

SM3 Series Moulded Case Circuit Breaker

1. Application

SM3 series moulded case circuit breaker, it's applicable circuit of AC 50/60Hz, rated insulation voltage 690V(SM3-125 500V), rated operating voltage AC 690V or below, rated operating current 12.5-1600A, for distribute energy of electric and infrequent making and breaking circuit in normal condition. The circuit-breakers are provided with the function of the protection against overload and short circuit and under-voltage. The circuit breakers comply with standard of IEC60947-2. The circuit-breakers are double insulating ($I_{nm}=250A$ or above), the control circuit of the accessories is set apart with the main circuit, and doesn't need to open the cover of the circuit breaker when install the accessories.

2. Specification

Table 1

Type	Pole number	Rated insulating voltage (V)	Rated operating voltage (V)	Ultimate short circuit breaking capacity I _{cu} (kA)		Rated short-circuit service breaking capacity I _{cs} (%I _{cu})	Utilization category
				AC380V (400)	AC660V (690)		
SM3-125L	1,2,3,4	500	500	25	-	50%	A
SM3-160L	3, 4	690	690 and below	35	8	75%	
SM3-160M				50	10	75%	
SM3-250L		800		35	14	100%	
SM3-250M				65	18	75%	
SM3-250H				85	20	75%	
SM3-400L				35	18	100%	
SM3-400M				65	22	100%	
SM3-400H				100	30	75%	
SM3-630L				35	20	100%	
SM3-630M				50	22	100%	
SM3-630H				65	25	100%	
SM3-800L				35	20	100%	
SM3-800M				50	22	100%	
SM3-800H				65	25	100%	
SM3-1250L	3			50	20	100%	
SM3-1600L							



SM3-125L/3P



SM3-250L/3P



SM3-250L



SM3-400L

3. Trip Units Main Technical Parameter (See Table 2)

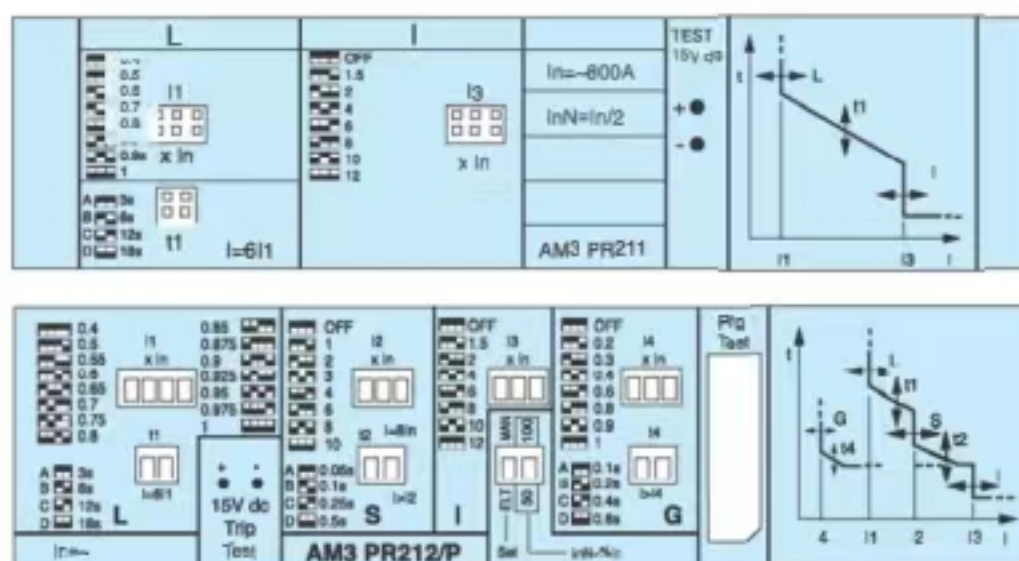


Table 2

Type	Thermal magnetic release		Electronic release	
	Rated current $I_n(A)$	Note	Rated current $I_n(A)$	Note
SM3-125	12.5, 16, 20, 25, 32, 40, 50, 63, 80, 100, 125	T fixed M fixed	-	
SM3-160	16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160	T adjustable (0.7~1 I_n) M fixed	-	
SM3-250	100, 125, 160, 180, 225, 250	T adjustable (0.7~1 I_n) M fixed	-	
SM3-400	225, 250, 315, 350, 400	T fixed or adjustable (0.7~1 I_n) M fixed	320, 400	$I_1=0.4\cdots 1 \times I_n$ AM3 PR211(L-LI) $I_1=0.4\cdots 1 \times I_n$ AM3 PR212(LSI-LSIG) Tripping between $1.05\cdots 1.3 \times I_1$ (IEC60947-2) $I^2t=\text{constant}$ (Long-time overload protection)
SM3-630	400, 500, 630	T fixed M fixed	630	$I_2=1-2-3-4-6-8-10 \times I_n$ $t_2=0.05s, 0.1s, 0.25s, 0.5s$ adjustable (Short-circuit short time delay protection)
SM3-800	630, 700, 800	T fixed M fixed	800	$I_3=1.5-2-4-6-8-10-12 \times I_n$ (Instantaneous short-circuit protection)
SM3-1250	-	-	800, 1000, 1250	$I_4=0.2-0.3-0.4-0.6-0.8-0.9-1 \times I_n$ $t_4=0.1s, 0.2s, 0.4s, 0.8s$ adjustable (Earth fault protection)
SM3-1600	-	-	1000, 1250, 1600	

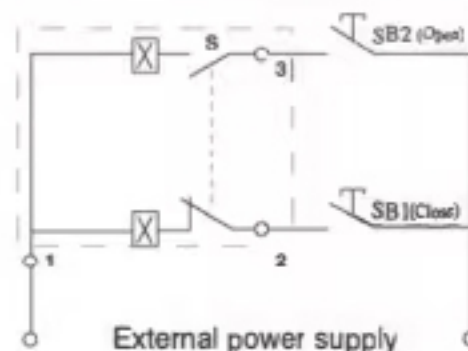
Note: T-thermal M-magnetic L-long time S-short time relay I-instantaneous G-earth fault
AM3-125/160 $I_n=12.5, 16, 20, 32, 40$ magnetic protection that is fixed at 500A.

4. Accessories

4.1 The external accessories of the breaker

● Motor-driven operation device

1) Wiring diagram of type CDM electromagnetic operation device(fitting SM3-125, 160, 250) see the following drawing (wiring diagram of the external accessories of the breaker in the dotted frame)



Code description: SB₁, SB₂ stand for push button.(provided by users themselves)

Number "1", "2", "3" stand for number of wiring terminals.

Voltage rating: AC50Hz 230V, 400V, DC 220V

2) Wiring diagram of type CD motor-driven operation device (fitting SM3-400, 630, 800) see belows (wiring diagram of the external accessories of the breaker in the dotted frame)



Plug-in base



Electromagnetic operation device



Motor-driven operation device



Rotary handle



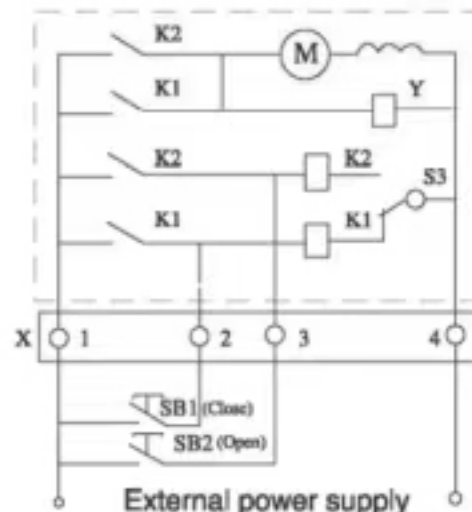
Shunt release



Under-voltage release



Alarm contact



Code description: SB₁、SB₂ stand for push button. (provided by users themselves)

"X" stands for line connection terminals

Voltage rating: AC50Hz 230V、400V; DC220V

● Rotary handle

Economic extended rotary handle

Degree of protection: IP30

Function: 1) With indication of isolation

2) Indication of three positions 0(off) 1(on) and tripped

3) Door opening prevented when circuit breaker is on

4.2 The internal accessories of the breaker

● Under-voltage release

Us: AC50/60Hz 400V, 230V

When the operation voltage is 35%~70% of the rated voltage, the under-voltage release should make the breaker trip correctly.

When the operation voltage is 85%~110% of the rated voltage, the under-voltage release should make the breaker close.

In case of the operation voltage less than 35% of the rated voltage, the under-voltage should prevent the breaker from closing.

Note: Only the under-voltage release should be energized in advanced, the breaker could be recamped and turned-on, otherwise the breaker will be damaged.

● Shunt release

Us: AC50/60Hz 230V 400V; DC110V 220V

The shunt release should make the breaker trip reliably when the operation voltage is 70%~110% of the rated control voltage

● Auxiliary Contact

When the breaker is in "off"		Size 2N/O+2N/C 1N/O+1N/C
		
When the breaker is in "on"	When the breaker is in "off", the contacts switch from "close" to "open". When the breaker is in "on", the contacts switch from "open" to "close"	



Auxiliary Contact

● Alarm contact

The position of the breaker in "off" or "on"	
The position of the breaker in "free release" (alarm)	B11 and B12 switch from "close" to "open", status of B11 and B14 switch from "open" to "close"

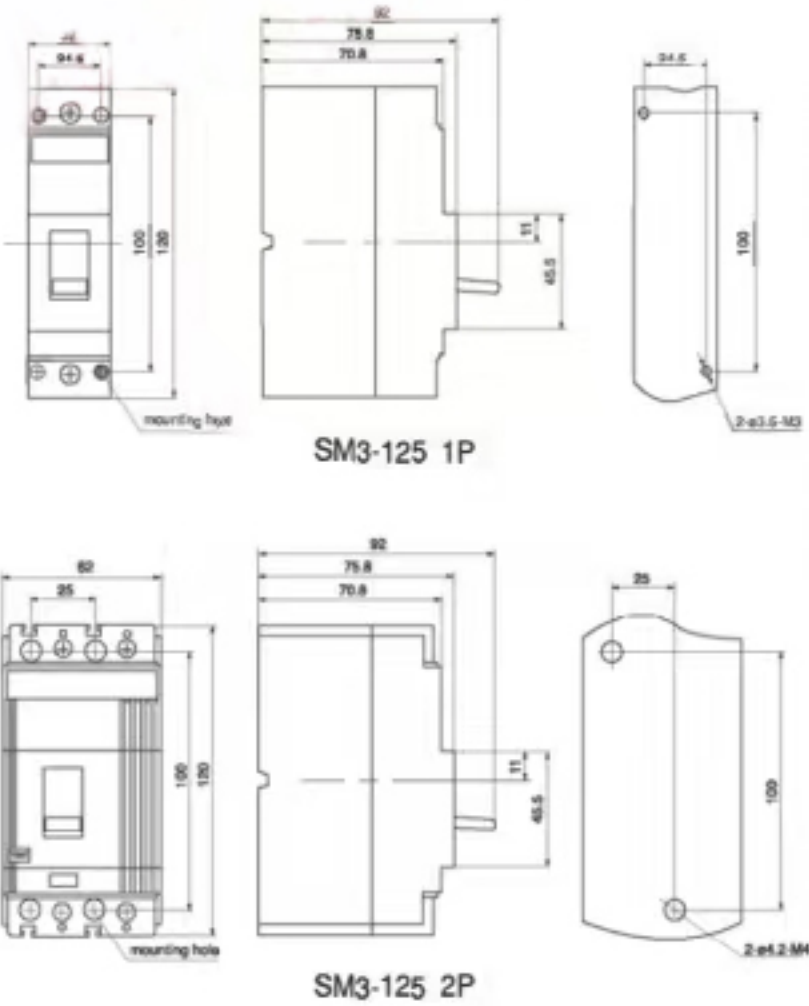
Auxiliary contact and Alarm contact: Auxiliary contact is as same as Alarm contact , the technical parameter(see table 3)

Table 3

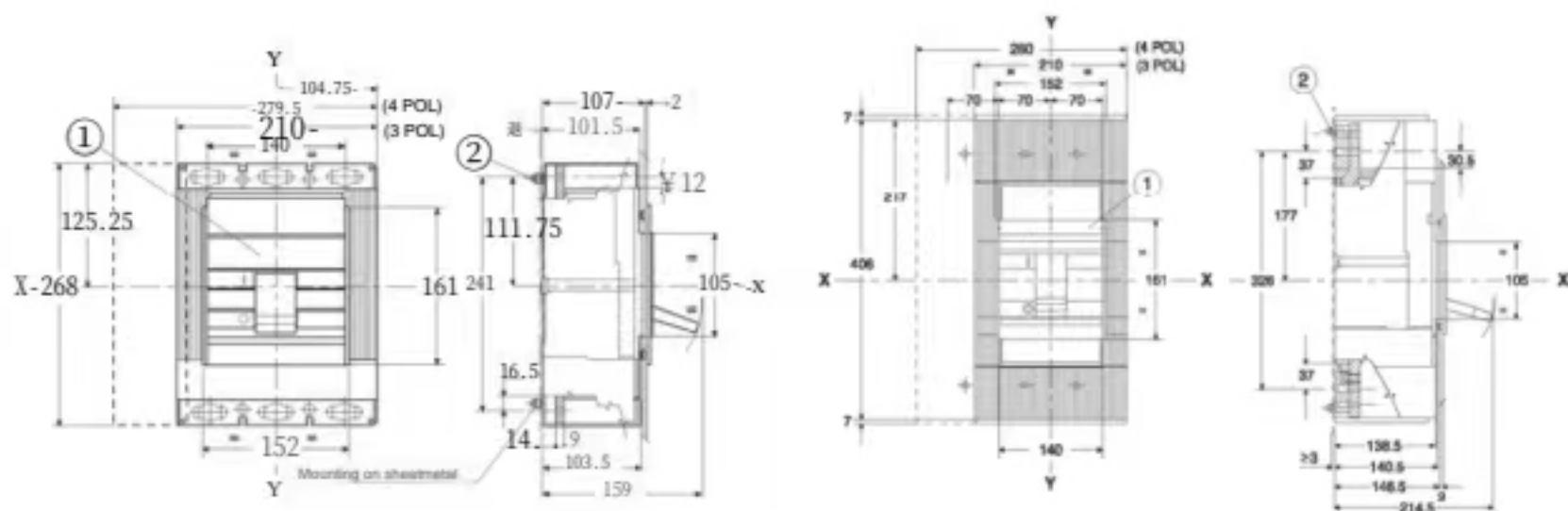
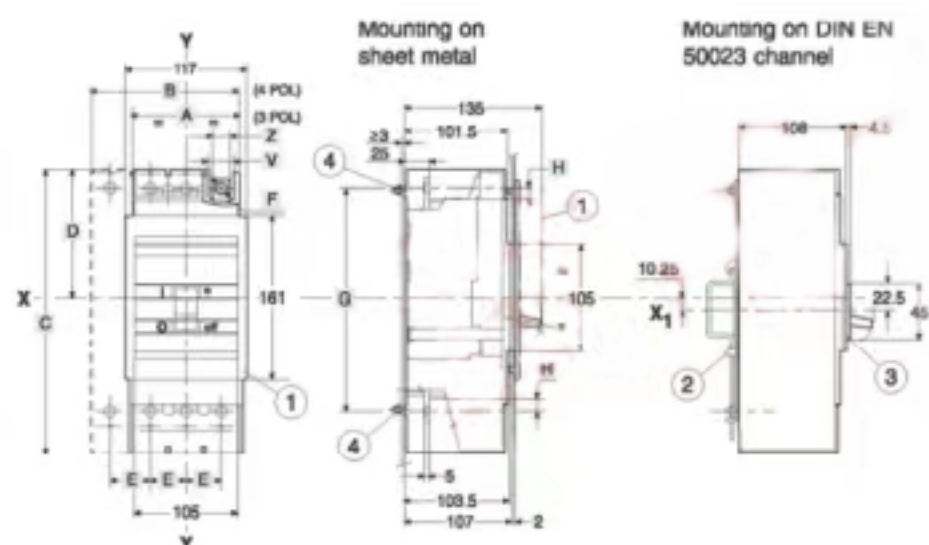
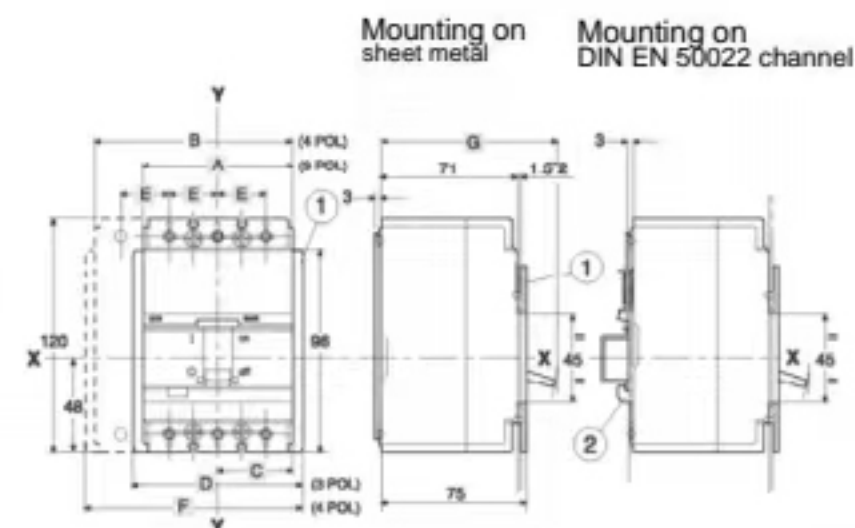
Rated heating current I_{th} (A)	Rated operating current I_e (A)		Suited Frame I_{nm} (A)
	AC 380V	DC 220V	
3	0.3	0.15	125, 160
3	0.4	0.15	250, 400
3	0.4	0.15	630, 800, 1250, 1600

- 5. Installation:** Circuit breaker may be mounted vertically, horizontally or flat on their back without any derating of characteristics.
- 6. Fix:** Mounting on backplate
- 7. Connection:** Front panel connection , black panel connection , plug-in connection

8. Outline and Installation Dimension



8.Outline and Installation Dimension



SM3-630/AM3-800

SM3-1250/AM3-1600