



for a greener tomorrow



**MITSUBISHI
ELECTRIC**

Changes for the Better

FACTORY AUTOMATION

MOLDED-CASE CIRCUIT BREAKER MXA Series

MXA SERIES Molded-Case Circuit Breaker



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MXA SERIES

Since MX series molded-case circuit breaker was launched into the market in 2012, it has been highly praised by the OEM customers in the fields such as elevator and large-sized machine tool and in the secondary power distribution market because of its high quality and high reliability.

We are making further improvements in the dimensions and accessories, making it a real simple and useful product in Mitsubishi Electric's family of circuit breaker products.



Features >>>

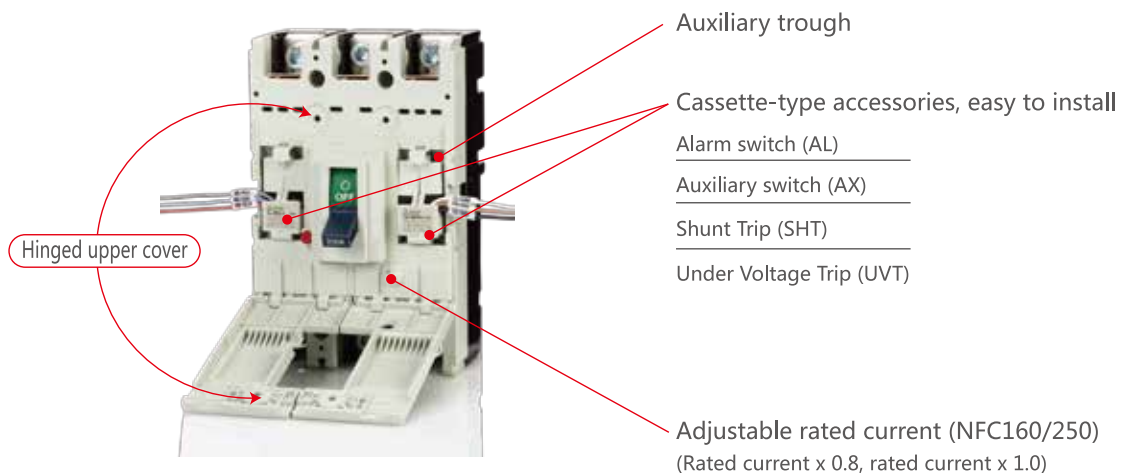
● Compact

The uniform Outside Dimension is 75mm and 105mm, realizing miniaturization and standardization.



● Flexible

With corresponding cassette-type internal accessories, it can be installed on site.



MXA SERIES

- **User-friendly**

Plug-in terminal cover makes it user-friendly

Corresponding isolation function makes it applicable to mechanical equipment

- **Standard**

Compliance with GB and IEC standards

The main models have passed KEMA certification



Standards:

- IEC 60947-2, GB14048.2-2008

Directives:

- EC Directive: "Low Voltage Directive" (LVD) EN60947-2: 2006/A1:2009

Models >>>



Quality Management System

ISO 9001 Standard

Environment Management System, Social Responsibility

ISO 14001 Standard

OHSAS18001 Occupation Health and Safety Management System






Green Product, Environment Protection

Compliance with RoHS Directive

Minimize the impact on the environment by optimizing the material selection, processing technology and packaging method.



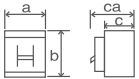


MXA SERIES

Frame (A)		30	60	100	160	250
Rated short-circuit breaking capacity Icu (kA)						
AC400V	AC230V					
25	50			NFC100-SMXA	NFC160-SMXA	NFC250-SMXA
15	30				NFC160-CMXA	NFC250-CMXA
10	25		NFC60-HMXA	NFC100-CMXA		
7.5	10		NFC60-SMXA			
5	7.5	NFC30-SMX	NFC60-CMXA			

Note: Please refer to the Product Specification for specific number of poles.




Specifications >>>

Frame(A)	30		60									
Series	S		C	S			H					
Model	NFC30-SMX		NFC60-CMXA	NFC60-SMXA			NFC60-HMXA					
Rated current In (A)	3, 4, 6, 10, 15, 20, 25, 30		15, 16, 20, 25, 30, 32, 40, 50, 60									
Image												
Rated ambient temperature (°C)	40		40		40			40				
Number of poles	2	3	2	3	2	3	4	2	3	4		
Rated insulation voltage Ui (V AC)	690		690		690			690				
Rated short-circuit breaking capacity (kA)	IEC60947-2 EN60947-2 (Icu/Ics)	AC	415V	5/2.5	5/2.5	7.5/4			10/5			
			400V	5/2.5	5/2.5	7.5/4			10/5			
			380V	5/2.5	5/2.5	7.5/4			15/7.5			
			230V	7.5/4	7.5/4	10/5			25/12.5			
	GB14048.2 (Icu/Ics)	AC	400V	5/2.5	5/2.5	7.5/4			10/5			
			230V	7.5/4	7.5/4	10/5			25/12.5			
Rated impulse withstand voltage Uimp (kV)	8		8		8			8				
Suitability for isolation	● (*1)		●		●			●				
Reverse connection	-		-		-			-				
Number of operating cycles	Without current		10,000		10,000			10,000				
	With current		1,500		1,500			1,500				
Utilization category	A		A		A			A				
Pollution degree	3		3		3			3				
Overall Dimension (mm)		a	50	75	50	75	50	75	100	50	75	100
		b	130		130		130			130		
		c	68		68		68			68		
		ca	90		92		92			92		
Mass(kg)	0.5	0.7	0.6	0.8	0.6	0.8	0.6	0.8	0.6	0.8	1.0	
Installation and connection (Front connection) (F)AL	Screw terminal		Screw terminal		Screw terminal			Screw terminal				
Internal accessories (cassette-type accessories)	Alarm switch	AX	● (*2)		●		●			●		
	Auxiliary switch	SHT	● (*2)		●		●			●		
	Shunt trip	UVT	● (*2)		●		●			●		
	Undervoltage trip	F	-	● (*2)	●	●	●	●	●	●	●	
External accessories	External operating handle	V	-	●	-	●	-	●	-	●	●	
		TC-L	-	●	-	●	-	●	-	●	●	
	Terminal cover	TC-S	●		●		●			●		
Certification	CE	Self declaration		Self declaration		Self declaration			Self declaration			
	CCC	Passed		Passed		Passed			Passed			
	KEMA	-		-		-			Passed			
Automatic tripping device	Hydraulic-Magnetic		Thermal-magnetic		Thermal-magnetic			Thermal-magnetic				

Note: *1. While installing the external operating handle of NFC30-SMX, the isolation function is unavailable. *2. Not cassette-type accessory.

*3. The rated current of NFC160-CMXA, NFC160-SMXA, NFC250-CMXA or NFC250-SMXA is adjustable. (Rated current x 0.8 or 1.0; for example: 125A can be adjusted to 100A and 125A)

MXA SERIES

100					160					250				
C		S			C		S			C		S		
NFC100-CMXA		NFC100-SMXA			NFC160-CMXA		NFC160-SMXA			NFC250-CMXA		NFC250-SMXA		
15, 16, 20, 25, 30,32, 40, 50, 60, 63, 75, 80, 100					125, 140, 150, 160 (*3)					175, 200, 225, 250 (*3)				
														
40		40			40		40			40		40		
2	3	2	3	4	3	3	4		3	3	4			
690		690			690		690			690		690		
10/5		25/12.5			15/7.5		25/12.5			15/7.5		25/12.5		
10/5		25/12.5			15/7.5		25/12.5			15/7.5		25/12.5		
15/7.5		30/15			22/11		30/15			22/11		30/15		
25/12.5		50/25			30/15		50/25			30/15		50/25		
10/5		25/12.5			15/7.5		25/12.5			15/7.5		25/12.5		
25/12.5		50/25			30/15		50/25			30/15		50/25		
8		8			8		8			8		8		
•		•			•		•			•		•		
-		-			-		-			-		-		
10,000		10,000			8,000		8,000			8,000		8,000		
1,500		1,500			1,000		1,000			1,000		1,000		
A		A			A		A			A		A		
3		3			3		3			3		3		
50	75	50	75	100	105	105	140		105	105	140			
130		130			165		165			165		165		
68		68			68		68			68		68		
92		92			92		92			92		92		
0.6	0.9	0.6	0.9	1.1	1.8	1.8	2.0		1.8	1.8	2.0			
Screw terminal		Screw terminal			Screw terminal		Screw terminal			Screw terminal		Screw terminal		
•		•			•		•			•		•		
•		•			•		•			•		•		
•		•			•		•			•		•		
•	•	•	•		•	•			•	•				
-	•	-	•		•	•			•	•				
-	•	-	•		•	•			•	•				
•		•			•		•			•		•		
•		•			-		-			-		-		
Self declaration		Self declaration			Self declaration				Self declaration					
Passed		Passed			Passed				Passed					
-		Passed			-		Passed			-		Passed		
Thermal-magnetic		Thermal-Magnetic			Thermal-magnetic				Thermal-magnetic					

Internal and External Accessories >>>

1. Alarm Switch (AL) Operation

Circuit Breaker Status	AL Switch contact

2. Auxiliary switch (AX) Operation

Circuit Breaker Status	AX Switch Contact

AL · AX Switch Rating

Model Name	Type	AC			DC			
		Voltage (V)	Current (A)		Voltage (V)	Current (A)		
			Resistive Load	Inductive Load		Resistive Load	Inductive Load	
NFC30-SMX (Note) NFC60-SMXA NFC100-CMXA NFC160-CMXA NFC250-CMXA	NFC60-CMXA NFC60-HMXA NFC100-SMXA NFC160-SMXA NFC250-SMXA	AL-2MXLA AL-2MXRA AX-2MXLA AX-2MXRA	125	5	3	125	0.4	0.4
			250	3	2	-	-	-

Note: NFC30-SMX is assembled at factory and does not have cassette-type accessories or affiliated separate model.

3. SHT Rating

Model Name	Type	Cut-off Switch	Voltage (V)	Input Power Requirement (VA)		Operating Time (ms)
				AC	DC	
NFC30-SMX (Note) NFC60-SMXA NFC60-HMXA NFC100-CMXA NFC160-CMXA NFC250-CMXA	SHTA120-2MXLA SHTA120-2MXRA SHTA440-2MXLA SHTA440-2MXRA SHTD024-2MXLA SHTD024-2MXRA SHTD048-2MXLA SHTD048-2MXRA SHTD100-2MXLA SHTD100-2MXRA	Equipped	AC100-120V	120	—	15 or less
			AC220-440V			
			DC24V	—	120	
			DC48V			
			DC100V			

Note: NFC30-SMX is assembled at factory and does not have cassette-type accessories or affiliated separate model.

4. UVT Rating

Model Name	Type	Resettable/ Non-resettable	Voltage (V)	Input Power Requirement (VA)		Operating Time (ms)
				AC	DC	
NFC30-SMX (Note) NFC60-SMXA NFC60-HMXA NFC100-CMXA NFC160-CMXA NFC250-CMXA	UVTSA120-2MXRA UVTSA240-2MXRA UVTSA400-2MXRA UVTSA460-2MXRA	Resettable	AC100-120V	5	—	30 or less
			AC220-440V			
			AC380-400V			
			AC440-460V			

Note: NFC30-SMX is Non-resettable and assembled at factory and does not have cassette-type accessories or affiliated separate model.

5. Maximum Number of Internally Mounted Accessories

Model Name	Number of Poles	Accessories					
		AL	AX	SHT or UVT	AL + AX	AL + SHT or UVT	AX + SHT or UVT
NFC60-CMXA NFC60-SMXA NFC60-HMXA	2P						
NFC100-CMXA NFC100-SMXA	3P, 4P						
NFC160-CMXA NFC160-SMXA NFC250-CMXA NFC250-SMXA	3P, 4P						

Note: *1. UVT cannot be installed on left pole. *2. Models with UVT require a UVT voltage module to be installed on the lead-wire terminal unit (no such voltage module is required for SHT). Left Pole Right Pole

● AL ○ AX SHT or UVT

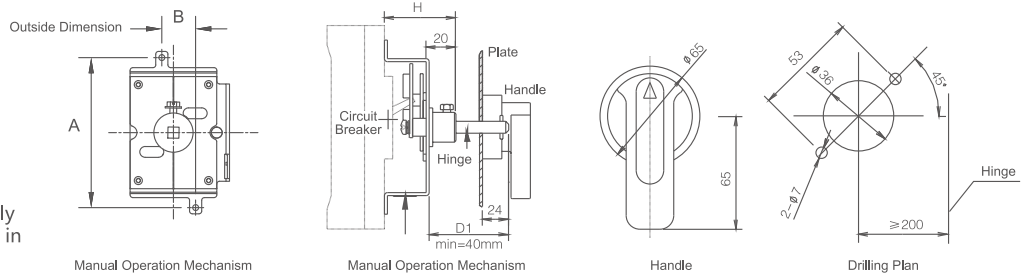
MXA SERIES

1. V-type Operating Handle

Exterior (Color: black)



IP50 rating (IEC 60529)
Three padlocks which are commercially available may realize locking function in the ON or OFF positions.
The door lock mechanism makes the door open only in the OFF position.



Summary of Dimensions

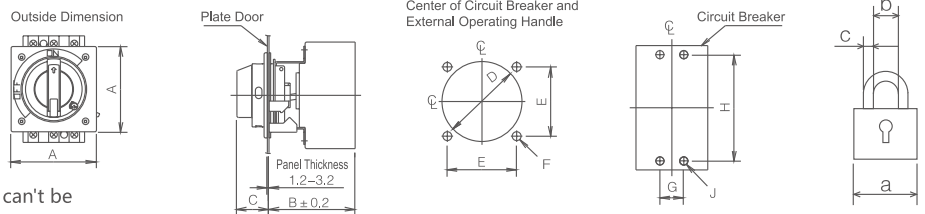
Type	Model Name	Number of Poles	Dimension (mm)				Lock Position	Panel door open position	Padlock		
			A	B	D1	H			a	b	c
V-05MX	NFC30-SMX	3P	111	25	MIN:50 MAX:150	53.5	ON/OFF	OFF	35~40	19~22	5~6
V-05MXA	NFC60-CMXA NFC60-SMXA NFC60-HMXA NFC100-CMXA NFC100-SMXA	3P,4P	111	25	MIN:40 MAX:144	55					
V-2MXA	NFC160-CMXA NFC160-SMXA NFC250-CMXA NFC250-SMXA	3P,4P	126	35		55					

2. F-type Operating Handle

Exterior (Color: White)



Installed with the safety device, the plate door can't be opened when the circuit breaker is closed.
The handle can be locked by in the ON or OFF position.
IP30 rating (IEC60529)
The door lock mechanism makes the door open only in the OFF position.



Summary of Dimensions

Type	Model Name	Number of Poles	Dimension								Lock Position	Panel door open position	Padlock			
			A	B	C	D	E	F	G	H			J	a	b	c
F-05MX	NFC30-SMX	3P	104	105	39	90	78	10	25	111	M4 Screw or Φ5	ON,OFF,RESET	RESET	35~40	19~22	5~6
F-05MXA	NFC60-CMXA NFC60-SMXA NFC60-HMXA NFC100-CMXA NFC100-SMXA	3P,4P	104	105	39	90	78	10	25	111		ON/OFF	OFF			
F-2MXA	NFC160-CMXA NFC160-SMXA NFC250-CMXA NFC250-SMXA	3P,4P	104	105	39	90	78	10	35	126						

3. Terminal cover

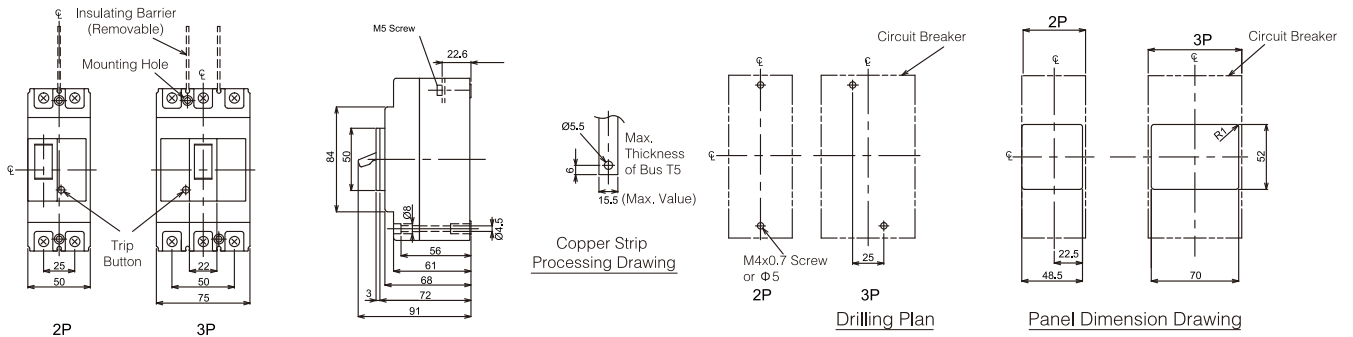
Model Name	Number of Poles	Large Terminal Cover (TC-L)	Small Terminal Cover (TC-S)		
NFC30-SMX	2P	TCL-05MX2	A:50*B:65*C:32	TCS-05MX2	A:50*B:65*C:5
NFC60-SMXA	3P	TCL-05MX3	A:75*B:65*C:32	TCS-05MX3	A:75*B:65*C:5
NFC60-HMXA	4P	TCL-05MX4	A:100*B:65*C:32	TCS-05MX4	A:100*B:65*C:5
NFC100-CMXA					
NFC100-SMXA					
NFC160-CMXA	3P	TCL-2MX3	A:105*B:65*C:39	-	-
NFC160-SMXA	4P	TCL-2MX4	A:140*B:65*C:39	-	-
NFC250-CMXA					
NFC250-SMXA					

Note: 1. The outside dimension is AxBxC, and the unit is mm. 2. Installation method: Plug-in

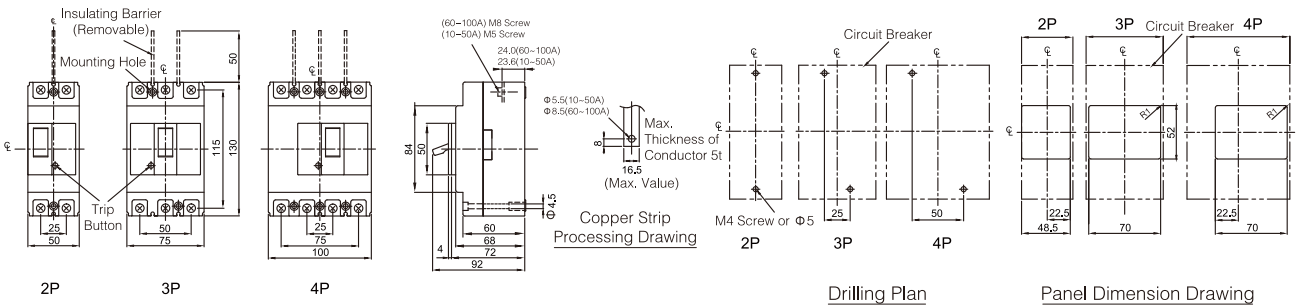
Characteristics and Dimensions >>>

Dimension

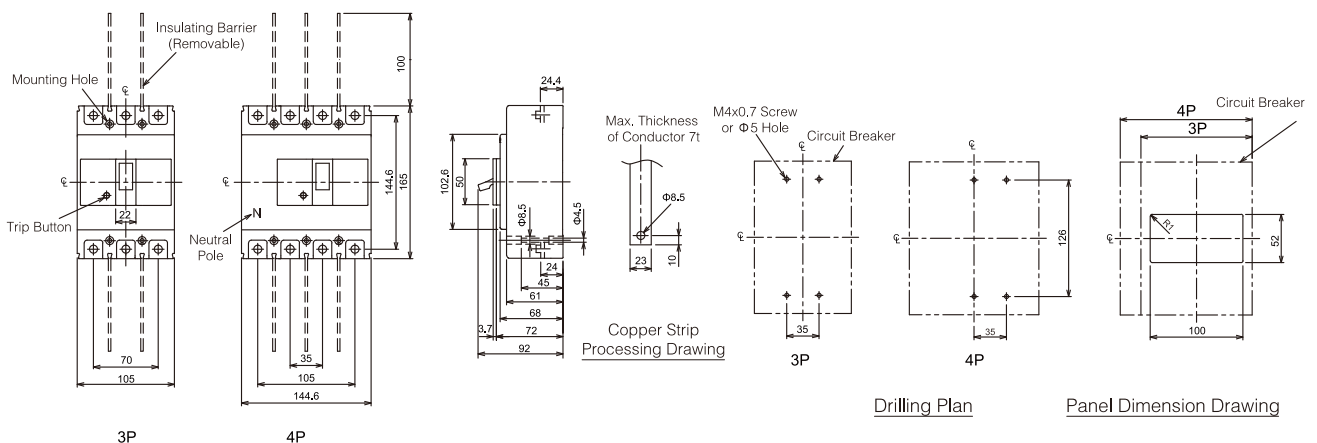
NFC30-SMX



NFC60-CMXA/SMXA/HMXA NFC100-CMXA/SMXA

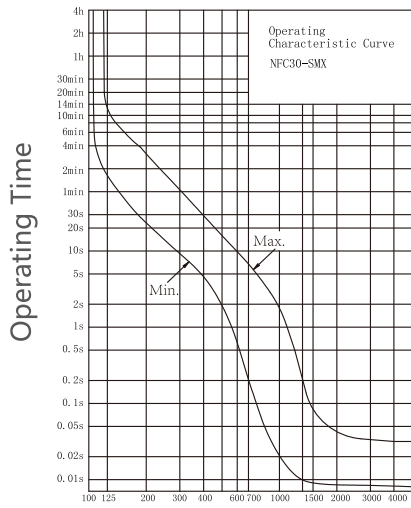


NFC160-CMXA/SMXA NFC250-CMXA/SMXA

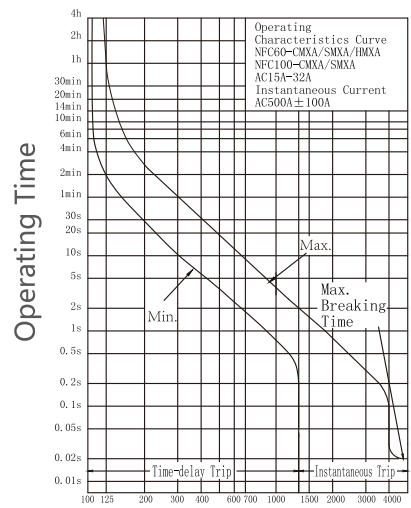


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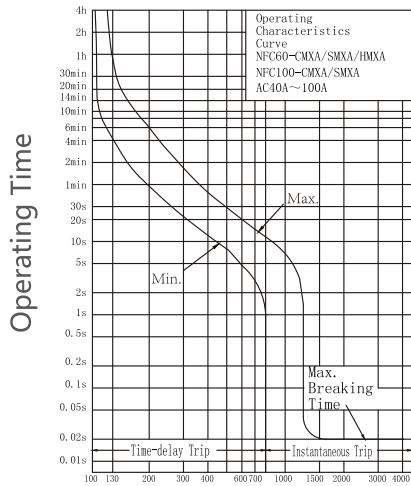
Operating Characteristics



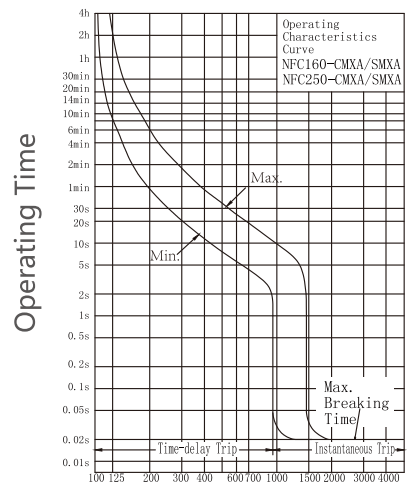
Current (x 100% of Rated Current)



Current (x 100% of Rated Current)

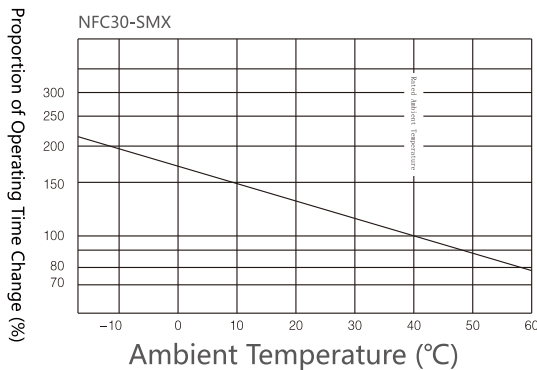


Current (x 100% of Rated Current)

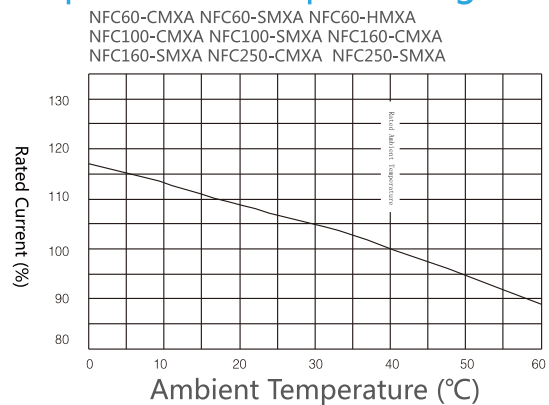


Current (x 100% of Rated Current)

Temperature Characteristics Curve



Temperature Compensating Curve



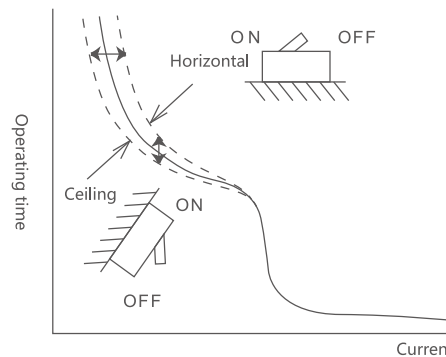
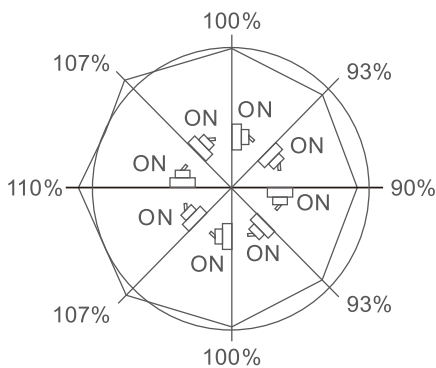
Installation and Ordering Information >>>

Installation direction

1. For the following model, their mode of tripping is hydraulic-magnetic type. Please pay attention to their mounting position while installing.
The time-delay trip characteristic varies depending on the mounting position. It is recommended to mount them vertically.

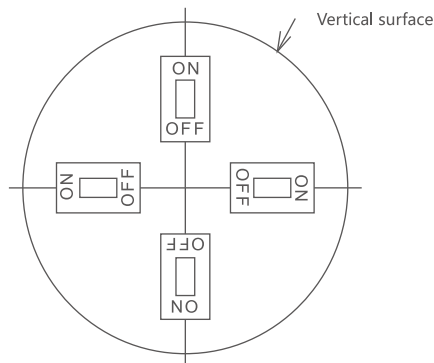
Model
NFC30-SMX

(1) Change Rate of Rated Current at Different Mounting Angles:



Mounting direction will change the effective height of magnetic core.

(2) Mounting methods which will not influence the tripping characteristic.



2. Thermal-magnetic type won't be affected by the mounting method:

Model
NFC60-CMXA
NFC60-SMXA NFC60-HMXA
NFC100-CMXA NFC100-SMXA
NFC160-CMXA NFC160-SMXA
NFC250-CMXA NFC250-SMXA

MXA SERIES



Ordering Information

Model	Number of Poles	Rated Current (A)	Internal Accessories	Quantity	External Accessories
NFC60-CMXA	3P	60A	AL,AX,SHT(AC100-120V)	100	F, V, TC-S, TC-L

NFC30-SMX	2,3P	3,4,6,10,15,20,25,30A
NFC60-CMXA	2,3P	15,16,20,25,30,32,40,50,60A
NFC60-SMXA	2,3,4P	15,16,20,25,30,32,40,50,60A
NFC60-HMXA	2,3,4P	15,16,20,25,30,32,40,50,60A
NFC100-CMXA	2,3P	15,16,20,25,30,32,40,50,60,63,75,80,100A
NFC100-SMXA	2,3,4P	15,16,20,25,30,32,40,50,60,63,75,80,100A
NFC160-CMXA	3P	125,140,150,160A
NFC160-SMXA	3,4P	125,140,150,160A
NFC250-CMXA	3P	175,200,225,250A
NFC250-SMXA	3,4P	175,200,225,250A

AL (Alarm Switch)
AX (Auxiliary Switch)
SHT (Shunt Trip) (AC:100-120, 220-440V; DC:24, 48, 100V)
UVT (Undervoltage Trip) (AC:100-120, 220-240V; 380-400, 440-460V)

F (External Operating Handle)
V (External Operating Handle)
TC-S (Short Terminal Cover)
TC-L (Long Terminal Cover)

Note: The internal accessories of NFC30-SMX are assembled at factory.
The accessories of other models are cassette-type (can be installed by the customers themselves).



For Safety:

Please read the instruction manual carefully before using the products in this catalog. Wiring and connection must be done by the person have a specialized knowledge of electric construction and wiring.



MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BUILDING, 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN