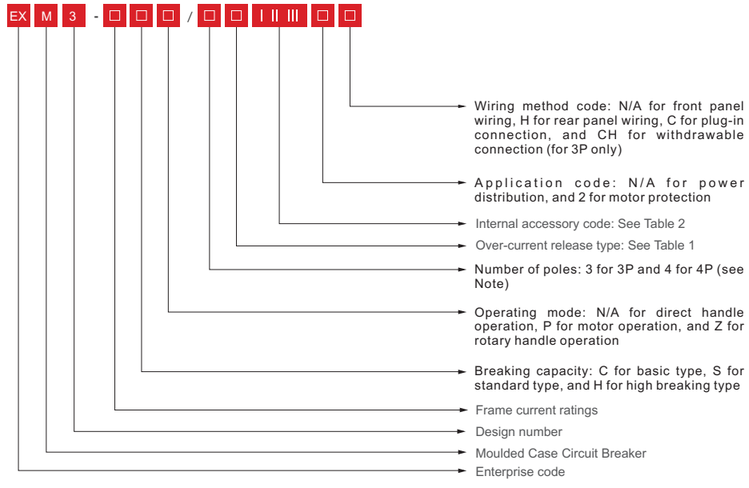
EXM3 Moulded Case Circuit Breakers
Functions and Features

General

The EXM3 moulded case circuit breakers (hereafter as the MCCBs) are suitable for use in electric systems of AC 50Hz/60Hz, with the rated insulation voltage of up to 1000V (800V for 125A and below frames) and rated current up to 630A, to distribute electrical energy, protect circuits and power equipment from hazards due to overload, short-circuit, under-voltage, and other faults, and control infrequent motor operations.
The EXM3 MCCBs offer Type C (basic), Type S (standard), and Type H (high breaking) based on its rated ultimate short-circuit breaking capacity, and feature small size, high breaking capacity, and short arcing distance.

The circuit breakers are in accordance with GB/T 14048.2 and IEC 60947-2 standards.

Product Model Description



Note: For 4P devices, two N-pole types are available

Type A: No over-current release is mounted on N-pole, and N-pole is always on without simultaneous opening/closing with the other three poles
Type B: No over-current is mounted on N-pole, and N-pole can be opened/closed simultaneously with the other three poles (first closed, then open for N-pole)

EXPLORER
Molded Case Circuit Breakers

EXM3 Moulded Case Circuit Breakers
Functions and Features

Table 1. Over-current release type

No.	Name	Description
1	Time delay release	Offer over-current inverse time protection characteristics
2	Instantaneous release	Electromagnetic type release, offering over-current instantaneous protection characteristics
3	Bi-function release	Offers both functions described above

Table 2. Internal accessory code

Inm (A)	I		II		III		Remark
	Code	Description	Code	Description	Code	Description	
63、125	0	N/A	0 ~ 2	Numbers of auxiliary contact pairs	0 ~ 2	Number of alarm contact pairs	
160、250	1	Shunt release	0 ~ 1		0 ~ 1		
320	2	Under-voltage release	0 ~ 1		0 ~ 1		
400 630	0	N/A	0 ~ 5		0 ~ 2		II + III≤ 7
	1	Shunt release	0 ~ 3		0 ~ 2		II + III≤ 5
	2	Under-voltage release	0 ~ 3		0 ~ 2		II + III≤ 5
	3	Shunt and under-voltage release	0 ~ 1		0 ~ 1		II + III≤ 2

Operating Conditions

1.Applicable temperature:
Ambient air temperature: -5℃to +40℃, with the average temperature not exceeding +35℃ within 24 hours;
Note: The operating ambient temperature can be extended to -35℃ ∽ +70℃. For uses in special environments - the ambient temperature exceeds -5℃ ∽ +40℃, follow the instructions or data specified in the product catalogue and instruction manual, or consult the manufacturer;

2.Altitude: ⩽2,000m for mounting site (please consult with the manufacturer when above 2,000m);

3.Atmospheric conditions:
Air relative humidity: ⩽50% at the maximum temperature of +40℃, and a higher relative humidity is allowed when at a lower temperature;
In the wettest month, the average maximum relative humidity is 90% and the average minimum temperature is +25℃, taking into account the condensation on product surface due to temperature changes;

4.Pollution level: Level 3;

5.Mounting type: III for main circuit;

6.Protection degree: IP30 (wiring terminals excluded)

7.Mounting conditions:
In places with no significant shaking, impulse and vibration;
In a medium with no explosive hazards, containing no gas and dust (including conductive dust) sufficient enough to corrode metals and damage insulation; And in places with no rain/snow impact;

8.Storage and transportation conditions: Temperature: -35℃to +70℃ for storage and transportation, with the relative humidity not exceeding 90%;
During transportation, handle with care, no upside down, and avoid severe collisions.

EXM3 Moulded Case Circuit Breakers

Functions and Features

Technical data

1、Technical data

Frame size		63			125			160			250			320			400			630		
Product model		EXM3-63C	EXM3-63S	EXM3-63H	EXM3-125C	EXM3-125S	EXM3-125H	EXM3-160C	EXM3-160S	EXM3-160H	EXM3-250C	EXM3-250S	EXM3-250H	EXM3-320C	EXM3-320S	EXM3-320H	EXM3-400C	EXM3-400S	EXM3-400H	EXM3-630C	EXM3-630S	EXM3-630H
Rated current In (A)		10、16、20、25、30、32、40 50、60、63			10、16、20、25、30、32、40、50 60、63、70、75、80、100、125			16、20、25、30、32、40、50、60 63、65、70、75、80、90、100、110 125、140、150、160			100、125、140、150、160、170、175、180、200、225、250			100、125、140、150、160、170 175、180、200、225、250、270 280、300、315、320			250、280、300、315 320、350、380、400			250、280、300、315、320、350 380、400、450、500、550、600 630		
Number of poles		3P/4P			3P/4P			3P/4P			3P/4P			3P/4P			3P/4P			3P/4P		
Rated insulation voltage Ui (V)		AC800			AC800			AC1000			AC1000											
Rated impulse withstand voltage Uimp (kV)		8									12											
Arcing distance (mm)		⩽50			⩽50			⩽50			⩽50			⩽50			⩽100			⩽100		
Rated ultimate/ operating short-circuit breaking capacity Icu/ Ics (kA)	690V	—	—	—	—	—	—	8/4	8/4	10/5	8/5	8/5	10/5	8/5	8/5	10/5	7.5/7.5	10/7.5	15/10	7.5/7.5	10/7.5	15/10
	500V	—	—	—	—	—	—	—	—	30/30	—	—	30/30	—	—	30/30	—	—	36/36	—	—	36/36
	400/415V	20/10	25/15	50/36	20/10	25/15	50/36	20/10	36/25	50/36	20/15	36/25	50/36	20/15	36/25	50/36	40/30	50/36	70/50	40/30	50/36	70/50
	240V	30/20	40/30	75/50	30/20	40/30	75/50	40/20	50/30	75/50	40/30	50/30	75/50	40/30	50/30	75/50	50/50	75/50	100/75	50/50	75/50	100/75
Mechanical life (operations)	Maintenance free	20000									20000			20000			10000			10000		
	Maintenance free	40000									40000			40000			20000			20000		
Electrical life (operations)	AC415V	10000									10000			10000			8000			8000		

2、Current protection characteristics: Refer to Table 4 for electrical distribution and Table 5 for motor protection use.

Table 4. Over-current protection characteristics of circuit breakers for electrical distribution use

Rated current In (A)	Thermal release (ambient temperature at +40℃)		Electromagnetic release actuation current (A) (See Note)
	1.05In no actuation time (h) (Start state: cold state)	1.30In actuation time (h) (Start state: thermal state)	
⩽63	＞1	⩽1	(10±2)In
＞63	＞2	⩽2	

Table 5. Over-current protection characteristics of circuit breakers with motor protection use

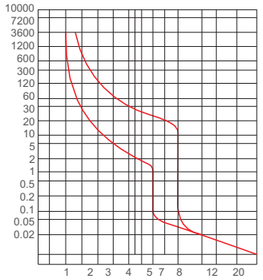
Rated current In (A)	Thermal release (ambient temperature at +40℃)				Electromagnetic release actuation current (A) (See Note)
	1.0In no actuation time (h) (Start state: cold state)	1.0In no actuation time (h) (Start state: cold state)	1.2In for no actuation time (h) (Start state: thermal state)	1.5In actuation time (min) (Start state: thermal state)	
In⩽63	＞2	⩽2	⩽2	2＜Tp⩽10	(12±2 .4)In
63＜In⩽250			⩽4	4＜Tp⩽10	
250＜In⩽630			⩽8	6＜Tp⩽20	

EXPLORER
Molded Case Circuit Breakers

EXM3 Moulded Case Circuit Breakers
Functions and Features

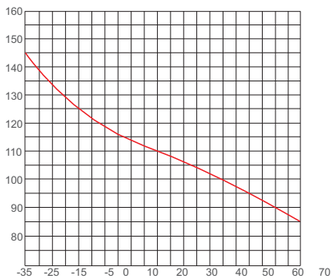
3、See Figure 1 to Figure 14 for inverse time characteristic curves and temperature correction curves

Table 1
Actuation time(S)



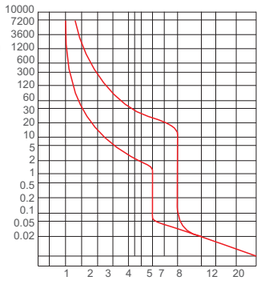
Rated current multiples
EXM3-63 actuation characteristic curve

Table 2
Rated current (%)



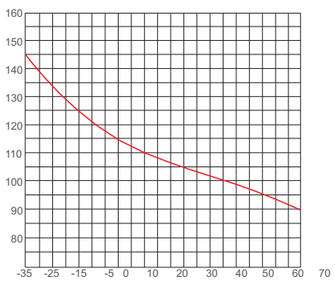
Ambient temperature (℃)
EXM3-63 temperature compensation curve

Table 3
Actuation time(S)



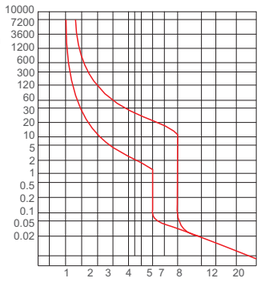
Rated current multiples
EXM3-125 actuation characteristic curve

Table4
Rated current (%)



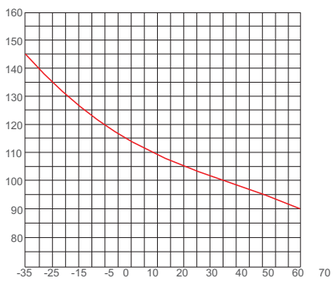
Ambient temperature (℃)
EXM3-125 temperature compensation curve

Table 5
Actuation time(S)



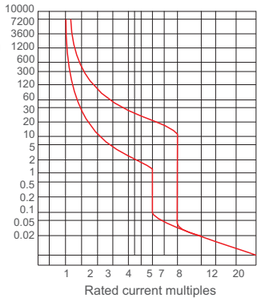
Rated current multiples
EXM3-160 actuation characteristic curve

Table 6
Rated current (%)



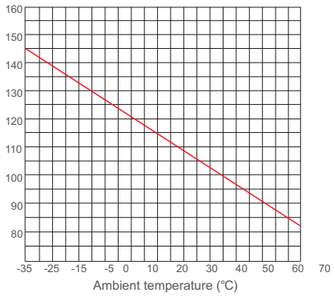
Ambient temperature (℃)
EXM3-160 temperature compensation curve

Table 7
Actuation time(S)



Rated current multiples
EXM3-250 actuation characteristic curve

Table8
Rated current (%)

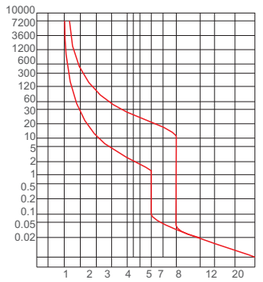


Ambient temperature (℃)
EXM3-250 temperature compensation curve

EXPLORER
Molded Case Circuit Breakers

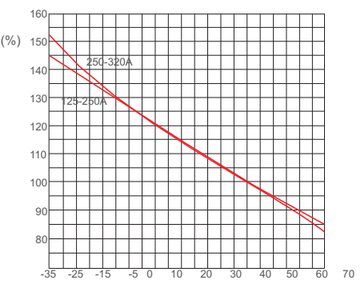
EXM3 Moulded Case Circuit Breakers
Functions and Features

Table 9
Actuation time(S)



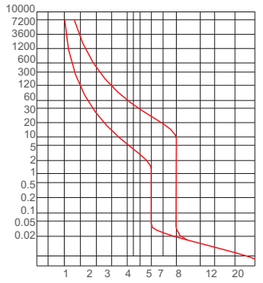
Rated current multiples
EXM3-320 actuation characteristic curve

Table 10
Rated current (%)



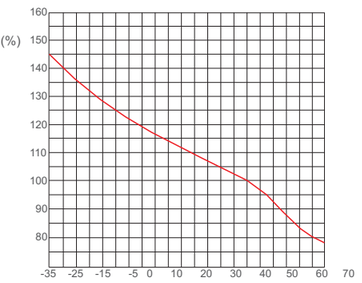
Ambient temperature (℃)
EXM3-320 temperature compensation curve

Table 11
Actuation time(S)



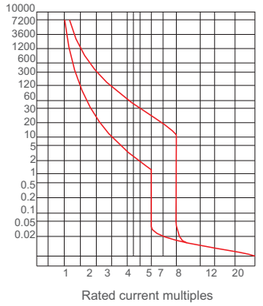
Rated current multiples
EXM3-400 actuation characteristic curve

Table 12
Rated current (%)



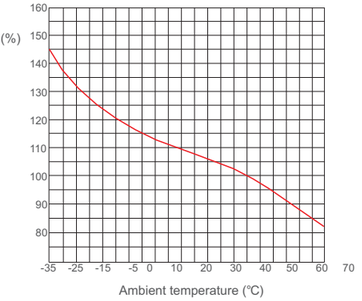
Ambient temperature (℃)
EXM3-400 temperature compensation curve

Table 13
Actuation time(S)



Rated current multiples
EXM3-630 actuation characteristic curve

Table 14
Rated current (%)

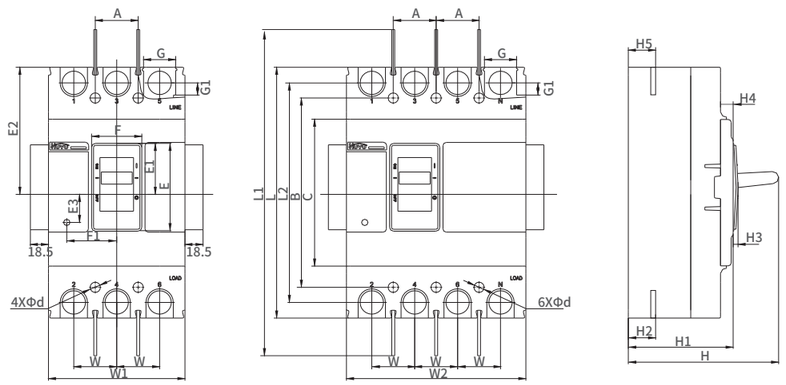


Ambient temperature (℃)
EXM3-600 temperature compensation curve

Overall and mounting dimensions

1、1.See Figure 15 and Table 6 for outlines and mounting dimensions of EXM3-63, 125, 160, 250, 320, 400, and 630 with front panel wiring type

Figure 15



2、1.See Figure 16 to 19 and Table 7 for outlines and mounting dimensions of EXM3 series circuit breakers rear panel wiring, plug-in type

Figure 16

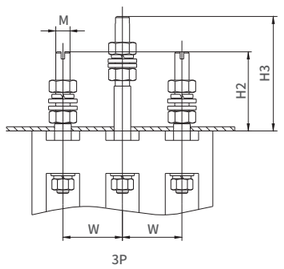
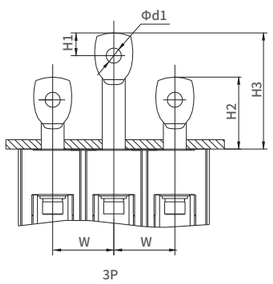


Figure 17



EXPLORER
Molded Case Circuit Breakers

EXM3 Moulded Case Circuit Breakers
Functions and Features

Figure 18. Rear panel wiring cutout diagram

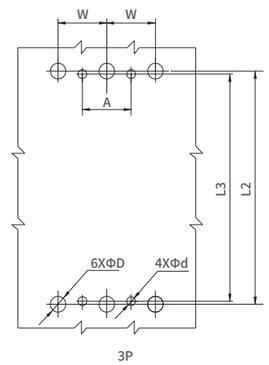


Figure 19. EXM3 series plug-in type outline and mounting dimensions

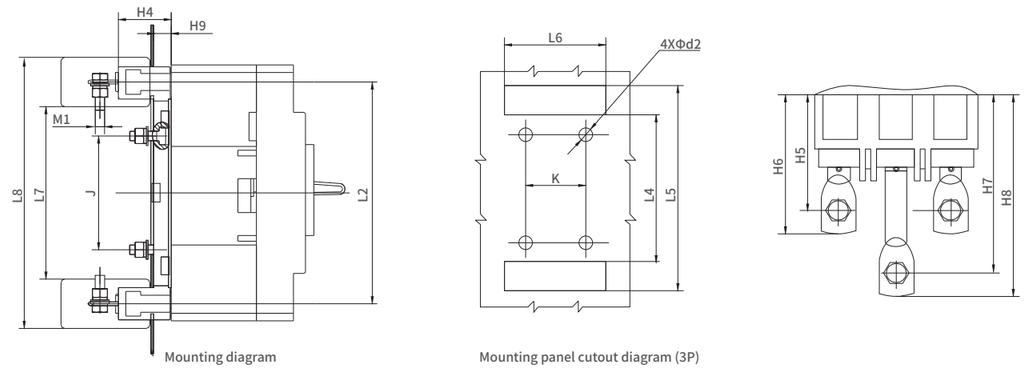


Table 6. Outlines and mounting dimensions for EXM3-63, 125, 160, 250, 320, 400, and 630 front panel wiring type

Category	Dimension code	Product model			
		EXM3-63 EXM3-125	EXM3-160	EXM3-250 EXM3-320	EXM3-400 EXM3-630
Outline dimensions (mm)	C	83.5	99.5	103	150
	E	52.5	48.5	51.5	90
	E1	28	26.5	32.5	50.5
	E2	65	77.5	82.5	128.5
	E3	20	17	15.5	30.5
	F	23	27.5	34.8	51.5
	F1	19	37	43	51
	G	17.5	17.5	24.5	33
	G1	9.5	7.5	11.5	12.5
	H	90.5	91	92.5	155
	H1	72	72.5	72.5	107.5
	H2	24	23.5	25	29
	H3	3	3	4	5
	H4	12	12	11.5	13
	H5	24	23.5	25	29
	L	130	155	165	257
	L1	228	253	360	477
	L2	115	134	145	225
	W	25	30	35	44
	W1	77	90	105	140
	W2	102	120	140	184
Mounting dimensions (mm)	A	25	30	35	44
	B	111	132	126	194
	Φd	4	5	5	6.5

EXPLORER
Molded Case Circuit Breakers

EXM3 Moulded Case Circuit Breakers
Functions and Features

Table 7. Outlines and mounting dimensions for rear panel wiring and plug-in types

Category	Dimension code	Product model		
		EXM3-160	EXM3-250 EXM3-320	EXM3-400 EXM3-630
Outline dimensions (mm)	W	30	35	44
	H1	/	/	23
	H2	54.5	71.5	86
	H3	103	108	130
	H4	39	47.5	49
	H5	/	76	91
	H6	76	94	110
	H7	/	132.5	156
	H8	137	149.5	165
	H9	11	13.5	20
	M	10	/	/
	Φd1	/	Φ10	Φ13
	M1	/	M10	M12
Mounting dimensions (mm)	Φd2	5	5	9
	ΦD	10	13	34
	L2	134	145	226
	L3	132	126	195
	L4	98	94	168
	L5	165	181	279
	L6	3P:90	3P:107	3P:146
	L7	/	/	157
	L8	/	/	288
	K	3P:60	3P:70	3P:88
	J	73	75	133
	A	30	35	44
	Φd	5	5	6.5

3、Derating is required for special specifications of EXM3 series circuit breakers rear panel wiring and plug-in types. Please see Table 8 for derating-use current comparison table.

Table 8. Derating-use current comparison table for rear panel wiring and plug-in types

Product model	Rated current (A)	Derating current (A) For plug-in type and rear panel wiring	Note
EXM3-125	—	—	No derating is required for rated current unspecified in the table
EXM3-160	160	140	
EXM3-320	300、315、320	280	
EXM3-400	400	400	
EXM3-630	500	450	
	630	520	