous trip mechanism for self protection.

UL/CSA Interrupting capacity (kA RMS)

UL489 / CSA C22.2

Voltage	N	H	L
240VAC	65	150	200
480VAC	25	65	100
600VAC	18	22	35

IEC-947 Interrupting capacity (kA RMS)

Voltage	N	H	L
230VAC	65	150	200
380/400/415VAC	35	65	100
440VAC	30	50	80
500VAC	25	40	65
690VAC	18	22	30



S4 250A, 600VAC Electronic trip type

The S4 breaker family uses two available microprocessor based internal trip units. The standard **PR211** trip unit includes adjustments for long time current pick-up and instantaneous current trip point.

The optional **PR212** trip unit includes adjustments for long time current pick-up/delay, short time pick-up/delay I^2t (on/off), instantaneous current trip point and further optional ground fault protection.

100A Frame (40 – 100A adjustable continuous range)

Breaker	IC at 480VAC	Trip type	Adjustment	2 pole catalog number	List price	3 pole catalog number	List price
S4N	25kA	PR211	LI	S4N100BW-2	\$ 1073	S4N100BW	\$ 1347
		PR212	LSI	S4N100CW-2	1679	S4N100CW	1913
		PR212	LSIG	—	—	S4N100EW	2813
S4H	65kA	PR211	LI	S4H100BW-2	2572	S4H100BW	3030
		PR212	LSI	S4H100CW-2	3138	S4H100CW	3596
		PR212	LSIG	—	—	S4H100EW	4496
S4L	100kA	PR211	LI	S4L100BW-2	3159	S4L100BW	3950
		PR212	LSI	S4L100CW-2	3725	S4L100CW	4516
		PR212	LSIG	—	—	S4L100EW	5416

250A Frame (100 – 250A adjustable continuous range)

Breaker	IC at 480VAC	Trip type	Adjustment	2 pole catalog number	List price	3 pole catalog number	List price
S4N	25kA	PR211	LI	S4N250BW-2	\$ 1073	S4N250BW	\$ 1347
		PR212	LSI	S4N250CW-2	1679	S4N250CW	1913
		PR212	LSIG	—	—	S4N250EW	2813
S4H	65kA	PR211	LI	S4H250BW-2	2572	S4H250BW	3030
		PR212	LSI	S4H250CW-2	3138	S4H250CW	3596
		PR212	LSIG	—	—	S4H250EW	4496
S4L	100kA	PR211	LI	S4L250BW-2	3159	S4L250BW	3950
		PR212	LSI	S4L250CW-2	3725	S4L250CW	4516
		PR212	LSIG	—	—	S4L250EW	5416

Trip settings

Adjustment	Trip function	Range	Individual settings
L	Long time pick-up	0.4 – 1.0	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1.0 x Frame rating A - B - C - D
	Long time delay	3.0 – 18 sec.	
S	Short time pick-up	1.0 – 10.0	Off-1.0-2.0-3.0-4.0-6.0-8.0-10.0 x Frame rating A - B - C - D (I^2t On-Off)
	Short time delay	0.05 – 0.5 sec.	
I	Instantaneous trip	1.5 – 12.0	1.5-2.0-4.0-6.0-8.0-10.0-12.0 x Frame rating
G	Ground fault	0.2 – 1.0	Off-0.2-0.3-0.4-0.6-0.8-0.9-1.0 x Frame rating A - B - C - D
	Ground fault delay	0.1 – 0.8 sec.	

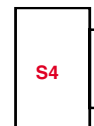
Continuous amperage settings (long time adjustment)

Frame	Set points								Setting
	0.4	0.5	0.6	0.7	0.8	0.9	0.95	1.0	
100A	40	50	60	70	80	90	95	100	Amps
250A	100	125	150	175	200	225	237	250	Amps

S4

250A, 600 VAC

100% UL rated



When applied correctly, UL tested 100% equipment rated breakers may be applied at full rating rather than on the sizing rules of the NEC where breakers and cable are sized based on actual continuous load current divided by 80%.

This 100% rating can save the user the cost of larger cable or bus bar. Please consult the NEC for details and other design factors needed for this application.

100A Frame (40 – 100A adjustable continuous range)

Breaker	IC at 480VAC	Trip type	Adjustment	3 pole catalog number	List price
S4N	25kA	PR211	LI	S4NQ100BW	\$ 1482
		PR212	LSI	S4NQ100CW	2104
		PR212	LSIG	S4NQ100EW	3094
S4H	65kA	PR211	LI	S4HQ100BW	3333
		PR212	LSI	S4HQ100CW	3956
		PR212	LSIG	S4HQ100EW	4946
S4L	100kA	PR211	LI	S4LQ100BW	4345
		PR212	LSI	S4LQ100CW	4968
		PR212	LSIG	S4LQ100EW	5958

250A Frame (100 – 250A adjustable continuous range)

Breaker	IC at 480VAC	Trip type	Adjustment	3 pole catalog number	List price
S4N	25kA	PR211	LI	S4NQ250BW	\$ 1482
		PR212	LSI	S4NQ250CW	2104
		PR212	LSIG	S4NQ250EW	3094
S4H	65kA	PR211	LI	S4HQ250BW	3333
		PR212	LSI	S4HQ250CW	3956
		PR212	LSIG	S4HQ250EW	4946
S4L	100kA	PR211	LI	S4LQ250BW	4345
		PR212	LSI	S4LQ250CW	4968
		PR212	LSIG	S4LQ250EW	5958

Trip settings

Adjustment	Trip function	Range	Individual settings
L	Long time pick-up	0.4 – 1.0	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1.0 x Frame rating
	Long time delay	3.0 – 18 sec.	A - B - C - D
S	Short time pick-up	1.0 – 10.0	Off-1.0-2.0-3.0-4.0-6.0-8.0-10.0 x Frame rating
	Short time delay	0.05 – 0.5 sec.	A - B - C - D (I ² t On-Off)
I	Instantaneous trip	1.5 – 12.0	1.5-2.0-4.0-6.0-8.0-10.0-12.0 x Frame rating
G	Ground fault	0.2 – 1.0	Off-0.2-0.3-0.4-0.6-0.8-0.9-1.0 x Frame rating
	Ground fault delay	0.1 – 0.8 sec.	A - B - C - D

Isomax



S4

250A, 600VAC

Magnetic only (MCP)

All S4 magnetic only breakers utilize the electronic PR211 trip unit with an adjustable range of 1.5 to 12 times frame rating. Both two and three pole MCPs are 600VAC rated.

Type	Amps	Interruption capacity	Adjustment range	2 pole 600VAC catalog number	List price	3 pole 600VAC catalog number	List price
S4N	100 250	240VAC 65kA 480VAC 25kA 600VAC 18kA	150 – 1200A 375 – 3000A	S4N100MW-2 S4N250MW-2	\$ 1073	S4N100MW S4N250MW	\$ 1347
S4H	100 250	240VAC 150kA 480VAC 65kA 600VAC 22kA	150 – 1200A 375 – 3000A	S4H100MW-2 S4H250MW-2	2572	S4H100MW S4H250MW	3030
S4L	100 250	240VAC 200kA 480VAC 100kA 600VAC 35kA	150 – 1200A 375 – 3000A	S4L100MW-2 S4L250MW-2	3159	S4L100MW S4L250MW	3950

Molded case switch

Type	Interruption capacity	Amps	Magnetic trip	3 pole catalog number	List price
S4H-D	240VAC 150kA 480VAC 65kA 600VAC 22kA	250	3000A	S4H250DW	\$ 1215

Neutral GF current transformer (required for 4 wire GF systems)

Amps	Catalog number	List price
100	K4NCT-100	\$ 250
250	K4NCT-250	

Connection options

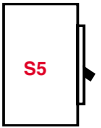
Type	Wire range	Amps ①	Set of 2 catalog number	List price	Set of 3 catalog number	List price
CU/AL front lugs	14AWG – 1/0	100	K4TB-2	\$ 4	K4TB	\$ 6
CU/AL front lugs	2AWG – 4/0	150	K4TC-2	4	K4TC	6
CU/AL front lugs	4AWG – 300kcmil	225	K4TD-2	10	K4TD	15
CU/AL front lugs	6AWG – 350kcmil	250	K4TE-2	20	K4TE	30
CU front lugs (saddle)	14AWG – 250kcmil	250	—	—	Set of 6 catalog number K4TES	30
CU rear lugs	6AWG – 250kcmil	250	—	—	K4TER	
Extended front bar	—	250	—	—	K4ET-250	

① Suggested lugs for a circuit breaker up to the amps shown. Cable size and type determine maximum amperage.

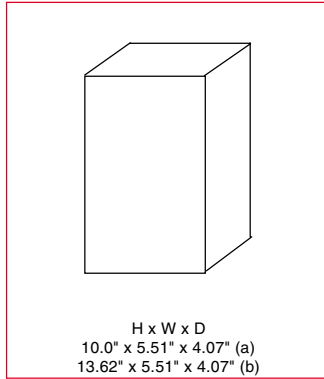
S5

400A, 600V

Electronic and thermal-magnetic trip types



S5



H x W x D
10.0" x 5.51" x 4.07" (a)
13.62" x 5.51" x 4.07" (b)

Standard S5 package includes complete circuit breaker and mounting hardware. **Order cable lugs or other connection scheme as a separate item.**

- (a) With K5TF cable lugs, breaker is 10.0" tall.
- (b) With K5TG cable lugs, terminal covers are provided and breaker is 13.62" tall.

General

The S5 breaker family is a 400A frame utilizing a microprocessor-based overcurrent protective trip system. In the 400A version, the trip unit is adjustable from 160A up to 400A without the addition of any parts or rating plugs. As standard the S5 includes adjustable long time function for overload protection and adjustable instantaneous function for short circuit protection.

Versions

To meet all application needs, the S5 is available in various versions:

- B = Adjustment LI
- C = Adjustment LSI
- E = Adjustment LSI G
- Q = 100% UL rated
- D = Molded case switch
- M = Magnetic only (MCP)
- T = Thermal magnetic

Trip functions

These tripping functions are available:

- L = Long time
- S = Short time
- I = Instantaneous
- G = Ground fault

Performance level

Each version is also available in different maximum fault interrupting levels

- N = Normal
- H = High
- L = Extra high

Number of poles

In UL/CSA version, the S5 is available in two pole or three pole version, both with the same dimensions. A four pole version is also available in UL/IEC form. For price estimate, add 35% to list price of selected version three pole breaker, contact ABB Control for details.

Accessory mounting

Internal accessories are UL/CSA approved for both factory or field installation. Accessories require control cable connectors. Shunt trips or UVR's mount in the left cavity. Auxiliary or bell alarm switches mount in the right cavity.

Reverse feeding

All versions of the S5 family are suitable for reverse feed applications.

Molded case switches

UL1087 switches include no overcurrent protection except for a high instantaneous trip mechanism for self protection.

UL/CSA Interrupting capacity (kA RMS) UL489 / CSA C22.2

Voltage	N	H	L
240VAC	65	150	200
480VAC	35	65	100
600VAC	22	22	35
500VDC [Ⓞ]	35	50	65
600VDC [Ⓞ]	20	35	50

IEC-947 Interrupting capacity (kA RMS)

Voltage	N	H	L
230VAC	65	100	200
380/400/415VAC	35	65	100
440VAC	30	50	80
500VAC	25	40	65
690VAC	20	25	30

[Ⓞ] Thermal magnetic only.



S5

400A, 600 VAC

Electronic and thermal-magnetic trip types

The S5 breaker family uses two available microprocessor based internal trip units. The standard **PR211** trip unit includes adjustments for long time current pick-up and instantaneous current trip point.

The optional **PR212** trip unit includes adjustments for long time current pick-up/delay, short time pick-up/delay, I²t (on/off), instantaneous current trip point and further optional ground fault protection.

400A Frame (160 – 400A adjustable continuous range)

Breaker	IC at 480VAC	Trip	Adjustment	2 pole, 600VAC catalog number	List price	3 pole, 600VAC catalog number	List price
S5N	35kA	PR211	LI	S5N400BW-2	\$ 1798	S5N400BW	\$ 2151
		PR212	LSI	S5N400CW-2	2464	S5N400CW	2817
		PR212	LSIG	—	—	S5N400EW	3717
S5H	65kA	PR211	LI	S5H400BW-2	3285	S5H400BW	3654
		PR212	LSI	S5H400CW-2	3951	S5H400CW	4320
		PR212	LSIG	—	—	S5H400EW	5220
S5L	100kA	PR211	LI	S5L400BW-2	3945	S5L400BW	4733
		PR212	LSI	S5L400CW-2	4611	S5L400CW	5399
		PR212	LSIG	—	—	S5L400EW	6299

Trip settings

Adjustment	Trip function	Range	Individual settings
L	Long time pick-up	0.4 – 1.0	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1.0 x Frame rating A - B - C - D
	Long time delay	3.0 – 18 sec.	
S	Short time pick-up	1.0 – 10.0	Off-1.0-2.0-3.0-4.0-6.0-8.0-10.0 x Frame rating A - B - C - D (I ² t On-Off)
	Short time delay	0.05 – 0.5 sec.	
I	Instantaneous trip	1.5 – 12.0	1.5-2.0-4.0-6.0-8.0-10.0-12.0 x Frame rating
G	Ground fault	0.2 – 1.0	Off-0.2-0.3-0.4-0.6-0.8-0.9-1.0 x Frame rating A - B - C - D
	Ground fault delay	0.1 – 0.8 sec.	

Continuous amperage settings (long time adjustment)

Frame	Set points									Setting
	0.4	0.5	0.6	0.7	0.8	0.9	0.95	1.0		
400A	160	200	240	280	320	360	380	400	Amps	

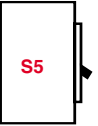
S5 thermal-magnetic breakers, for AC and DC applications

Breaker	IC at 500VDC	Rating	Magnetic trip	2 pole, 600VAC/500VDC catalog number	List price	3 pole, 600VAC/DC catalog number	List price
S5N	35kA	300A (210 – 300A)	3000A	S5N300TW-2	\$ 1798	S5N300TW	\$ 2151
		400A (280 – 400A)	4000A	S5N400TW-2		S5N400TW	
S5H	50kA	300A (210 – 300A)	3000A	S5H300TW-2	3285	S5H300TW	3654
		400A (280 – 400A)	4000A	S5H400TW-2		S5H400TW	
S5L	65kA	300A (210 – 300A)	3000A	S5L300TW-2	3945	S5L300TW	4733
		400A (280 – 400A)	4000A	S5L400TW-2		S5L400TW	

S5

400A, 600 VAC

100% UL rated, electronic trip type



When applied correctly, UL tested 100% equipment rated breakers may be applied at full rating rather than on the sizing rules of the NEC where breakers and cable are sized based on actual continuous load current divided by 80%.

This 100% rating can save the user the cost of larger cable or bus bar. Please consult the NEC for details and other design factors needed for this application.

400A Frame (160 – 400A adjustable continuous range)

Breaker	IC at 480VAC	Trip type	Adjustment	3 pole, 600VAC catalog number	List price
S5N	35kA	PR211	LI	S5NQ400BW	\$ 2366
		PR212	LSI	S5NQ400CW	3099
		PR212	LSIG	S5NQ400EW	4089
S5H	65kA	PR211	LI	S5HQ400BW	4019
		PR212	LSI	S5HQ400CW	4752
		PR212	LSIG	S5HQ400EW	5742
S5L	100kA	PR211	LI	S5LQ400BW	5206
		PR212	LSI	S5LQ400CW	5939
		PR212	LSIG	S5LQ400EW	6929

Trip settings

Adjustment	Trip function	Range	Individual settings
L	Long time pick-up	0.4 – 1.0	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1.0 x Frame rating A - B - C - D
	Long time delay	3.0 – 18 sec.	
S	Short time pick-up	1.0 – 10.0	Off-1.0-2.0-3.0-4.0-6.0-8.0-10.0 x Frame rating A - B - C - D (I ² t On-Off)
	Short time delay	0.05 – 0.5 sec.	
I	Instantaneous trip	1.5 – 12.0	1.5-2.0-4.0-6.0-8.0-10.0-12.0 x Frame rating
G	Ground fault	0.2 – 1.0	Off-0.2-0.3-0.4-0.6-0.8-0.9-1.0 x Frame rating A - B - C - D
	Ground fault delay	0.1 – 0.8 sec.	



S5 400A, 600VAC

Magnetic only (MCP)

All S5 magnetic only breakers utilize the electronic PR211 trip unit with an adjustable range of 1.5 to 12 times frame rating. Both two and three pole MCP's are 600VAC rated.

Type	Amps	Interruption capacity		Adjustment range	2 pole 600VAC catalog number	List price	3 pole 600VAC catalog number	List price
S5N	400	240 VAC 480VAC 600VAC	65kA 35kA 22kA	600 – 4800A	S5N400MW-2	\$ 1798	S5N400MW	\$ 2151
S5H	400	240VAC 480VAC 600VAC	150kA 65kA 22kA	600 – 4800A	S5H400MW-2	3285	S5H400MW	3654
S5L	400	240VAC 480VAC 600VAC	200kA 100kA 35kA	600 – 4800A	S5L400MW-2	3945	S5L400MW	4733

Molded case switch

Switch	Interruption capacity		Amps	Magnetic trip	3 pole catalog number	List price
S5H-D	240VAC 480VAC 600VAC 600VDC	150kA 65kA 22kA 50kA	400A	5000A	S5H400DW	\$ 1994

Neutral GF current transformer (required for 4 wire GF systems)

Amps	Catalog number	List price
400	K5NCT-400	\$ 250

Connection options

Type	Wire range	Amps ^②	Set of 2 catalog number	List price	Set of 3 catalog number	List price
CU/AL front lugs	250kcmil – 500kcmil	300	K5TF-2	\$ 30	K5TF	\$ 45
CU/AL front lugs	(2) 3/0 – 250kcmil	400	K5TG-2 ^①		K5TG ^①	
CU front lugs (saddle)	250kcmil – 500kcmil	400	—	—	Set of 6 catalog number K5TGS	90
CU rear lugs	6AWG – 350kcmil	400	—	—	K5TGR	
Extended front bar	—	400	—	—	K5ET-400	

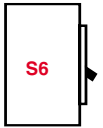
① Including lug cover.

② Suggested lugs for a circuit breaker up to amps shown. Cable size and type determine maximum amperage.

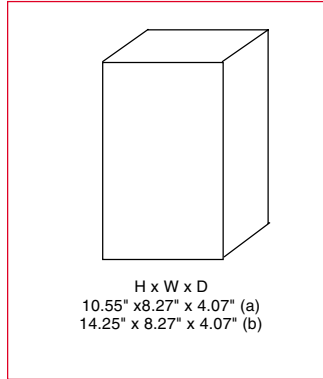
S6

600A / 800A, 600V

Electronic and thermal-magnetic trip type



S6



H x W x D
10.55" x 8.27" x 4.07" (a)
14.25" x 8.27" x 4.07" (b)

Standard S6 package includes complete circuit breaker and mounting hardware. **Order cable lugs or other connection scheme as a separate item.**

- (a) With K6TH cable lugs breaker is 10.55" tall.
- (b) With K6TJ cable lugs, terminal covers are provided and breaker is 14.25" tall.

General

The S6 breaker family is an 800A frame with a 600A and 800A version, both utilizing a microprocessor based overcurrent protective trip system. Both versions are adjustable from 40% to 100% of rating without the addition of any parts or rating plugs. As standard, the S6 includes adjustable long time function for overload protection and adjustable instantaneous function for short circuit protection.

Versions

To meet all application needs, the S6 is available in various versions:

- B = Adjustment LI
- C = Adjustment LSI
- E = Adjustment LSI G
- Q = 100% UL rated
- D = Molded case switch
- M = Magnetic only (MCP)
- T = Thermal magnetic

Trip functions

These tripping functions are available:

- L = Long time
- I = Instantaneous
- S = Short time
- G = Ground fault

Performance level

Each version is also available in different maximum fault interrupting levels

- N = Normal
- H = High
- L = Extra high

Number of poles

In UL/CSA version, the S6 is available as in two pole or three pole version, both with the same dimensions. A four pole version is also available in UL/IEC form. For price estimate, add 35% to list price of selected version three pole breaker, contact ABB Control for details.

Accessory mounting

Internal accessories are UL/CSA approved for both factory or field installation. Accessories require control cable connectors. Shunt trips or UVR's mount in the left cavity. Auxiliary or bell alarm switches mount in the right cavity.

Reverse feeding

All versions of the S6 family are suitable for reverse feed applications.

Molded case switches

UL1087 switches include no overcurrent protection except for a high instantaneous trip mechanism for self protection. IEC type molded case switches with no trip protection are also available.

UL/CSA Interrupting capacity (kA RMS)

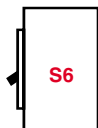
UL489 / CSA C22.2

Voltage	N	H	L
240VAC	65	150	200
480VAC	50	65	100
600VAC	25	35	42
500VDC [Ⓞ]	35	50	65
600VDC [Ⓞ]	20	25	50

IEC-947 Interrupting capacity (kA RMS)

Voltage	N	H	L
230VAC	65	100	200
380/400/415VAC	35	65	100
440VAC	30	50	80
500VAC	25	40	65
690VAC	20	25	35

[Ⓞ] Thermal magnetic only.



S6

600A / 800A, 600 VAC

Electronic and thermal magnetic trip type

The S6 breaker family uses two available microprocessor based internal trip units. The standard **PR211** trip unit includes adjustments for long time current pick-up and instantaneous current trip point.

The optional **PR212** trip unit includes adjustments for long time current pick-up/delay, short time pick-up/delay, I²t (on/off), instantaneous current trip point and further optional ground fault protection.

600A Frame (240 – 600A adjustable continuous range)

Breaker	IC at 480VAC	Trip type	Adjustment	2 pole, 600VAC catalog number	List price	3 pole, 600VAC catalog number	List price
S6N	50kA	PR211	LI	S6N600BW-2	\$ 2847	S6N600BW	\$ 3608
		PR212	LSI	S6N600CW-2	4237	S6N600CW	4998
		PR212	LSIG	—	—	S6N600EW	6998
S6H	65kA	PR211	LI	S6H600BW-2	4275	S6H600BW	5271
		PR212	LSI	S6H600CW-2	5665	S6H600CW	6661
		PR212	LSIG	—	—	S6H600EW	8661
S6L	100kA	PR211	LI	S6L600BW-2	5481	S6L600BW	6482
		PR212	LSI	S6L600CW-2	6871	S6L600CW	7872
		PR212	LSIG	—	—	S6L600EW	8972

800A Frame (320 – 800A adjustable continuous range)

Breaker	IC at 480VAC	Trip type	Adjustment	2 pole, 600VAC catalog number	List price	3 pole, 600VAC catalog number	List price
S6N	50kA	PR211	LI	S6N800BW-2	\$ 3842	S6N800BW	\$ 4802
		PR212	LSI	S6N800CW-2	5232	S6N800CW	6192
		PR212	LSIG	—	—	S6N800EW	8192
S6H	65kA	PR211	LI	S6H800BW-2	5275	S6H800BW	6465
		PR212	LSI	S6H800CW-2	6665	S6H800CW	7855
		PR212	LSIG	—	—	S6H800EW	9855
S6L	100kA	PR211	LI	S6L800BW-2	6476	S6L800BW	7676
		PR212	LSI	S6L800CW-2	7866	S6L800CW	9066
		PR212	LSIG	—	—	S6L800EW	11,066

Trip settings

Adjustment	Trip function	Range	Individual settings
L	Long time pick-up Long time delay	0.4 – 1.0 3.0 – 18 sec.	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1.0 x Frame rating A - B - C - D
S	Short time pick-up Short time delay	1.0 – 10.0 0.05 – 0.5 sec.	Off-1.0-2.0-3.0-4.0-6.0-8.0-10.0 x Frame rating A - B - C - D (I ² t On-Off)
I	Instantaneous trip	1.5 – 12.0	1.5-2.0-4.0-6.0-8.0-10.0-12.0 x Frame rating
G	Ground fault Ground fault delay	0.2 – 1.0 0.1 – 0.8 sec.	Off-0.2-0.3-0.4-0.6-0.8-0.9-1.0 x Frame rating A - B - C - D

Continuous amperage settings (long time adjustment)

Frame	Set points								Setting
	0.4	0.5	0.6	0.7	0.8	0.9	0.95	1.0	
600A	240	300	360	420	480	540	570	600	Amps
800A	320	400	480	560	640	720	760	800	Amps

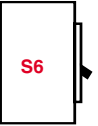
S6 thermal-magnetic breakers, for AC and DC applications

Breaker	IC at 500VDC	Rating	Magnetic trip	2 pole, 600VAC /500DC catalog number	List price	3 pole, 600VAC/DC catalog number	List price
S6N	35kA	600A (420 – 600A)	6000A	S6N600TW-2	\$ 2847	S6N600TW	\$ 3608
		800A (560 – 800A)	8000A	S6N800TW-2	3842	S6N800TW	4802
S6H	50kA	600A (420 – 600A)	6000A	S6H600TW-2	4275	S6H600TW	5270
		800A (560 – 800A)	8000A	S6H800TW-2	5275	S6H800TW	6465
S6L	65kA	600A (420 – 600A)	6000A	S6L600TW-2	5481	S6L600TW	6482
		800A (560 – 800A)	8000A	S6L800TW-2	6476	S6L800TW	7676

S6

600A / 800A, 600 VAC

100% UL rated, electronic trip type



When applied correctly, UL tested 100% equipment rated breakers may be applied at full rating rather than on the sizing rules of the NEC where breakers and cable are sized based on actual continuous load current divided by 80%.

This 100% rating can save the user the cost of larger cable or bus bar. Please consult the NEC for details and other design factors needed for this application.

600A Frame (240 – 600A adjustable continuous range)

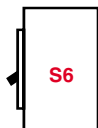
Breaker	IC at 480VAC	Trip type	Adjustment	3 pole 600VAC catalog number	List price
S6N	50kA	PR211	LI	S6NQ600BW	\$ 3969
		PR212	LSI	S6NQ600CW	5498
		PR212	LSIG	S6NQ600EW	7698
S6H	65kA	PR211	LI	S6HQ600BW	5798
		PR212	LSI	S6HQ600CW	7327
		PR212	LSIG	S6HQ600EW	9527
S6L	100kA	PR211	LI	S6LQ600BW	7130
		PR212	LSI	S6LQ600CW	8659
		PR212	LSIG	S6LQ600EW	9869

800A Frame (320 – 800A adjustable continuous range)

Breaker	IC at 480VAC	Trip type	Adjustment	3 pole 600VAC catalog number	List price
S6N	50kA	PR211	LI	S6NQ800BW	\$ 5282
		PR212	LSI	S6NQ800CW	6811
		PR212	LSIG	S6NQ800EW	9011
S6H	65kA	PR211	LI	S6HQ800BW	7112
		PR212	LSI	S6HQ800CW	8641
		PR212	LSIG	S6HQ800EW	10,841
S6L	100kA	PR211	LI	S6LQ800BW	8444
		PR212	LSI	S6LQ800CW	9973
		PR212	LSIG	S6LQ800EW	12,173

Trip settings

Adjustment	Trip function	Range	Individual settings
L	Long time pick-up Long time delay	0.4 – 1.0 3.0 – 18 sec.	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1.0 x Frame rating A - B - C - D
S	Short time pick-up Short time delay	1.0 – 10.0 0.05 – 0.5 sec.	Off-1.0-2.0-3.0-4.0-6.0-8.0-10.0 x Frame rating A - B - C - D (I ² t On-Off)
I	Instantaneous trip	1.5 – 12.0	1.5-2.0-4.0-6.0-8.0-10.0-12.0 x Frame rating
G	Ground fault Ground fault delay	0.2 – 1.0 0.1 – 0.8 sec.	Off-0.2-0.3-0.4-0.6-0.8-0.9-1.0 x Frame rating A - B - C - D



S6

600A / 800A

Magnetic only (MCP)

All S6 magnetic only breakers utilize the electronic PR211 trip unit with an adjustable range of 1.5 to 12 times frame rating. Both two and three pole MCPs are 600VAC rated.

Type	Amps	Interruption capacity	Adjustment range	2 pole 600VAC catalog number	List price	3 pole 600VAC catalog number	List price
S6N	600	240VAC	65kA	900 – 7200A	\$ 2847	S6N600MW S6N800MW	\$ 3608
	800	480VAC 600VAC	50kA 25kA	1200 – 9600A			
S6H	600	240VAC	150kA	900 – 7200A	4275	S6H600MW S6H800MW	5271
	800	480VAC 600VAC	65kA 35kA	1200 – 9600A			
S6L	600	240VAC	200kA	900 – 7200A	5481	S6L600MW S6L800MW	6482
	800	480VAC 600VAC	100kA 42kA	1200 – 9600A			

Molded case switches

Type	Interruption capacity	Amps	Magnetic trip	3 pole catalog number	List price
S6H-D	240VAC	200kA	—	—	—
	480VAC	100kA	10,000A	S6H600DW	\$ 3275
	600VAC	42kA	10,000A	S6H800DW	4248
	600VDC	50kA	—	—	—
Non-UL, switches without overcurrent protection	Withstand rating		400	S6D400W	3275
	600VAC	15kA	630	S6D630W	3275
			800	S6D800W	4248
			—	—	—

Neutral current transformer (required for 4 wire GF systems)

Amps	Catalog number	List price
600	K6NCT-600	\$ 250
800	K6NCT-800	

Connection options

Type	Wire range	Amps ^②	Set of 2 catalog number	List price	Set of 3 catalog number	List price
CU/AL front lugs	(2) 250kcmil – 500kcmil (3) 2/0 – 400kcmil	600	K6TH-2 K6TJ-2 ^①	\$ 50 90	K6TH K6TJ ^①	\$ 75 135
CU/AL front lugs		800				
CU rear lugs	(2) 250kcmil – 500kcmil (3) 2/0 – 400kcmil	600	—	—	Set of 6 catalog number K6THR K6TJR	150 170
		800				
Extended front bar	—	600	—	—	K6ET-600	150
Extended front bar	—	800	—	—	K6ET-800	170

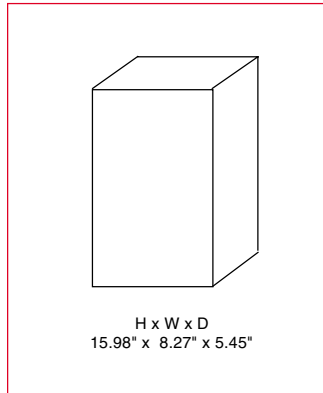
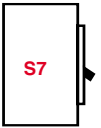
① Includes lug cover.

② Suggested lugs for a circuit breaker up to amps shown. Cable size and type determine maximum amperage.

S7

1200A, 600 VAC

Electronic trip type



Standard S7 package includes complete circuit breaker and mounting hardware. **Order cable lugs or other connection scheme as a separate item.**

General

The S7 breaker family is a 1200A frame utilizing a microprocessor based overcurrent protective trip system. In the 1200A version, the trip unit is adjustable from 480A up to 1200A without the addition of any parts or rating plugs. As standard, the S7 includes adjustable long time function for overload protection and adjustable instantaneous function for short circuit protection.

Versions

To meet all application needs, the S7 is available in various versions:

- B = Adjustment LI
- C = Adjustment LSI
- E = Adjustment LSIG
- Q = 100% UL rated
- D = Molded case switch
- M = Magnetic only (MCP)

Trip functions

These tripping functions are available:

- L = Long time
- S = Short time
- I = Instantaneous
- G = Ground fault

Performance level

Each version is also available in different maximum fault interrupting levels

- H = High
- L = Extra high (IEC only)

Number of poles

In UL/CSA version, the S7 is available as in two pole or three pole version, both with the same dimensions. A four pole version is also available in IEC form. For price estimate, add 35% to list price of selected three pole, contact ABB Control.

Accessory mounting

Internal accessories are UL/CSA approved for both factory or field installation. Accessories require control cable connectors. Shunt trips or UVR's mount in the left cavity. Auxiliary or bell alarm switches mount in the right cavity.

Reverse feeding

All versions of the S7 family are suitable for reverse feed applications.

Molded case switches

UL1087 switches include no overcurrent protection except for a high instantaneous trip mechanism for self protection. IEC type molded case switches with no trip protection are also available.

UL/CSA Interrupting capacity (kA RMS)

UL480 / CSA C22.2

Voltage	H	
240VAC	100	
480VAC	65	
600VAC	50	

IEC-947 Interrupting capacity (kA RMS)

Voltage	H	L
230VAC	100	200
380/400/415VAC	65	100
440VAC	55	80
500VAC	45	70
690VAC	25	35

① Consult factory



S7

1200A, 600 VAC

Electronic trip type

The S7 breaker family uses two available microprocessor based internal trip units. The standard **PR211** trip unit includes adjustments for long time current pick-up and instantaneous current trip point.

The optional **PR212** trip unit includes adjustments for long time current pick-up/delay, short time pick-up/delay, I²t (on/off), instantaneous current trip point and further optional ground fault protection.

1000A Frame (400 – 1000A adjustable continuous range)

Breaker	IC at 480VAC	Trip type	Adjustment	2 pole, 600VAC catalog number	List price	3 pole, 600VAC catalog number	List price
S7H	65kA	PR211	LI	S7H1000BW-2	\$ 6959	S7H1000BW	\$ 7724
		PR212	LSI	S7H1000CW-2	8039	S7H1000CW	8804
		PR212	LSIG	—	—	S7H1000EW	10,604

1200A Frame (480 – 1200A adjustable continuous range)

Breaker	IC at 480VAC	Trip type	Adjustment	2 pole, 600VAC catalog number	List price	3 pole, 600VAC catalog number	List price
S7H	65kA	PR211	LI	S7H1200BW-2	\$ 6959	S7H1200BW	\$ 7724
		PR212	LSI	S7H1200CW-2	8039	S7H1200CW	8804
		PR212	LSIG	—	—	S7H1200EW	10,604

Trip settings

Adjustment	Trip function	Range	Individual settings
L	Long time pick-up	0.4 – 1.0	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1.0 x Frame rating A - B - C - D
	Long time delay	3.0 – 18 sec.	
S	Short time pick-up	1.0 – 10.0	Off-1.0-2.0-3.0-4.0-6.0-8.0-10.0 x Frame rating A - B - C - D (I ² t On-Off)
	Short time delay	0.05 – 0.5 sec.	
I	Instantaneous trip	1.5 – 12.0	1.5-2.0-4.0-6.0-8.0-10.0-12.0 x Frame rating
G	Ground fault	0.2 – 1.0	Off-0.2-0.3-0.4-0.6-0.8-0.9-1.0 x Frame rating A - B - C - D
	Ground fault delay	0.1 – 0.8 sec.	

Continuous amperage settings (long time adjustment)

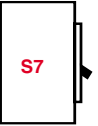
Frame	Set points								Setting
	0.4	0.5	0.6	0.7	0.8	0.9	0.95	1.0	
1000A	400	500	600	700	800	900	950	1000	Amps
1200A	480	600	720	840	960	1080	1140	1200	Amps

① Consult factory.

S7

1200A, 600VAC

UL 100% rated



When applied correctly, UL tested 100% equipment rated breakers may be applied at full rating rather than on the sizing rules of the NEC where breakers and cable are sized based on actual continuous load current divided by 80%.

This 100% rating can save the user the cost of larger cable or bus bar. Please consult the NEC for details and other design factors needed for this application.

1000A Frame (400 – 1000A adjustable continuous range)

Breaker	IC at 480VAC	Trip type	Adjustment	3 pole catalog number	List price
S7H	65kA	PR211	LI	S7HQ1000BW	\$ 8495
		PR212	LSI	S7HQ1000CW	9684
		PR212	LSIG	S7HQ1000EW	11,664

1200A Frame (480 – 1200A adjustable continuous range)

Breaker	IC at 480VAC	Trip type	Adjustment	3 pole catalog number	List price
S7H	65kA	PR211	LI	S7HQ1200BW	\$ 8495
		PR212	LSI	S7HQ1200CW	9684
		PR212	LSIG	S7HQ1200EW	11,664

Trip settings

Adjustment	Trip function	Range	Individual settings
L	Long time pick-up Long time delay	0.4 – 1.0 3.0 – 18 sec.	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1.0 x Frame rating A - B - C - D
S	Short time pick-up Short time delay	1.0 – 10.0 0.05 – 0.5 sec.	Off-1.0-2.0-3.0-4.0-6.0-8.0-10.0 x Frame rating A - B - C - D (I ² t On-Off)
I	Instantaneous trip	1.5 – 12.0	1.5-2.0-4.0-6.0-8.0-10.0-12.0 x Frame rating
G	Ground fault Ground fault delay	0.2 – 1.0 0.1 – 0.8 sec.	Off-0.2-0.3-0.4-0.6-0.8-0.9-1.0 x Frame rating A - B - C - D

© Consult factory.



S7 1200A, 600V

Magnetic only (MCP)

All S7 magnetic only breakers utilize the electronic PR211 trip unit with an adjustable range of 1.5 to 12 times frame rating. Both two and three pole MCPs are 600VAC rated.

Type	Amps	Interruption capacity		Adjustment range	2 pole catalog number	List price	3 pole catalog number	List price
S7H	1000 1200	240VAC 480VAC 600VAC	100kA 65kA 50kA	1500 – 12,000A 1800 – 14,400A	S7H1000MW-2 S7H1200MW-2	\$ 6959	S7H1000MW S7H1200MW	\$ 7724

Molded case switches

Type	Interruption capacity		Amps	Magnetic trip	3 pole catalog number	List price
S7H-D	240VAC 480VAC 600VAC 600VDC	100kA 65kA 50kA 12kA	1000 1200	20,000A 20,000A	S7H1000DW S7H1200DW	\$ 7300
Non-UL, switches without overcurrent protection	Withstand rating		1000 1250	— —	S7D1000W S7D1250W	

Neutral current transformer (required for 4 wire GF systems)

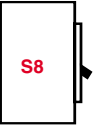
Amps	Catalog number	List price
1000 1200	K7NCT-1000 K7NCT-1200	\$ 250

Connection options

Type	Wire range	Amps Ⓢ	Set of 2 catalog number	List price	Set of 3 catalog number	List price
CU/AL front lugs	(4) 4/0 – 500kcmil	1200	K7TK-2	\$ 120	K7TK	\$ 180
Extended front bar	—	1200	—	—	Set of 6 catalog number	240
					K7ET-1250	

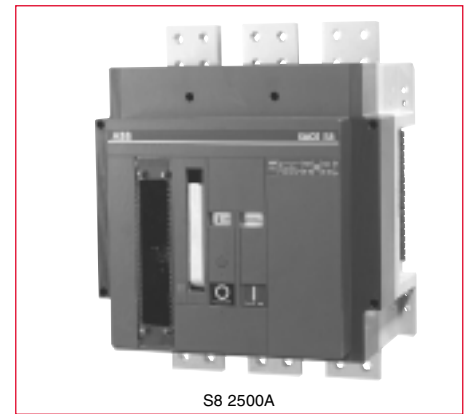
Ⓢ Suggested lugs for a circuit breaker up to amps shown. Cable size and type determine maximum amperage.

S8 1600 / 2000 / 2500A Insulated case circuit breaker

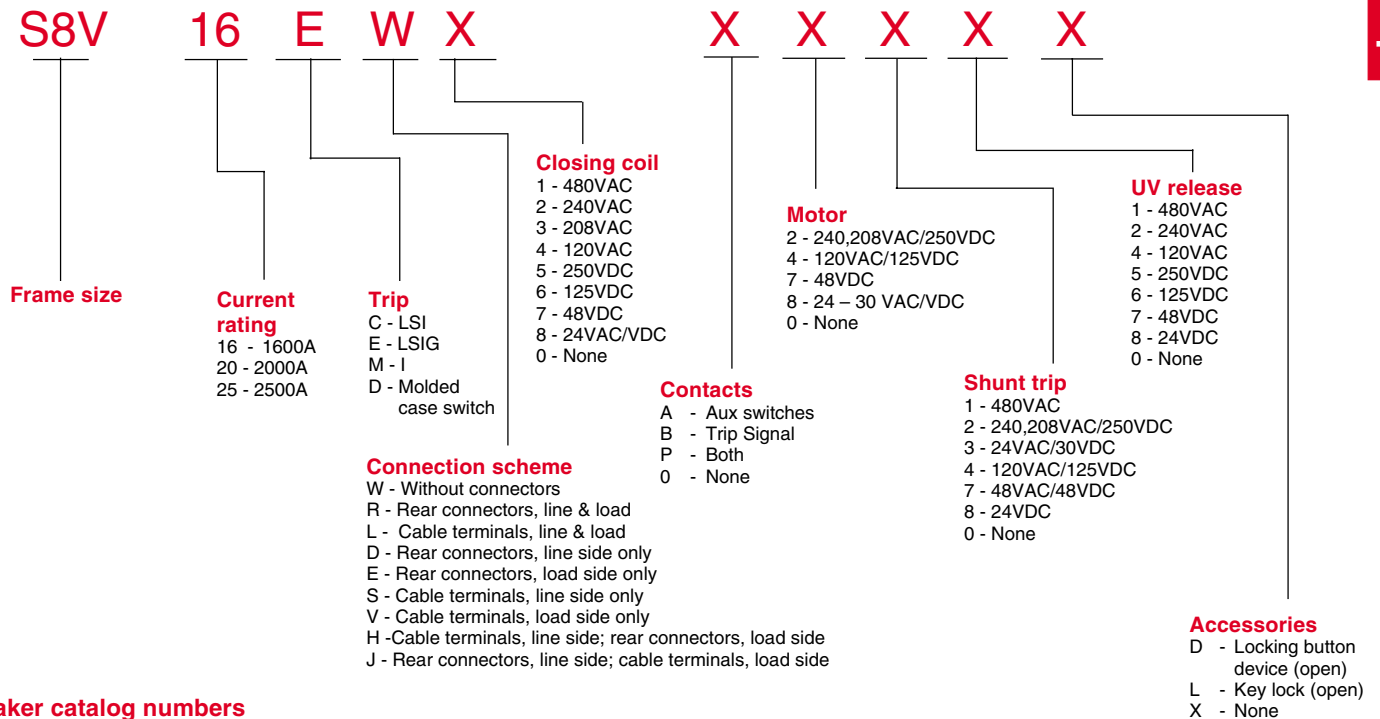


Description

- Insulated case type molded case circuit breaker with manually operated stored energy mechanism. Optional electric charging motor available
- Three cycle closing time for use in generator synchronizing applications.
- Electric spring charging mechanism rated for over 5,000 operations
- Three different frame ratings, 1600, 2000 and 2500 amperes. All are same compact physical size.
- Solid state trip units are available in four different configurations including adjustments for long time, short time, instantaneous and ground fault.
- Standard interrupting rating of 100kA at 480VAC.
- Short time withstand rating of 35kA at 600VAC for one second when breaker ordered with adjustable short time trip.
- Breaker includes charging handle for manual energizing of closing/opening springs
- Built-in ground fault (LSIG) for use with four-wire systems requires neutral GF sensor. Meets NEC ground fault requirements for service entrance applications.
- Internal accessories include electric charging motor, shunt trips, a combination auxiliary/bell alarm switch, and an undervoltage release.
- Breakers are suitable for use in reverse feed applications.
- Wide range of adjustments on trip settings, trip unit includes cover to prevent tampering.
- Front indicators for contact position.
- Uses convenient mounting pads for ease of installation in enclosures.
- Internal accessories are prewired to terminal block mounted on right side of breaker.
- Trip signal contact option indicates when breaker has tripped due to overcurrent.
- Canadian Standards Association certification under C22.2 No. 5 under File LR90467 for both breakers and internal accessories.
- In compliance with IEC947 including 690VAC. Breakers are labeled with both UL/CSA and IEC ratings.
- Breakers are Underwriters Laboratories listed under Standard UL 489 for molded case circuit breakers per File E93565, internal accessories are per File E116596.



Catalog number information



Breaker catalog numbers

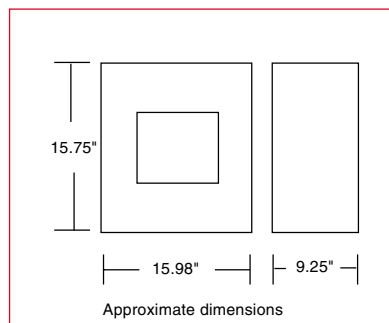
The breaker catalog number must be completed. Please note that variations can affect price.



S8

1600 / 2000 / 2500A

Insulated case circuit breaker



Description

Breaker is shipped complete with installed trip unit and accessories. Cable terminals or rear T connectors can be included if desired. For four-wire systems an external neutral ground fault sensor must be ordered separately.

Trip functions

- L – Long time pick-up and delay
- S – Short time pick-up and delay
- I – Instantaneous trip
- G – Ground fault pick-up and delay

3 pole, 600VAC maximum ^①

Maximum continuous rating				1600A		2000A		2500A	
Breaker	IC at 480VAC	Trip type	Adjustment	Catalog number	List price	Catalog number	List price	Catalog number	List price
S8V	100kA	PR212	LSI	S8V16CW	\$ 12,540	S8V20CW	\$ 14,427	S8V25CW	\$ 21,561
			LSIG	S8V16EW	14,505	S8V20EW	16,561	S8V25EW	24,487
			I	S8V16MW	11,267	S8V20MW	12,988	S8V25MW	20,916
			MCS	S8V16DW	9620	S8V20DW	10,999	S8V25DW	16,267

UL/CSA Interrupting capacity (kA RMS)

UL489 / CSA C22.2

Voltage	V
240VAC	125
480VAC	100
600VAC	85
600VDC ^②	25

IEC-947 Interrupting capacity (kA RMS)

Voltage	V
230VAC	120
300/400/415VAC	120
440VAC	100
500VAC	70
690VAC	50

Trip settings

Adjustment	Trip function	Range	Individual settings
L	Long time pick-up	0.4 – 1.0	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1.0 x Frame rating A - B - C - D
	Long time delay	3.0 – 18 sec.	
S	Short time pick-up	1.0 – 10.0	Off-1.0-2.0-3.0-4.0-6.0-8.0-10.0 x Frame rating A - B - C - D (I ² t On-Off)
	Short time delay	0.05 – 0.5 sec.	
I	Instantaneous trip	1.5 – 12.0	1.5-2.0-4.0-6.0-8.0-10.0-12.0 x Frame rating
G	Ground fault	0.2 – 0.4	Off-0.2-0.3-0.4 x Frame rating A - B - C - D
	Ground fault delay	0.1 – 0.8 sec.	

Continuous amperage settings (long time adjustment)

Frame	Set points								Setting
	0.4	0.5	0.6	0.7	0.8	0.9	0.95	1.0	
1600A	640	800	960	1120	1280	1440	1520	1600	Amps
2000A	800	1000	1200	1400	1600	1800	1900	2000	Amps
2500A	1000	1250	1500	1750	2000	2250	2375	2500	Amps

UL 100% equipment rated circuit breakers

Circuit breakers and cable are sized per the National Electric Code on a basis of actual continuous load current divided by 80%. For example, a 360 ampere load should be connected by cable capable of handling 450 amperes (360A / 0.80 = 450A) and therefore be protected by a 450 ampere rated circuit breaker. Other factors may need to be considered when sizing breakers in special applications.

When applied correctly, UL-tested 100% equipment rated breakers may be applied at full rating, therefore saving the user the cost of larger cable or bus. Using the example above, the 360 ampere load could be used with cable capable of handling 360 amperes (360A / 1.00 = 360A) and only a 400 ampere rated circuit breaker (400A is next available size CB).

1600A, S8 Frame — stored energy

Catalog number	List price
S8VQ16CW	\$ 13,168
S8VQ16EW	15,231

2000A, S8 Frame — stored energy

Catalog number	List price
S8VQ20CW	\$ 15,148
S8VQ20EW	17,390

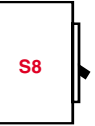
① Three pole breakers are listed and approved for use in two pole applications with center-pole not connected.

② Applies to MCS only.

S8

1600A, 2000A & 2500A

Accessories



Internal accessories

(Must be factory mounted for UL/CSA)

Item	Type	Factory installed catalog number suffix	List price		
Closing coil	480VAC	1	\$ 575		
	240VAC	2			
	208VAC	3			
	120VAC	4			
	250VDC	5			
	125VDC	6			
	48VDC	7			
	24VAC/VDC	8			
Electric motor (inc. spring charged signal contact)	240,208VAC & 250VDC	2	3217		
	120VAC/125VDC	4			
	48VDC	7			
	24 – 30VAC/VDC	8			
Shunt trip	480VAC	1	518		
	240,208VAC & 250VDC	2			
	24VAC/30VDC	3			
	120VAC/125VDC	4			
	48VAC/48VDC	7			
	24VDC	8			
	Undervoltage release	480VAC		1	518
		240VAC		2	
120VAC		4			
250VDC		5			
125VDC		6			
48VDC		7			
24VDC		8			
Aux. contacts		2A/1B	A	396	
Trip signal	1A/1B	B	192		
Combo. aux. & trip contacts	2A/1B Aux & 1A/1B Trip	P	588		
Padlockable button cover (open)	—	D	144		
Key lock (open)	—	L	155		

Connection accessories (includes sets of 3)

Item	Type	Catalog number	List price	
Cable terminals	1600A Max.	1/0 – 750kcmil (4)	K8TL	\$ 274
	2500A Max.	1/0 – 750kcmil (6)	K8TM	315
Rear T conn.	2500A Max.	K8RT2500	855	

Neutral ground fault current transformer

Item	Type	Catalog number	List price
Ground Fault Neutral CT	1600A	K8NCT-1600	\$ 888
	2000A	K8NCT-2000	
	2500A	K8NCT-2500	

Note: Neutral GF CT required for proper GF operation.

Door flange

Item	Catalog number	List price
Face plate	K8FP	\$ 25

Closing coil

Required for closing breaker electrically, the coil voltage must be specified at the time of order entry.

Internal accessory ratings

Accessory type	Voltage	Rating
Shunt trip	All	100VA/120Watts
Undervoltage releases	AC/DC	30VA (12 Watts/10VA (4 Watts))
Auxiliary contacts	240VAC	10A Max.
	125VDC	0.3A Max.
Closing coil	250VDC	0.15A Max.
	AC/DC	30VA / 40VA

Stored energy electric motor operators

E.O.	Type	Inrush (VA)	Normal (watts)	Closing time	Opening time	Resetting time
MS8	Stored energy	1000	230	0.05s	0.035s	9.0s

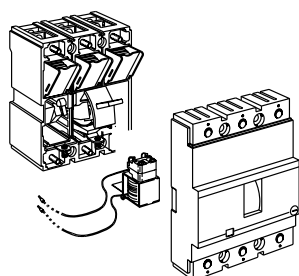
Mechanical life of 10,000 cycles at 20 operations per hour.

Electrical accessories

Shunt trip, undervoltage release S1



K5S4



S1 with K1S4



K5U4

Shunt trip

Voltage	Factory installation		Field installation	
	Catalog number suffix ①	List price adder	Catalog number S1 – S2	List price
48VAC/60VDC	S1	\$ 212	K1S1	\$ 197
220/250VAC	S2		K1S2	
24 – 30VAC	S3		K1S3	
110 – 130VAC	S4		K1S4	
250VDC	S5		K1S5	
110VDC	S6		K1S6	
48VDC	S7		K1S7	
24VDC	S8		K1S8	
220VDC	S9		K1S9	

For remote opening of circuit breaker and includes internal cut-off switch to protect solenoid. All shunt trips are left pole mounted and can not be used with undervoltage releases. All shunt trips are approved for use in ground fault systems. Shunt trips must be ordered with correct connector.

Shunt trip connectors (required)

Type	Voltage	Factory installation	Field installation	
			Catalog number S1 – S2	List price
Fixed mounted	All	Included	K2C-SU	\$ 15

Electrical specifications

V	24, 120, 240, 480VAC ~ 50/60 Hz 24, 48, 125, 250VDC –
For S1 – S2 P	100VA~/120W– Instantaneous duty

Undervoltage releases (IEC)

Voltage	Factory installation		Field installation	
	Catalog number suffix ①	List price adder	Catalog number S1 – S2	List Price
380/400VAC	U1	\$ 212	K2U1	\$ 197
220/230VAC	U2		K2U2	
24VAC	U3		K2U3	
110VAC	U4		K2U4	
110VDC	U6		K2U6	
48VDC	U7		K2U7	
24VDC	U8		K2U8	
48VAC	U9		K2U9	

Will trip circuit breaker when connected voltage drops to 35 – 70% of undervoltage release voltage rating. Will allow circuit breaker to close (ON) when voltage is approximately 85% of rated voltage. All undervoltage releases are left pole mounted and can not be used with shunt trips. Undervoltage releases must be ordered with correct connector.

Undervoltage release connectors (required)

Type	Voltage	Factory installation	Field kit	
			Catalog number S1 – S2	List Price
Fixed mounted	All	Included	K2C-SU	\$ 15

Electrical specifications

V	24, 120, 240, 480VAC ~ 50/60 Hz 24, 48, 125, 250VDC –
For S1 – S2 P	6VA~/3W– Continuous duty

① For factory installation add suffix given to end of circuit breaker catalog number per accessory format.

Electrical accessories

Shunt trip, undervoltage release

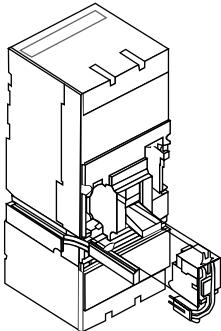
S3 – S7



K5S1



K6C-SUP



S5 with K5S2



K5U1



K6C-SUP

Shunt trip

Voltage	Factory installation		Field installation		List price
	Catalog number suffix ①	List price adder	Catalog numbers		
			S3 – S4 – S5	S6 – S7	
480VAC/250VDC	S1	\$ 430	K5S1	K7S1	\$ 415
240VAC	S2		K5S2	K7S2	
120VAC/125VDC	S4		K5S4	K7S4	
48VDC	S7		K5S7	K7S7	
24VAC/VDC	S8		K5S8	K7S8	
12VDC	S9		K5S9	K7S9	

For remote opening of circuit breaker and includes internal cut-off switch to protect solenoid. All shunt trips are left pole mounted and can not be used with UVRs. Except for 12VDC, all shunt trips are approved for use in GF systems. Shunt trips must be ordered with correct connector.

Shunt trip connectors (required)

Type circuit breaker	Voltage	Factory installation ①	Field kit catalog number		List price
			S3 – S4 – S5 – S6	S7	
Fixed mounted	All	included	K6C-SU	K7C-SU	\$ 15
Plug-in/Draw-out	All	included	K6C-SUP	K7C-SUP	

Electrical specifications

V	24, 120, 240, 480VAC ~ 50/60 Hz 12, 24, 48, 125, 250 VDC –
For S3-S5 P	100 VA~/120W– Instantaneous duty
For S6-S7	150 VA~/150W–

Undervoltage releases

Voltage	Factory installation		Field installation		List price
	Catalog number suffix ①	List price adder	Catalog numbers		
			S3 – S4 – S5	S6 – S7	
480VAC	U1	\$ 430	K5U1	K7U1	\$ 415
240VAC	U2		K5U2	K7U2	
120VAC	U4		K5U4	K7U4	
24VAC	U3		K5U3	K7U3	
250VDC	U5		K5U5	K7U5	
125VDC	U6		K5U6	K7U6	
48VDC	U7		K5U7	K7U7	
24VDC	U8		K5U8	K7U8	

Will trip CB when connected voltage drops to 35-70% of UVR voltage rating. Will allow CB to close (ON) when voltage is approximately 85% of rated voltage. All UVRs are left pole mounted and can not be used with shunt trips. UVRs must be ordered with correct connector.

Undervoltage release connectors (required)

Type circuit breaker	Voltage	Factory installation ①	Field kit catalog number		List price
			S3 – S4 – S5 – S6	S7	
Fixed mounted	All	included	K6C-SU	K7C-SU	\$ 15
Plug-in/Draw-out	All	included	K6C-SUP	K7C-SUP	

Electrical specifications

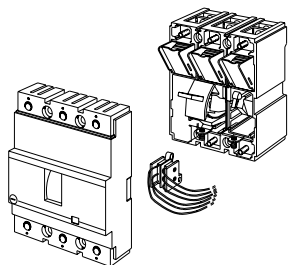
V	24, 120, 240, 480 VAC ~ 50/60 Hz 24, 48, 125, 250 VDC –
For S3-S5 P	6 VA~/3W– Continuous duty
For S6-S7	10 VA~/4W–

① For factory installation add suffix given to end of circuit breaker catalog number per accessory format.



Electrical accessories

Auxiliary contacts S1 – S7



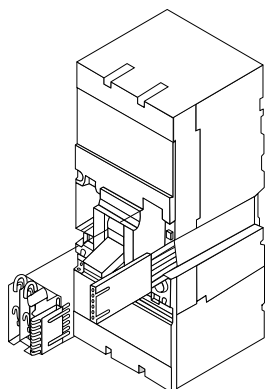
S1 with auxiliaries



K5AS



K6C-ABP



S5 with K6C-AB

Auxiliary contacts — S1

Voltage	Factory install		Field installation	
	Catalog number suffix ①	List price adder	Catalog number S1	List price
2N.O./N.C. 1B.A. + 1N.O./N.C.	A BA	\$ 190	K1AS K1BA	\$ 175

The auxiliary contacts are accessory contacts for the indication of circuit breaker open-closed or tripped. Bell alarm contacts (B.A.) can be used to indicate circuit breaker tripping. All contacts are right pole mounted.

Availability:

a) 2 N.O. or N.C. Form C auxiliary contacts

Auxiliary contact connectors (required) — S1

Type	Voltage	Factory installation	Field installation	
			Catalog number S1	List price
Fixed mounted	All	Included	K2C-AB	\$ 15

Electrical specifications — S1

Voltage	Maximum contact amperage rating
30 VDC	4A
127 VDC	4A
220 VAC	4A

N.O. = contact is open as circuit breaker is open

N.C. = contact is closed when circuit breaker is open

B.A. = will open/close only when circuit breaker trips

Auxiliary contacts — S3 – S7

Voltage	Factory installation		Field installation		List price
	Catalog number suffix ①	List price adder	Catalog numbers		
			S3 – S4 – S5	S6 – S7	
2 N.O./N.C.	A	\$ 275	K5AS	K7AS	\$ 260
1B.A. + 1N.O./1N.C.	BA	365	K5BA	K7BA	350
1B.A. + 1N.O./1N.C.	BA3		—	K7BA-3	

The auxiliary contacts are accessory contacts for the indication of circuit breaker open-closed or tripped. Bell alarm contacts (B.A.) can be used to indicate circuit breaker tripping. All contacts are right pole mounted.

Availability:

a) 2 N.O. or N.C. Form C auxiliary contacts

b) 1 N.O. or N.C. Form C auxiliary contacts plus 1 B.A. trip contact

c) 1 N.O. and 1 N.C. auxiliary contacts plus 1 B.A. trip contact (for S6 – S7 only).

Auxiliary contact connectors (required) — S3 – S7

Type circuit breaker	Voltage	Factory installation ①	Field kit catalog number		
			S3 – S4 – S5 – S6	S7	List price
Fixed mounted	All	included	K6C-AB	K7C-AB	\$ 15
Plug-in/Draw-out	All	included	K6C-ABP	K7C-ABP	

Electrical specifications

Voltage	Maximum contact amperage rating
125 VDC	0.3 A
250 VDC	0.15 A
250 VAC	6 A

N.O. = contact is open as circuit breaker is open

N.C. = contact is closed when circuit breaker is open

B.A. = will open/close only when circuit breaker trips

① For factory installation add suffix given to end of circuit breaker catalog number per accessory format.

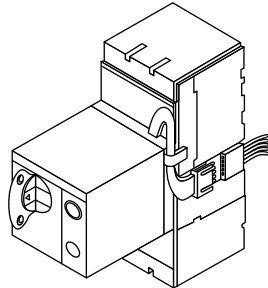
Electrical accessories

Motor operators, stored energy motor operators

S3 – S7



K5M2



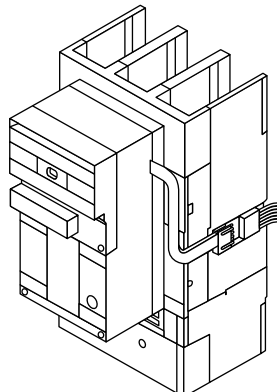
S4 with K5M2



K6C-M



K6M2



S7 with K7M4

Motor operator

Voltage	Catalog number S3 – S4 – S5	List price
240VAC/250VDC 120VAC/125VDC 48VDC 24VDC	K5M2 K5M4 K5M7 K5M8	\$ 678

For remote control of circuit breaker opening and closing.
Complete with manual operating lever, padlock device and emergency opening push-button.
When ordering the connector always specify type and version of the circuit-breaker.

The following options are also available:

- key lock for open position
- key lock for open position of two or more circuit breakers (using the same key for groups of circuit breakers)

Motor operator connectors (required)

Type circuit breaker	Voltage	Field kit catalog number S3 – S4 – S5	List price
Fixed mounted Plug-in/Draw-out	All All	K6C-M K6C-MP	\$ 15

Electrical specifications

V	120, 240VAC ~ 50/60 Hz 24, 48, 125, 250 VDC –
P inrush P normal	500 VA~/500W– 350 VA~/500W–
Close time	0.1 s
Open time	0.1 s

Stored-energy motor operator

Voltage	Catalog number		List price
	S6	S7	
240VAC/250VDC 120VAC/125VDC 48VDC 24VDC	K6M2 K6M4 K6M7 K6M8	K7M2 K7M4 K7M7 K7M8	\$ 2407

- Stored-energy motor operator with springs automatically pre-loaded by motor.
- Complete with shunt opening and closing release, and compartment door flange.
- When ordering the connector always specify type and version of the circuit-breaker.
- The following options are also available:
 - key lock for open position
 - key lock for open position of two or more circuit-breakers (using the same key for groups of circuit-breakers).

Stored-energy motor operator connectors (required)

Type circuit breaker	Voltage	Field kit catalog number		List price
		S6	S7	
Fixed mounted Plug-in/Draw-out	All All	K6C-M K6C-MP	K7C-M K7C-MP	\$ 15

Electrical specifications

V	120, 240 VAC ~ 50/60 Hz 24, 48, 125, 250 VDC –
P inrush P normal	660 VA~/600W– 180 VA~/180W–
Close time	0.09 s
Open time	1.2 s
Reset time	2.0 s

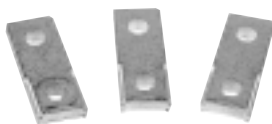
External accessories

Lugs and termination kits

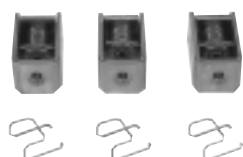
S3 – S7



K4TB



K4ET-250



K4TES



K4TER

Standard cable lug kits

For breakers	Amps ^①	Wire range	Set of 2 catalog number	List price	Set of 3 catalog number	List price
S3	60	14AWG – 2AWG	K3TA-2	\$ 4	K3TA	\$ 6
S3 – S4	100	14AWG – 1/0	K4TB-2	4	K4TB	6
S3 – S4	150	2AWG – 4/0	K4TC-2	4	K4TC	6
S3 – S4 – S5	225	4AWG – 300kcmil	K4TD-2	10	K4TD	15
S4	250	6AWG – 350kcmil	K4TE-2	20	K4TE	30
S5	300	250kcmil – 500kcmil	K5TF-2	30	K5TF	45
S5	400	(2) 3/0 – 250kcmil	K5TG-2 ^②	30	K5TG ^②	45
S6	600	(2) 250kcmil – 500kcmil	K6TH-2	50	K6TH	75
S6	800	(3) 2/0 – 400kcmil	K6TJ-2 ^②	90	K6TJ ^②	135
S7	1200	(4) 4/0 – 500kcmil	K7TK-2	120	K7TK	180

Standard cable lugs, for use on line and load side of circuit breaker. Suitable for use with Cu or Al. Special versions available with taps and screws for control wire connection. Note: S6 and S7 lugs are Al9Cu (90°C); all others Al7Cu (75°C).

Standard cable lug kits with control power taps

For breakers	Amps ^①	Wire range	Set of 2 catalog number	List price	Set of 3 catalog number	List price
S3 – S4	100	14AWG – 1/0	K4TB-2C	\$ 8	K4TBC	\$ 12
S3 – S4	150	2AWG – 4/0	K4TC-2C	8	K4TCC	12
S3 – S4 – S5	225	4AWG – 300kcmil	K4TD-2C	14	K4TDC	21
S4	250	6AWG – 350kcmil	K4TE-2C	24	K4TEC	36
S5	300	250kcmil – 500kcmil	K5TF-2C	34	K5TFC	51
S5	400	(2) 3/0 – 250kcmil	K5TG-2C ^②	34	K5TGC ^②	51
S6	600	(2) 250kcmil – 500kcmil	K6TH-2C	54	K6THC	81
S6	800	(3) 2/0 – 400kcmil	K6TJ-2C ^②	94	K6TJC ^②	141
S7	1200	(4) 4/0 – 500kcmil	K7TK-2C	124	K7TKC	186

Extended front termination kits

Suitable for use with	Maximum amps	Set of 6 catalog number	List price
S3 – S4	250	K4ET-250	\$ 46
S5	400	K5ET-400	114
S6	630	K6ET-600	150
S6	800	K6ET-800	170
S7	1250	K7ET-1250	240

For adding onto standard circuit breaker front terminals, extending available connection area for user termination. Suitable for spaded cable or bus connection. S3 – S5 include terminal covers.

Saddle cable lug kits (Cu cable only)

Suitable for use with	Max amps	Wire range	Set of 6 catalog number	List price
S3 – S4	250	14AWG – 250kcmil	K4TES	\$ 30
S5	400	250kcmil – 500kcmil	K5TGS	90

These special non-aluminum cable lugs are for use with copper cable. Lugs are intended for use with copper cable or where non-aluminum connectors are required (marine, salt or corrosive environments).

Rear cable lug kits (Cu cable only)

Suitable for use with	Max amps	Wire range	Set of 6 catalog number	List price
S3 – S4	250	14AWG – 250kcmil	K4TER	\$ 30
S5	400	250kcmil – 500kcmil	K5TGR	90
S6	600	250kcmil – 500kcmil	K6THR	150
S6	800	250kcmil – 500kcmil	K6TJR	170

For use where cable connection from the back-rear of the breaker is desired.

① Suggested lugs for circuit breaker up to amps shown. Cable size and type determine maximum amperes.
② Includes lug covers.

External accessories

Rotary and variable depth handle operators

S1 – S7



K5RH



K5VD-M, K5VD-S12,
K5VD-H

Rotary handle operating mechanism

Frame	Catalog number	List price
S3 – S4 – S5	K5RH	\$ 108
S6	K6RH	124
S7	K7RH	145

Mounts directly onto breaker. Includes door interlock to prevent CB door opening while CB is in ON position. Padlock provision included to padlock CB in open position. Can also be key locked with optional cylinder lock assembly. Door interlock bracket must be ordered separately, if required. See page 9.9.

Variable depth rotary handles

New pistol type 1, 3R, 12

Frame	Catalog number mechanism	List price	Shaft catalog number (length in inches)	List price	Handle catalog number (length in inches)	List price
S1–S2	K2VD-M	\$ 59			OHB45J10 (1.8) OHG45J10 (1.8) OHB65J10 (2.6) OHG65J10 (2.6)	\$ 70
S3–S4–S5	K5VD-M	49	OX P10X148 (5.8) OX P10X225 (8.9) OX P10X500 (19.7)	\$ 24 26 32	OHB95J10 (3.7) OHG95J10 (3.7)	80
S6	K6VD-M	80			OHB125J10 (4.9) OHG125J10 (4.9)	90
S7	K7VD-M	80			OHB175J10 (6.9) OHG175J10 (6.9)	100

Pistol type 4

Frame	Catalog number mechanism	List price	Shaft catalog number (length in inches)	List price	Handle catalog number (length in inches)	List price
S1–S2	K2VD-M	\$ 59			OHB45L10 (1.8) OHG45L10 (1.8) OHB65L10 (2.6) OHG65L10 (2.6)	\$ 110
S3–S4–S5	K5VD-M	49	OX P10X148 (5.8) OX P10X225 (8.9) OX P10X500 (19.7)	\$ 24 26 32	OHB95L10 (3.7) OHG95L10 (3.7)	120
S6	K6VD-M	80			OHB125L10 (4.9) OHG125L10 (4.9)	130
S7	K7VD-M	80			OHB175L10 (6.9) OHG175L10 (6.9)	140

Pistol type 4 — metal

S3–S4–S5	K5VD-M	\$ 49				
S6	K6VD-M	80	K7VD-S25	\$ 34	K7VD-HM	\$ 190
S7	K7VD-M	80				

Square type 1

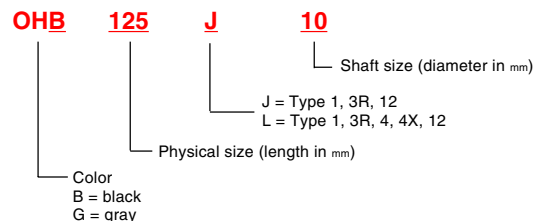
S1–S2	K2VD-M	\$ 59			K2VD-H	\$ 25
S3–S4–S5	K5VD-M	49	K5VD-S12	\$ 24	K5VD-H	25
S6	K6VD-M	80	K7VD-S20	27	K7VD-H	28
S7	K7VD-M	80			K7VD-H	28

NOTE: Complete assembly requires a mechanism, shaft and handle.

Variable depth shaft support

For frames	Catalog number	List price
S3 – S4 – S5	K5VD-LSS	\$ 25

New pistol handle catalog number explanation



Isomax

External accessories

Flange handle operators

S1 – S6



K4FH-17S12

Flange handle

New version — solid shaft linkage

Breaker	NEMA type	Complete handle kit	List price	Mechanism only	List price	Shaft only	Shaft length	List price	Handle only	List price		
S1 – S2	1,3R, 12	K2FHD-12S12	\$ 240	K2FHD-M	\$ 128	K7FHD-S12	12	\$ 19	K7FHD-HS12	\$ 93		
		K2FHD-17S12	248								K7FHD-S17	17
K2FHD-22S12	255	K7FHD-S22	22.5								34	
4	K2FHD-12S4	280	K7FHD-S12								12	19
	K2FHD-17S4	288	K7FHD-S17								17	27
	K2FHD-22S4	295	K7FHD-S22								22.5	34
S3	1,3R, 12	K3FHD-12S12	240	K3FHD-M	128	K7FHD-S12	12	19	K7FHD-HS12	93		
		K3FHD-17S12	248								K7FHD-S17	17
K3FHD-22S12	255	K7FHD-S22	22.5								34	
4	K3FHD-12S4	280	K7FHD-S12								12	19
	K3FHD-17S4	288	K7FHD-S17								17	27
	K3FHD-22S4	295	K7FHD-S22								22.5	34
S4	1,3R, 12	K4FHD-12S12	240	K4FHD-M	128	K7FHD-S12	12	19	K7FHD-HS12	93		
		K4FHD-17S12	248								K7FHD-S17	17
K4FHD-22S12	255	K7FHD-S22	22.5								34	
4	K4FHD-12S4	280	K7FHD-S12								12	19
	K4FHD-17S4	288	K7FHD-S17								17	27
	K4FHD-22S4	295	K7FHD-S22								22.5	34
S5	1,3R, 12	K5FHD-12S12	240	K5FHD-M	128	K7FHD-S12	12	19	K7FHD-HS12	93		
		K5FHD-17S12	248								K7FHD-S17	17
K5FHD-22S12	255	K7FHD-S22	22.5								34	
4	K5FHD-12S4	280	K7FHD-S12								12	19
	K5FHD-17S4	288	K7FHD-S17								17	27
	K5FHD-22S4	295	K7FHD-S22								22.5	34
S6	1,3R, 12	K6FHD-12S12	523	K6FHD-M	411	K7FHD-S12	12	19	K7FHD-HS12	93		
		K6FHD-17S12	531								K7FHD-S17	17
K6FHD-22S12	538	K7FHD-S22	22.5								34	
4	K6FHD-12S4	563	K7FHD-S12								12	19
	K6FHD-17S4	571	K7FHD-S17								17	27
	K6FHD-22S4	578	K7FHD-S22								22.5	34

Available as complete kits including flange handle, shaft and breaker operating mechanism. Mechanism mounts directly onto breaker and shaft can be cut to the desired length for the breaker enclosure. Door is interlocked with the handle when the breaker is in the closed (ON) position; handles include interlock defeater for emergency override. Handle can be padlocked in the open (OFF) position. Can be field converted for left hand mounting.

Flange handle

New version — cable linkage

Breaker	NEMA type	Mech & handle kit [Ⓞ]	List price	Mechanism only	List price	Cable only	Cable length	List price	Handle only	List price				
S1 – S2	1,3R, 12	K2FHDC-S12	\$ 291	K2FHDC-M	\$ 198	K6FHDC-036	36"(91mm)	\$ 114	K7FHD-HS12	\$ 93				
											K6FHDC-060	60"(152mm)	146	
4	K2FHDC-S4	331	K2FHDC-M			198	K6FHDC-036	36"(91mm)	114	K7FHD-HS4	133			
												K6FHDC-060	60"(152mm)	146
												S3	1,3R, 12	K3FHDC-S12
K6FHDC-060	60"(152mm)	146												
4	K3FHDC-S4	331	K3FHDC-M	198	K6FHDC-036	36"(91mm)	114	K7FHD-HS4	133					
										K6FHDC-060	60"(152mm)	146		
										S4	1,3R, 12	K4FHDC-S12	356	K4FHDC-M
K6FHDC-060	60"(152mm)	146												
4	K4FHDC-S4	396	K4FHDC-M	263	K6FHDC-036	36"(91mm)	114	K7FHD-HS4	133					
										K6FHDC-060	60"(152mm)	146		
										S5	1,3R, 12	K5FHDC-S12	396	
K6FHDC-060	60"(152mm)	146												
4	K5FHDC-S4	436	K5FHDC-M	303	K6FHDC-036	36"(91mm)	114	K7FHD-HS4	133					
										K6FHDC-060	60"(152mm)	146		

Notes: For complete assembly; mechanism, cable and handle are required.

All mechanisms above mount onto the right side of the breaker.

For mounting of the cable on the left side of the breaker, add "L" to mechanism part number. Price is unchanged.

Door hardware

Item	Catalog number	List price
Safety door latch, 2 point with 6" handle	FH-DHK	\$ 150
Roller for 3 point latch, add to FH-DHK	FH-3RL	30

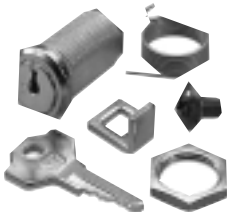
[Ⓞ] Cable not included.

External accessories

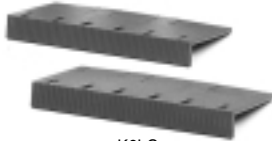
S1 – S7



K5LD



K7KL



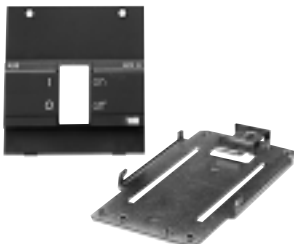
K6LC



K6LCH



K6LC-S



K3DMB

Front locking device

Item	Catalog number	List price
S1	K2LD	\$ 16
S3 – S4 – S5	K5LD	14
S6	K6LD	16
S7	K7LD	20

Mounts directly onto front of CB. Includes padlock device for locking CB in open position. Can be used as a manual handle block, with padlock or with optional key lock accessory. Optional door interlock kit that will prevent CB door from opening while CB is in the closed (ON) position.

Door interlock bracket

Item	Catalog number S3 – S7	List price
Bracket	K7DB	\$ 5

Key locks

Accessory	Keys	Catalog number		List price
		S3 – S4 – S5	S6 – S7	
Electric operator	different	K5KL-EO	K7KL-EO	\$ 25
	same	K5KL-EO-2	K7KL-EO-2	
Rotary HM & locking device	different	K7KL	K7KL	
	same	K7KL-2	K7KL-2	

Keyed cylinder locks are available for mounting onto Isomax electric operators, rotary handle mechanisms and front locking devices. Key locks can be for one individual circuit breaker (different keys in each order) or for two circuit breakers using the same key.

Terminal covers for fixed circuit breakers

Frame	Low profile catalog number	List price	High profile catalog number	List price
S5	K5LC	12	K5LCH	24
S6	K6LC	18	K6LCH	32
S7	K7LC	40	—	—

Both high and low types are available for fixed circuit-breakers. Covers provide IP40 degree of protection for fixed mounted circuit breakers. Lug covers are required and included as standard with S5 400A and S6 800A cable lug kits. Covers up to S6 can be sealed with lug cover seal shown in next section.

Terminal cover seals

Suitable for use with breakers	Used with LC covers	List price
S3 – S4 – S5 – S6	K6LC-S	\$ 5

These screws prevent the terminal covers from being removed.

DIN rail mounting kits

Suitable for use with breakers	Catalog number	List price
S1	K1DMB	\$ 11
S3	K3DMB	24
S4	K4DMB	26
S5	K5DMB	38

Kit consists of mounting bracket to fix S3-S5 breakers onto 75mm DIN rail (EN 50023 rail) and includes 45mm high front face plate to match up with miniature circuit breakers and manual motor starters. S1 breaker mounts on 35mm DIN rail.

Mechanical interlock plate

Frame	Horizontal catalog number	List price	Vertical catalog number	List price
S3	K3MI-H	\$ 570	K3MI-V	\$ 570
S4	K4MI-H	570	K4MI-V	570
S5	K5MI-H	590	K5MI-V	590
S6	K6MI-H	620	K6MI-V	620
S7	K7MI-H	630	K7MI-V	630

Provides for mounting of two similar breakers on a single mounting plate. CBs are interlocked via a "walking beam" type interlock, preventing breakers from being ON or closed at the same type. Both breakers can be OFF or tripped. MIP is available in two versions, one with breakers mounted horizontally and then also a version for vertical mounting of breakers.

Isomax



Accessories

S1 – S7

IEC



K4RC

Rear plug-in & drawout circuit breakers

K7TUT

Isomax

Rear connected stud kits^①

For breakers	Max. amps	Set of 6 catalog number	List price
S3 – S4	250	K4RC	\$ 87
S5	400	K5RC	225
S6	800	K6RC	280
S7	1200	K7RC	340

Provides means to connect breakers directly onto rear bus bars.

Rear plug-in and draw-out circuit breakers

Isomax breakers are available in both rear plug-in and complete draw-out configurations. Plug-in breakers can be rear bus, front bus or front cable connected and are available up to the S5 400A size. The draw-out configuration uses a unique racking system and is available for all breakers from S3 through S7.

Plug-in (3 pole)^①

Frame	Movable kit		Separate kits fixed and movable				Complete draw-out kits			
	Movable	List price	Ext fr bus	Fixed base kit	Rear conn.	List price	Ext fr bus	List price	Rear conn.	List price
S1	K1PMK	\$ 171	K1PFC ^②	\$ 171	K1PFR	\$ 207	K1PC ^②	\$ 342	K1PR	\$ 378
S3	K4PMK	203	K3PFF	190	K3PFR	230	K3PF	393	K3PR	433
S4	K4PMK	203	K4PFF	203	K4PFR	243	K4PF	406	K4PR	446
S5	K5PMK	238	K5PFF	278	K5PFR	278	K5PF	516	K5PR	516

Draw-out (3 pole)^①

Frame	Movable kit		Separate kits fixed and movable				Complete draw-out kits			
	Movable	List price	Ext fr bus	Fixed base kit	Rear conn.	List price	Ext Fr bus	List price	Rear conn.	List price
S3	K4WMK	\$ 203	K3WFF	\$ 230	K3WFR	\$ 270	K3WF	\$ 433	K3WR	\$ 473
S4	K4WMK	203	K4WFF	283	K4WFR	323	K4WF	486	K4WR	526
S5	K5WMK	278	K5WFF	318	K5WFR	318	K5WF	596	K5WR	596
S6 Horiz	K6WMK	523	K6WFF	1346	K6WFR-H	1346	K6WF	1869	K6WR-H	1869
S6 Vert	K6WMK	523	K6WFF	1346	K6WFR-V	1346	K6WF	1869	K6WR-V	1869
S7 Horiz	K7WMK	821	K7WFF	2111	K7WFR-H	2111	K7WF	2932	K7WR-H	2932
S7 Vert	K7WMK	821	K7WFF	2111	K7WFR-V	2111	K7WF	2932	K7WR-V	2932

Movable kit = parts needed to modify standard CB to movable type.

Fixed base kit = fix mount onto panel.

Ext Fr bus = fixed base with line and load side extended front bus connectors. (FF)

Rear Conn. = fixed base with line and load side rear bus connectors. (FR)

Complete kit = includes all parts required for plug-in or draw-out connection; does not include CB.

Plug-in = open breaker can be physically removed from fixed base without disconnecting cable or bus from fixed base. (P)

Draw-out = also known as withdrawable, breaker can be removed from fixed base via a through the door crank. Includes ON, TEST and OFF position. (W)

Four pole versions (plug-in and/or draw-out)

Take the above list prices times 1.35 for four (4) pole versions and add "-4" to the end of the catalog number.

Draw-out crank

Isomax frames	Catalog number	List price
S1 – S7	K7WCR	\$ 20

Cable termination kits (3 pole only)^①

Compression type cable lug kit used to modify extended front bus connectors for direct cable connection.

Frame	Set of 6	List price
S3	K4FCT	\$ 72
S4	K4FCT	72
S5	K5FCT	86

Hand-held test kit (for all electronic trip types)

Isomax frames	Catalog number	List price
S4 – S5 – S6 – S7	K7TUT	\$ 210

Isomax hand-held test kit is used to both test and exercise microprocessor trip units in breakers S4 through S7. Unit includes test forks that insert into the test plugs on all Isomax microprocessor trip units. Tester generates 15VDC signal that performs diagnostic on electronic trip functions and will confirm test by tripping the CB. Will not test S3 nor any molded case switch versions.

① IEC ratings only.

② Front cable connection.



Enclosures Type 1, 3R/12 Type 7/9



Description

Type 1

- General purpose indoor enclosure intended for use in normal environments to provide a degree of protection against contact with enclosed equipment.
- Sheet steel, surface mount.
- Breaker is front-operable and can be padlocked via front hasp.
- Available through 2500A, 600VAC
- UL Listed for use as service entrance equipment (SUSE), per UL file E116374.

Type 3R/12

- Type 3R is intended for outdoor use providing protection against rain, sleet or snow.
- Type 12 is for use in indoor atmospheres to provide a degree of protection against circulating dust, lint, sawdust, falling dirt and dripping non-corrosive liquids.
- Surface-mounted, sheet steel enclosure.
- Breaker can be operated via separately ordered handle mechanism; door is interlocked with mechanism.
- Available through 2500A, 600VAC.
- UL Listed for use as service entrance equipment (SUSE), per UL file E116374.

Type 7/9

- Cast from copper-free aluminum (max. 0.025 copper content)
- Stainless steel shotblasted or sandblasted natural finish
- Standard conduit openings in top and bottom
- Breaker is operated from front handle and can be padlocked
- NEC Class I Groups D, Div. 1 & 2
NEC Class II Groups E, F & G, Div 1 & 2
NEC Class III
- External machined flange joint design
- Integral cast mounting feet
- Machined flange for ease of hinge installation
- Ground lug
- Cast mounting pan bosses
- All enclosures suitable for drilling & tapping
- UL panel listed per UL File # E183868

Isomax



Isomax enclosures Type 1 & 3R/12



S3E-1



S4E-3R12

Enclosures (Price does not include circuit breaker; order as a separate item.) ^④

NEMA designation	Breaker type	Enclosure maximum rating		Approximate dimensions ^① H x W x D (inches)	Catalog number	List price
		AL cables	CU cables			
Type 1	S1	100A	100A	14 x 10 x 3.1	S1E-1	\$ 200
	S2 ^②	125A	125A	16 x 11 x 3.1	S2E-1	200
	S3	150A	225A	22 x 12 x 4.5	S3E-1	235
	S4	225A	250A	30 x 17.5 x 4.5	S4E-1	305
	S5	400A	400A	30 x 17.5 x 4.5	S5E-1	305
	S6	800A	800A	44 x 22 x 6	S6E-1	685
	S7	1000A	1200A	44 x 22 x 6	S7E-1	685
	S8	2500A	2500A	88 x 36 x 24	S8ES250-1	5285
Type 3R/12 ^③	S1	100A	100A	14 x 10 x 8.8	S1E-3R12	305
	S2 ^②	125A	125A	16 x 11 x 8	S2E-3R12	305
	S3	150A	225A	22 x 12 x 9	S3E-3R12	395
	S4	225A	250A	30 x 17.5 x 9	S4E-3R12	575
	S5	400A	400A	30 x 17.5 x 9	S5E-3R12	575
	S6	800A	800A	44 x 22 x 11	S6E-3R12	905
	S7	1000A	1200A	44 x 22 x 11	S7E-3R12	905
	S8	2500A	2500A	88 x 36 x 24	S8ES250-3R12	5285

Neutral kits

Breaker type	Neutral cable capacity and wire range	Neutral kit catalog number	List price
S1 – S2	Neutral #14-1/0 Bonding Lug #14-1/0	S2NK125	\$ 100
S3	Neutral #6-250 kcmil Bonding Lug #14-1/0	S3NK225	135
S4	Neutral #6-250 kcmil Bonding Lug #14-1/0 kcmil	S4NK250	155
S5	Neutral (2) #6-250 kcmil Bonding Lug #14-1/0 kcmil	S5NK400	260
S6	Neutral (2) #2-600 kcmil Bonding Lug #6-250 kcmil	S6NK800	350
S7	Neutral (4) #2-600 kcmil Bonding Lug #6-250 kcmil	S7NK1200	535
S8	Neutral (6) #1/0-750 kcmil Bonding Lug (2) #2-600 kcmil	—	included

^① Enclosures may not meet size requirement for UL 100% rated breakers.

^② Not UL approved.

^③ Variable depth rotary handle must be ordered separately (S1 - S7).

^④ Consult ABB for breakers installed in enclosures.

Isomax enclosures

Type 7/9



Explosion-proof enclosures

(Price does not include circuit breaker; order as a separate item for factory assembly.)

NEMA designation	Breaker type	Enclosure max. rating	Approximate dimensions H x W x D (inches)	Catalog number suffix	List price adder
Type 7/9	S3	Cu only 100A	17 x 10 x 8.65	7	\$ 2100
	S3	Cu only 225A	22.5 x 11.5 x 8.77	7	2850
	S4	Cu only 250A	25 x 18 x 9.92	7	4700
	S5	Cu only 400A	30 x 17 x 9.25	7	6600
	S6	Cu only 600A	35 x 17 x 11	7	8600
	S6	Cu only 800A	41 x 17 x 11	7	10,450
	S7	Cu only 1200A	51 x 17 x 13	7	22,450

To order a breaker in an explosion-proof enclosure, add the suffix "7" to the end of the catalog number and add the list price adder to the list price of the breaker.

Example: **S5N400BW7**
 S5N400BW breaker \$ 2151
 Explosion proof enclosure 6600
 Total \$ 8751

Additional options

NEMA designation	Breaker type	Enclosure max. rating	NEMA 4X		Stainless steel bolts		Captive bolts		Drain	
			Cat. no. adder	List price adder	Cat. no. adder	List price adder	Cat. no. adder	List price adder	Cat. no. adder	List price adder
Type 7/9	S3	Cu only 100A	-X	\$ 130	-S	\$ 20	-B	\$ 145	-D	\$ 110
	S3	Cu only 225A	-X	145	-S	25	-B	170	-D	
	S4	Cu only 250A	-X	145	-S	45	-B	355	-D	
	S5	Cu only 400A	-X	175	-S	60	-B	415	-D	
	S6	Cu only 600A	-X	250	-S	60	-B	465	-D	
	S6	Cu only 800A	-X	315	-S	60	-B	535	-D	
	S7	Cu only 1200A	-X	430	-S	80	-B	600	-D	

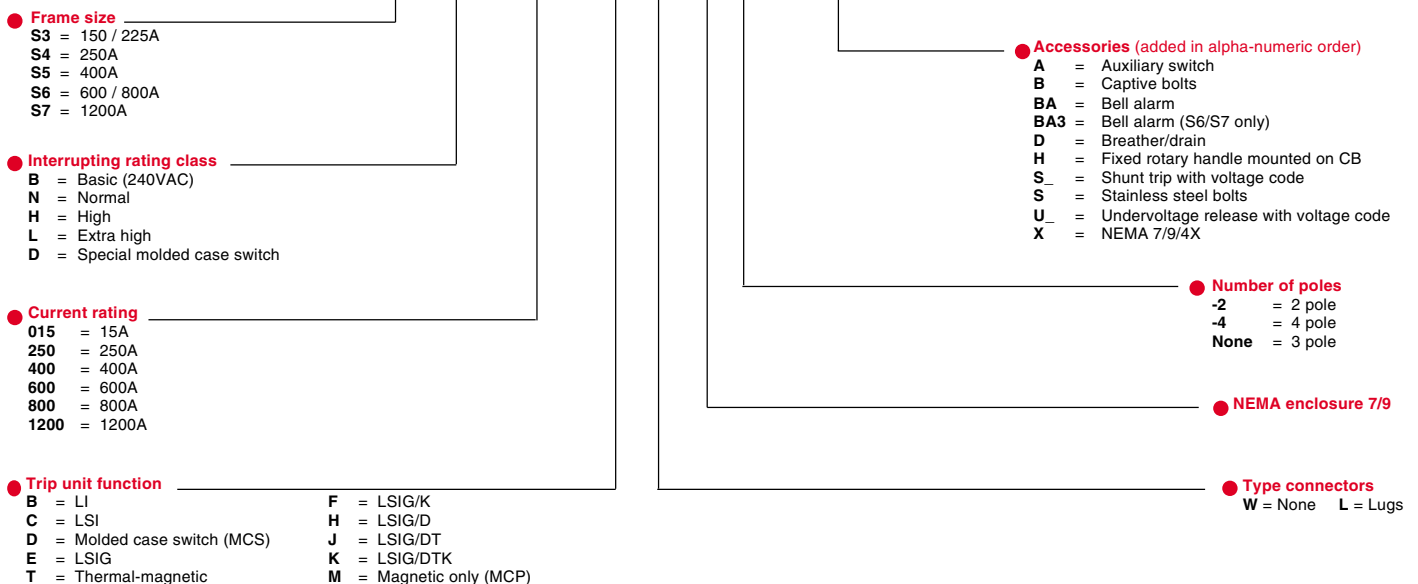
To add additional options, simply add the suffix to the end of the catalog number.

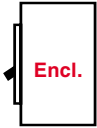
Example: **S5N400BW7XSD**
 S5N400BW breaker \$ 2151
 Explosion proof enclosure 6600
 NEMA 4X 175
 Stainless steel bolts 60
 Drain 110
 Total \$ 9096

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Catalog number information — Type 7/9

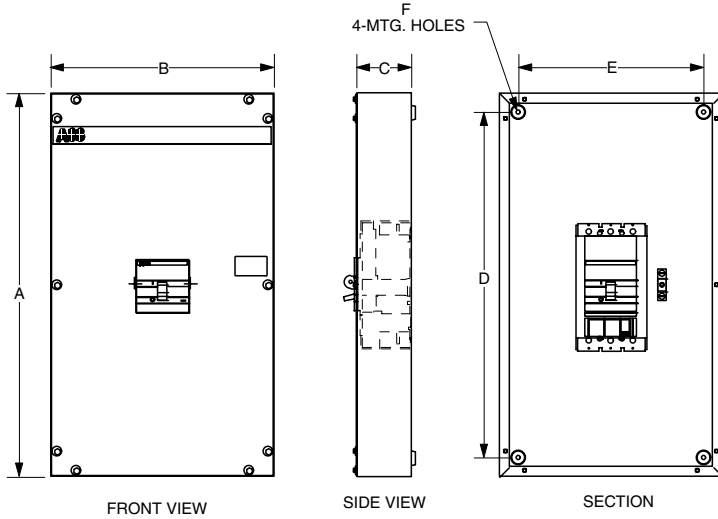
S4 N 250 BW7 - 2xxx





Approximate dimensions S1 – S7 enclosures NEMA 1, 3R & 12

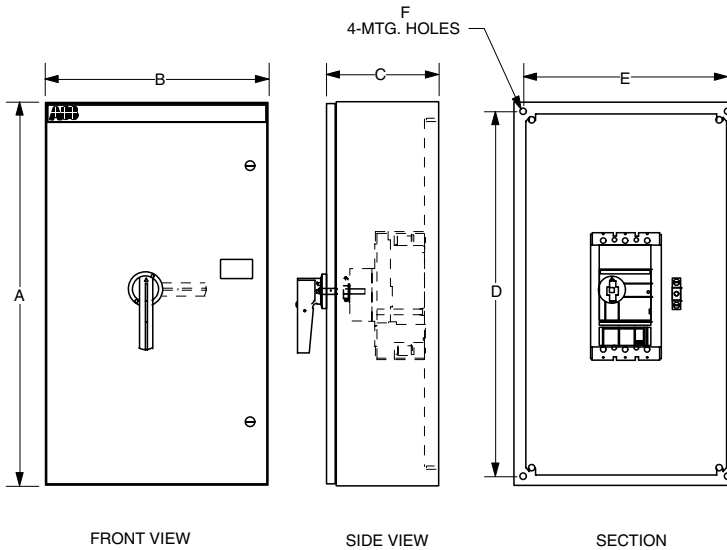
NEMA 1



CAT.#	A	B	C	D	E	F
S1E-1	14.0 355.6	10.0 254.0	2.85 72.39	11.0 279.4	7.0 177.8	.312 7.93
S2E-1	16.0 406.5	11.0 280.0	2.85 72.5	13.0 330.0	8.0 203.0	.312 7.93
S3E-1	22.0 559.0	12.0 305.0	4.25 108.0	19.0 482.0	9.0 229.0	.312 7.93
S4E-1	30.0 762.0	17.5 444.5	4.25 108.0	27.0 686.0	14.5 368.5	.312 7.93
S5E-1	30.0 762.0	17.5 444.5	4.25 108.0	27.0 686.0	14.5 368.5	.312 7.93
S6E-1	44.0 1118.0	22.0 559.0	5.75 146.0	41.0 1041.5	19.0 483.0	.312 7.93
S7E-1	44.0 1118.0	22.0 559.0	5.75 146.0	41.0 1041.5	19.0 483.0	.312 7.93

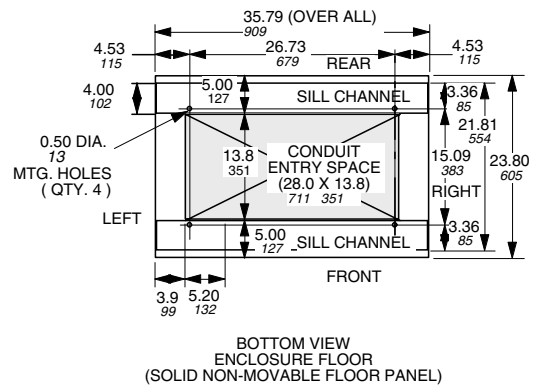
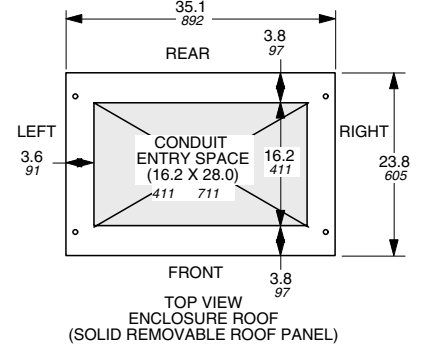
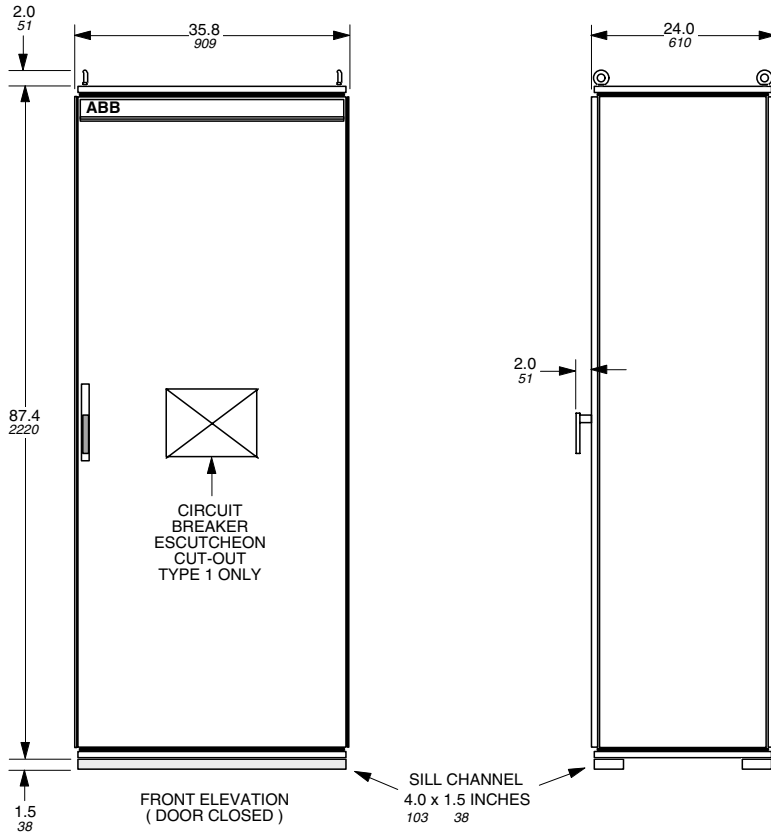
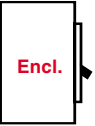
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NEMA 3R, 12

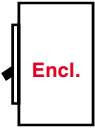


CAT.#	A	B	C	D	E	F
S1E-3R12	14.0 355.6	10.0 254.0	8.8 223.52	12.5 317.50	8.5 215.90	0.50 13.7
S2E-3R12	16.0 406.5	11.0 280.0	8.8 224.0	14.5 368.5	9.5 242.0	0.50 13.7
S3E-3R12	22.0 559.0	12.0 305.0	8.8 224.0	20.5 520.5	10.5 267.0	0.50 13.7
S4E-3R12	30.0 762.0	17.5 444.5	8.8 224.0	28.5 724.0	16.0 406.5	0.50 13.7
S5E-3R12	30.0 762.0	17.5 444.5	8.8 224.0	28.5 724.0	16.0 406.5	0.50 13.7
S6E-3R12	44.0 1118.0	22.0 559.0	10.8 274.5	42.5 1080.0	20.5 521.0	0.50 13.7
S7E-3R12	44.0 1118.0	22.0 559.0	10.8 274.5	42.5 1080.0	20.5 521.0	0.50 13.7

Approximate dimensions S8 enclosures NEMA 1, 3R & 12



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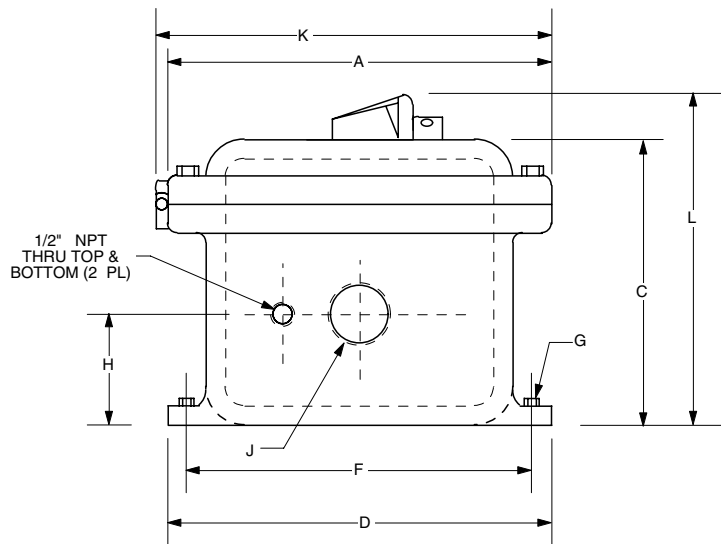
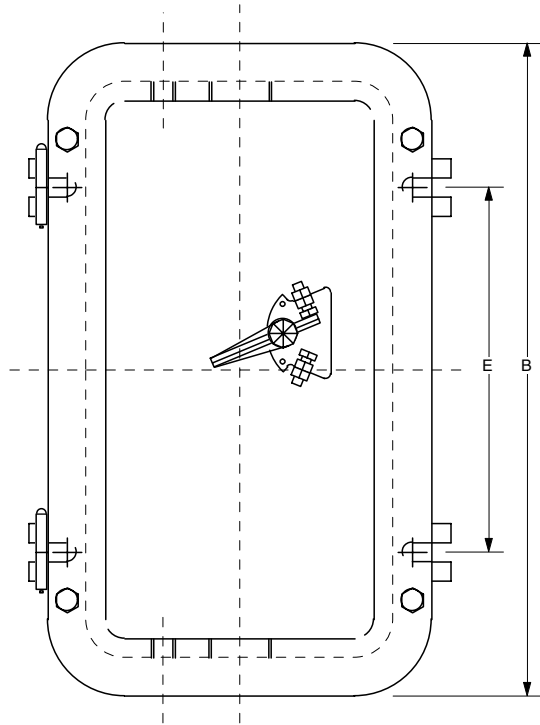


Approximate dimensions

S1 – S7 enclosures

NEMA 7 & 9

NEMA 7 & 9



Breaker type	A	B	C	D	E	F	G	H	J	K	L	Wgt.(lbs)
S3 100A	10.00 254.0	17.00 431.8	7.44 189.0	10.00 254.0	9.50 241.3	9.00 228.6	3/8 9.5	2.88 73.2	1-1/2 38.1	10.31 261.9	8.65 219.7	43
S3 225A	11.50 292.1	22.50 571.5	7.56 192.0	11.00 279.4	14.50 368.3	9.75 247.7	3/8 9.5	3.00 76.2	2-1/2 63.5	11.81 300.0	8.77 222.8	70
S4 250A	17.00 431.8	25.00 635.0	8.50 215.9	18.00 457.2	14.38 365.3	15.75 400.0	1/2 13	3.13 79.5	2-1/2 63.5	17.81 452.4	9.92 252.0	124
S5 400A	17.13 435.1	29.13 739.9	7.63 193.8	18.00 457.2	18.75 476.3	15.75 400.0	1/2 13	2.75 69.9	3 76.2	17.94 455.7	9.05 229.9	141
S6 600A	17.00 431.8	35.00 889.0	9.63 244.6	18.00 457.2	23.00 584.2	15.75 400.0	1/2 13	3.75 95.3	4 101.6	17.81 452.4	11.05 280.7	203
S6 800A	17.00 431.8	41.00 1041.4	9.63 244.6	18.00 457.2	29.00 736.6	15.75 400.0	1/2 13	3.88 98.6	4 101.6	17.81 452.4	11.05 280.7	236
S7 1200A	17.13 435.1	51.13 1298.7	11.63 295.4	18.00 457.2	39.00 990.6	15.75 400.0	1/2 13	4.88 124.0	4 101.6	17.94 455.7	13.05 331.5	408

Technical data



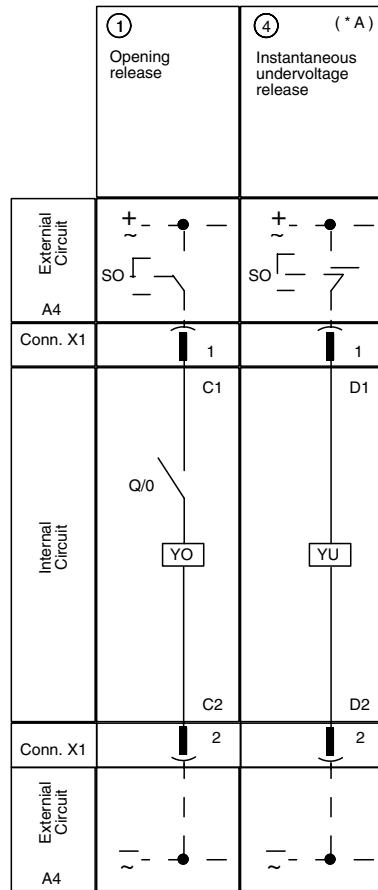
Ampacities of insulated conductors (From 1996 NEC Table 310-16)

Size AWG kcmil	Temperature rating of conductor						Size AWG kcmil
	60° C (140° F) Types TW★ UF★	75° C (167° F) Types FEPW★ RH★, RHW★ THHW★ THW★ THWN★ XHHW★ USE★, ZW★	90° C (194° F) Types TA, TBS, SA SIS, FEP★ FEBP, MI RHH, RHW-2 THHN, THHW USE-2, XHH XHHW XHHW-2, ZW-2	60° C (140° F) Types TW★ UF★	75° C (167° F) Types★ RH★, RHW★ THHW★ THW★ THWN★ XHHW★ USE★	90° C (194° F) Types TA, TBS SA, SIS THHN★ THHW★ THW-2, THWN-2 RHH, RHW-2 USE-2 XHH, XHHW XHHW-2, SW-2	
Copper			Aluminum or copper-clad				
18	—	—	14	—	—	—	—
16	—	—	18	—	—	—	—
14	20★	20★	25★	—	—	—	—
12	25★	25★	30★	20★	20★	25★	12
10	30	35★	40★	25	30★	35★	10
8	40	50	55	30	40	45	8
6	55	65	75	40	50	60	6
4	70	85	95	55	65	75	4
3	85	100	110	65	75	85	3
2	95	115	130	75	90	100	2
1	110	130	150	85	100	115	1
1/0	125	150	170	100	120	135	1/0
2/0	145	175	195	115	135	150	2/0
3/0	165	200	225	130	155	175	3/0
4/0	195	230	260	150	180	205	4/0
250	215	255	290	170	205	230	250
300	240	285	320	190	230	255	300
350	260	310	350	210	250	280	350
400	280	335	380	225	270	305	400
500	320	380	430	260	310	350	500
600	355	420	475	285	340	385	600
700	385	460	520	310	375	420	700
750	400	475	535	320	385	435	750
800	410	490	555	330	395	450	800
900	435	520	585	355	425	480	900
1000	455	545	615	375	445	500	1000
1250	495	590	665	405	485	545	1250
1500	520	625	705	435	520	585	1500
1750	545	650	735	455	545	615	1750
2000	560	665	750	470	560	630	2000

★Unless otherwise specifically permitted elsewhere, the overcurrent protection for conductor types marked with a star (★) shall not exceed 15 amperes for No. 14, 20 amperes for No. 12, and 20 amperes for No. 10 copper; or 15 amperes for No. 12 and 25 amperes for No. 10 aluminum and copper-clad aluminum after any correction factors for ambient temperature and number of conductors have been applied.

Ambient temperature °C	Correction factors						Ambient temperature °F
	For ambient temperatures other than 30° C (86° F) multiply the allowable ampacities shown above by the appropriate factor shown below.						
21 – 25	1.08	1.05	1.04	1.08	1.04	1.05	70 – 77
26 – 30	1.00	1.00	1.00	1.00	1.00	1.00	78 – 86
31 – 35	.91	.94	.96	.91	.94	.96	87 – 95
36 – 40	.82	.88	.91	.82	.88	.91	96 – 104
41 – 45	.71	.82	.87	.71	.82	.87	105 – 113
46 – 50	.58	.75	.82	.58	.75	.82	114 – 122
51 – 55	.41	.67	.76	.41	.67	.71	123 – 131
56 – 60	—	.58	.71	—	.58	.71	132 – 140
61 – 70	—	.33	.58	—	.33	.58	141 – 158
71 – 80	—	—	.41	—	—	.41	159 – 176

Isomax



Legend

- - Figure number of diagram
- A4 - Example switchgear and connections for control and signalling, outside the circuit-breaker
- Q/0 - Auxiliary contacts of the circuit-breaker
- SO - Pushbutton or contact for opening the circuit-breaker

Incompatibility:

The circuits indicated in the following figures cannot be powered simultaneously on the same circuit-breaker:
1 - 4 - 5 - 6 2 - 3

Availability:

Connectors X1 and X2 are only supplied to order for circuit breakers S1 -S2.

Notes:

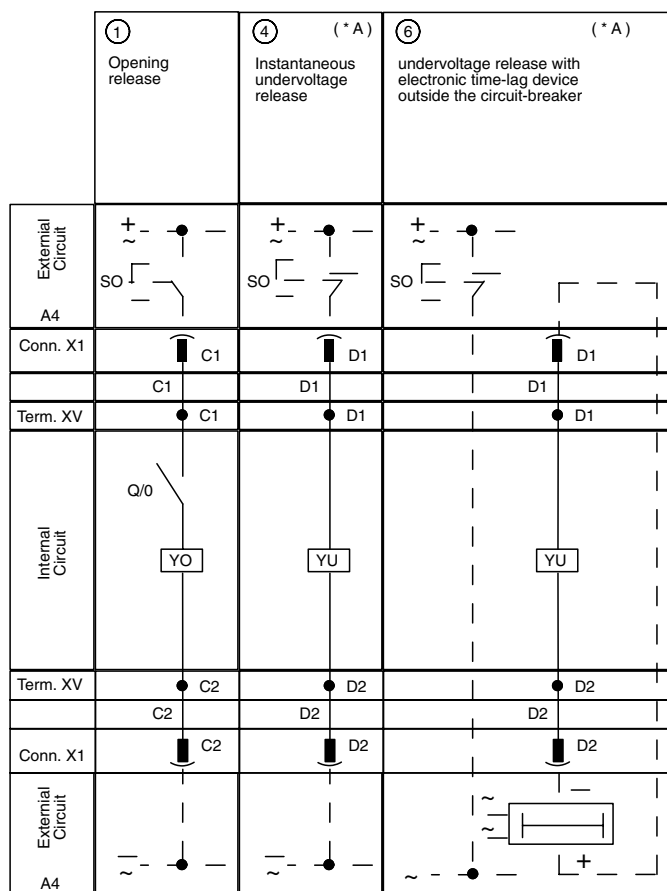
(* A) The undervoltage release is powered from upstream circuit-breaker or by an independent power supply: closing of the circuit-breaker is only allowed when the release is energized (the closing lock is implemented mechanically).

① Used for IEC S2.

Wiring diagrams

Duty releases

S3 – S7



Legend

- - Figure number of diagram
- A4 - Example switchgear and connections for control and signalling, outside the circuit-breaker
- Q/0 - Auxiliary contacts of the circuit-breaker
- SO - Pushbutton or contact for opening the circuit-breaker

Incompatibility:

The circuits indicated in the following figures cannot be powered simultaneously on the same circuit-breaker:
1 - 4 - 5 - 6 2 - 3

Availability:

Connectors X1 and X2 are only supplied to order for circuit breakers S1 -S2.

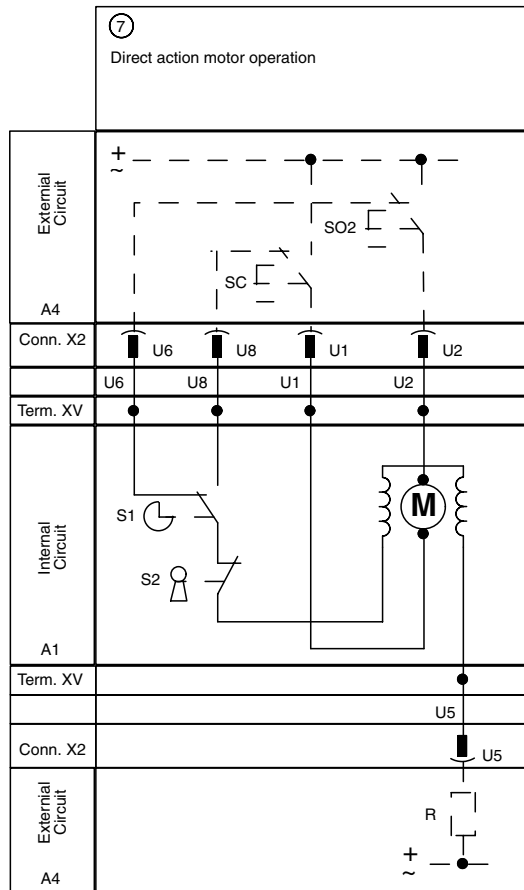
Notes:

(* A) The undervoltage release is powered from upstream of the circuit-breaker or by an independent power supply: closing of the circuit-breaker is only allowed when the release is energised (the closing lock is implemented mechanically).

Wiring diagrams

Motor operators

S3 – S5



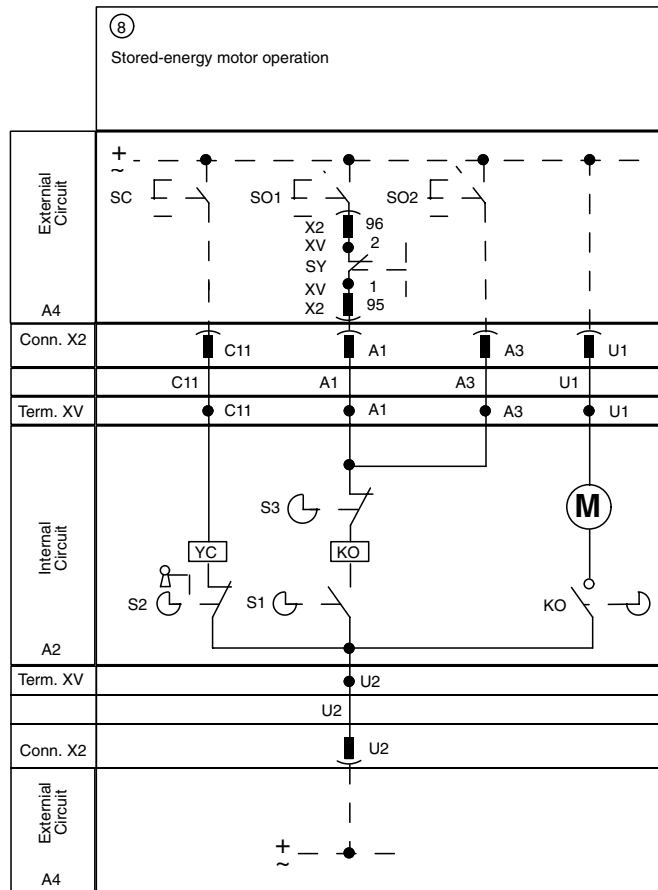
Legend

- O- Figure number of diagram
- A1 - Applications of the circuit-breaker
- A4 - Example switchgear and connections for control and signalling, outside the circuit-breaker
- M - For S6 - S7: motor for opening the circuit-breaker and loading the closing springs of the circuit-breaker
- S1 - For S3 - S4 - S5: position contact operated by a circuit-breaker cam for S6 - S7: contact controlled by the motor operated cam: closes when the circuit-breaker reaches it's closed position and opens when the circuit-breaker reaches its open position (doesn't switch when the circuit breaker goes into its tripped position)
- S2 - For S3 - S4 - S5: safety contact operated by:
 - key lock (if mounted)
 - padlock device
 - local control Allen key
- SC - Pushbutton or contact for closing the circuit-breaker. For circuit breakers S3 - S4 - S5, the operating mechanism must have a time of not less than 100ms
- S02 - Pushbutton or contact for opening the circuit-breaker. For circuit breakers S3 - S4 - S5, the operating mechanism must have a time of not less than 100 ms (see instructions for resetting the circuit-breaker after the releases have tripped).

Wiring diagrams

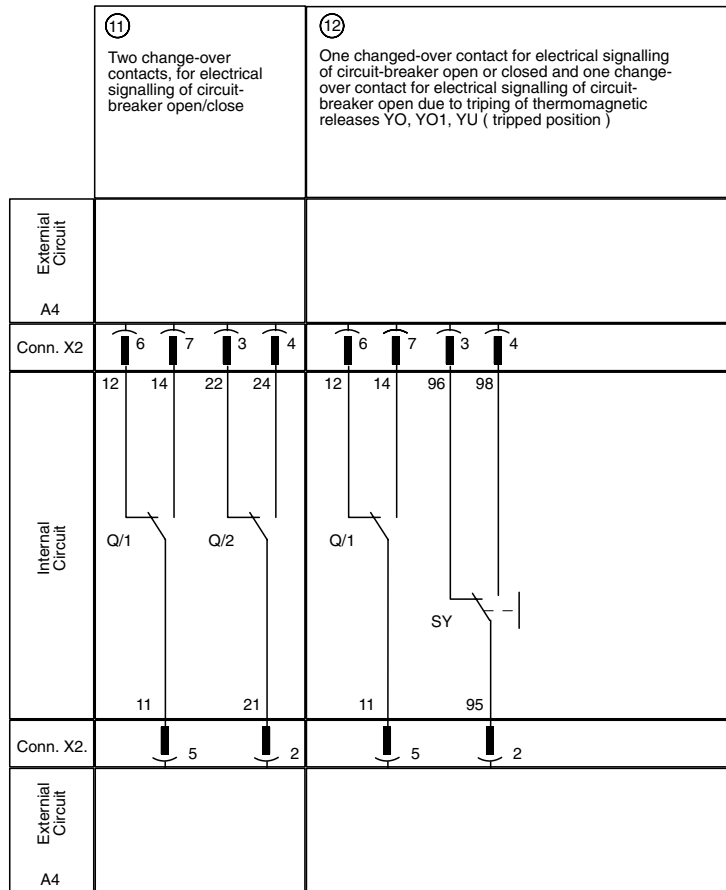
Motor operators

S6 – S7



Legend

- | | |
|--|--|
| <ul style="list-style-type: none"> O- Figure number of diagram A1 - Applications of the circuit-breaker A2 - Applications of the motor operators A4 - Example switchgear and connections for control and signalling, outside the circuit breaker S1 - For S3 - S4 - S5: position contact operated by a circuit breaker cam for S6 - S7: contact controlled by the motor operated cam: closes when the circuit breaker reaches its closed position and opens when the circuit breaker reaches its open position (doesn't switch when the circuit breaker goes into its tripped position) S2 - For S3 - S4 - S5: safety contact operated by: <ul style="list-style-type: none"> - key lock (if mounted) - padlock device - local control Allen key SC - Pushbutton or contact for closing the circuit breaker. For circuit breakers S3 - S4 - S5, the operating mechanism must have a time of not less than 100ms | <ul style="list-style-type: none"> SO1 Pushbutton or contact for opening the circuit breaker SO2 - For circuit breakers S3 - S4 - S5, the operating mechanism must have a time of not less than 100ms (see instructions for resetting the circuit breaker after the releases have tripped) SY - Contact for electrical signalling of circuit breaker open due to tripping of thermomagnetic releases, YO, YO1, YU (tripped position) KO - For S6 - S7: opening and spring-loading relay with held position make contact, released by a cam of the motor operator when the circuit breaker reaches its open position and the closing springs have been loaded M - For S6 - S7: motor for opening the circuit breaker and loading the closing springs of the circuit breaker X1 - Connectors for the auxiliary circuits of the circuit breaker X2 - For circuit breakers S1 - S2 supplied for order only XV - Terminal block for accessories YC - Closing release |
|--|--|



Legend

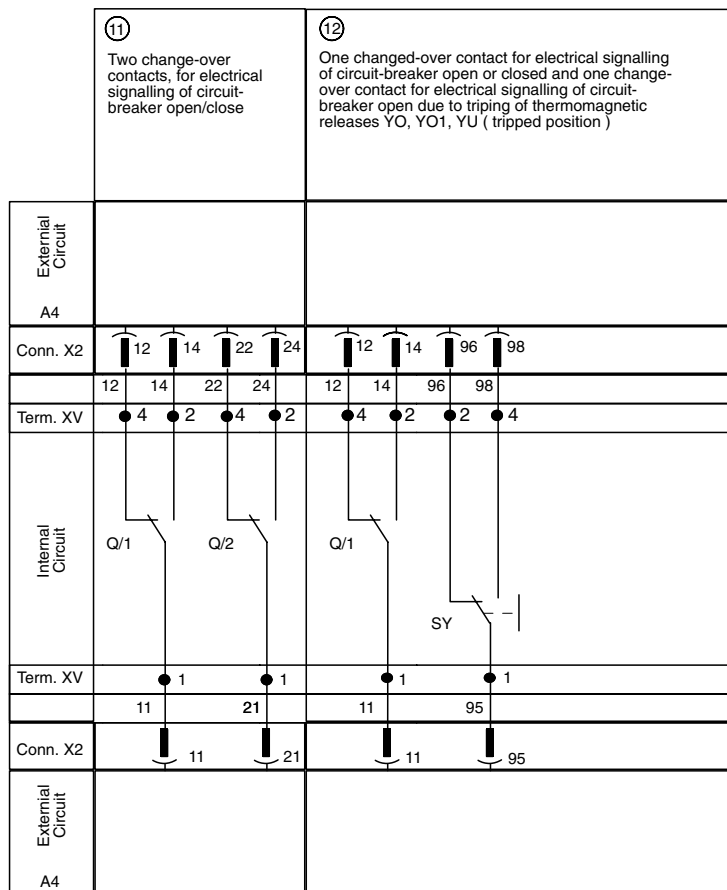
- O- Figure number of diagram
- A4 - Example switchgear and connections for control and signalling, outside the circuit breaker
- Q/1...2 - Auxiliary contacts of the circuit breaker
- SY - Contact for electrical signalling of circuit breaker open due to tripping of thermomagnetic releases YO, YO1, YU (tripped position)

① Used for IEC S2.

Wiring diagrams

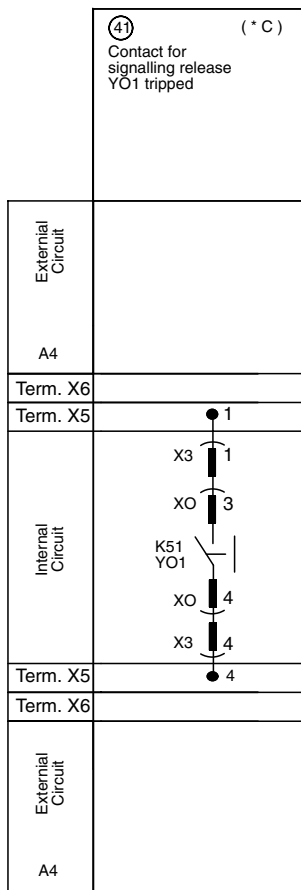
Auxiliary contacts

S3 – S7



Legend

- O- Figure number of diagram
- A4 - Example switchgear and connections for control and signalling, outside the circuit breaker
- Q/1...2 - Auxiliary contacts of the circuit breaker
- SY - Contact for electrical signalling of circuit breaker open due to tripping of thermomagnetic releases YO, YO1, YU (tripped position)



Legend

- O- Figure number of diagram
- A4 - Example switchgear and connections for control and signalling, outside the circuit breaker
- K51/YO1 - Electrical signalling of alarm for release YO1 tripped due to overcurrent or "trip test"
- X3 - Connectors for the circuits of the microprocessor-based overcurrent release (with plug in or withdrawable circuit breakers, the connectors are pulled out at the same time as the circuit breaker)
- XO - Connector for the opening solenoid YO1

Incompatibility:

The circuits indicated in the following figures cannot be powered simultaneously on the same circuit breaker:
11 - 12 - 13 41 - 42 - 43 - 44

Availability:

Connectors X1 and X2 are only supplied to order for circuit breakers S1 - S2.

Notes:

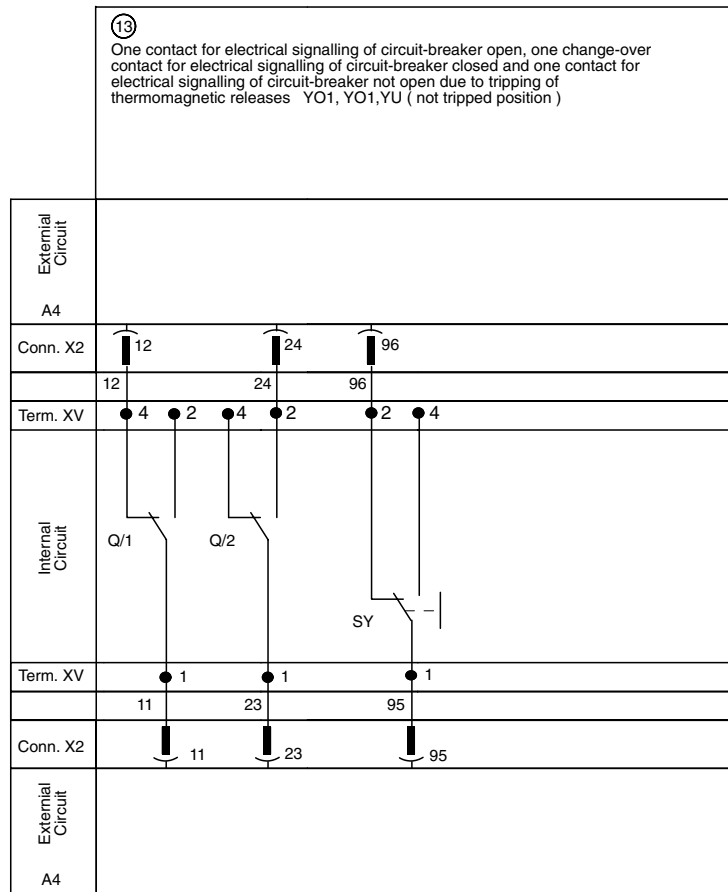
(*C) The electrical signalling contact for the microprocessor-based overcurrent release, shown in Fig. 41, has the following electrical characteristics:

- ¥ rated voltage = 24V
- ¥ breaking capacity (resistive load = 3 W/VA)
- ¥ maximum interrupted current = 0.5A
- ¥ For S4 - S5 available with PR212/P release only

Wiring diagrams

Auxiliary contacts

S6 – S7



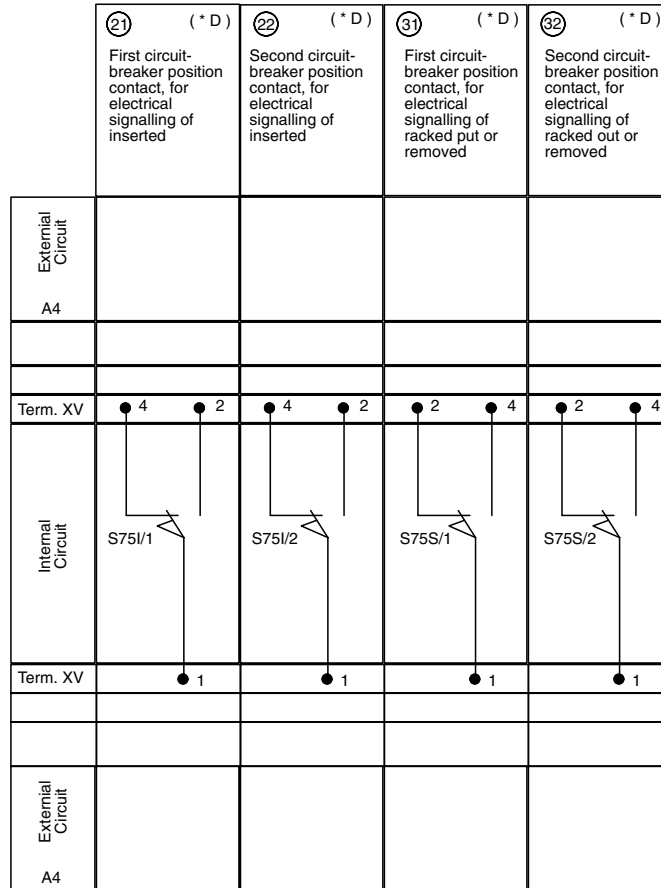
Legend

- O- Figure number of diagram
- A4 - Example switchgear and connections for control and signalling, outside the circuit breaker
- Q/1...2 - Auxiliary contacts of the circuit breaker
- SY - Contact for electrical signalling of circuit breaker open due to tripping of thermomagnetic releases YO, YO1, YU (tripped position)

Wiring diagrams

Position contacts

S3



Legend

- O- Figure number of diagram
- A4 - Example switchgear and connections for control and signalling, outside the circuit breaker
- S75I/1...5 - Contacts for electrical signalling of circuit breaker in inserted position (only for plug in or withdrawable circuit breakers, see Note D.)
- S75S/1...5 - Contacts for electrical signalling of circuit breaker in removed or racked out position (only for plug in or withdrawable circuit breakers, see Note D.)

Incompatibility

The circuits indicated in the following figures cannot be powered simultaneously on the same circuit breaker:
20 - 21 - 31, 22 - 32, 23 - 33, 24 - 34, 25 - 35

Notes

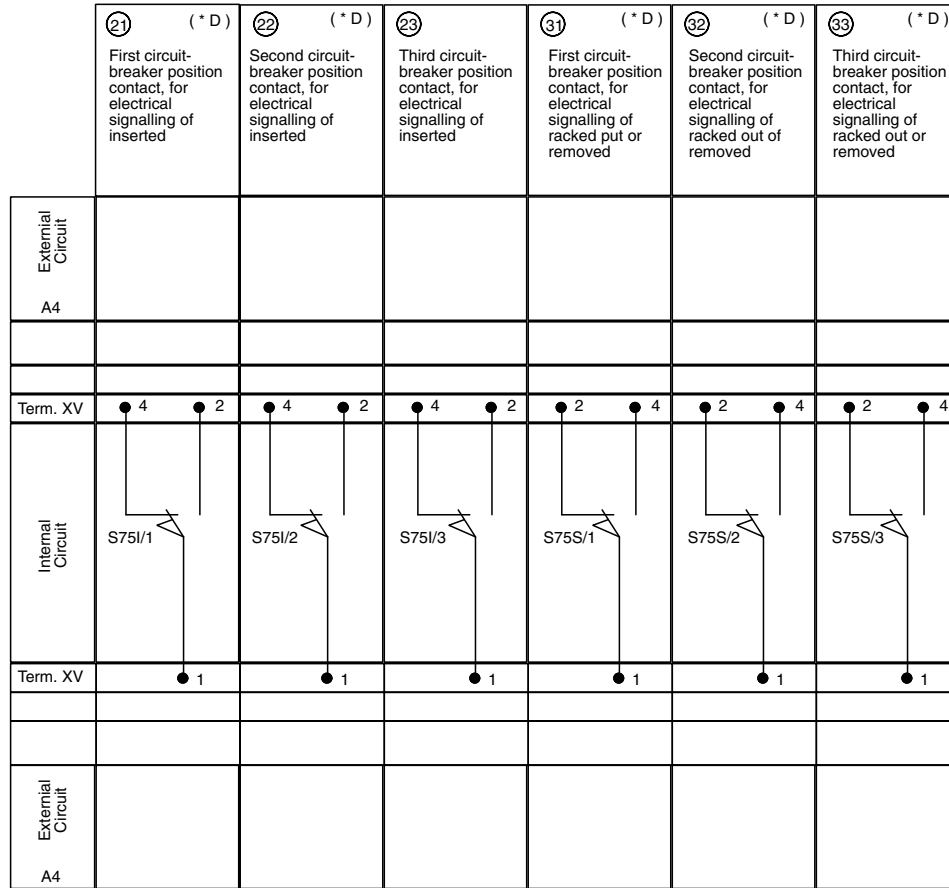
(*D) The circuit breaker can be mounted with position contacts S75I and S75S in any combination up to a maximum of:

- ¥ Total of 2 contacts for S3
- ¥ Total of 3 contacts for S4, S5
- ¥ Total of 5 contacts for S6, S7

Wiring diagrams

Position contacts

S4 – S5



Legend

- O- Figure number of diagram
- A4 - Example switchgear and connections for control and signalling, outside the circuit breaker
- S75I/1...5 - Contacts for electrical signalling of circuit breaker in inserted position (only for plug in or withdrawable circuit breakers, see Note D.)
- S75S/1...5 - Contacts for electrical signalling of circuit breaker in removed or racked out position (only for plug in or withdrawable circuit breakers, see Note D.)

Incompatibility

The circuits indicated in the following figures cannot be powered simultaneously on the same circuit breaker:
20 - 21 - 31, 22 - 32, 23 - 33, 24 - 34, 25 - 35

Notes

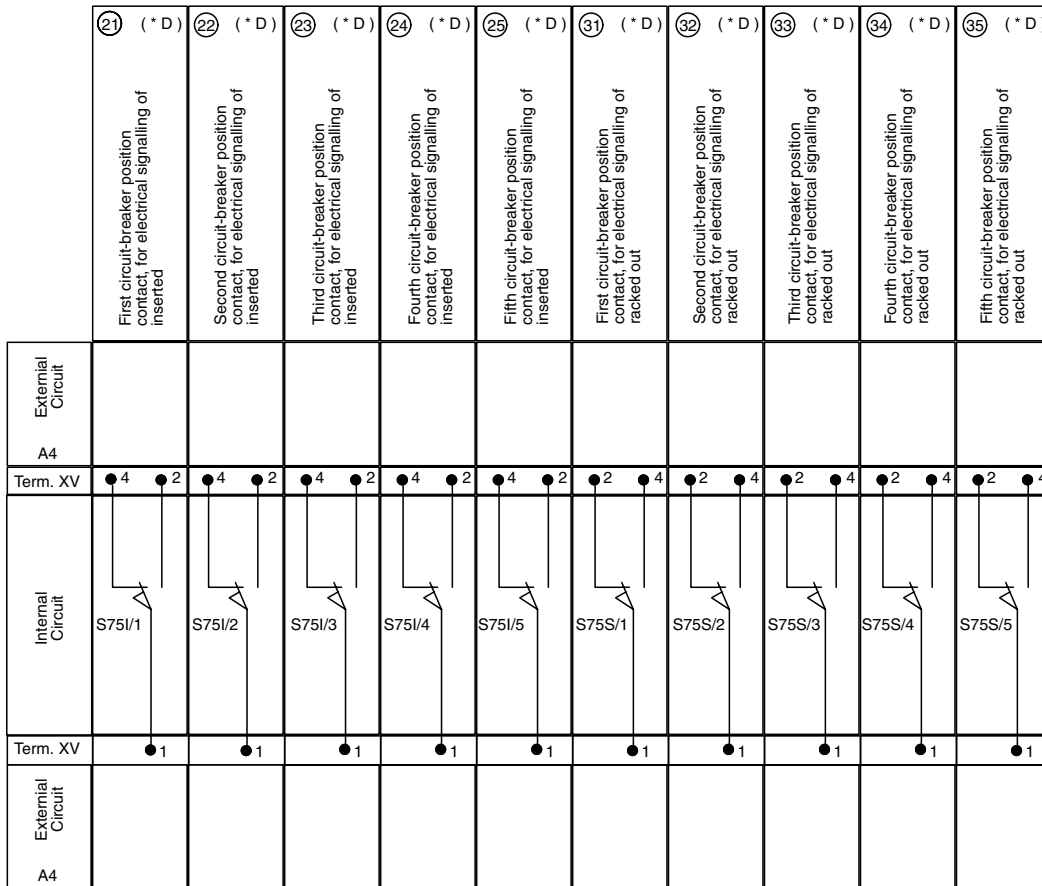
(*D) The circuit breaker can be mounted with position contacts S75I and S75S in any combination up to a maximum of:

- ¥ Total of 2 contacts for S3
- ¥ Total of 3 contacts for S4, S5
- ¥ Total of 5 contacts for S6, S7

Wiring diagrams

Position contacts

S6 – S7



Legend

- O- Figure number of diagram
- A4 - Example switchgear and connections for control and signalling, outside the circuit breaker
- S75I/1...5 - Contacts for electrical signalling of circuit breaker in inserted position (only for plug in or withdrawable circuit breakers, see Note D.)
- S75S/1...5 - Contacts for electrical signalling of circuit breaker in removed or racked out position (only for plug in or withdrawable circuit breakers, see Note D.)

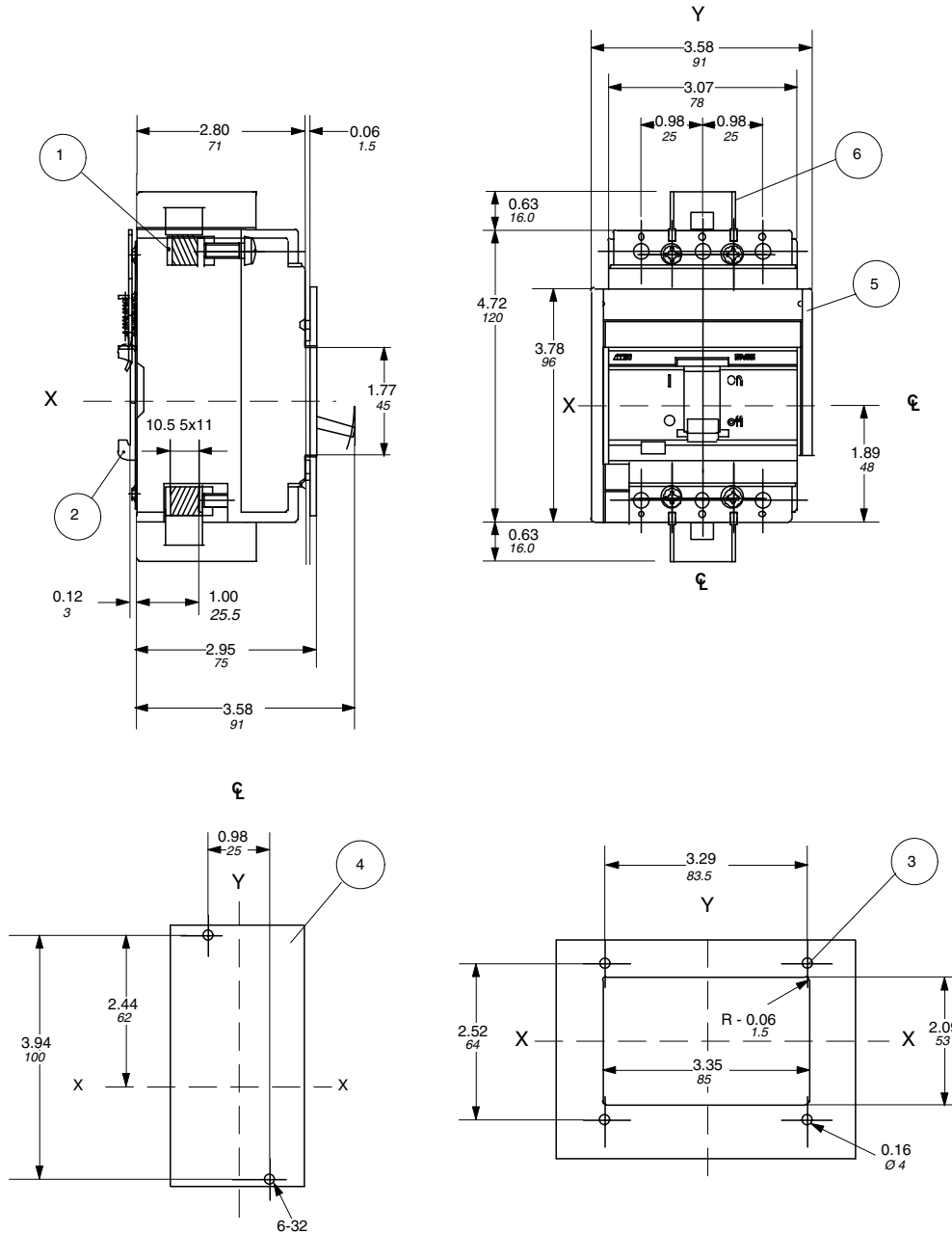
Incompatibility

The circuits indicated in the following figures cannot be powered simultaneously on the same circuit breaker:
 20 - 21 - 31, 22 - 32, 23 - 33, 24 - 34, 25 - 35

Notes

- (*D) The circuit breaker can be mounted with position contacts S75I and S75S in any combination up to a maximum of:
 - ¥ Total of 2 contacts for S3
 - ¥ Total of 3 contacts for S4, S5
 - ¥ Total of 5 contacts for S6, S7

Approximate dimensions S1 Fixed version, front



LEGEND

- 1-FRONT TERMINALS FOR CABLE OR FOR FLAT BAR
- 2-MOUNTING ON CHANNEL TO DIN EN 50022 (OPTIONAL)
- 3-COMPARTMENT DOOR SHEET STEEL DRILLING FOR FIXING THE FLANGE
- 4-MOUNTING ON SHEET STEEL
- 5-FLANGE FOR THE COMPARTMENT DOOR
- 6-INSULATING BARRIER

WIRE RANGE	WIRE TORQUE
14 AWG - 8 AWG	22 lb-in
6 AWG - 3 AWG	44 lb-in

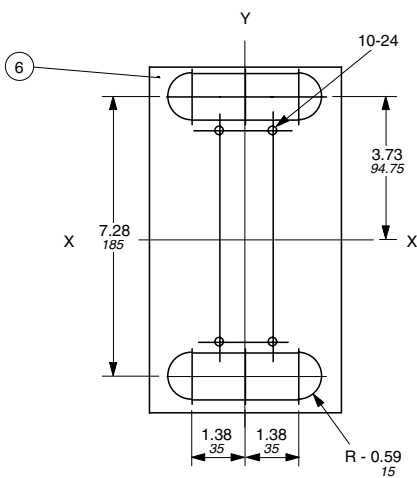
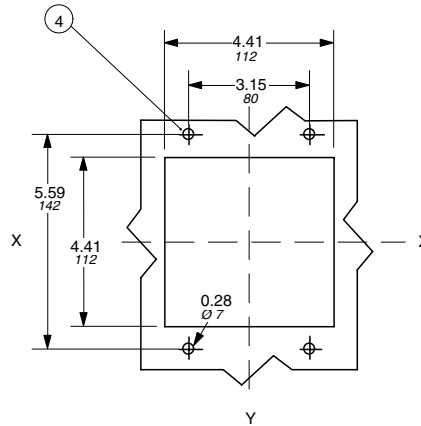
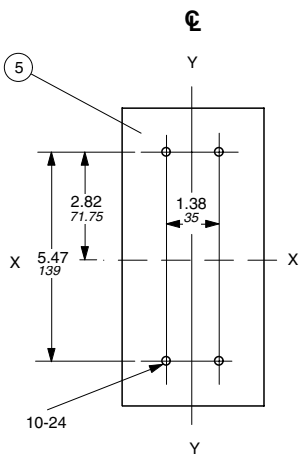
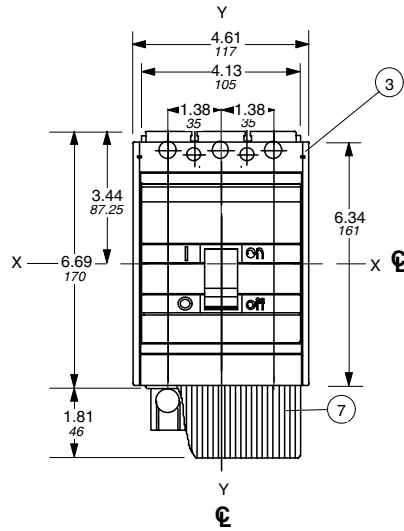
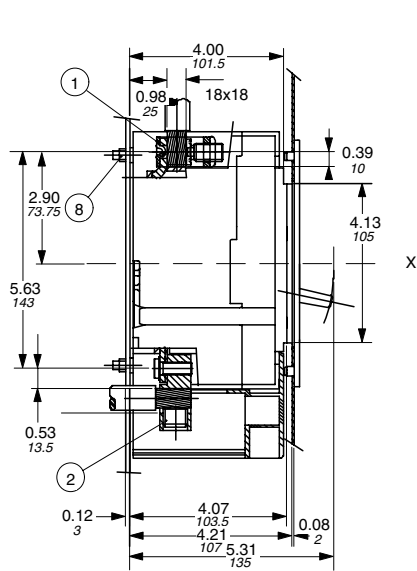
COPPER WIRE ONLY



Approximate dimensions S3 Fixed version, front

← 00.00 → Inches
00.00 → Millimeters

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LEGEND

- 1-FRONT TERMINALS FOR CABLE CONNECTION
- 2-REAR TERMINALS FOR CABLE CONNECTION
- 3-FLANGE FOR THE COMPARTMENT DOOR
- 4-COMPARTMENT DOOR SHEET STEEL DRILLING FOR FIXING THE FLANGE
- 5-MOUNTING ON SHEET STEEL
- 6-MOUNTING ON SHEET STEEL WITH REAR CABLE TERMINALS
- 7-HIGH TERMINAL COVERS WITH IP 20 PROTECTION DEGREE
- 8-TIGHTENING TORQUE 17.70 lb-in

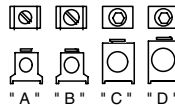
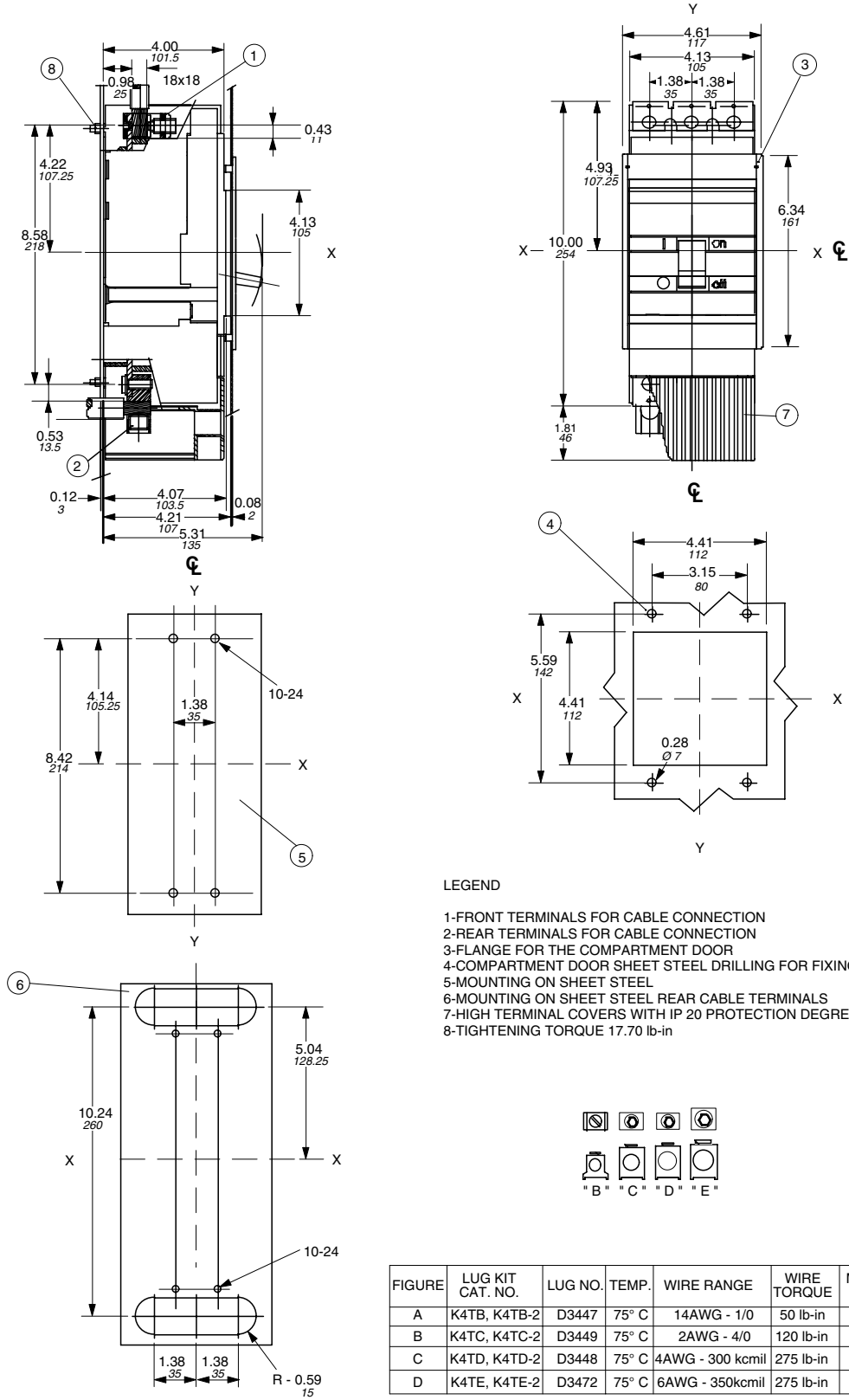


FIGURE	LUG KIT CAT. NO.	LUG NO.	TEMP.	WIRE RANGE	WIRE TORQUE	MOUNTING TORQUE	WIRE SCREW SIZE
A	K3TA, K3TA-2	D3477	75° C	14AWG - 2AWG	50 lb-in	130 lb-in	SLOT
B	K4TB, K4TB-2	D3447	75° C	14AWG - 1/0	50 lb-in	130 lb-in	SLOT
C	K4TC, K4TC-2	D3449	75° C	2AWG - 4/0	120 lb-in	150 lb-in	3/16
D	K4TD, K4TD-2	D3448	75° C	4AWG - 300kcmil	275 lb-in	150 lb-in	1/4

00.00 Inches
00.00 Millimeters

Approximate dimensions S4 Fixed version, front

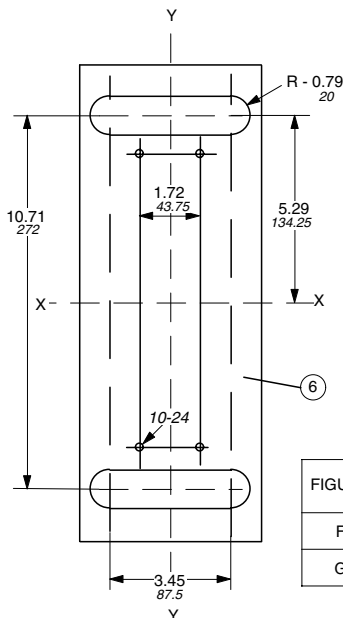
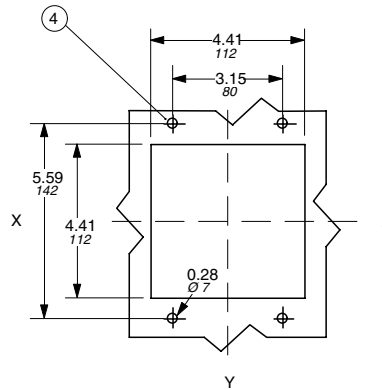
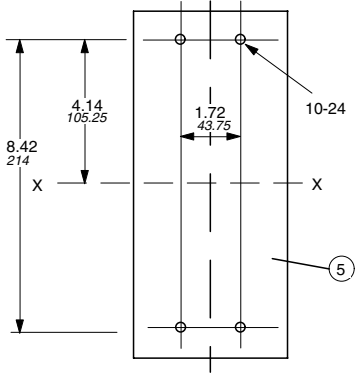
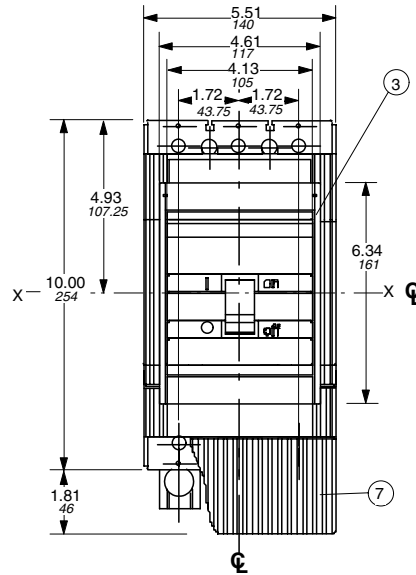
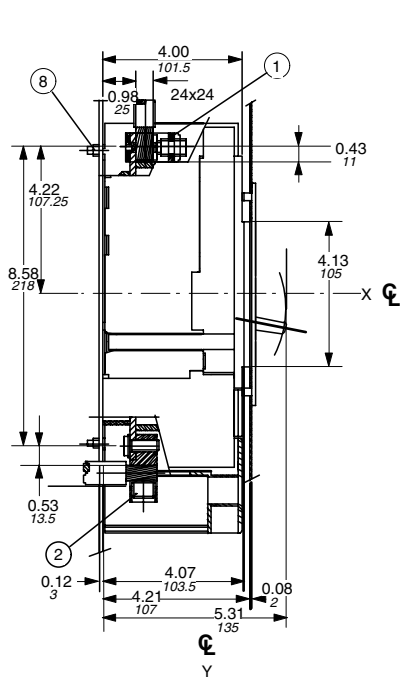


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Dim.

Approximate dimensions S5 Fixed version, front

00.00 Inches
00.00 Millimeters



LEGEND

- 1-FRONT TERMINALS FOR CABLE CONNECTION
- 2-REAR TERMINALS FOR CABLE CONNECTION
- 3-FLANGE FOR THE COMPARTMENT DOOR
- 4-COMPARTMENT DOOR SHEET STEEL DRILLING FOR FIXING THE FLANGE
- 5-MOUNTING ON SHEET STEEL
- 6-MOUNTING ON SHEET STEEL REAR CABLE TERMINALS
- 7-HIGH TERMINAL COVERS WITH IP 20 PROTECTION DEGREE
- 8-TIGHTENING TORQUE 17.70 lb-in

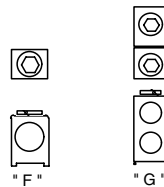
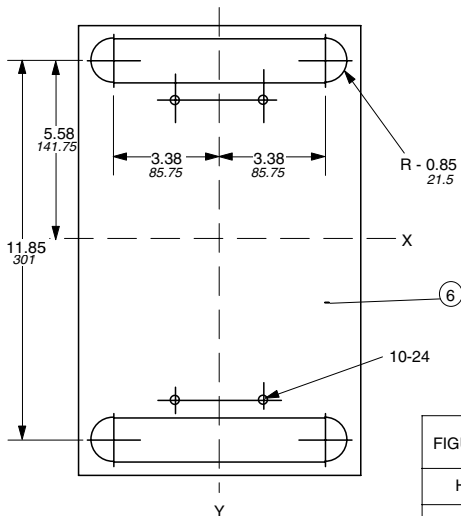
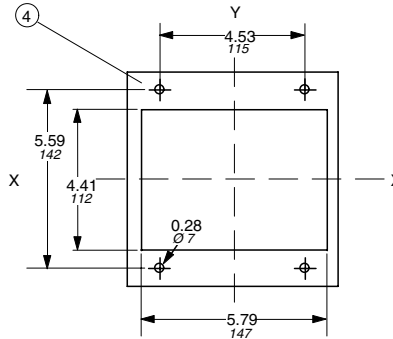
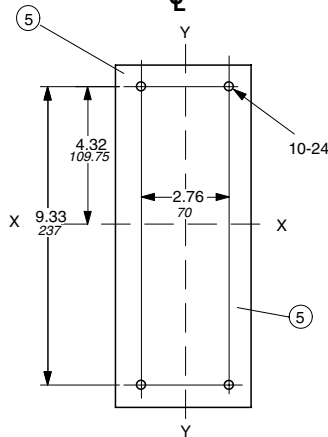
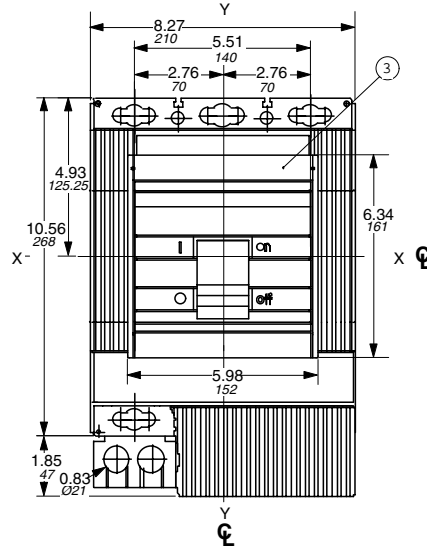
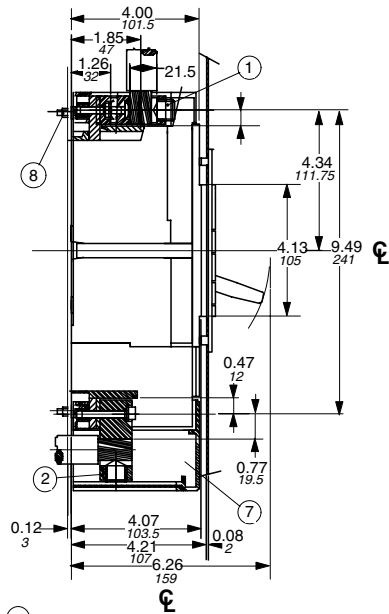


FIGURE	LUG KIT CAT. NO.	LUG NO.	TEMP.	WIRE RANGE	WIRE TORQUE	MOUNTING TORQUE	WIRE SCREW SIZE
F	K5TF, K5TF-2	D3450	75° C	250 - 500 kcmil	375 lb-in	175 lb-in	3/8
G	K5TG, K5TG-2	D3484	75° C	3/0 - 250 kcmil (2)	275 lb-in	175 lb-in	5/16

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Approximate dimensions S6 Fixed version, front



LEGEND

- 1-FRONT TERMINALS FOR CABLE PROTECTION
- 2-REAR TERMINALS FOR CABLE CONNECTION
- 3-FLANGE FOR THE COMPARTMENT DOOR
- 4-COMPARTMENT DOOR SHEET STEEL DRILLING TEMPLATE
- 5-MOUNTING ON SHEET STEEL
- 6-MOUNTING ON SHEET STEEL REAR CABLE TERMINALS
- 7-HIGH TERMINAL COVERS WITH IP 20 PROTECTION DEGREE
- 8-TIGHTENING TORQUE 17.70 lb-in

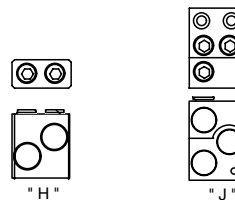
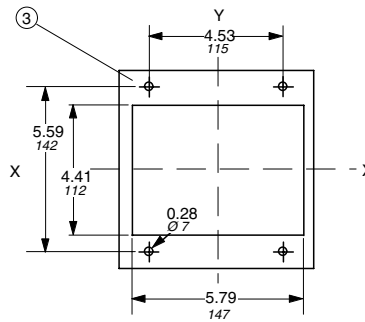
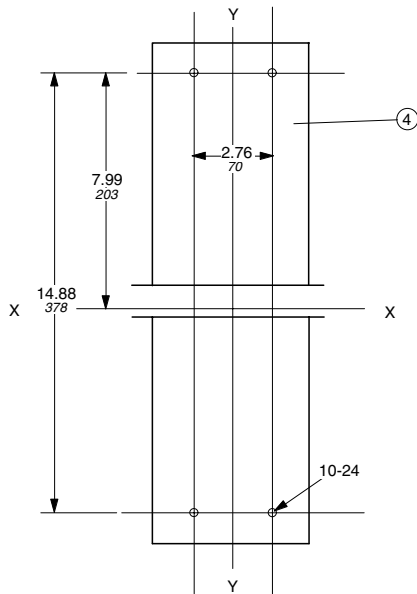
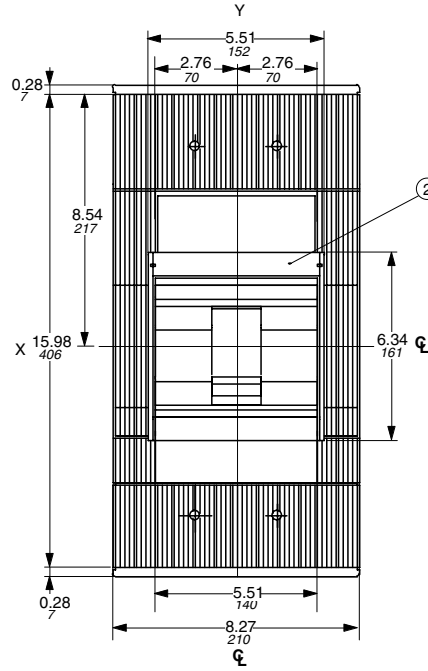
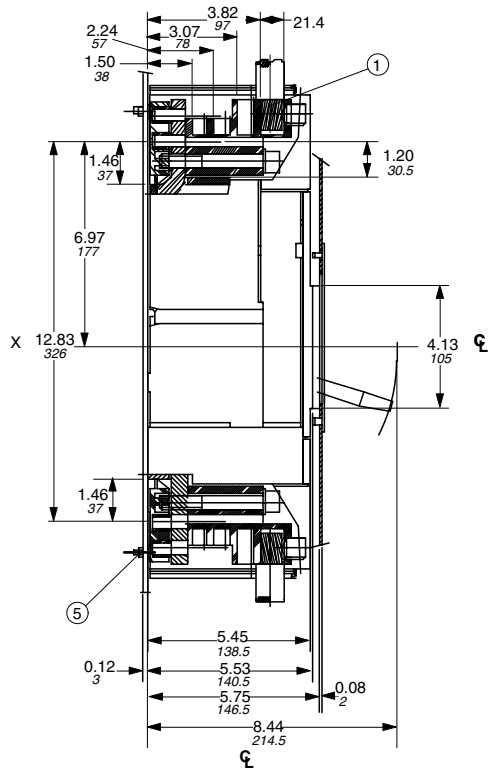


FIGURE	LUG KIT CAT. NO.	LUG NO.	TEMP.	WIRE RANGE	WIRE TORQUE	MOUNTING TORQUE	WIRE SCREW SIZE
H	K6TH, K6TH-2	D2957	90° C	250 - 500 kcmil (2)	275 lb-in	85 lb-in	5/16
J	K6TJ, K6TJ-2	D2958	90° C	3/0 - 400 kcmil (3)	375 lb-in	110 lb-in	3/8

Dim.

Approximate dimensions S7 Fixed version, front

00.00 Inches
00.00 Millimeters



LEGEND

- 1-FRONT TERMINALS FOR CABLE CONNECTION
- 2-FLANGE FOR THE COMPARTMENT DOOR
- 3-COMPARTMENT DOOR SHEET STEEL DRILLING TEMPLATE
- 4-MOUNTING ON SHEET STEEL
- 5-TIGHTENING TORQUE 17.70 lb-in



FIGURE	LUG KIT CAT. NO.	LUG NO.	TEMP.	WIRE RANGE	WIRE TORQUE	MOUNTING TORQUE	WIRE SCREW SIZE
K	K7TK, K7TK-2	D2959	90° C	4/0 - 500 kcmil (4)	375 lb-in	375 lb-in	3/8

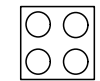
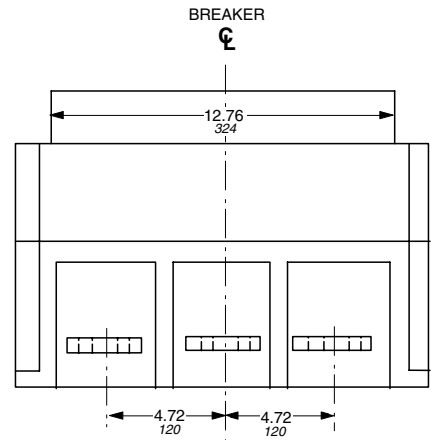
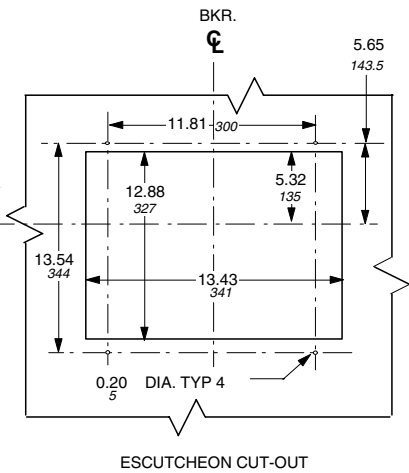
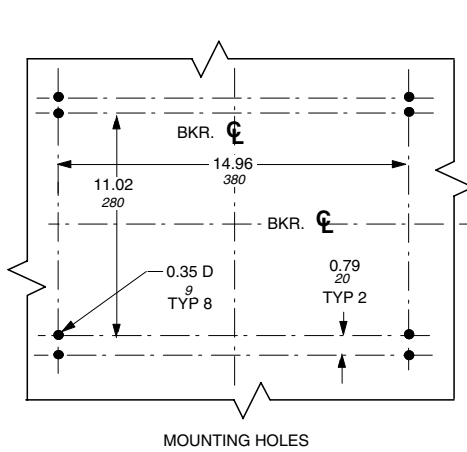
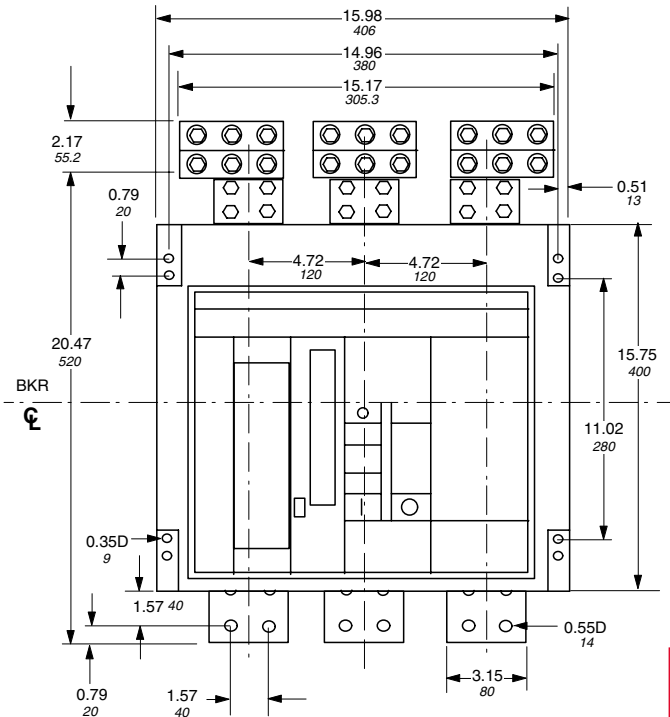
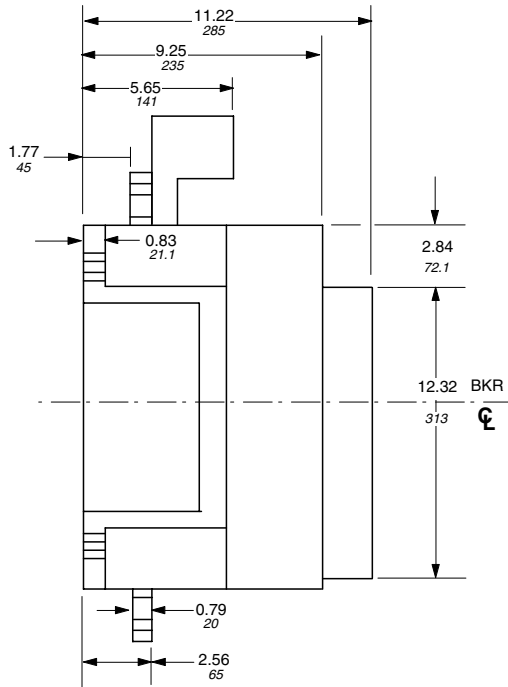
Isomax

00.00 Inches
00.00 Millimeters

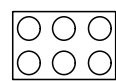
Approximate dimensions S8, fixed version, front 1600A / 2000A / 2500A



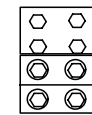
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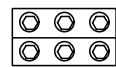
1600A LUG



2500A LUG



"L"



"M"

FIGURE	LUG KIT CAT. NO.	LUG NO.	TEMP.	WIRE RANGE	WIRE TORQUE	MOUNTING TORQUE	WIRE SCREW SIZE
L	K8TL	D1922	90° C	1/0 - 750 kcmil (4)	500 lb-in	500 lb-in	1/2
M	K8TM	D3185, D3186, D3187	90° C	1/0 - 750 kcmil (6)	500 lb-in	500 lb-in	1/2

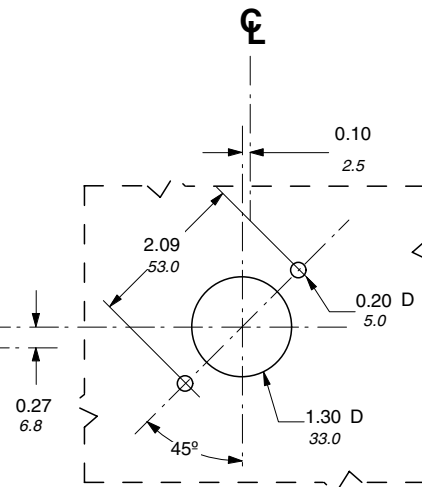
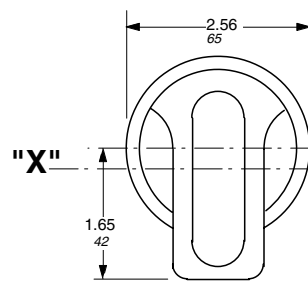
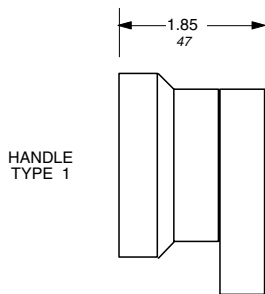
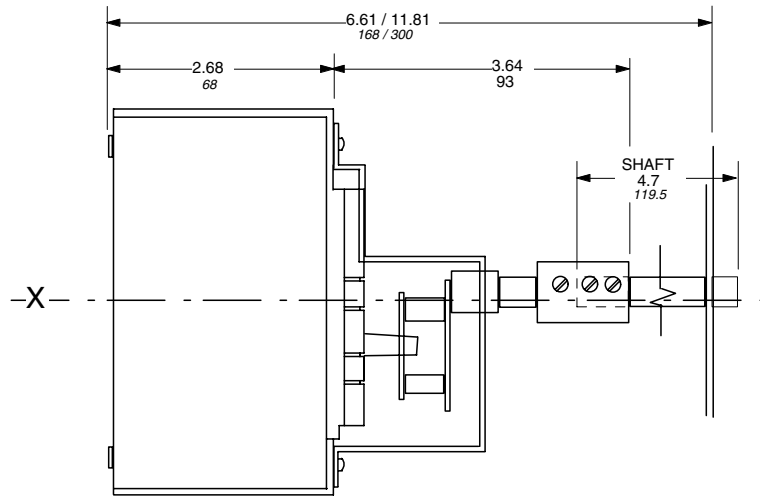
NOTE: Lugs are interchangeable and may be ordered as required by the installed wire gauge.

(2500A LUGS SHOWN ON BREAKER)



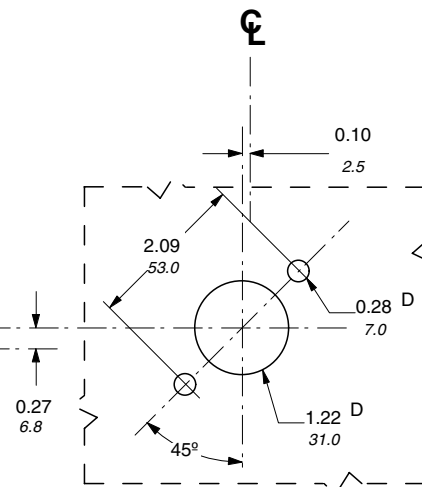
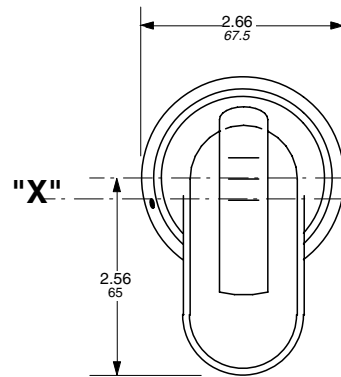
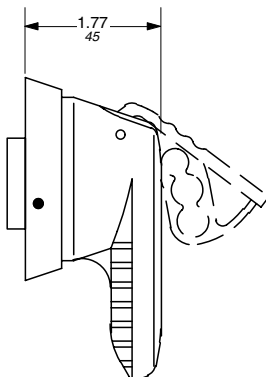
Approximate dimensions
Variable depth handle mechanism, S1
Type 1, 3R, 4, 4X, 12

← 00.00 Inches
 00.00 → Millimeters



FRONT PANEL CUT-OUT

HANDLE TYPE 1, 3R, 4, 4X, 12



FRONT PANEL CUT-OUT

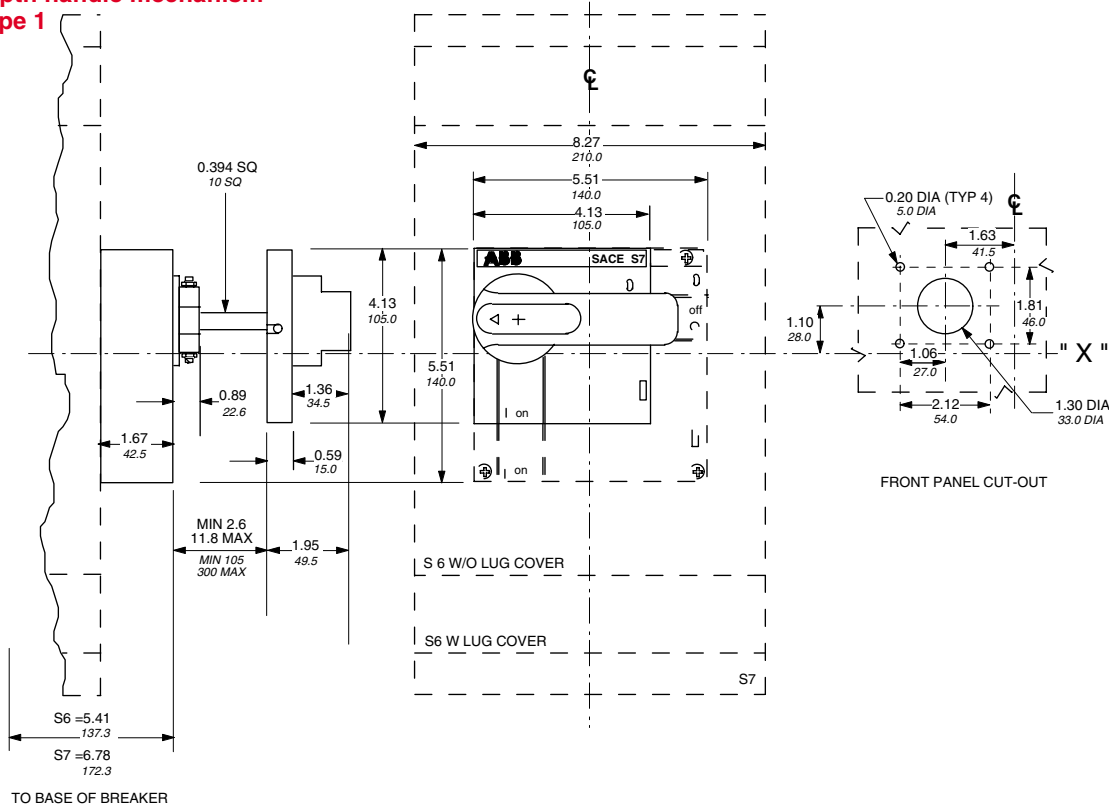


Approximate dimensions

Variable depth handle mechanism, S6 – S7

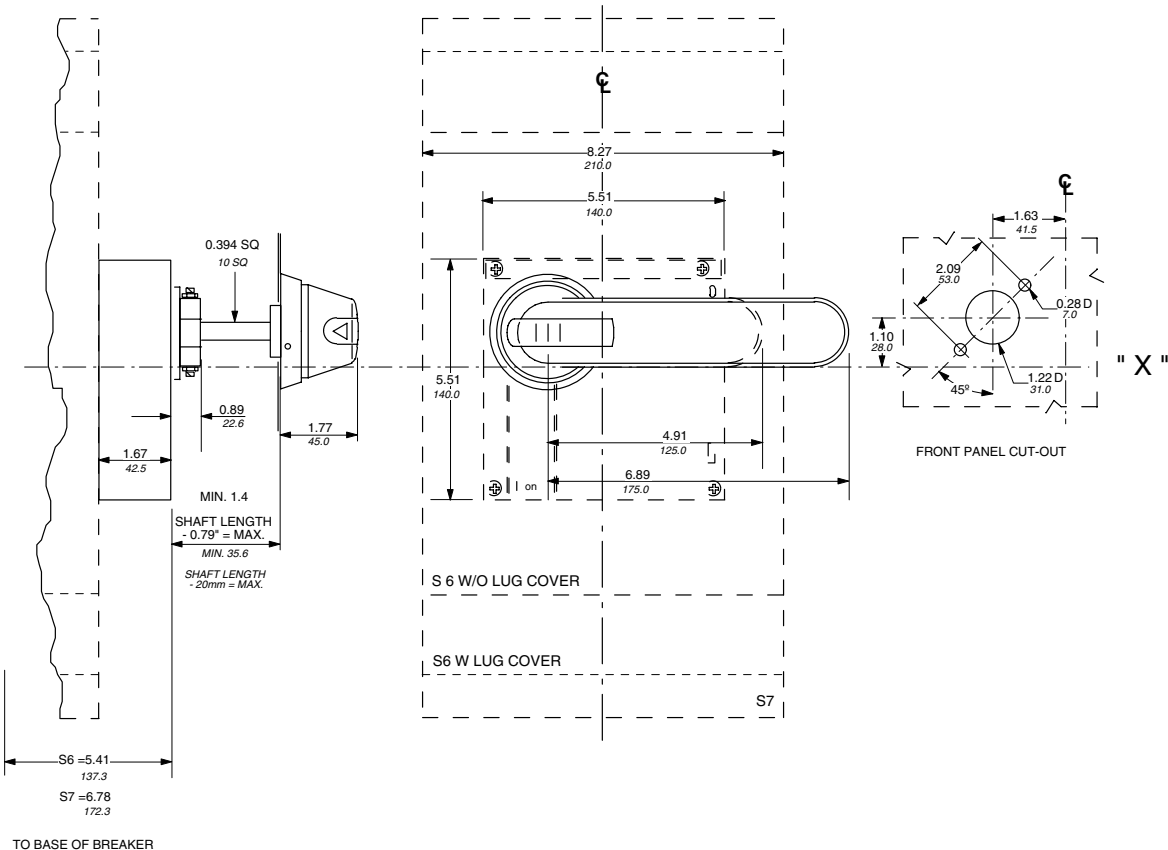
00.00 Inches
00.00 Millimeters

Variable depth handle mechanism S6 – S7, Type 1

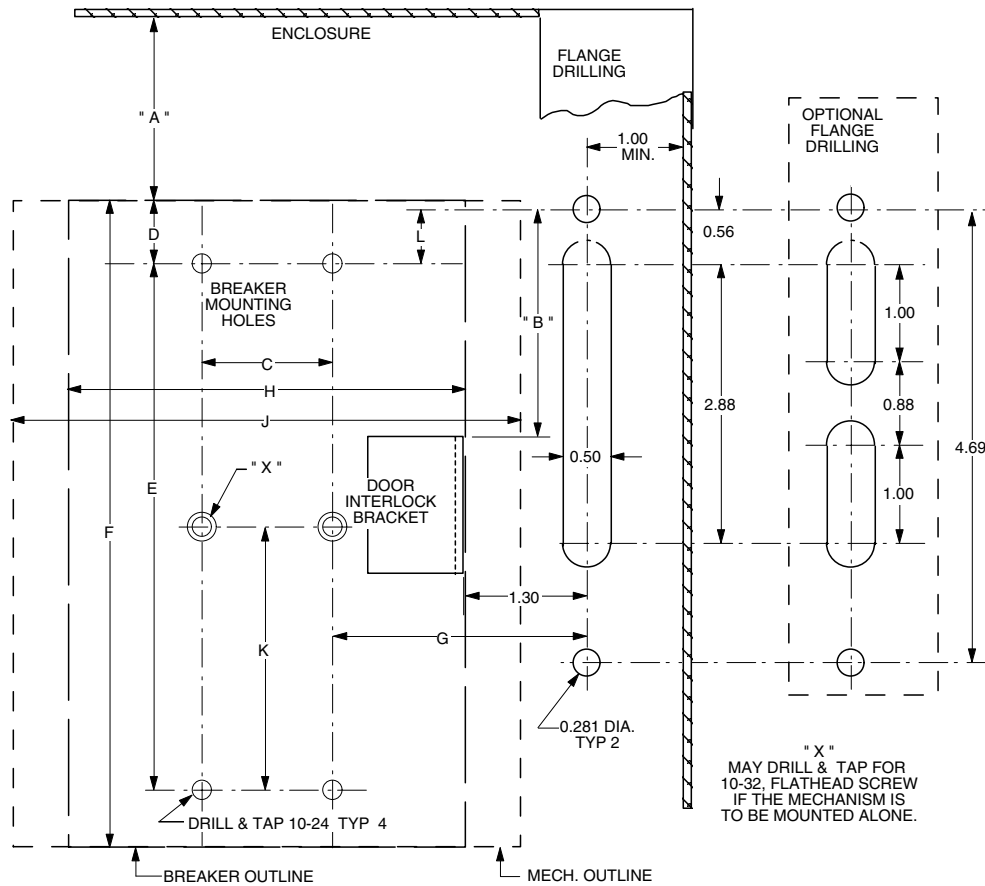


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Variable depth handle mechanism S6 – S7, Type 1, 3R, 4, 4X & 12



Approximate dimensions S1 - S6 Flange handle, shaft operated



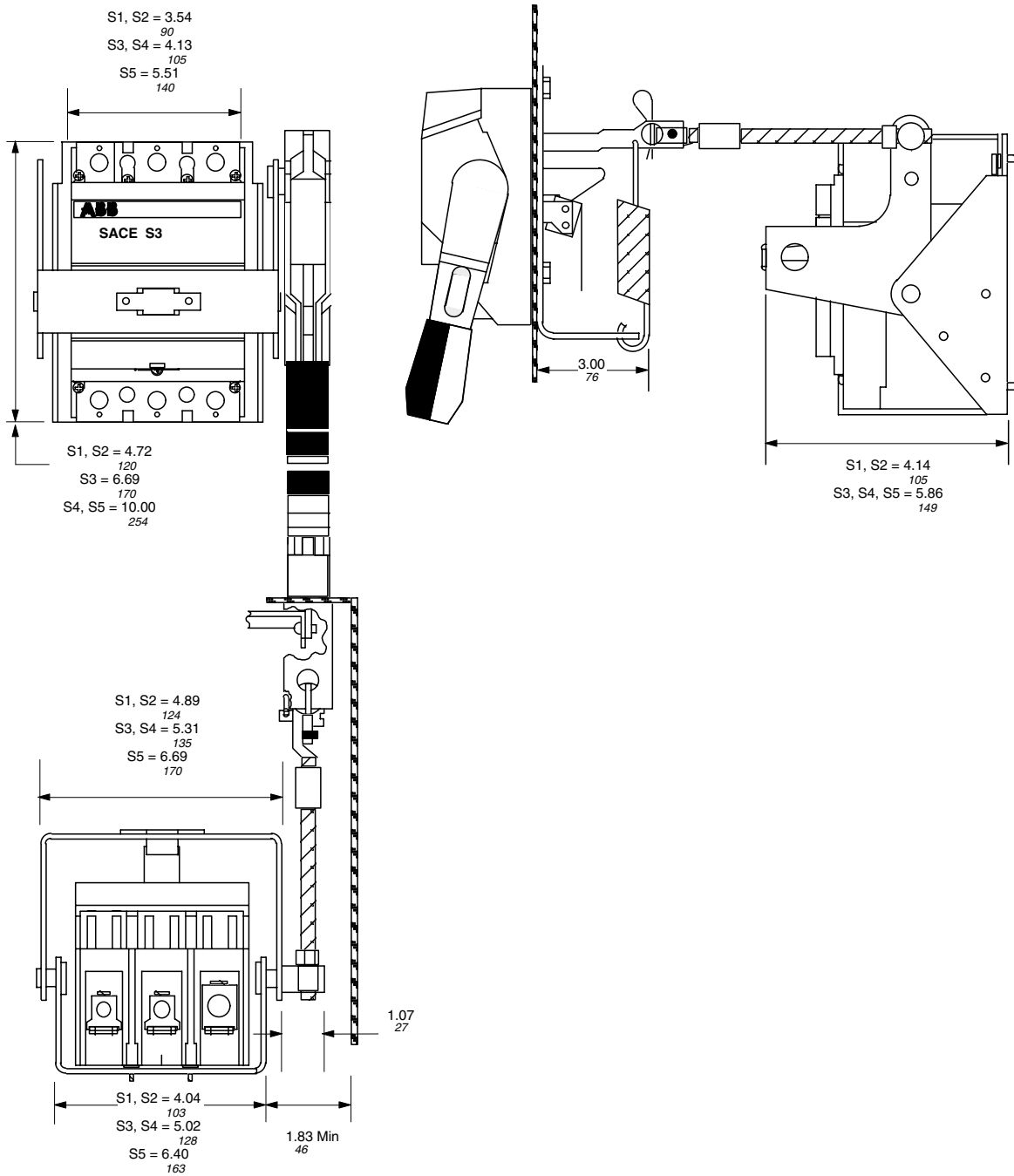
- NOTES:
 1. "A" DIM. IS THE WIRING BENDING SPACE AS REQUIRED BY THE NATIONAL ELECTRIC CODE.
 2. "B" DIM. IS 2.340 in. IF ENCLOSURE DOES NOT HAVE A SAFETY DOOR INTERLOCK, AND 1.500 in. IF IT DOES HAVE A SAFETY DOOR INTERLOCK.

FRAME	C	D	E	F	G	H	J	K	L
S1	0.98	0.39	3.94	4.72	2.53	3.07	4.89	1.97	-.97
S2	1.18	0.39	3.94	4.72	2.53	3.54	4.89	1.97	-.97
S3	1.38	5.47	5.47	6.69	2.64	4.13	5.31	2.73	-.59
S4	1.38	8.43	8.43	10.00	2.64	4.13	5.31	4.22	+.76
S5	1.72	8.43	8.43	10.00	3.16	5.51	6.69	4.22	+.76
S6	2.76	9.33	9.33	10.55	4.41	8.27	10.36	4.66	+1.61

Dim.

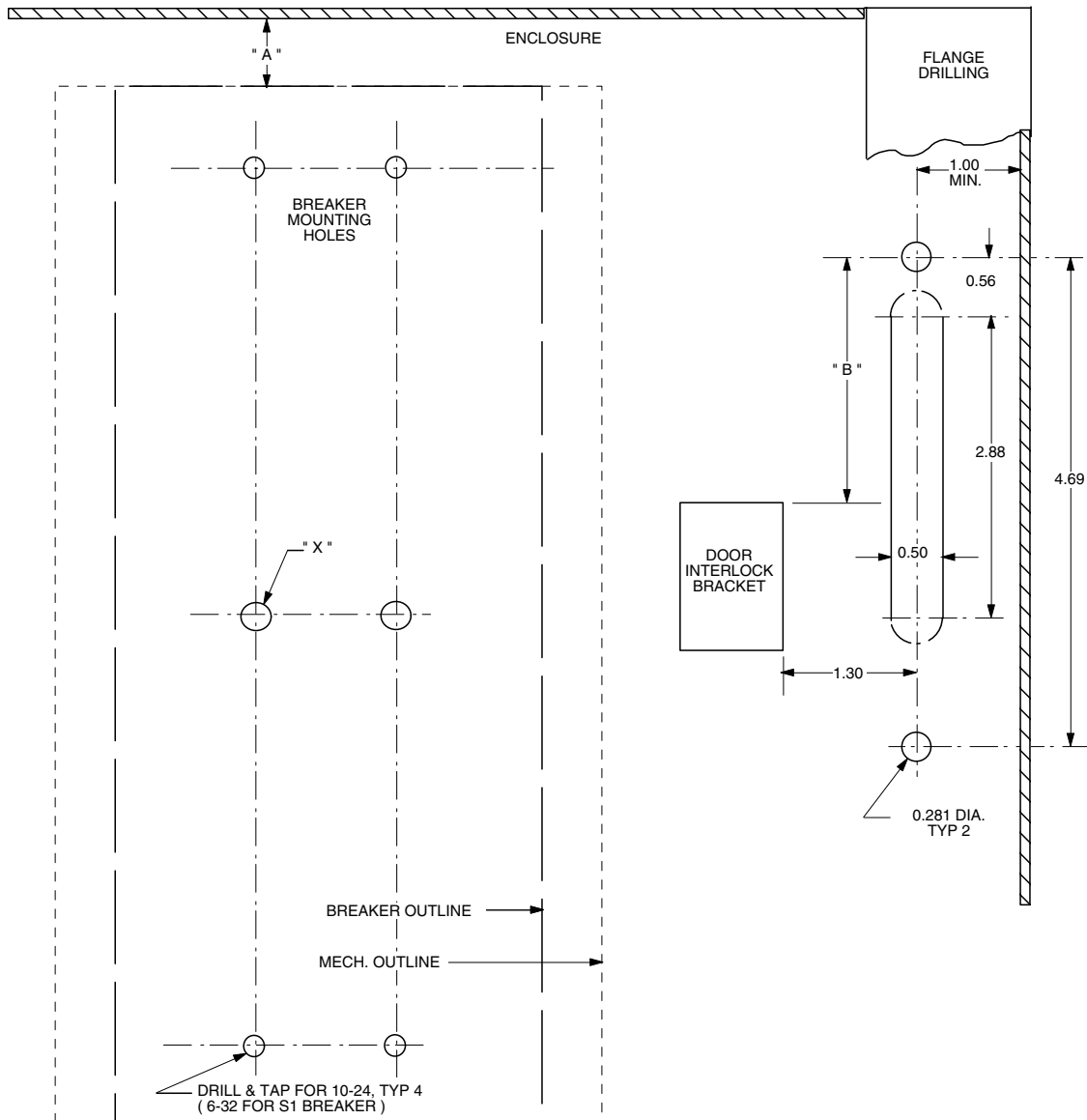
Approximate dimensions Flange handle, shaft operated

00.00 Inches
00.00 Millimeters



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Approximate dimensions S1 – S5 Flange handle, cable operated



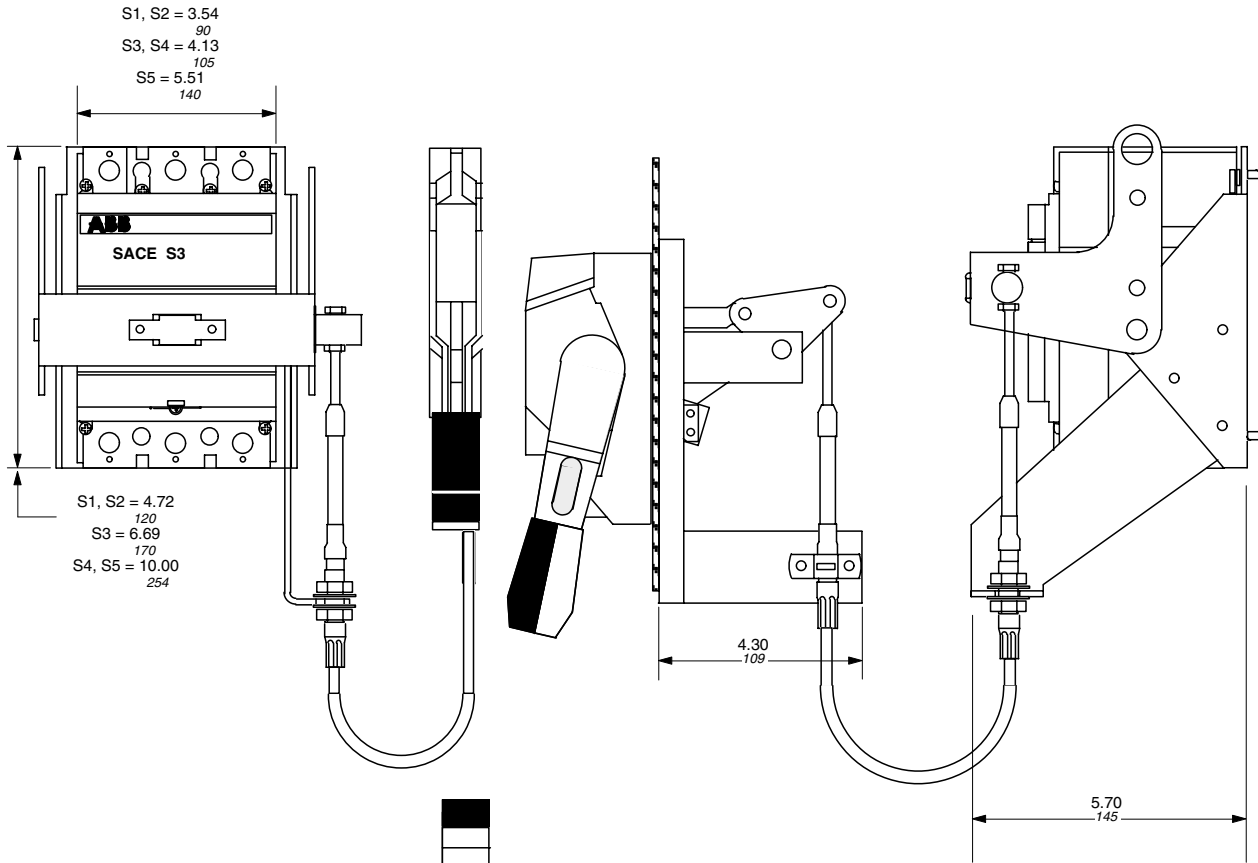
NOTES:

1. "A" DIM. IS THE WIRING BENDING SPACE AS REQUIRED BY THE NATIONAL ELECTRIC CODE.
2. "B" DIM. IS 2.340 in. IF ENCLOSURE DOES NOT HAVE A SAFETY DOOR INTERLOCK, AND 1.500 in. IF IT DOES HAVE A SAFETY DOOR INTERLOCK.
3. "X" MAY DRILL & TAP FOR 10-32, FLATHEAD SCREW IF THE MECHANISM IS TO BE MOUNTED ALONE

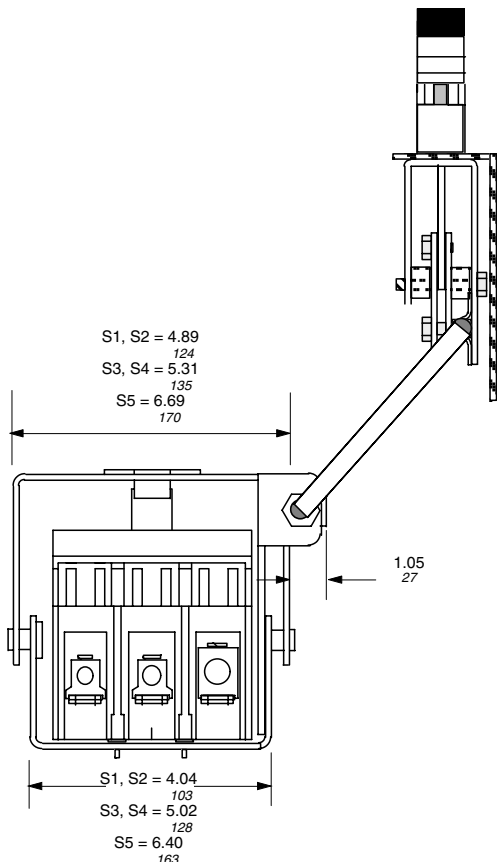
Dim.

Approximate dimensions Flange handle, cable operated

00.00 Inches
00.00 Millimeters



Isomax



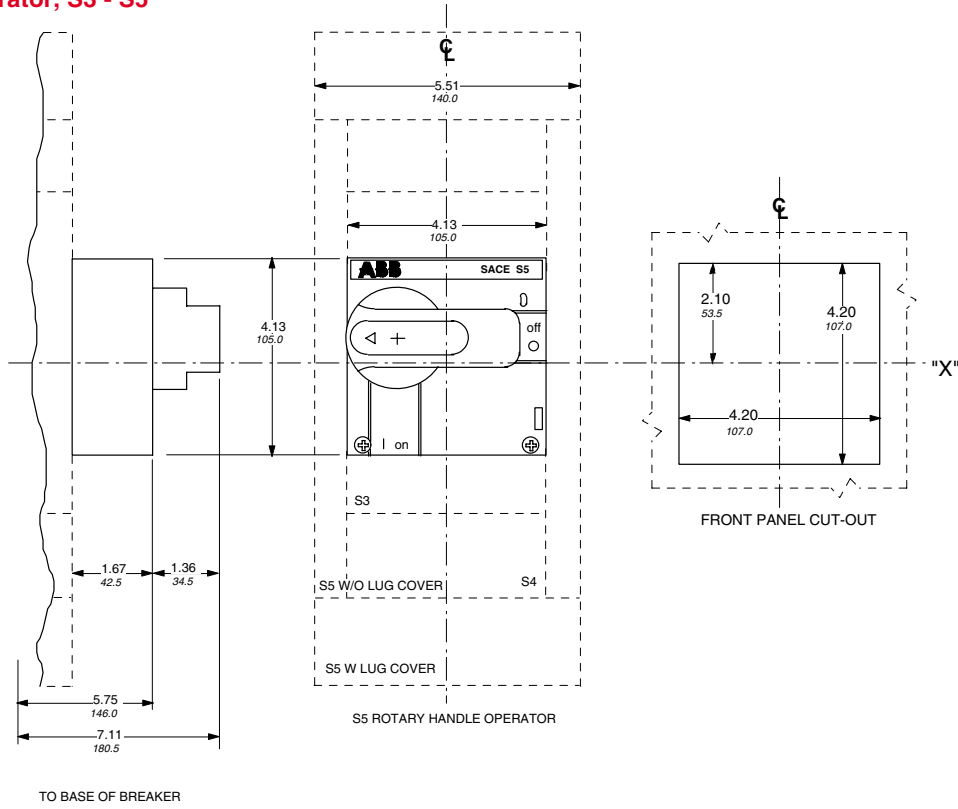
- F.O. HANDLE ACCESSORIES WITH FLEX CABLE
- K_FHDC-S12
- LEFT OR RIGHT MOUNT HANDLE
- RIGHT MOUNT CABLE
- S1, S2, S3, S4 & S5

00.00 Inches
00.00 Millimeters

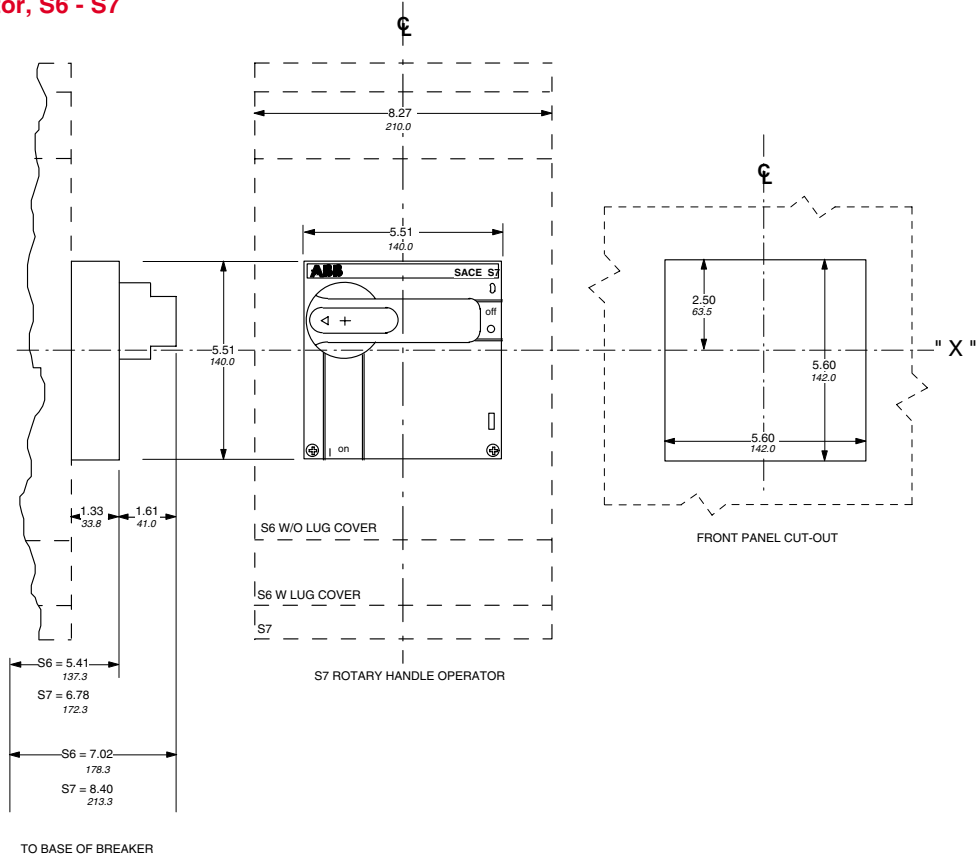
Approximate dimensions Rotary handle operator, S3 - S7



Rotary handle operator, S3 - S5



Rotary handle operator, S6 - S7



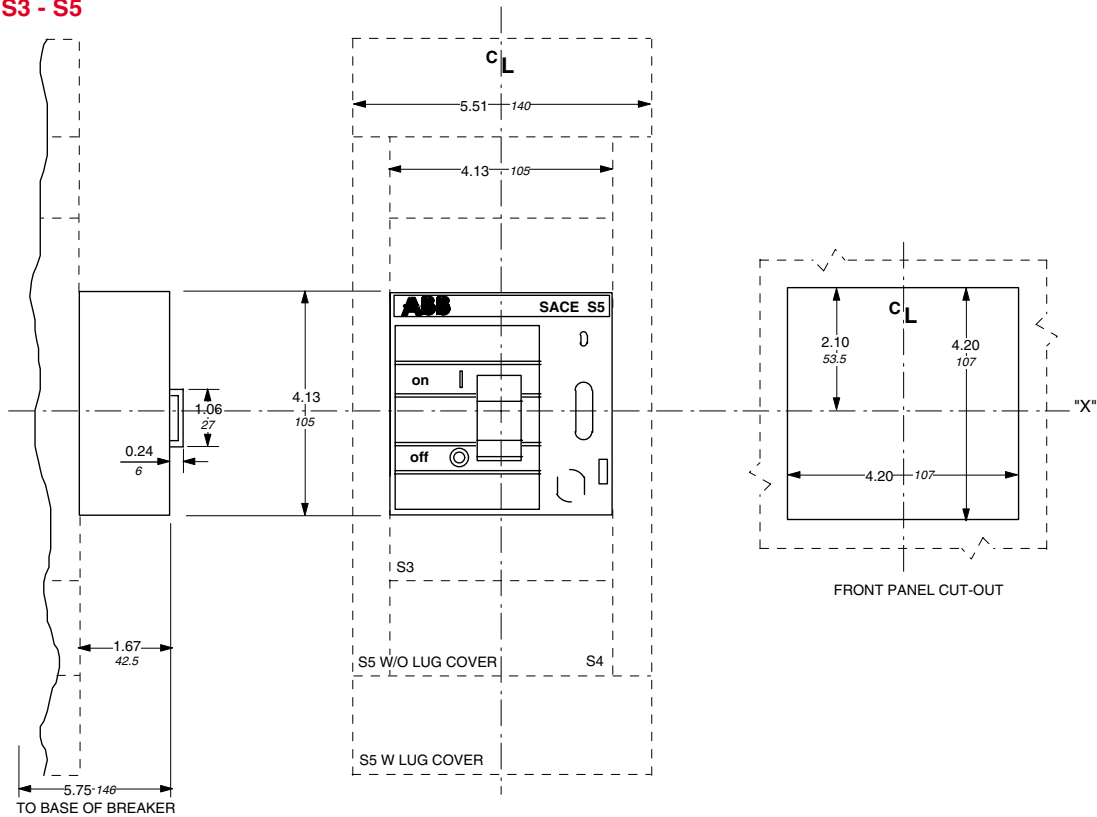
Isomax



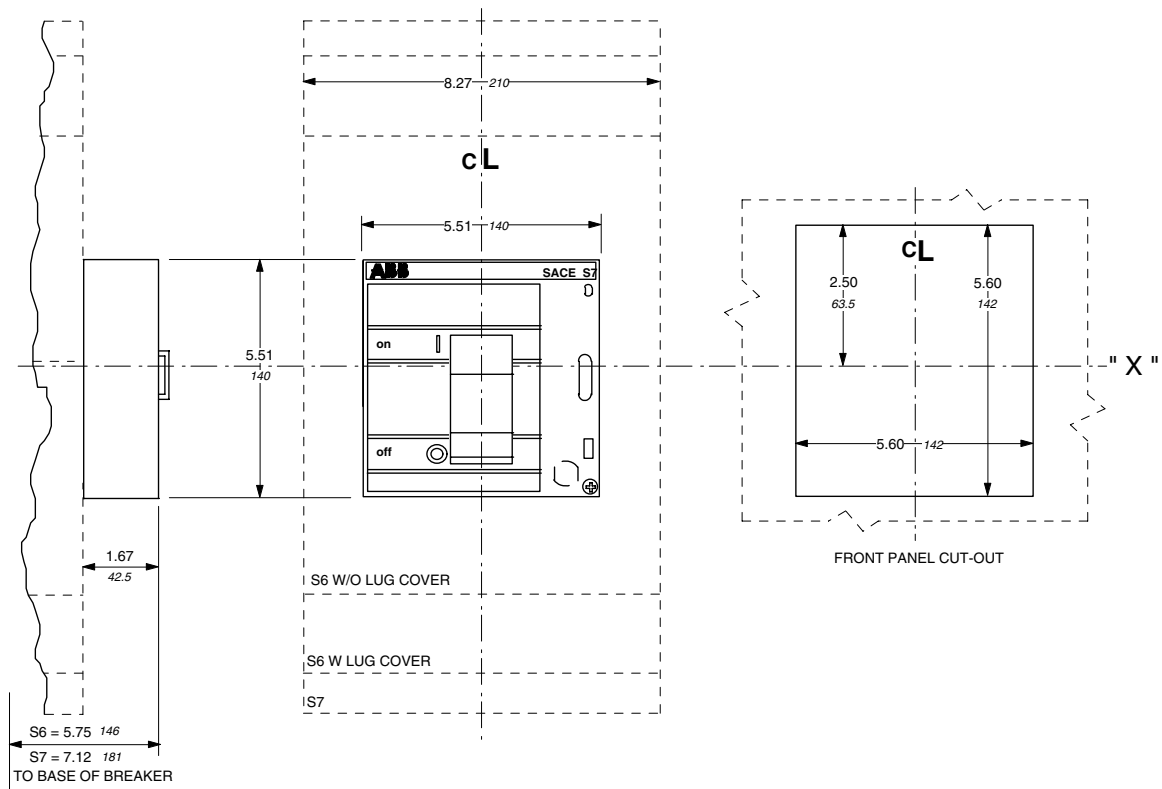
Approximate dimensions Locking devices, S3 - S7

00.00 Inches
00.00 Millimeters

Locking device, S3 - S5



Locking device, S5 - S7



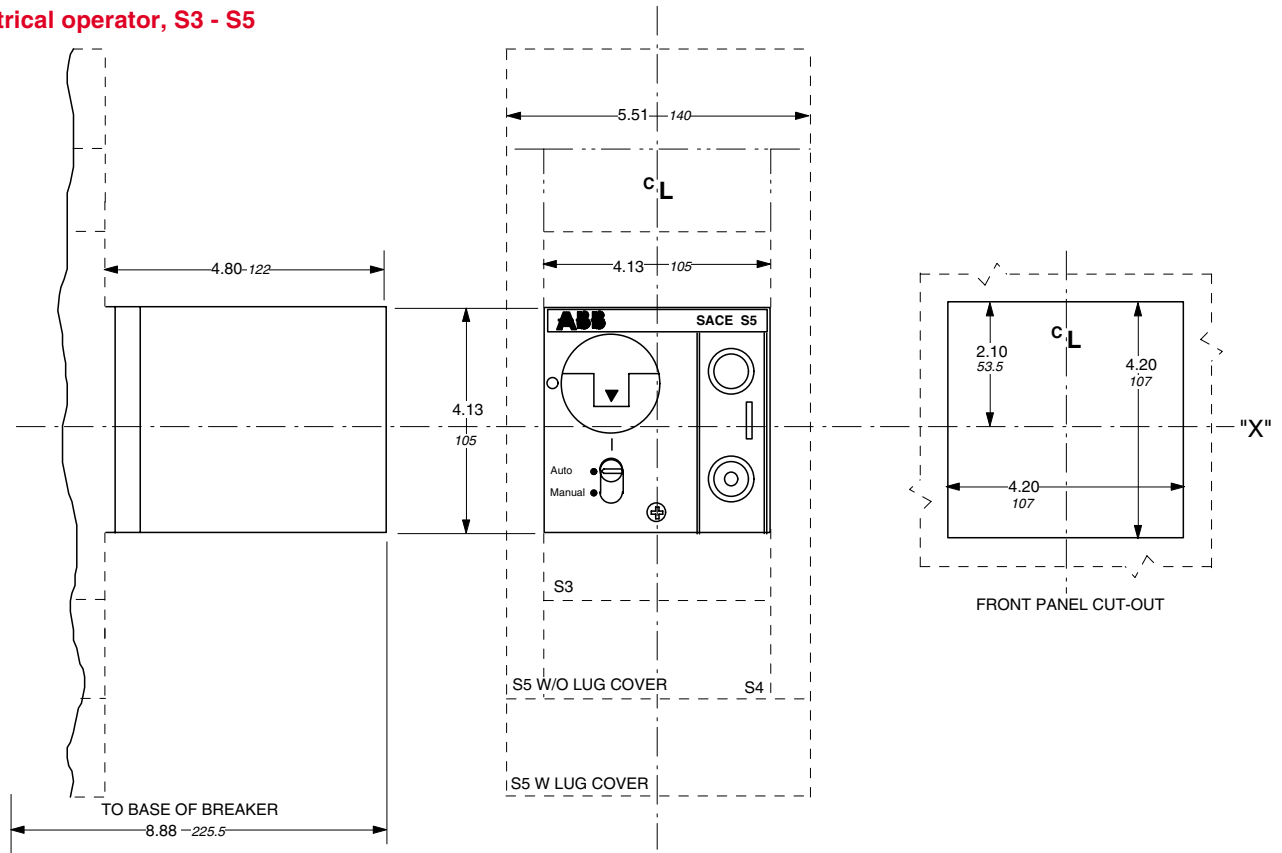
Isomax

00.00 Inches
00.00 Millimeters

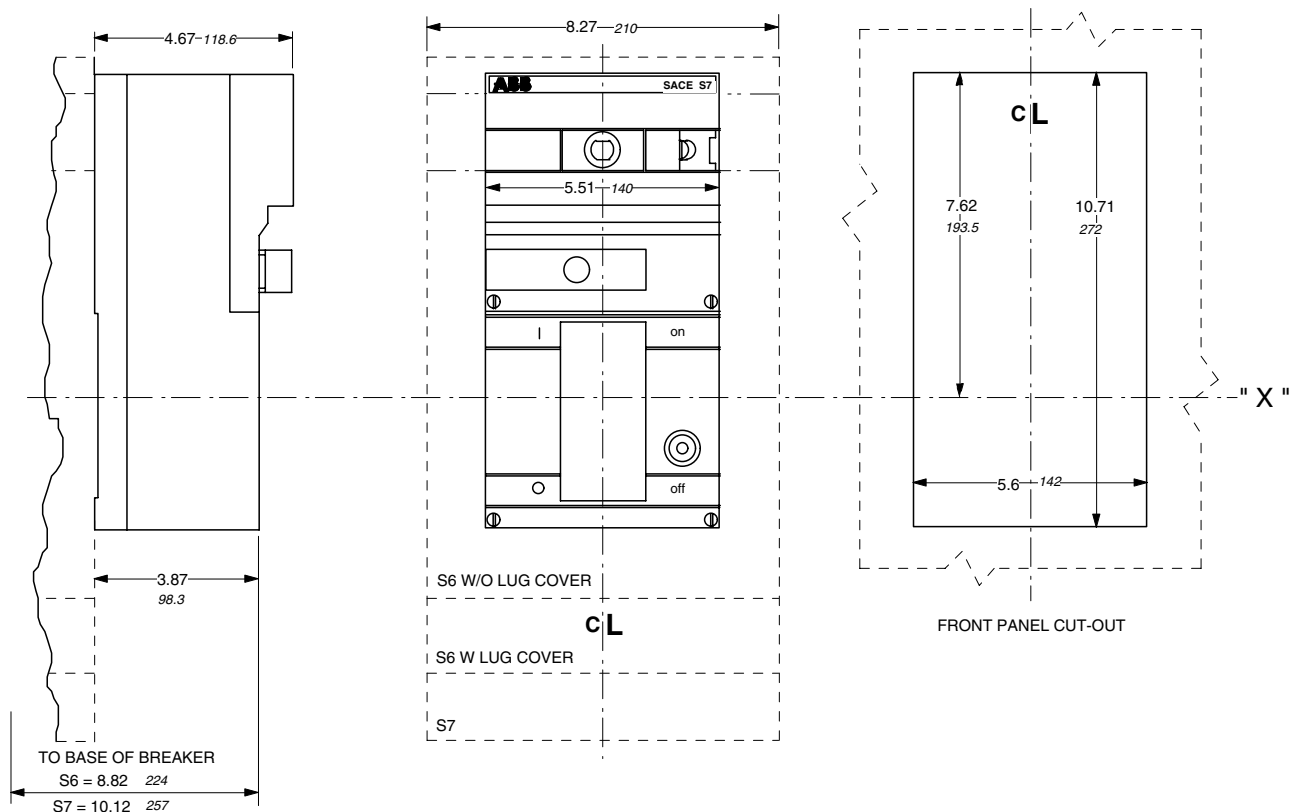
Approximate dimensions Electrical operators, S3 - S7



Electrical operator, S3 - S5



Electrical operator, S6 - S7



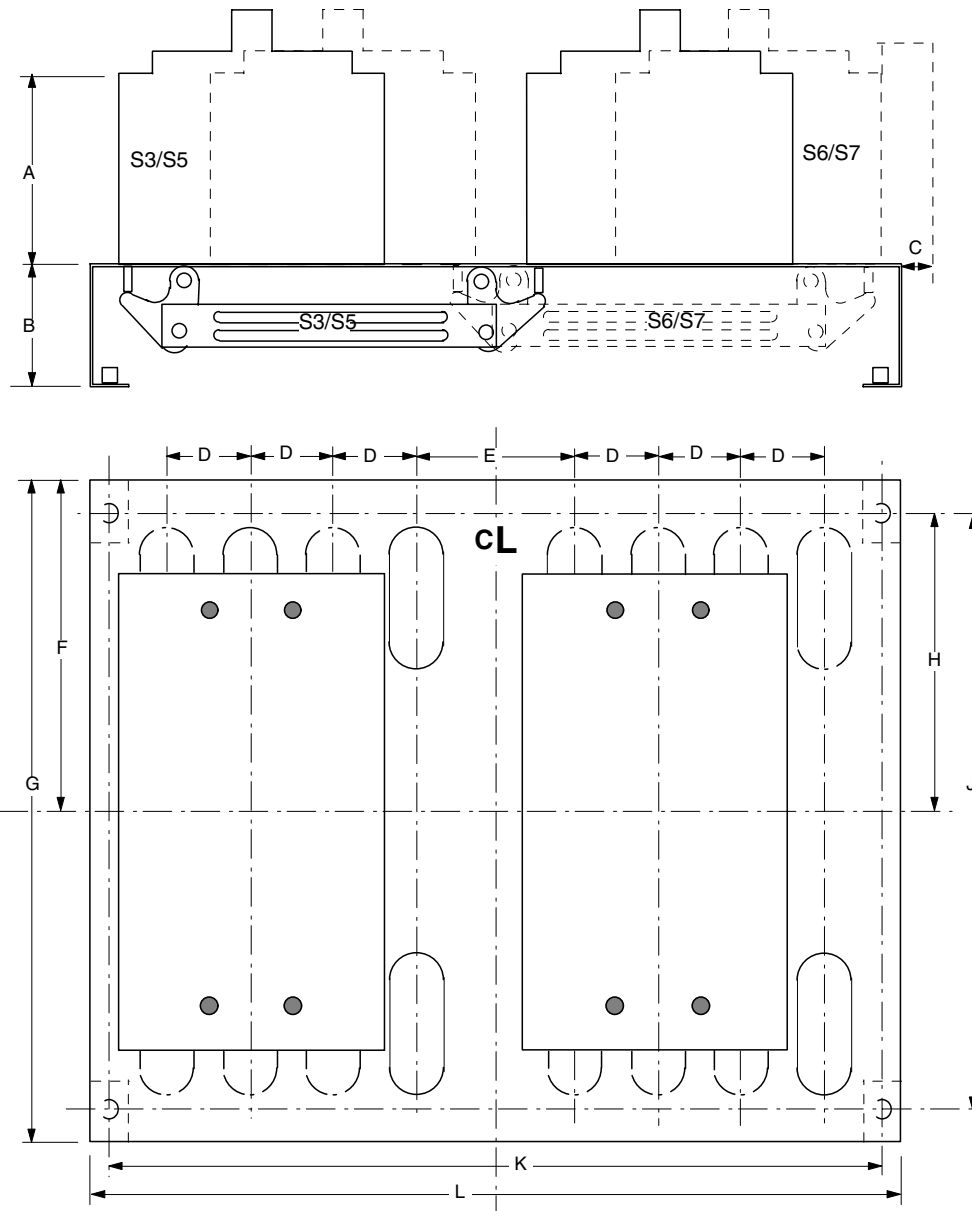
Isomax



Approximate dimensions

Mechanically interlocked, horizontal, S3 – S7

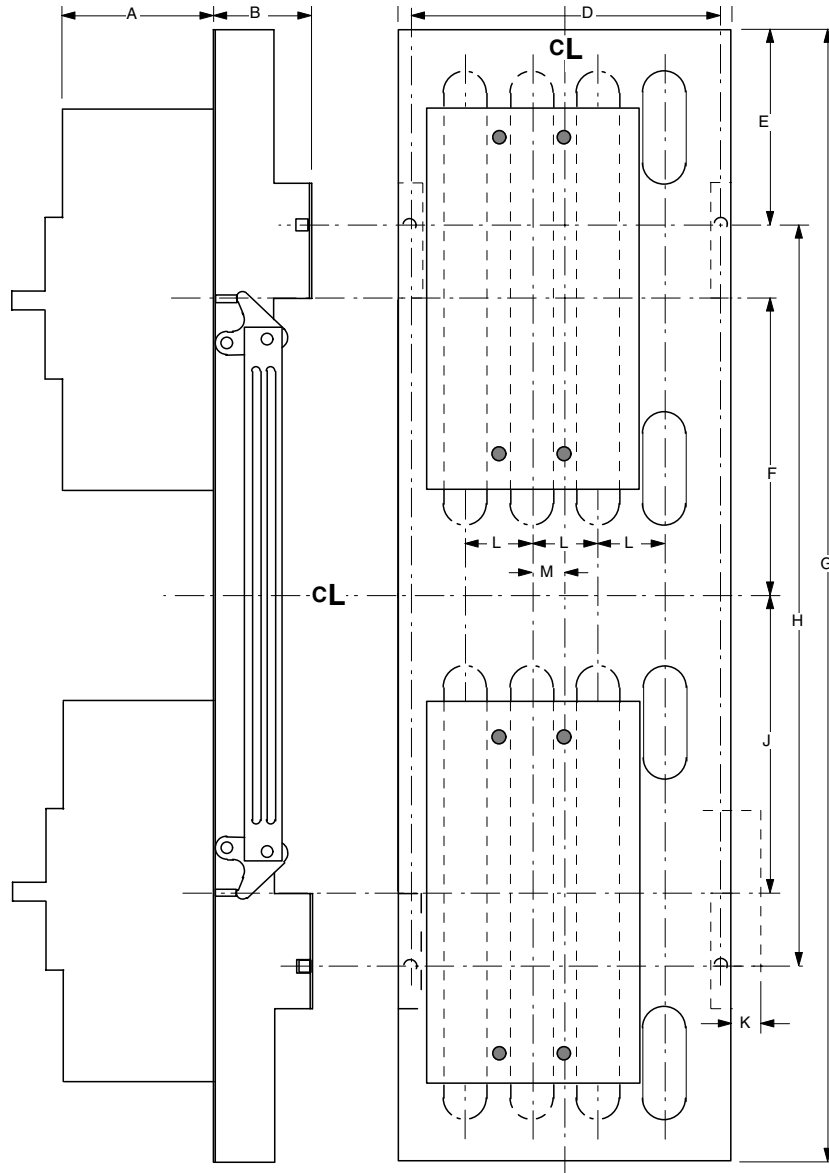
← 00.00 → Inches
 ← 00.00 → Millimeters



Isomax

FRAME	A	B	C	D	E	F	G	H	J	K	L
S3	4.08 103.5	2.56 65	0.47 12	1.38 35	2.60 66	5.31 135	10.43 265	4.57 116	8.96 227.5	12.76 324	13.78 350
S4	4.08 103.5	2.56 65	0.47 12	1.38 35	2.60 66	6.83 173.5	13.78 350	6.14 156	12.40 315	12.76 324	13.78 350
S5	4.08 103.5	2.56 65	0.63 16	1.72 35	3.29 83.5	6.83 173.5	13.78 350	6.14 156	12.40 315	15.85 402.5	16.93 430
S6	4.07 103.5	2.56 65	0.41 10.5	2.76 70	4.72 120	7.38 187.5	14.76 375	6.89 175	13.78 350	20.67 525	25.60 650
S7	5.53 140.5	2.56 65	0.22 5.5	2.76 70	4.72 120	8.86 225	17.72 450	8.27 210	16.54 420	21.65 550	25.98 660

Approximate dimensions Mechanically interlocked, vertical, S3 – S7

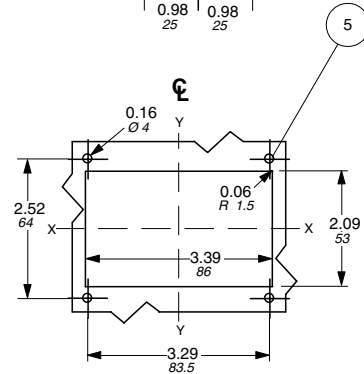
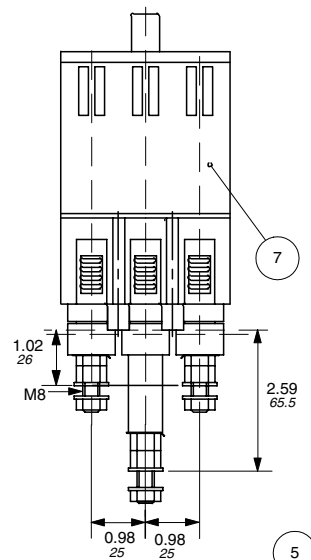
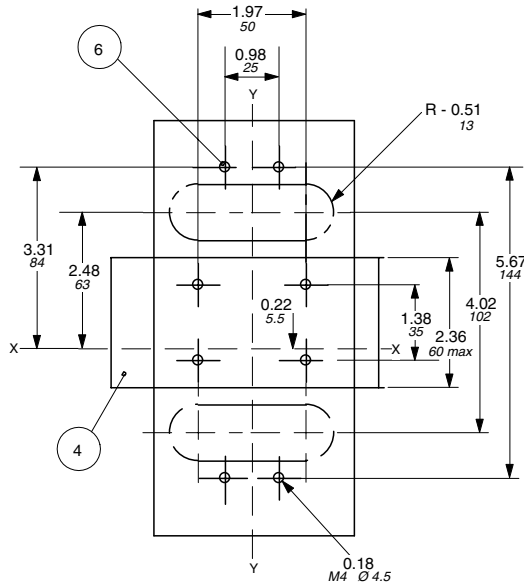
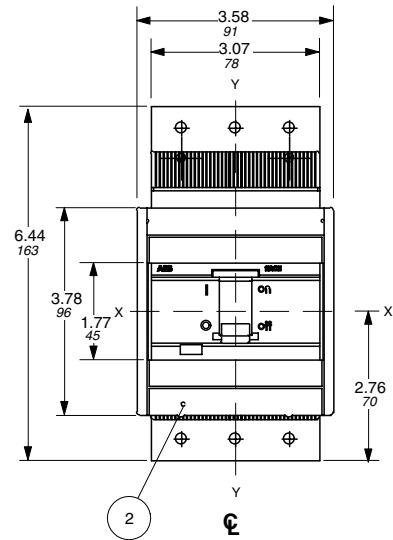
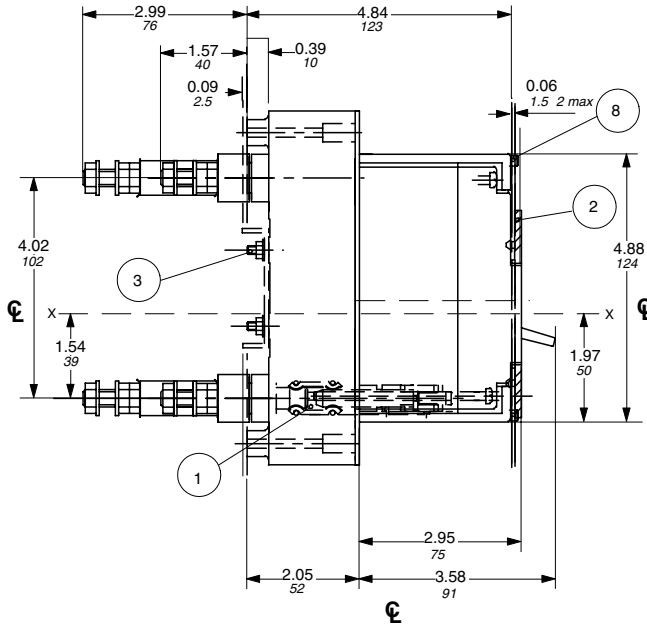


FRAME	A	B	C	D	E	F	G	H	J	K	L	M
S3	4.07	2.56	7.08	6.20	4.49	6.00	22.76	13.78	6.20	0.45	1.38	0.69
	103.5	65	180	157.5	114	152.5	578	350	157.5	11.5	35	17.5
S4	4.07	2.56	7.08	6.20	5.12	7.81	29.53	19.29	7.70	0.45	1.38	0.69
	103.5	65	180	157.5	130	198.5	750	490	195.5	11.5	35	17.5
S5	4.07	2.56	8.67	7.91	5.12	7.81	29.53	19.29	7.70	0.45	1.72	0.94
	103.5	65	180	201	130	198.5	750	490	195.5	11.5	43.75	23.75
S6	4.07	2.56	12.20	11.02	5.81	8.82	32.28	20.67	8.82	0.67	2.76	1.44
	103.5	65	310	280	147.5	224	820	525	224	17	70	36.5
S7	5.53	2.56	13.39	12.40	5.12	11.26	43.31	34.45	11.26	0.0	2.76	1.38
	140.5	65	340	315	14.43	286	1100	875	286	0	70	35

Dim.

Approximate dimensions S1 Plug-in rear

00.00 Inches
00.00 Millimeters



LEGEND

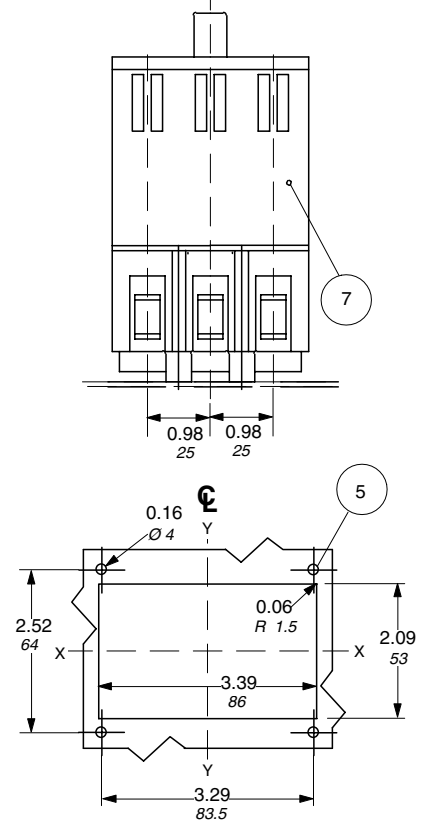
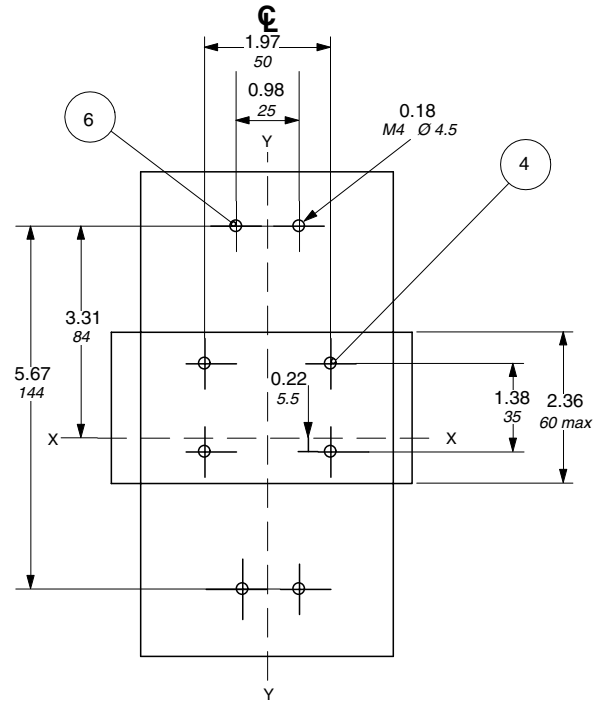
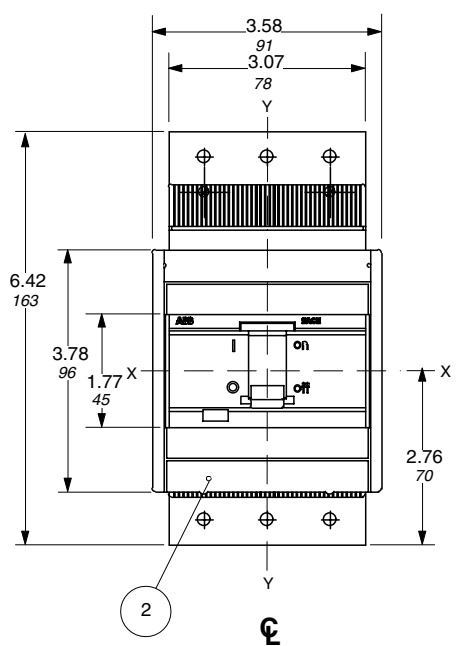
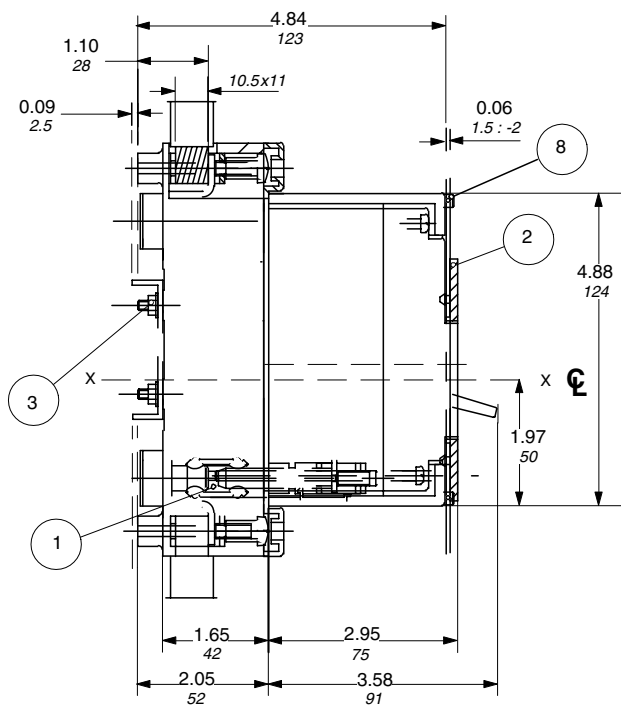
- 1-PLUG IN BASE
- 2-FLANGE FOR THE COMPARTMENT DOOR
- 3-MOUNTING SCREWS FOR PLUG IN BASE ON PLATE
- 4-MOUNTING HOLES FOR PLUG IN BASE ON CHANNEL
- 5-MOUNTING HOLES FOR FRONT FLANGE
- 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
- 7-TERMINAL COVERS (SEPERATE ITEM)
- 8-SEALING SCREWS (OPTIONAL)

Isomax

00.00 Inches
00.00 Millimeters

Approximate dimensions S1 Plug-in front

Dim.



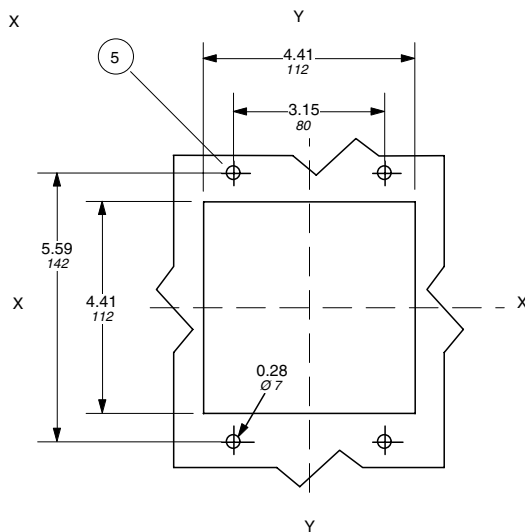
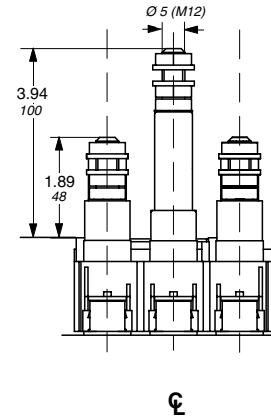
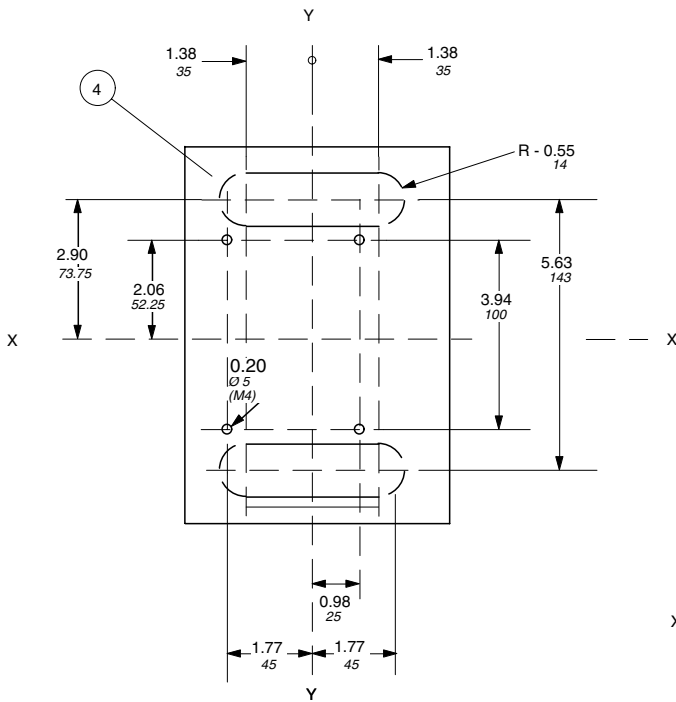
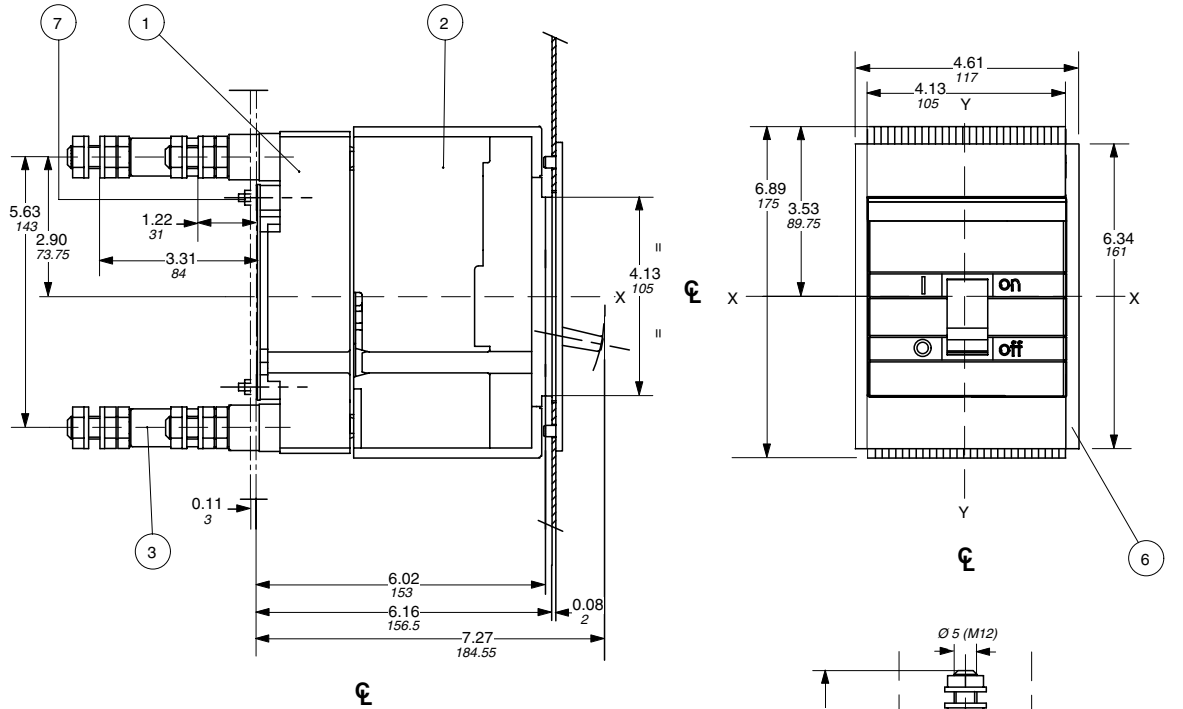
- LEGEND**
- 1-PLUG IN BASE
 - 2-FLANGE FOR THE COMPARTMENT DOOR
 - 3-MOUNTING SCREWS FOR PLUG IN BASE ON PLATE
 - 4-MOUNTING HOLES FOR PLUG IN BASE ON CHANNEL
 - 5-MOUNTING HOLES FOR FRONT FLANGE
 - 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
 - 7-TERMINAL COVERS (SEPERATE ITEM)
 - 8-SEALING SCREWS (OPTIONAL)

Isomax

Dim.

Approximate dimensions S3 Plug-in rear

00.00 Inches
00.00 Millimeters



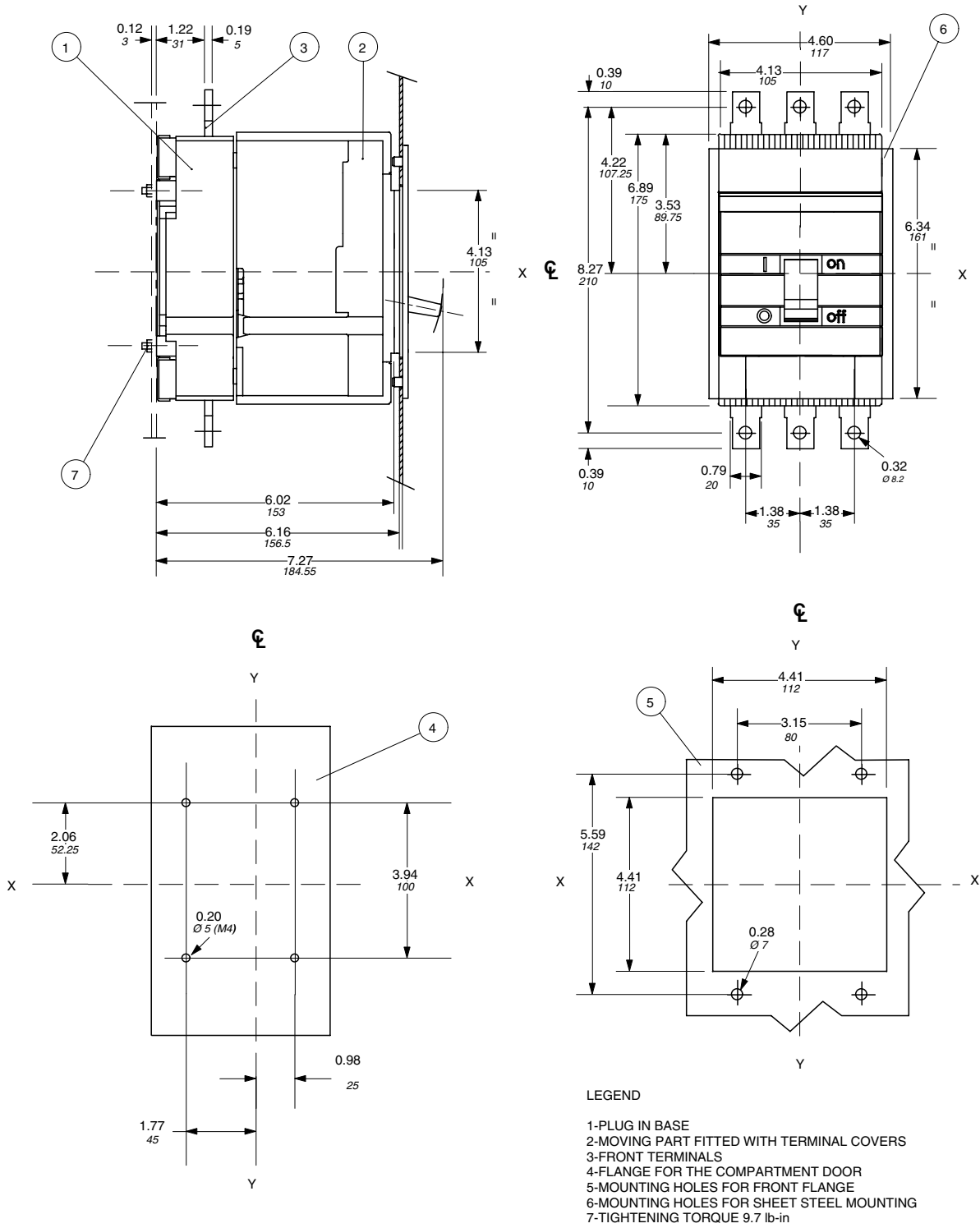
LEGEND

- 1-PLUG IN BASE
- 2-MOVING PART FITTED WITH TERMINAL COVERS
- 3-REAR TERMINALS
- 4-FLANGE FOR THE COMPARTMENT DOOR
- 5-MOUNTING HOLES FOR FRONT FLANGE
- 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
- 7-TIGHTENING TORQUE 9.7 lb-in

Isomax

00.00 Inches
00.00 Millimeters

Approximate dimensions S3 Plug-in front

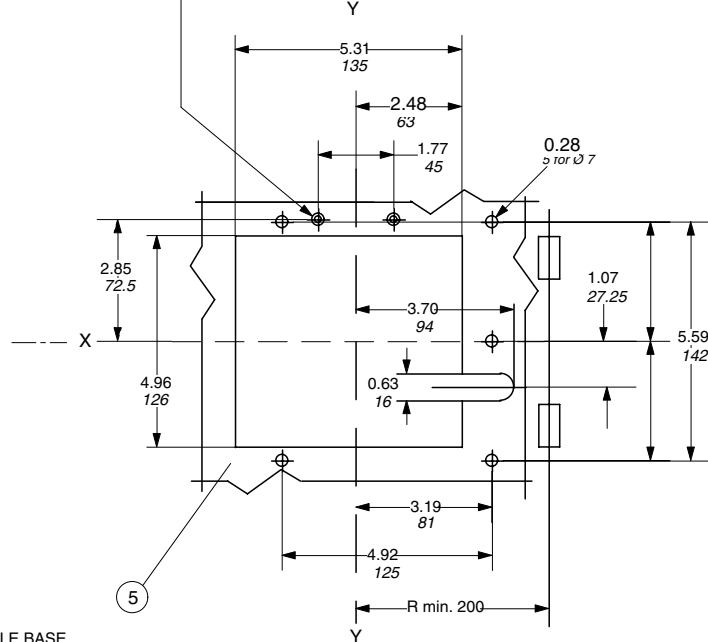
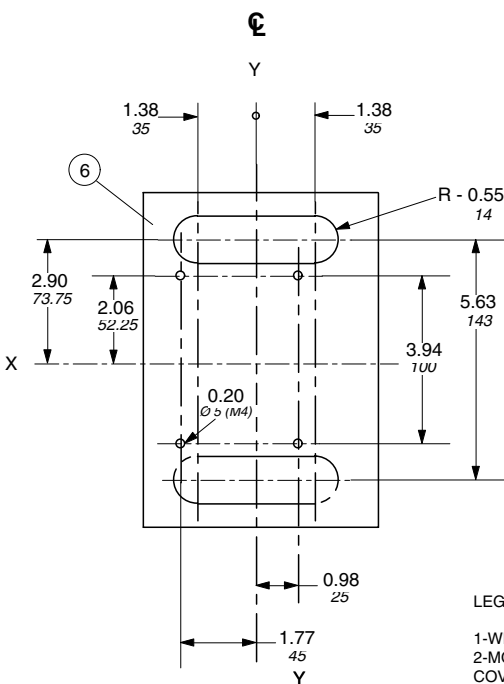
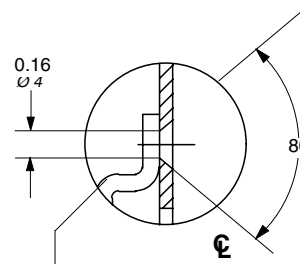
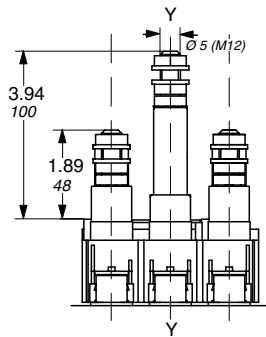
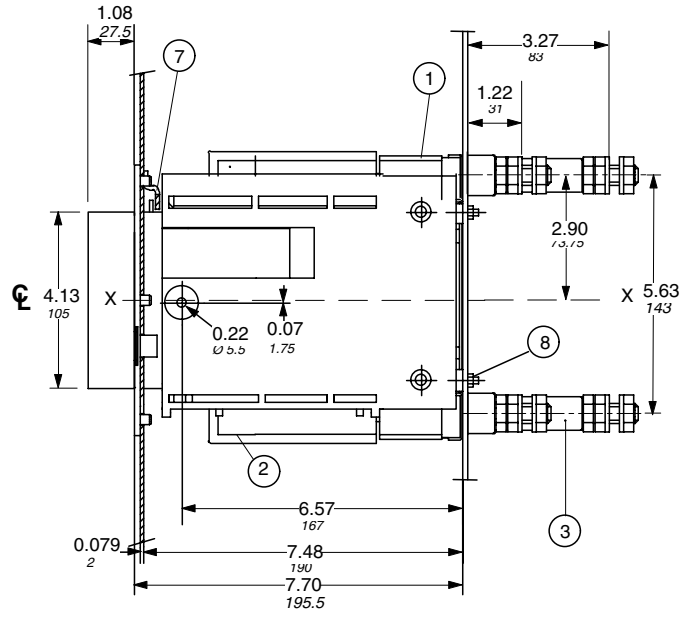
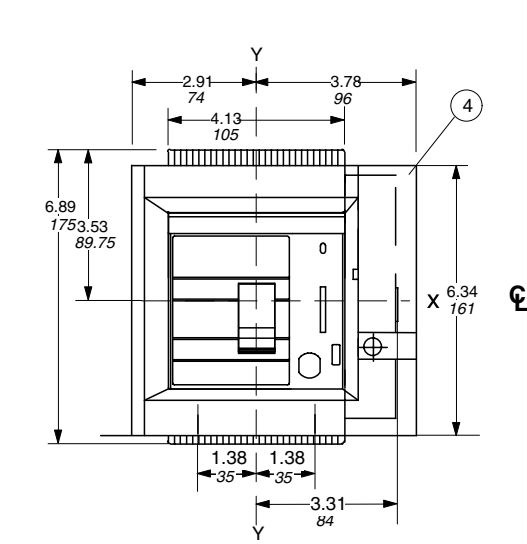


Isomax

Dim.

Approximate dimensions S3 Withdrawable rear

00.00 Inches
00.00 Millimeters

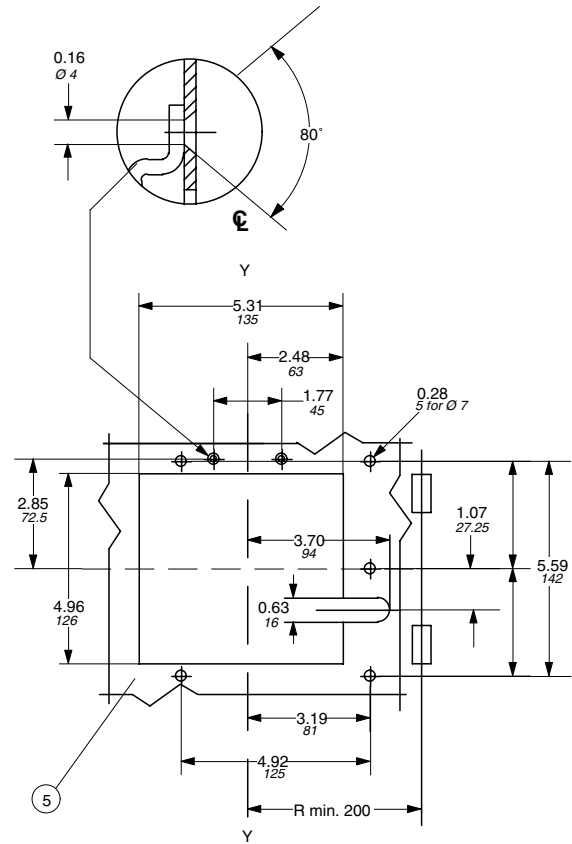
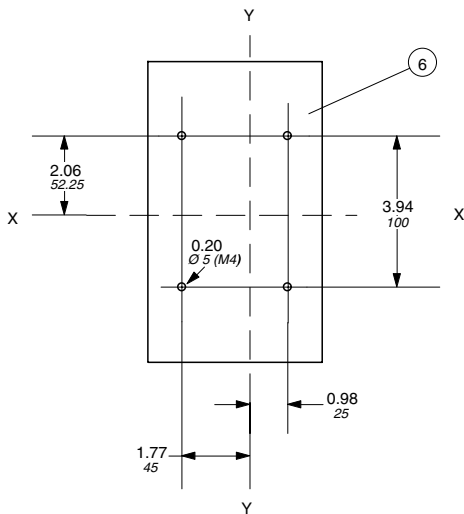
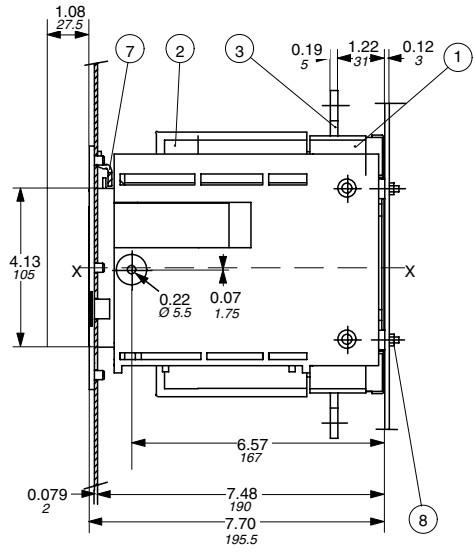
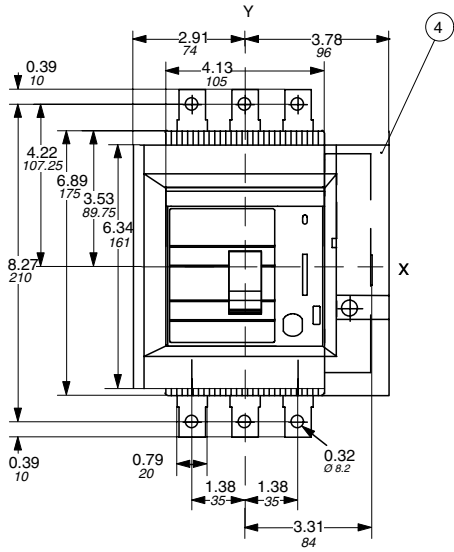


LEGEND

- 1-WITHDRAWABLE BASE
- 2-MOVING PART FITTED WITH TERMINAL COVERS
- 3-REAR TERMINALS
- 4-FLANGE FOR THE COMPARTMENT DOOR
- 5-MOUNTING HOLES FOR FLANGE
- 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
- 7-COMPARTMENT DOOR INTERLOCK
- 8-TIGHTENING TORQUE 9.7 lb-in

00.00 Inches
00.00 Millimeters

Approximate dimensions S3 Withdrawable front



LEGEND

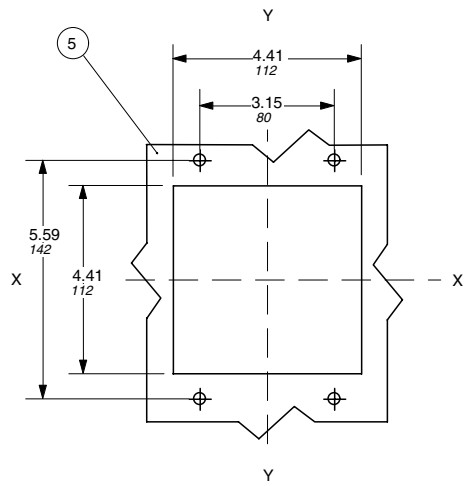
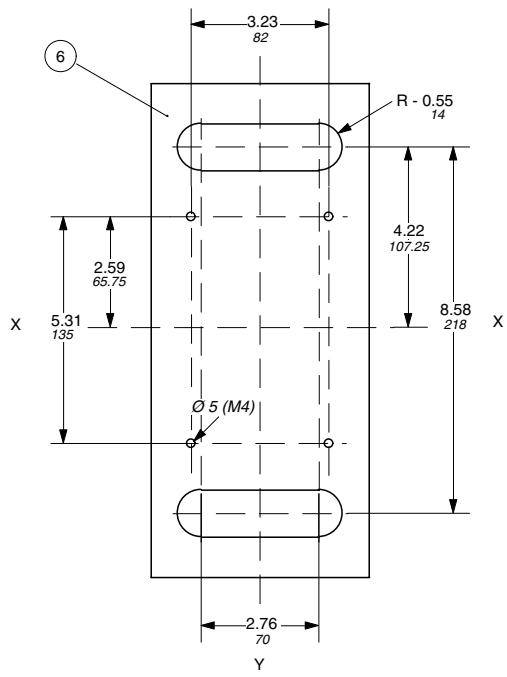
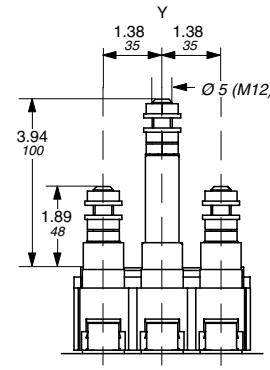
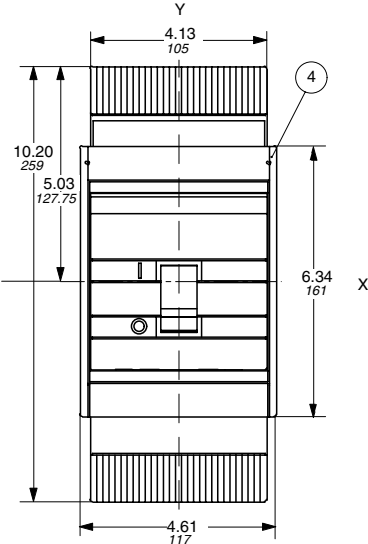
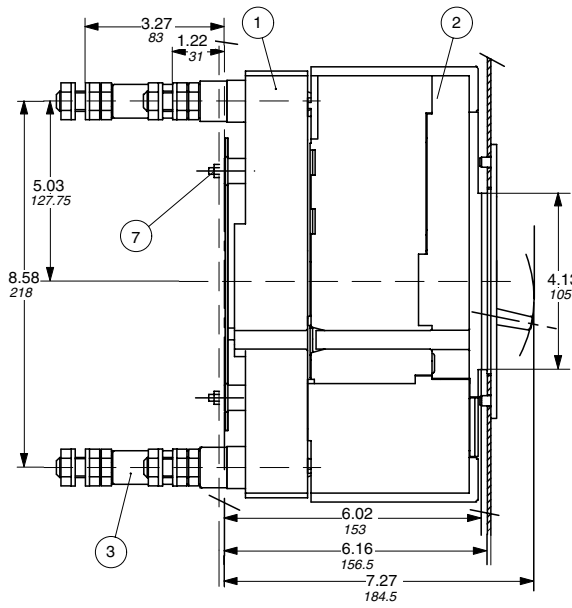
- 1-WITHDRAWABLE BASE
- 2-MOVING PART FITTED WITH TERMINAL COVERS
- 3-FRONT TERMINALS
- 4-FLANGE FOR THE COMPARTMENT DOOR
- 5-MOUNTING HOLES FOR FLANGE
- 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
- 7-COMPARTMENT DOOR INTERLOCK
- 8-TIGHTENING TORQUE 9.7 lb-in

Isomax

Dim.

Approximate dimensions S4 Plug-in rear

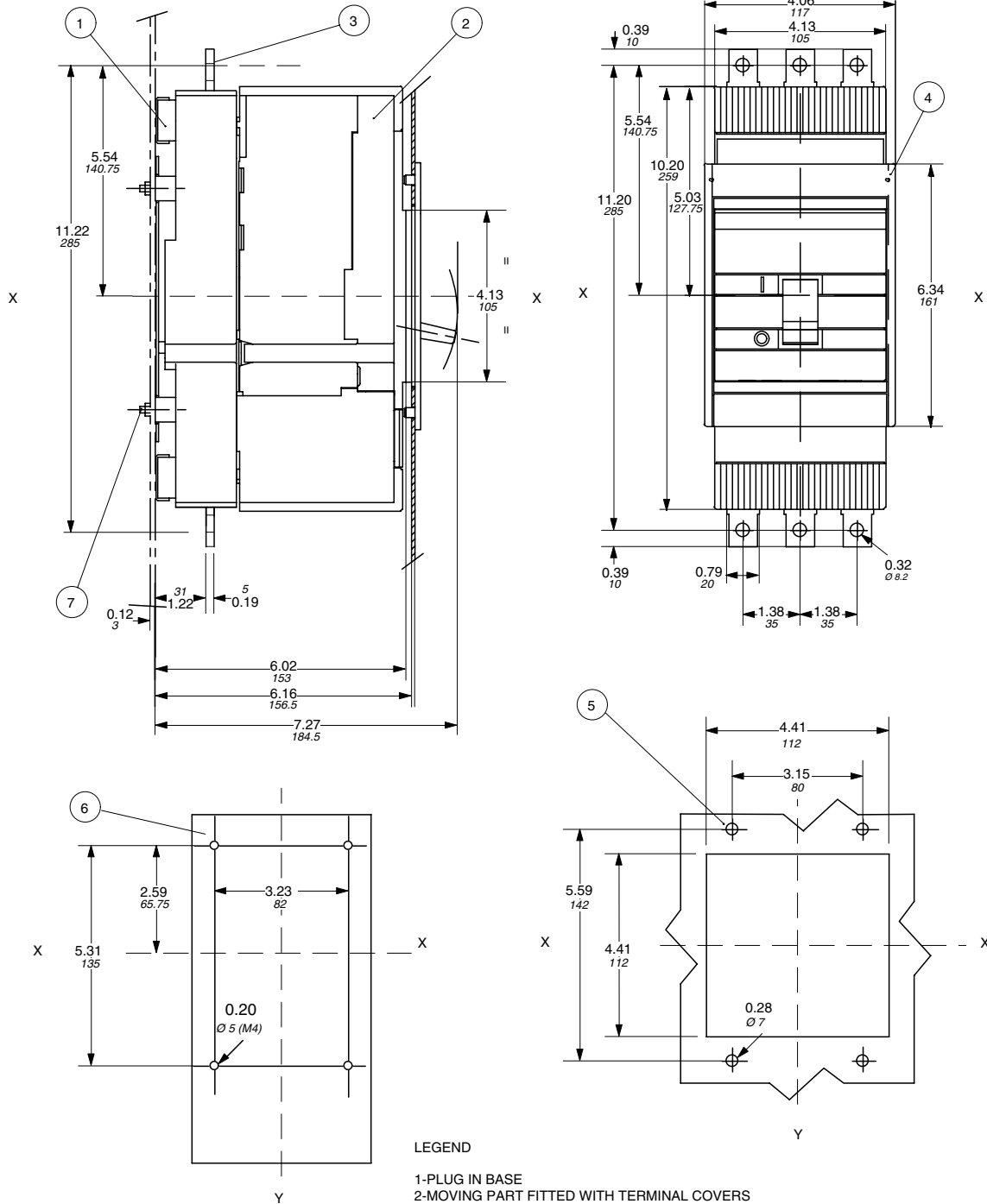
← 00.00 → Inches
00.00 → Millimeters



- LEGEND
- 1-PLUG IN BASE
 - 2-MOVING PART FITTED WITH TERMINAL COVERS
 - 3-REAR TERMINALS
 - 4-FLANGE FOR THE COMPARTMENT DOOR
 - 5-MOUNTING HOLES FOR FRONT FLANGE
 - 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
 - 7-TIGHTENING TORQUE 9.7 lb-in

Isomax

Approximate dimensions S4 Plug-in front

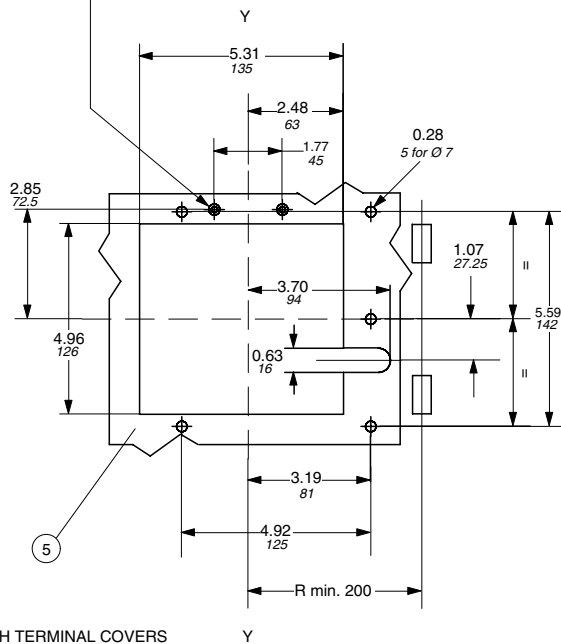
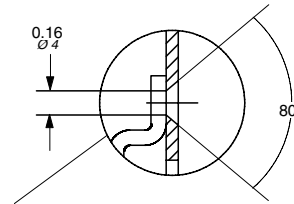
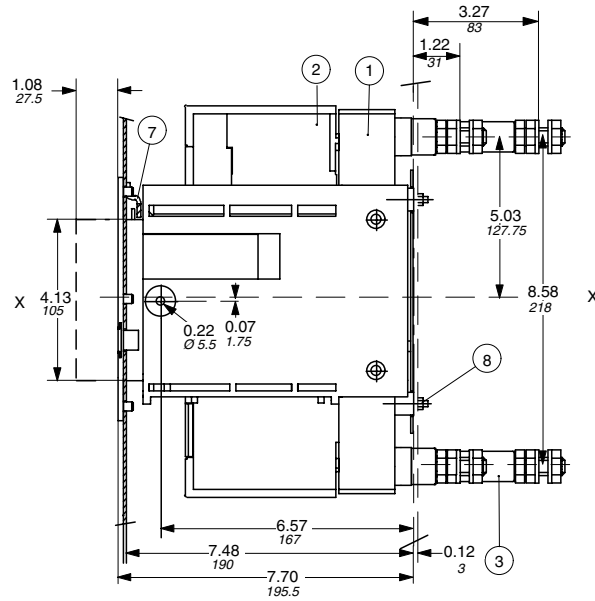
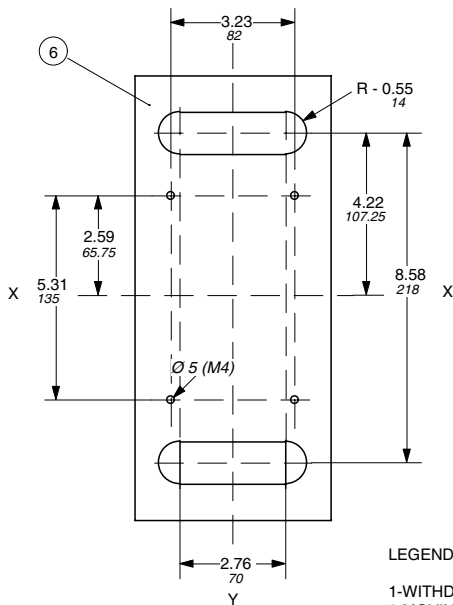
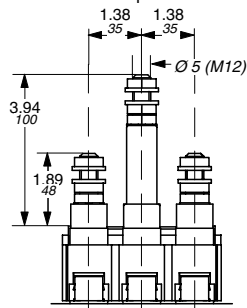
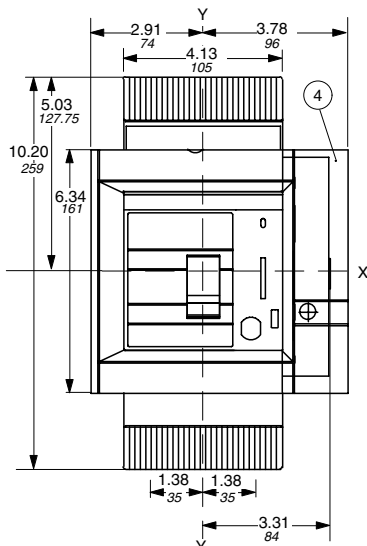


- LEGEND
- 1-PLUG IN BASE
 - 2-MOVING PART FITTED WITH TERMINAL COVERS
 - 3- FRONT TERMINAL
 - 4-FLANGE FOR THE COMPARTMENT DOOR
 - 5-MOUNTING HOLES FOR FRONT FLANGE
 - 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
 - TIGHTENING TORQUE 9.7 lb-in



Approximate dimensions S4 Withdrawable rear

← 00.00 Inches
00.00 → Millimeters



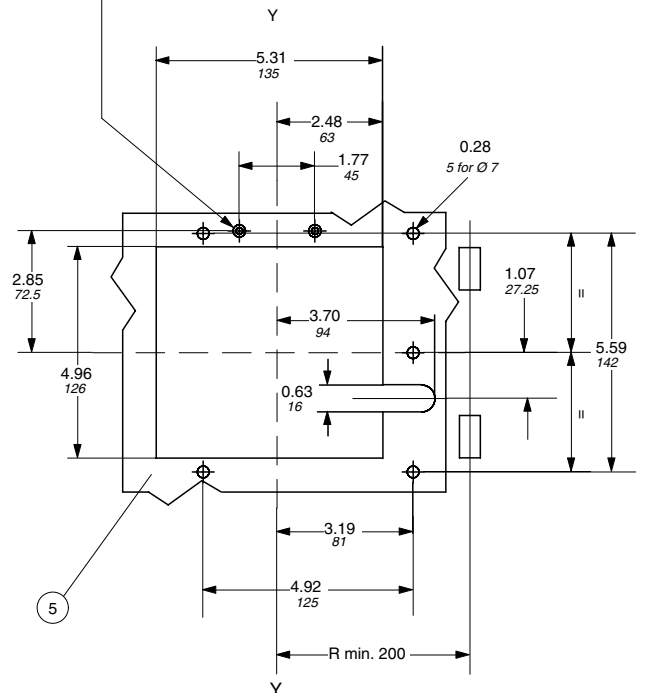
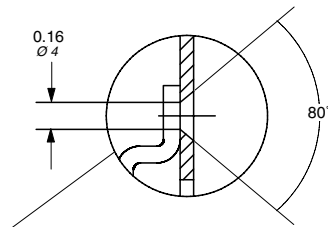
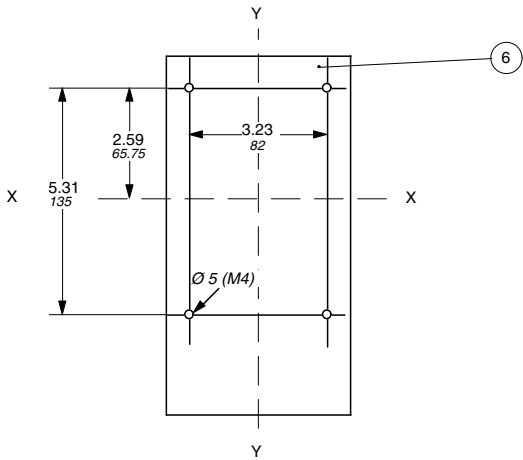
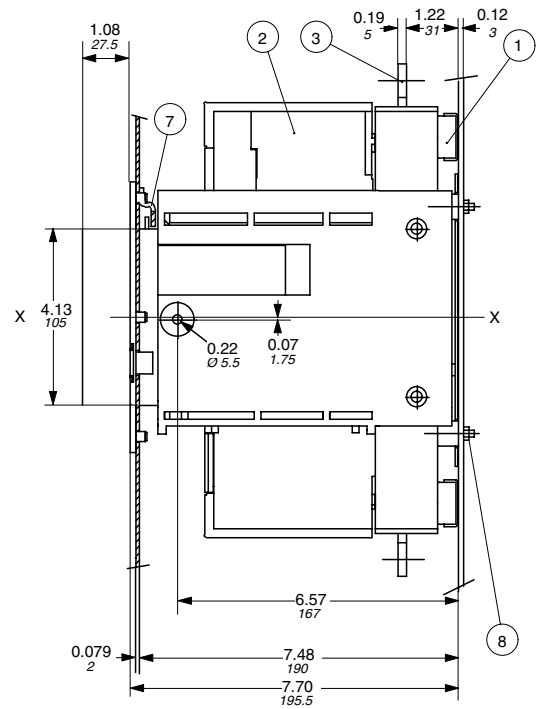
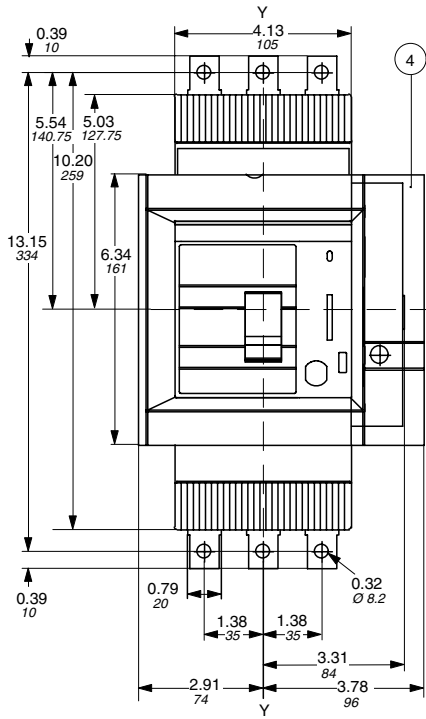
LEGEND

- 1-WITHDRAWABLE BASE
- 2-MOVING PART FITTED WITH TERMINAL COVERS
- 3-REAR TERMINALS
- 4-FLANGE FOR THE COMPARTMENT DOOR
- 5-MOUNTING HOLES FOR FRONT FLANGE
- 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
- 7-COMPARTMENT DOOR INTERLOCK
- 8-TIGHTENING TORQUE 9.7 lb-in

Isomax

00.00 Inches
00.00 Millimeters

Approximate dimensions S4 Withdrawable front



LEGEND

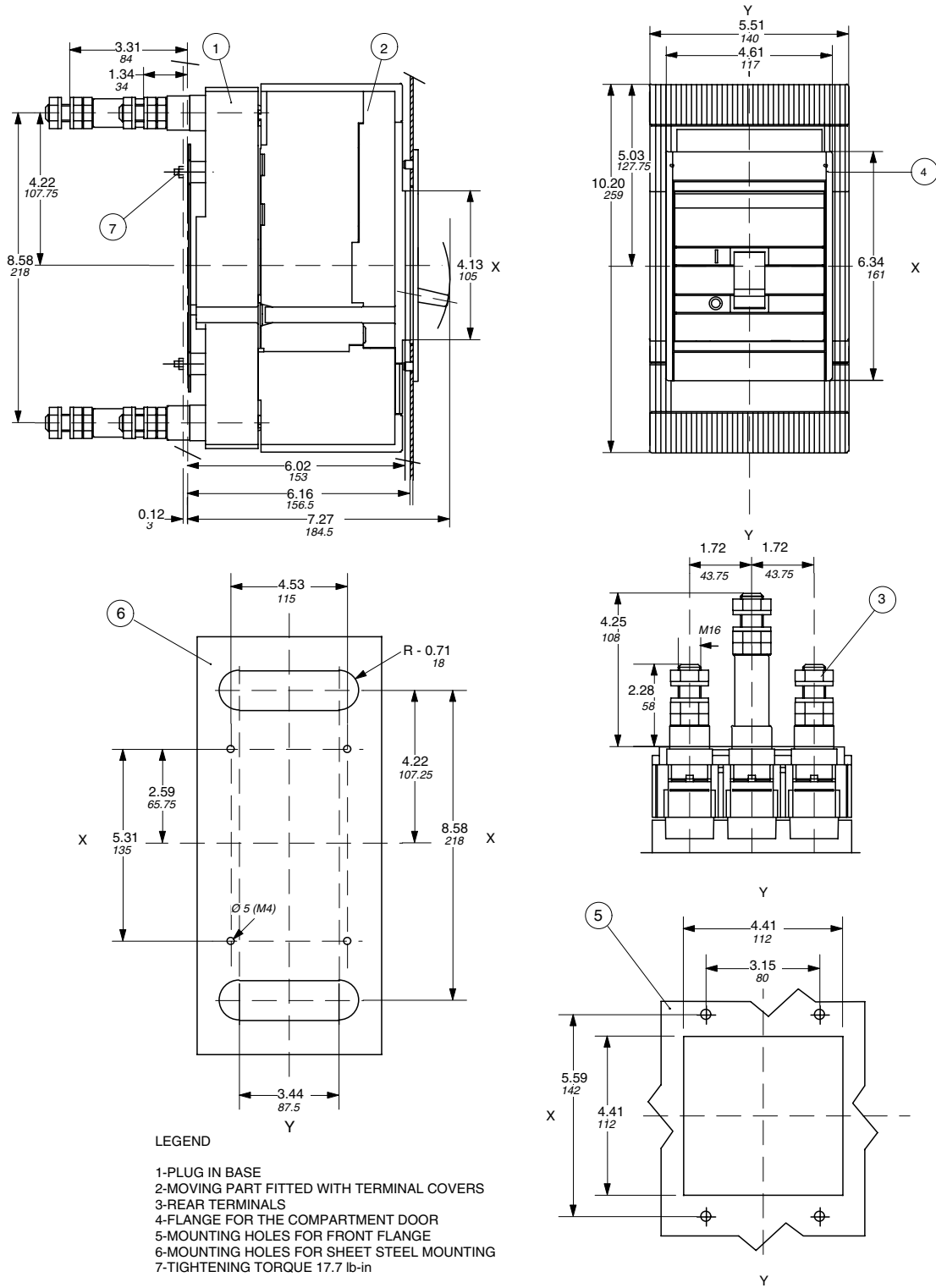
- 1-WITHDRAWABLE BASE
- 2-MOVING PART FITTED WITH TERMINAL COVERS
- 3-FRONT TERMINALS
- 4-FLANGE FOR THE COMPARTMENT DOOR
- 5-MOUNTING HOLES FOR FLANGE
- 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
- 7-COMPARTMENT DOOR INTERLOCK
- 8-TIGHTENING TORQUE 9.7 lb-in

Isomax

Dim.

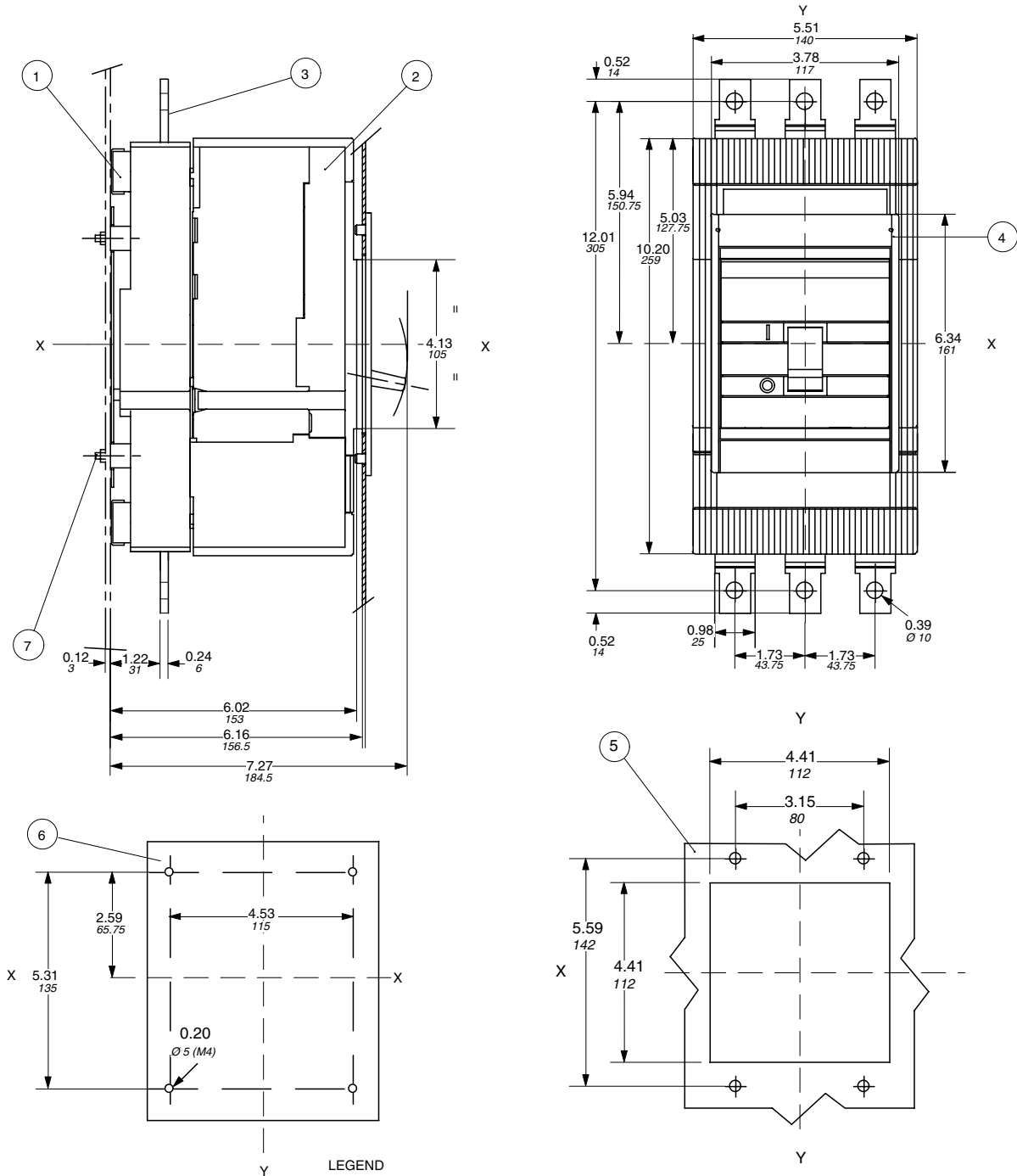
Approximate dimensions S5 Plug-in rear

00.00 Inches
00.00 Millimeters



Isomax

Approximate dimensions S5 Plug-in front



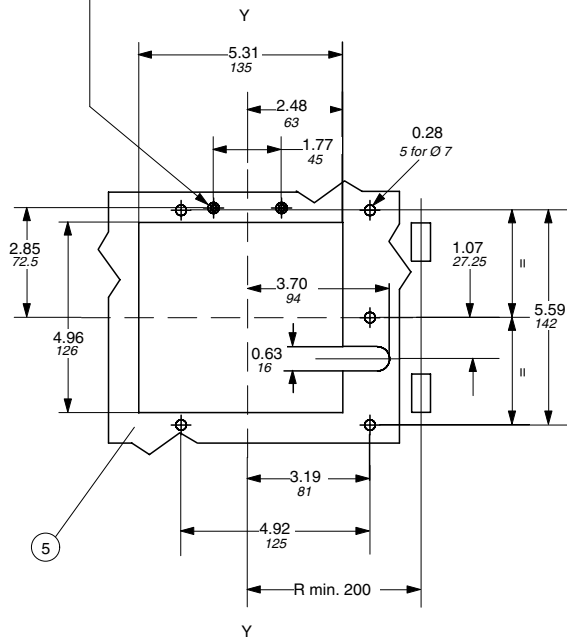
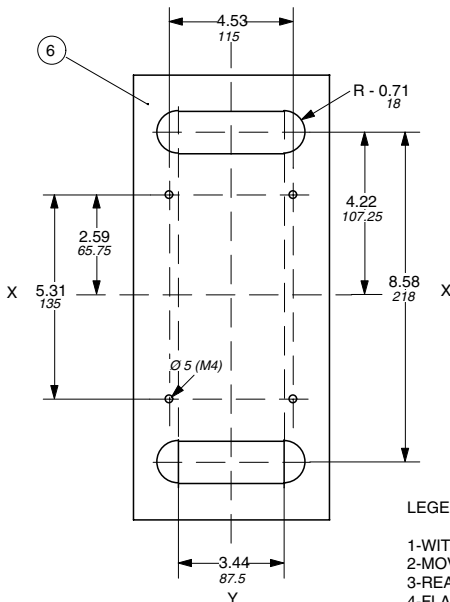
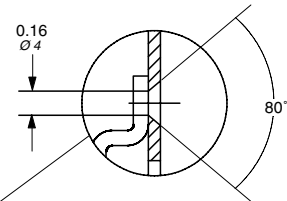
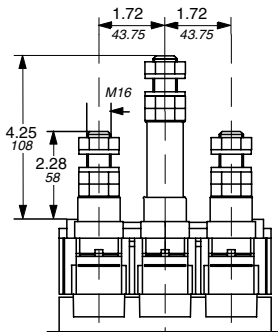
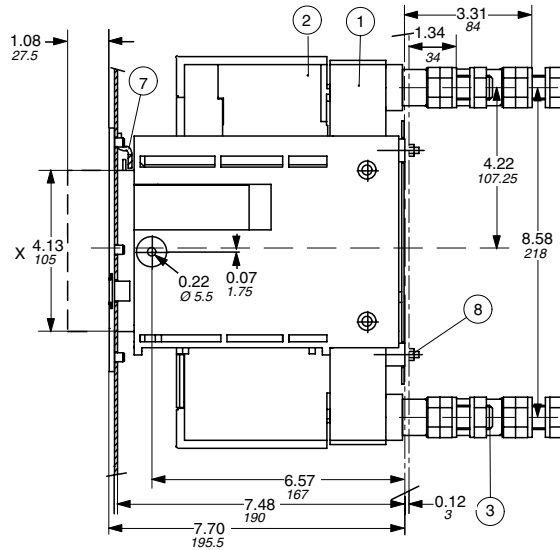
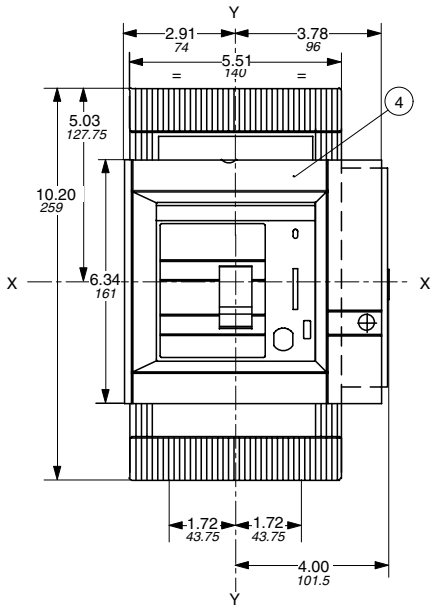
LEGEND

- 1-PLUG IN BASE
- 2-MOVING PART FITTED WITH TERMINAL COVERS
- 3-FRONT TERMINALS
- 4-FLANGE FOR THE COMPARTMENT DOOR
- 5-MOUNTING HOLES FOR FRONT FLANGE
- 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
- 7-TIGHTENING TORQUE 17.7 lb-in

Dim.

Approximate dimensions S5 Withdrawable rear

00.00 Inches
00.00 Millimeters



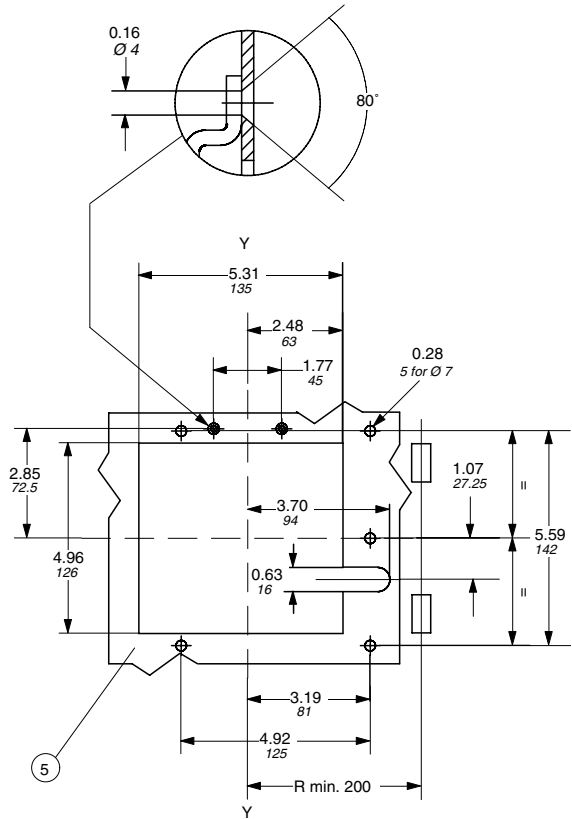
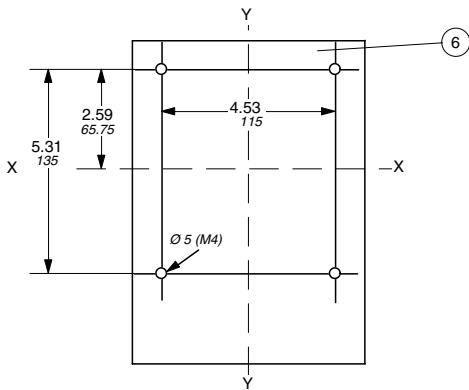
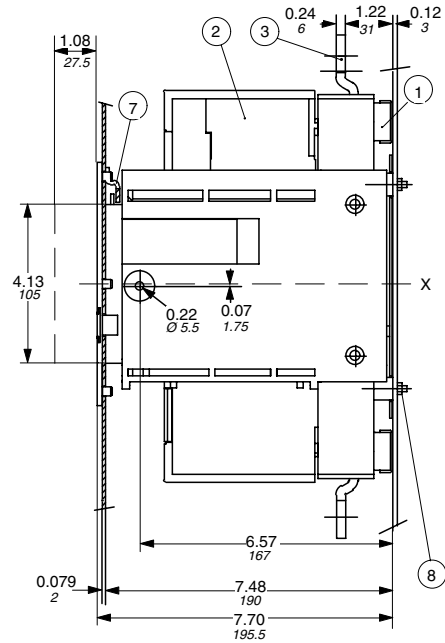
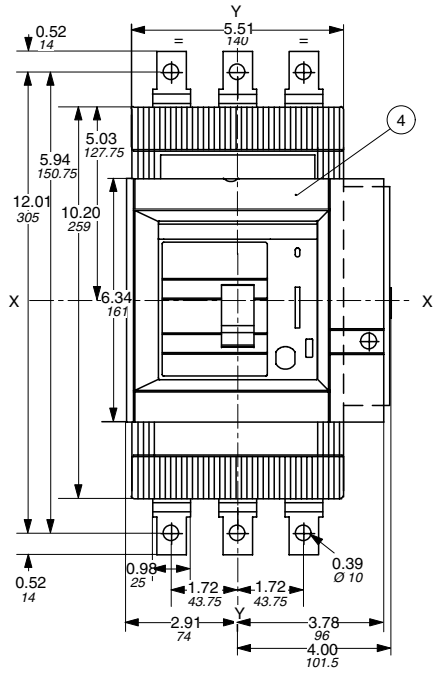
LEGEND

- 1-WITHDRAWABLE BASE
- 2-MOVING PART FITTED WITH TERMINAL COVERS
- 3-REAR TERMINALS
- 4-FLANGE FOR THE COMPARTMENT DOOR
- 5-MOUNTING HOLES FOR FRONT FLANGE
- 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
- 7-COMPARTMENT DOOR INTERLOCK
- 8-TIGHTENING TORQUE 9.7 lb-in

Isomax

00.00 Inches
00.00 Millimeters

Approximate dimensions S5 Withdrawable front



LEGEND

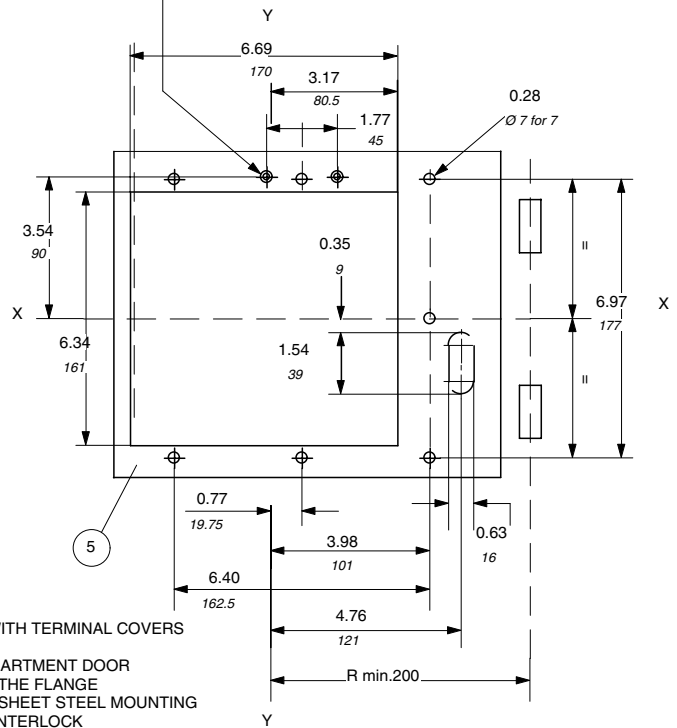
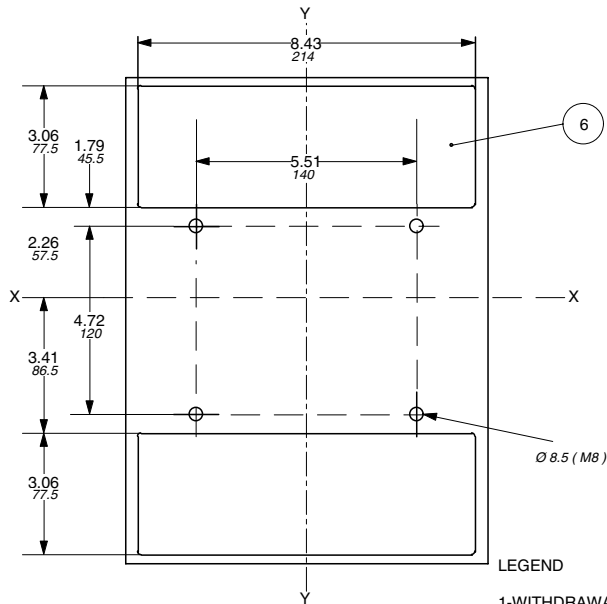
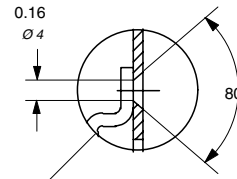
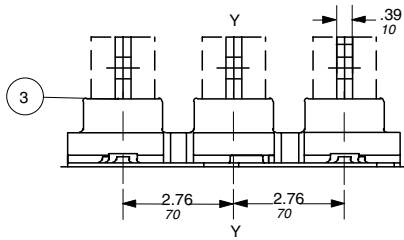
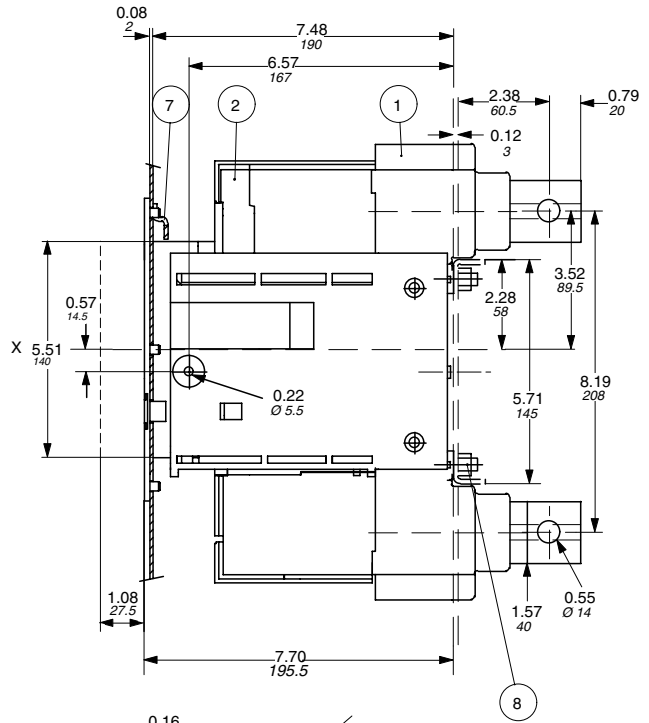
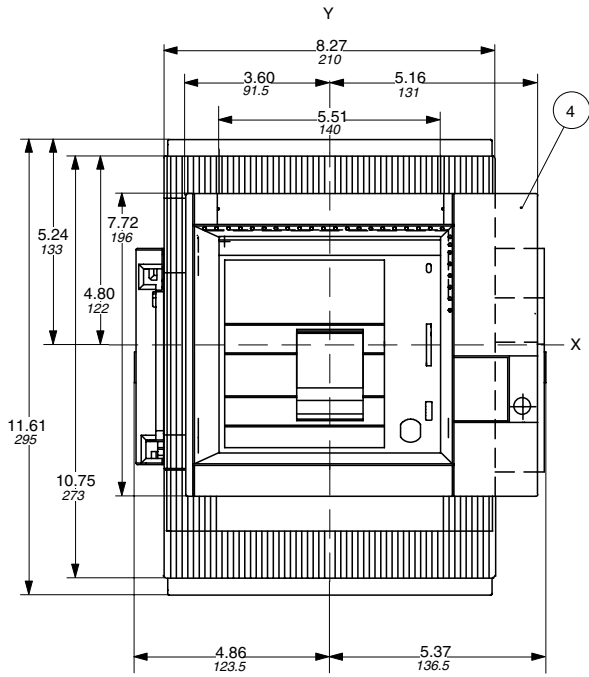
- 1- WITHDRAWABLE BASE
- 2-MOVING PART FITTED WITH TERMINAL COVERS
- 3-FRONT TERMINALS
- 4-COMPARTMENT DOOR FLANGE
- 5-MOUNTING HOLES FOR FLANGE
- 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
- 7-COMPARTMENT DOOR INTERLOCK
- 8-TIGHTENING TORQUE 9.7 lb-in

Isomax

Dim.

Approximate dimensions S6 Withdrawable rear

00.00 Inches
00.00 Millimeters



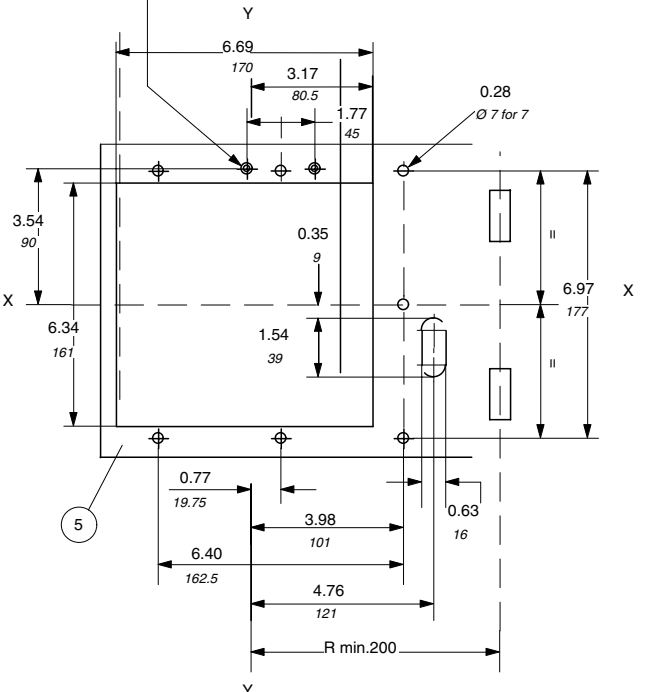
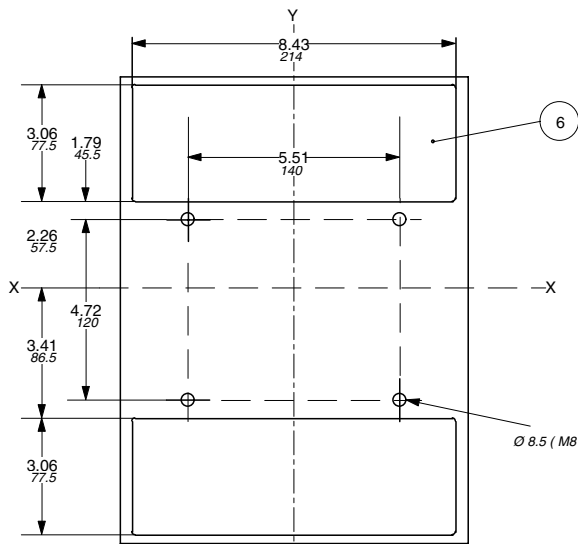
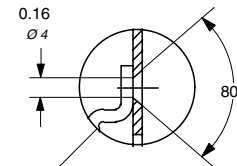
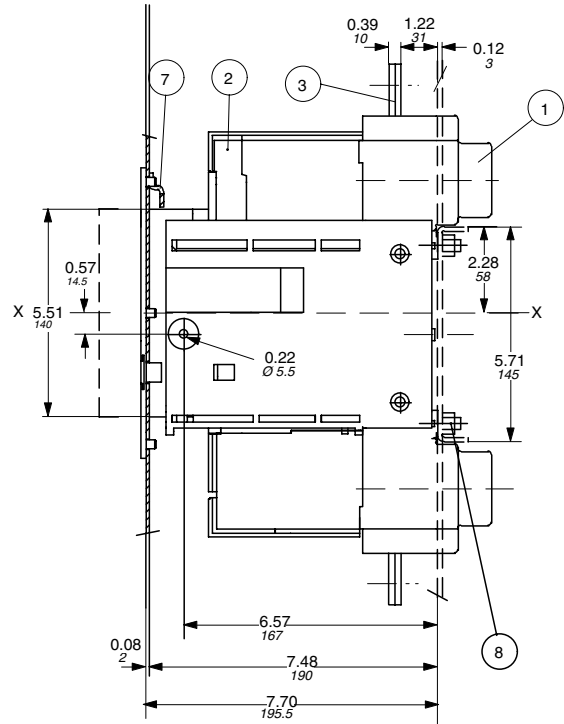
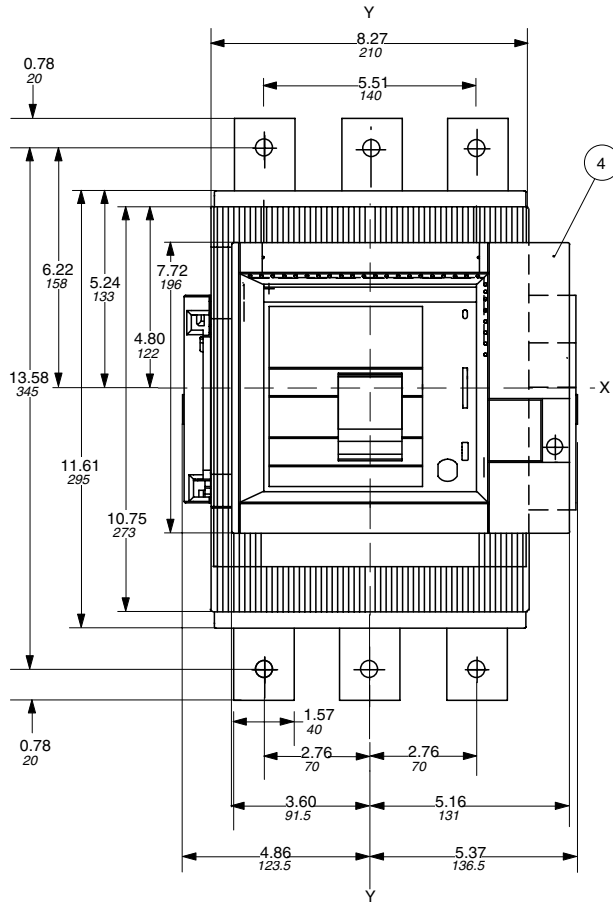
LEGEND

- 1-WITHDRAWABLE BASE
- 2-MOVING PART FITTED WITH TERMINAL COVERS
- 3-REAR TERMINALS
- 4-FLANGE FOR THE COMPARTMENT DOOR
- 5-MOUNTING HOLES FOR THE FLANGE
- 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
- 7-COMPARTMENT DOOR INTERLOCK
- 8-TIGHTENING TORQUE 79.7 lb-in

Isomax

00.00 Inches
00.00 Millimeters

Approximate dimensions S6 Withdrawable front



LEGEND

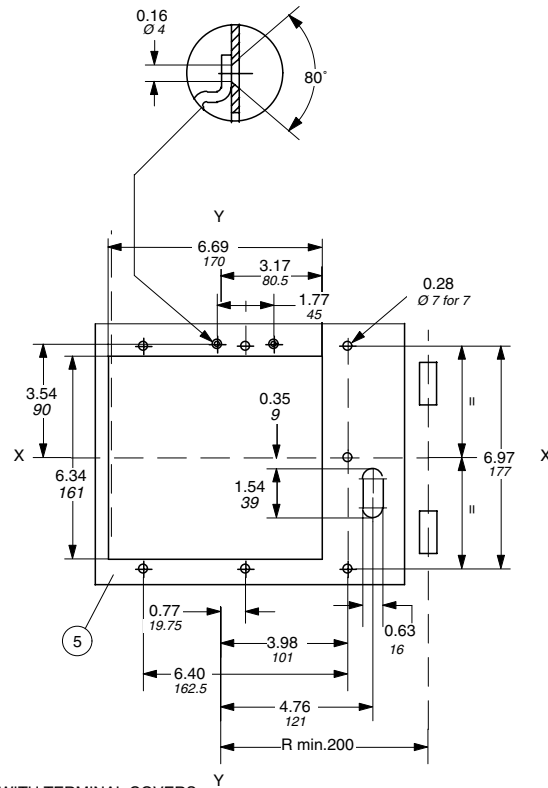
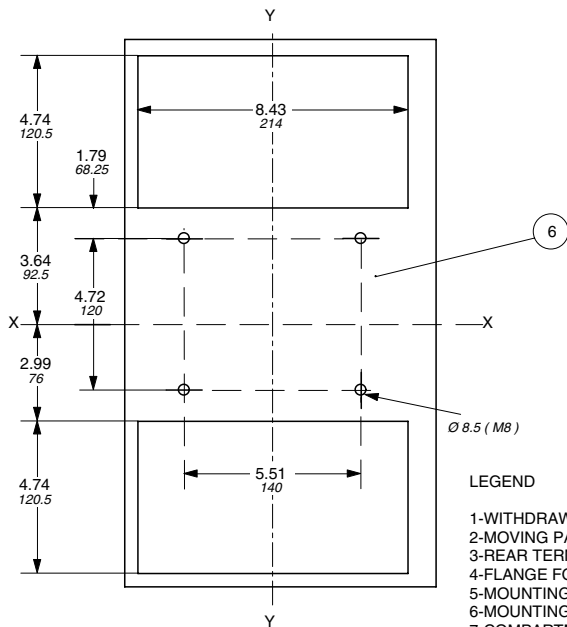
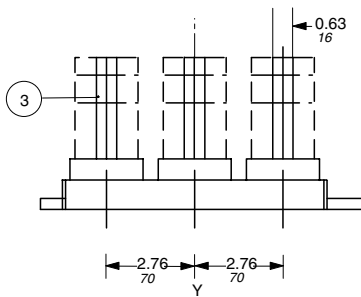
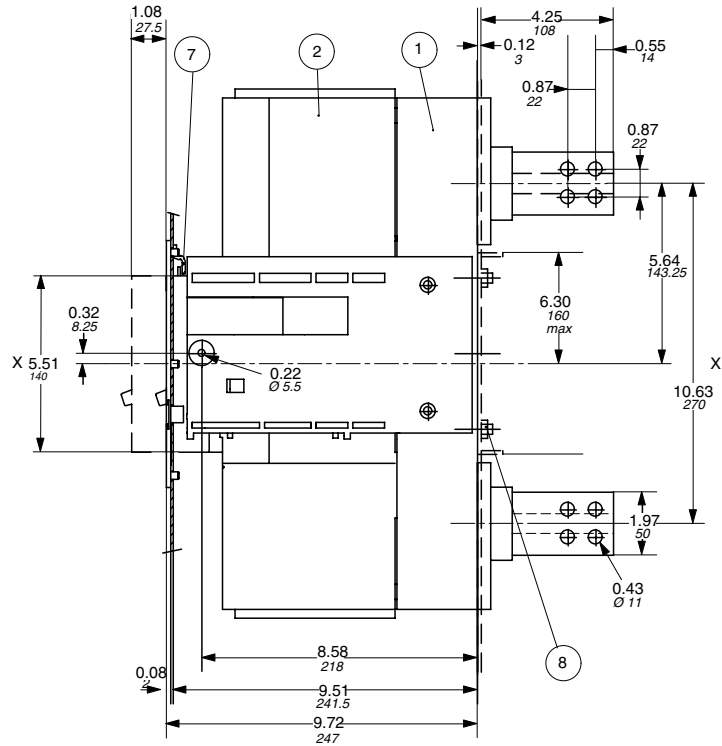
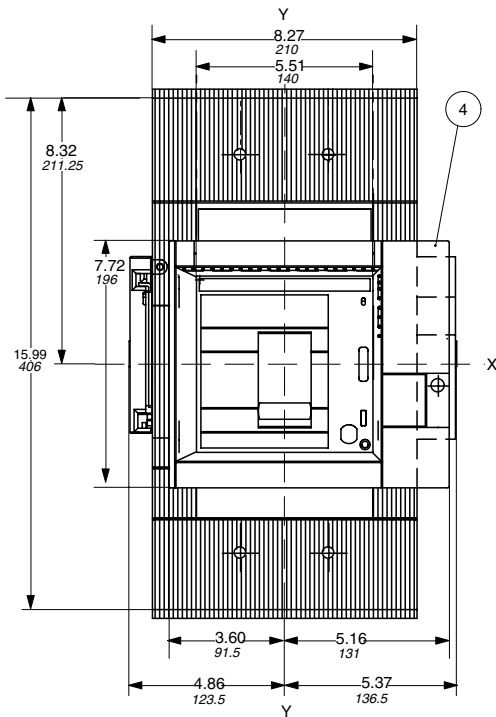
- 1-WITHDRAWABLE BASE
- 2-MOVING PART FITTED WITH TERMINAL COVERS
- 3-REAR TERMINALS
- 4-FLANGE FOR THE COMPARTMENT DOOR
- 5-MOUNTING HOLES FOR THE FLANGE
- 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
- 7-COMPARTMENT DOOR INTERLOCK
- 8-TIGHTENING TORQUE 79.7 lb-in

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Dim.

Approximate dimensions S7 Withdrawable rear

00.00 Inches
00.00 Millimeters



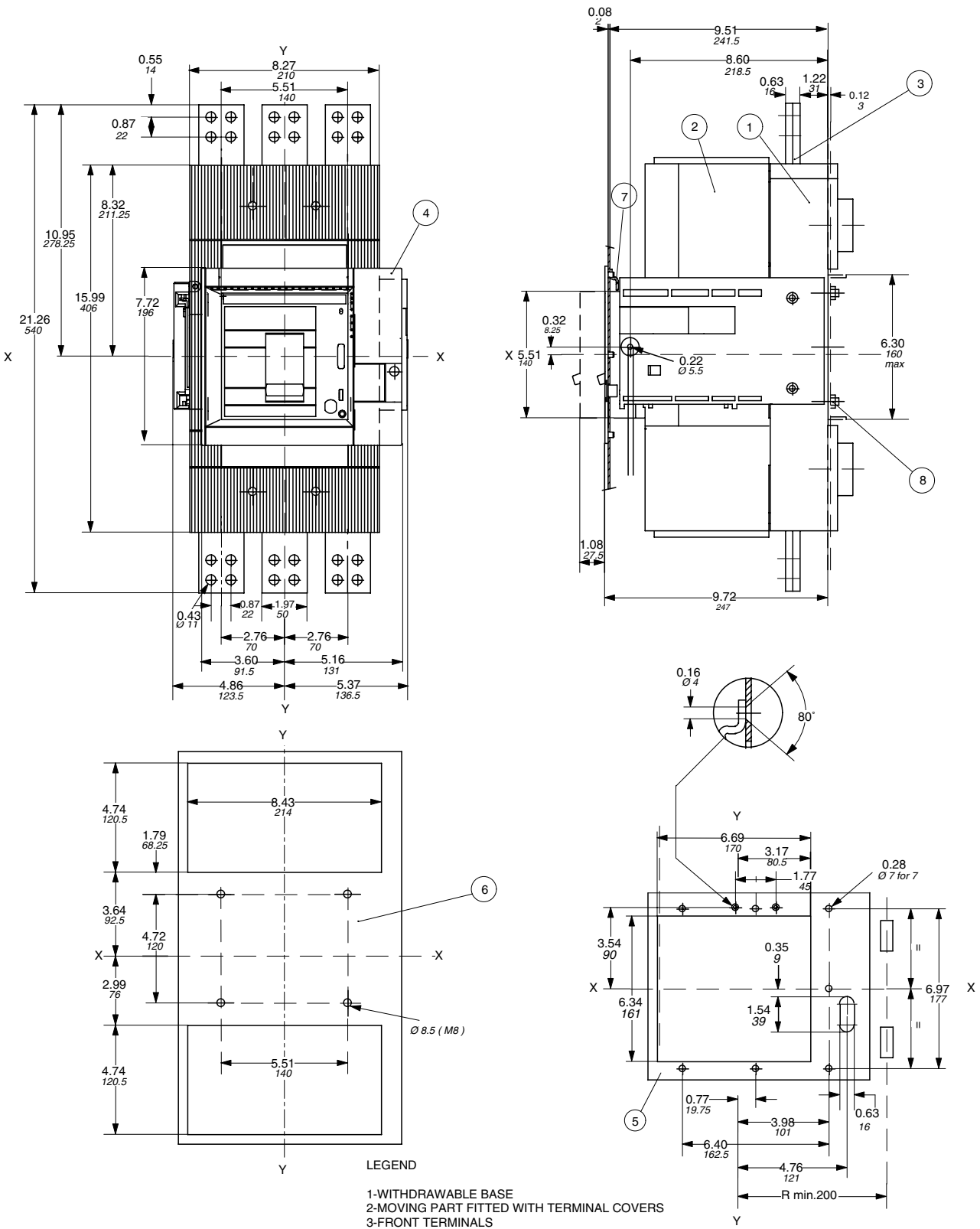
LEGEND

- 1-WITHDRAWABLE BASE
- 2-MOVING PART FITTED WITH TERMINAL COVERS
- 3-REAR TERMINALS
- 4-FLANGE FOR THE COMPARTMENT DOOR
- 5-MOUNTING HOLES FOR FLANGE
- 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
- 7-COMPARTMENT DOOR INTERLOCK
- 8-TIGHTENING TORQUE 79.7 lb-in

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00.00 Inches
00.00 Millimeters

Approximate dimensions S7 Withdrawable front



- LEGEND**
- 1-WITHDRAWABLE BASE
 - 2-MOVING PART FITTED WITH TERMINAL COVERS
 - 3-FRONT TERMINALS
 - 4-FLANGE FOR THE COMPARTMENT DOOR
 - 5-MOUNTING HOLES FOR FLANGE
 - 6-MOUNTING HOLES FOR SHEET STEEL MOUNTING
 - 7-COMPARTMENT DOOR INTERLOCK
 - 8-TIGHTENING TORQUE 79.7 lb-in

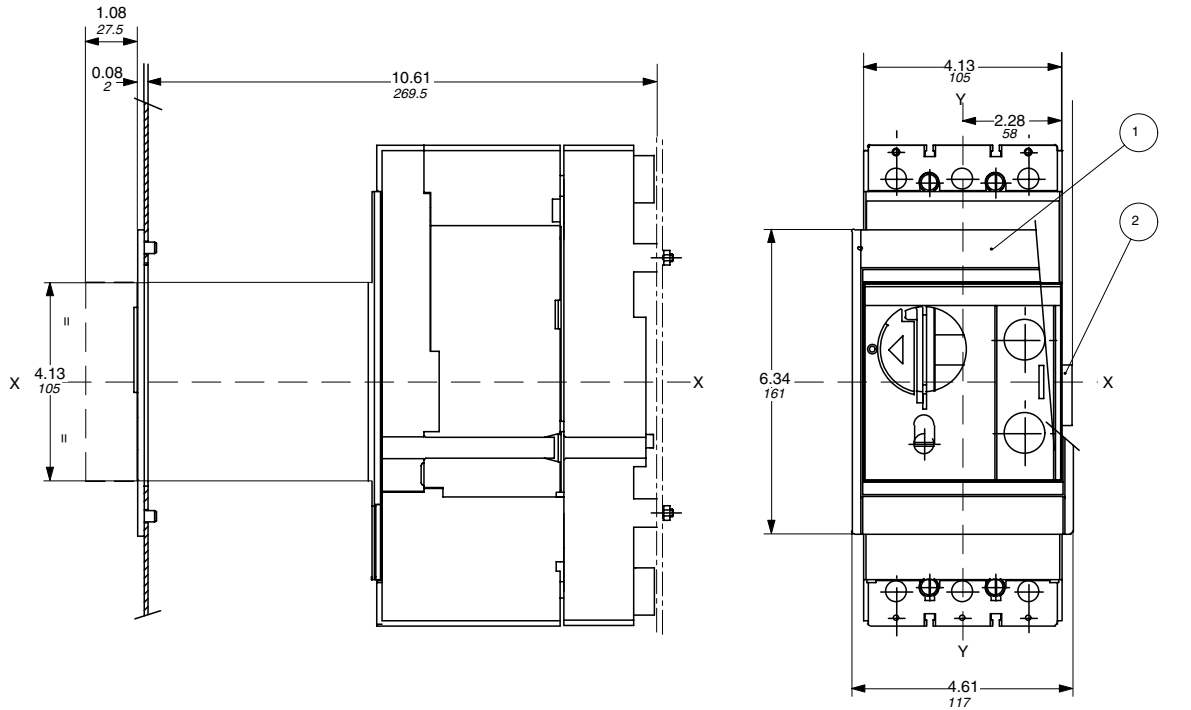
Isomax



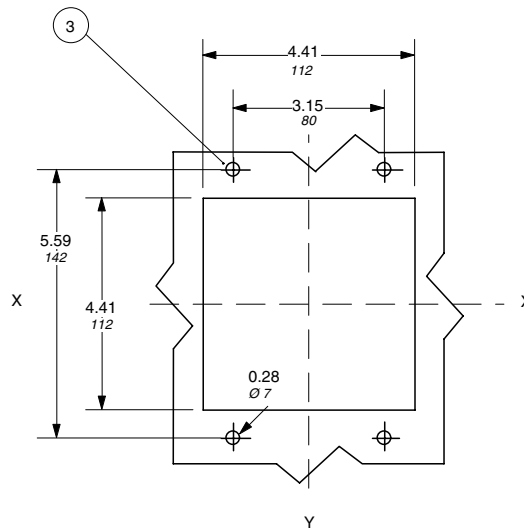
Approximate dimensions

S3 - S4 Motor operator w/ plug-in front

← 00.00 → Inches
 ← 00.00 → Millimeters

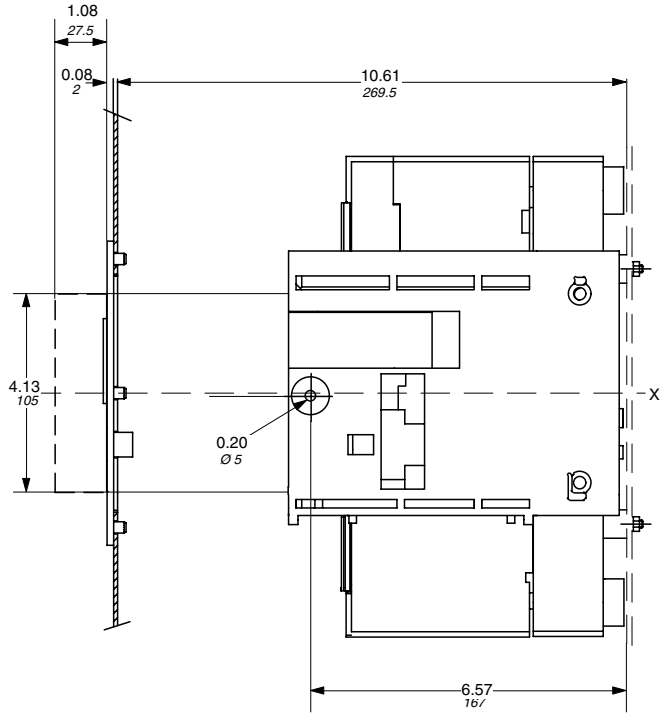
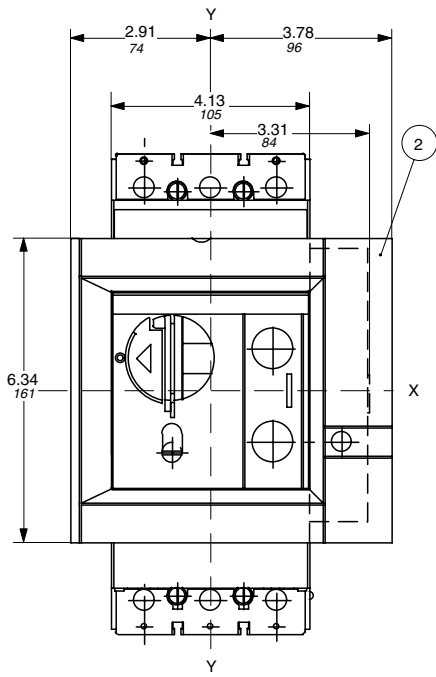


LEGEND
 1-FLANGE FOR THE COMPARTMENT DOOR
 2-PLUG FOR MOTOR OPERATOR
 3-DRILLING TEMPLATE

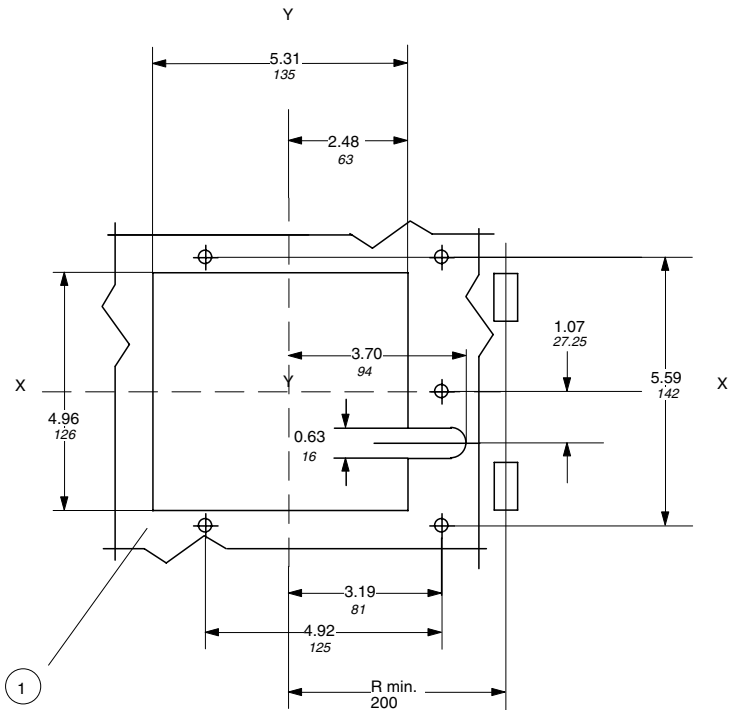


00.00 Inches
00.00 Millimeters

Approximate dimensions S3 - S4 Motor operator w/ withdrawable



LEGEND
1-MOUNTING HOLES FOR FRONT FLANGE
2-FLANGE FOR THE COMPARTMENT DOOR

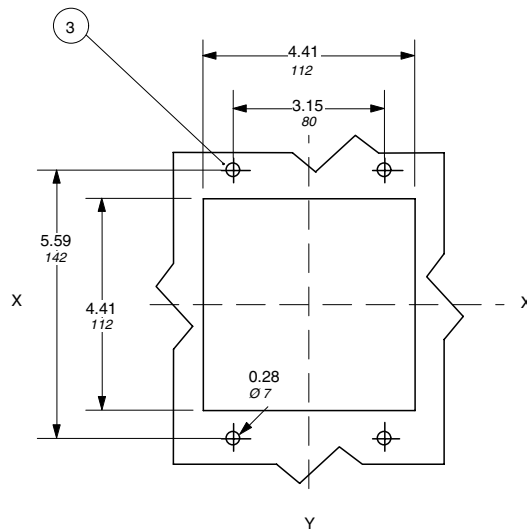
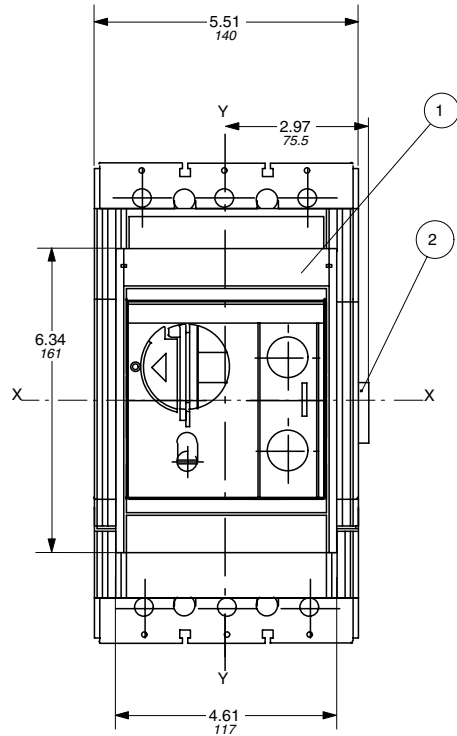
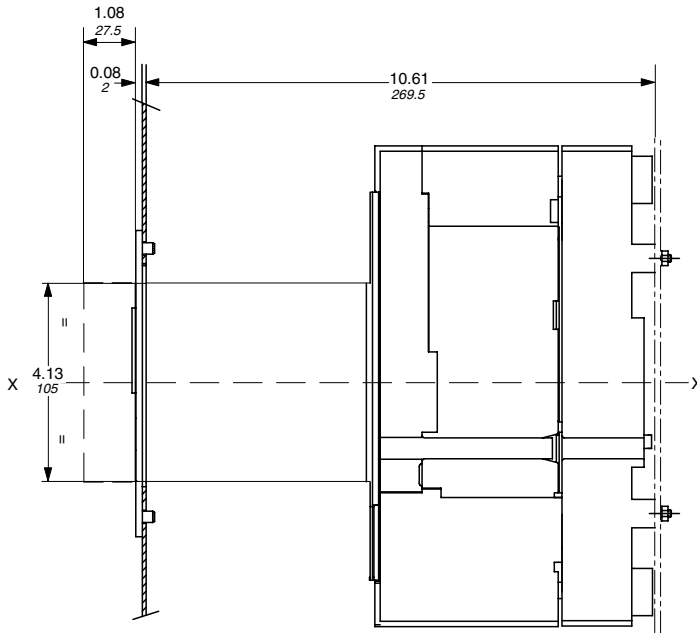


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Approximate dimensions S5 Motor operator w/ plug-in

00.00 Inches
00.00 Millimeters

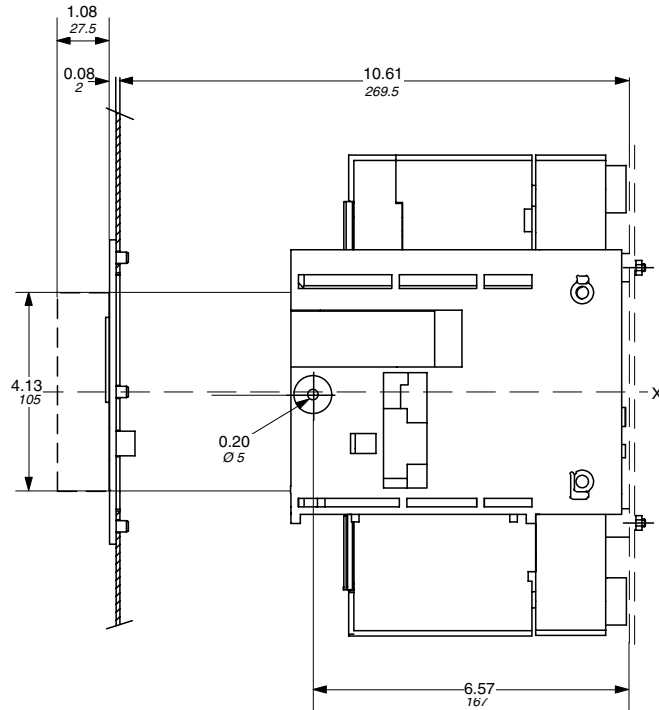
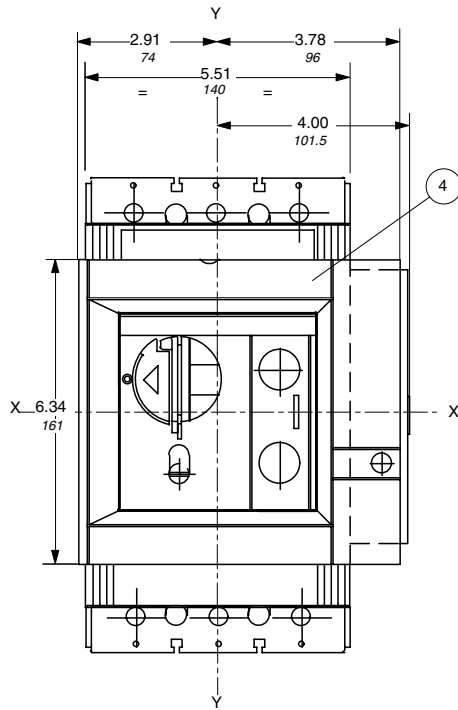


LEGEND
1-FLANGE FOR THE COMPARTMENT DOOR
2-PLUG FOR MOTOR OPERATOR
3-DRILLING TEMPLATE

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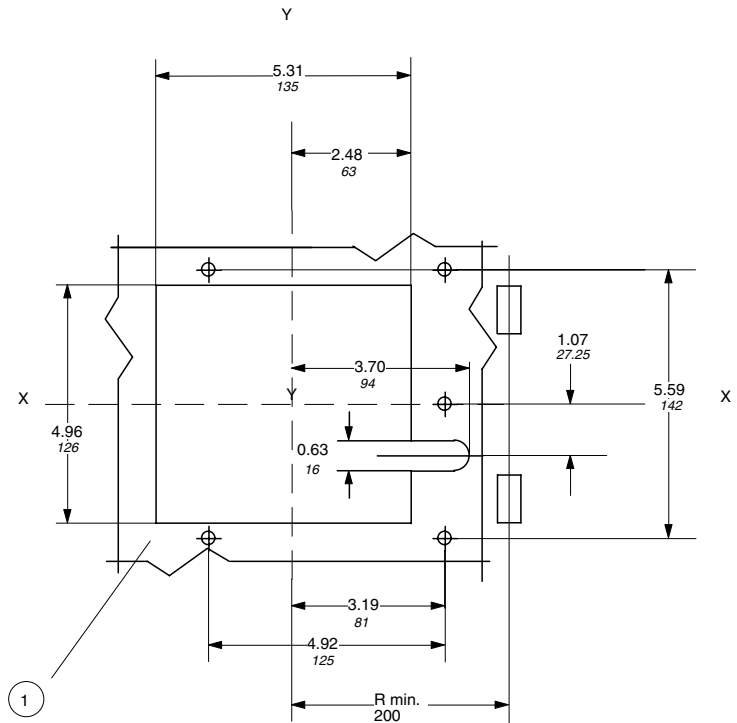
00.00 Inches
00.00 Millimeters

Approximate dimensions S5 Motor operator w/ withdrawable



LEGEND

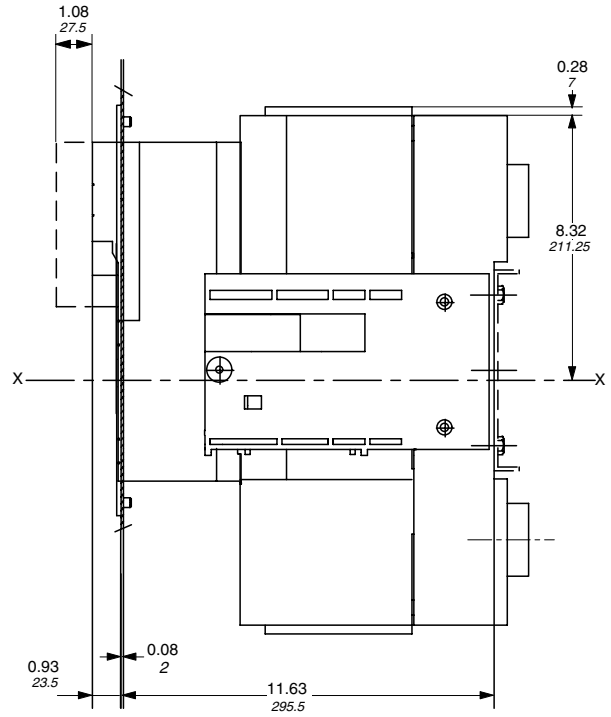
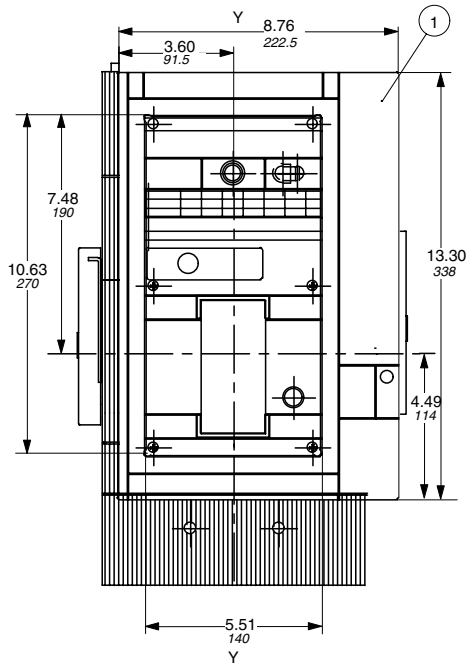
- 1-MOUNTING HOLES FOR FRONT FLANGE
- 2-FLANGE FOR THE COMPARTMENT DOOR



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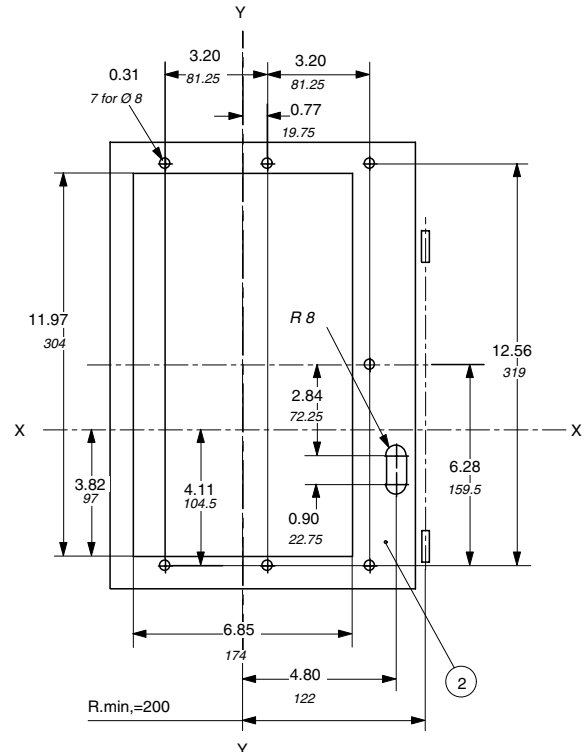
00.00 Inches
00.00 Millimeters

Approximate dimensions S7 Motor operator w/ withdrawable



LEGEND

- 1-FLANGE FOR THE COMPARTMENT DOOR
- 2-DRILLING TEMPLATE



Isomax



Notes

← 00.00 → Inches
00.00 → Millimeters