



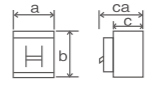


Frame(A)		30		60			100			160													
Series		S		C	S	H	C	S	H	C	S	H											
Model		NFC30-SMX		NFC60-CMXA	NFC60-SMXA	NFC60-HMXA	NFC100-CMXA	NFC100-SMXA	NFC100-HMXA	NFC160-CMXA	NFC160-SMXA	NFC160-HMXA											
Rated current In (A)		3, 4, 6, 10, 15, 20, 25, 30		15, 16, 20, 25, 30, 32, 40, 50, 60			15, 16, 20, 25, 30, 32, 40, 50, 60, 63, 75, 80, 100			125, 140, 150, 160(*4)													
Image																							
Rated ambient temperature (°C)		40		40	40	40	40	40	40	40	40	40											
Number of poles		2	3	2	3	4	2	3	4	3	4	3	4										
Rated insulation voltage Ui (V AC)		690		690	690	690	690	690	690	690	690	690											
Rated short-circuit breaking capacity (kA)	IEC 60947-2 EN 60947-2 (Icu/Ics)	AC	415V	5/2.5 (*1)	5/2.5	7.5/4	10/5	10/5	25/12.5	36/18	15/7.5	25/12.5	36/18										
			400V	5/2.5	5/2.5	7.5/4	10/5	10/5	25/12.5	36/18	15/7.5	25/12.5	36/18										
		380V	5/2.5	5/2.5	7.5/4	15/7.5	15/7.5	30/15	36/18	22/11	30/15	36/18											
		230V	7.5/4	7.5/4	10/5	25/12.5	25/12.5	50/25	65/33	30/15	50/25	85/43											
	GB/T 14048.2 (Icu/Ics)	AC	400V	5/2.5	5/2.5	7.5/4	10/5	10/5	25/12.5	36/18	15/7.5	25/12.5	36/18										
			230V	7.5/3.75	7.5/4	10/5	25/12.5	25/12.5	50/25	65/33	30/15	50/25	85/43										
Rated impulse withstand voltage Uimp (kV)		8		8	8	8	8	8	8	8	8	8											
Suitability for isolation		• (*2)		•	•	•	•	•	•	•	•	•											
Reverse connection		-		-	-	-	-	-	-	-	-	-											
Number of operating cycles	Without current	10,000		10,000	10,000	10,000	10,000	10,000	10,000	10,000	8,000	8,000	8,000										
	With current	1,500		1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,000	1,000	1,000										
Utilization category		A		A	A	A	A	A	A	A	A	A											
Pollution degree		3		3	3	3	3	3	3	3	3	3											
Overall Dimension (mm)		a	50	75	50	75	50	75	100	50	75	100	75	100	105	105	140	105	140				
		b	130		130		130		130		130		130		165		165		165				
		c	68		68		68		68		68		68		68		68		68				
		ca	91		92		92		92		92		92		92		92		92				
Mass(kg)		0.5	0.7	0.6	0.8	0.6	0.8	1.0	0.6	0.8	1.0	0.6	0.9	0.6	0.9	1.1	0.9	1.1	1.8	1.8	2.0	1.8	2.0
Installation and connection (Front connection) (F)		Screw terminal		Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal											
Internal accessory (cassette-type)	Alarm switch	AL	• (*3)	•	•	•	•	•	•	•	•	•											
	Auxiliary switch	AX	• (*3)	•	•	•	•	•	•	•	•	•											
	Alarm and auxiliary switch	ALAX	-	•	•	•	•	•	•	•	•	•											
	Shunt trip	SHT	• (*3)	•	•	•	•	•	•	•	•	•											
	Undervoltage trip	UVT	-	• (*3)	•	•	•	•	•	•	•	•											
External accessories	External operating handle	F	-	•	-	•	-	•	-	•	-	•											
		V	-	•	-	•	-	•	-	•	-	•											
	Terminal cover	TC-L	•	•	•	•	•	•	•	•	•	•	•										
TC-S		•	•	•	•	•	•	•	•	•	•	•											
Certification	CE	Self declaration	Self declaration	Self declaration	KEMA	KEMA	KEMA	Self declaration	Self declaration	KEMA	Self declaration												
	CCC	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed	Passed												
Automatic tripping device		Hydraulic-Magnetic	Thermal-magnetic	Thermal-magnetic	Thermal-magnetic	Thermal-magnetic	Thermal-magnetic	Thermal-magnetic	Thermal-magnetic	Thermal-magnetic	Thermal-magnetic	Thermal-magnetic											

*1. Can also be used for 440VAC.

*2. While installing the external operating handle, the isolation function is unavailable for NFC30-SMX.

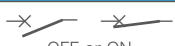
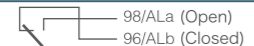

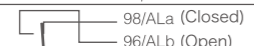
*3. Not cassette-type accessory.

*4. The rated current of NFC160-CMXA, NFC160-SMXA and NFC160-HMXA are adjustable.

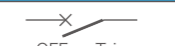
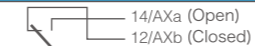
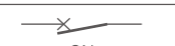
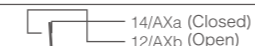
They can be adjusted to rated current x0.8 or 1.0. (for example: 125A can be adjusted to 100A and 125A)

Internal Accessories

1. Alarm Switch (AL) Operation

Circuit Breaker Status	AL Switch contact
 OFF or ON	 98/ALa (Open) 96/ALb (Closed) 95/ALc
 Trip	 98/ALa (Closed) 96/ALb (Open) 95/ALc

Auxiliary switch (AX) Operation

Circuit Breaker Status	AX Switch Contact
 OFF or Trip	 14/AXa (Open) 12/AXb (Closed) 11/AXc
 ON	 14/AXa (Closed) 12/AXb (Open) 11/AXc

2. 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 (*1) NFC60-SMXA NFC100-CMXA NFC100-HMXA NFC160-SMXA NFC160-HMXA NFC250-CMXA NFC250-HMXA	AL-2MXLA AL-2MXRA AX-2MXLA AX-2MXRA ALAX-2MXA	125	5	3	125	0.4	0.4
NFC400-SMXA NFC630-SMXA	AL-4MXLA (*2) AX-4MXA (*3)	125 250	5 3	3 2	125 -	0.4 -	0.4 -

*1. AL and AX for NFC30-SMX are not cassette-type accessories and need to be assembled at factory.
*2. Can be installed only on left pole. *3. Can be installed on both left and right poles.

3. SHT Rating

Model Name	Type	Cut-off Switch	Voltage (V)	Input Power Requirement (VA)		Operating Time (ms)
				AC	DC	
NFC30-SMX (*1) NFC60-SMXA NFC100-CMXA NFC100-HMXA NFC160-SMXA NFC160-HMXA NFC250-CMXA NFC250-HMXA	SHTA120-2MXLA SHTA120-2MXRA SHTA440-2MXLA SHTA440-2MXRA SHTD024-2MXLA SHTD024-2MXRA SHTD048-2MXLA SHTD048-2MXRA SHTD100-2MXLA SHTD100-2MXRA	Equipped	AC100-120V AC220-440V DC24V DC48V DC100V	120	—	15 or less
NFC400-SMXA NFC630-SMXA	SHTA220-4MXRA (*2) SHTA440-4MXRA SHTD024-4MXRA SHTD048-4MXRA	Equipped	AC110-240V AC380-440V DC24V DC48V	120	—	120

*1. SHT for NFC30-SMX is not cassette-type accessory and need to be assembled at factory. *2. SHT for NFC400 and NFC630 can not be installed on left pole.

4. UVT Rating

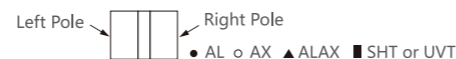
Model Name	Type	Resettable/ Non-resettable	Voltage (V)	Input Power Requirement (VA)		Operating Time (ms)
				AC	DC	
NFC30-SMX (*1) NFC60-SMXA NFC100-CMXA NFC100-HMXA NFC160-SMXA NFC160-HMXA NFC250-CMXA NFC250-HMXA	UVTSA120-2MXRA (*2) UVTSA240-2MXRA UVTSA400-2MXRA UVTSA460-2MXRA	Resettable (*3)	AC100-120V AC220-240V AC380-400V AC440-460V	5	—	30 or less
NFC400-SMXA NFC630-SMXA	UVTSA120-4MXRA (*2) UVTSA240-4MXRA UVTSA415-4MXRA UVTSA460-4MXRA	Resettable	AC110-120V AC200-240V AC380-415V AC440-460V	5	—	—

*1. UVT for NFC30-SMX is not cassette-type accessory and need to be assembled at factory. *2. UVT can not be installed on left pole. *3. UVT for NFC30-SMX is non-resettable.

5. Maximum Number of Internally Mounted Accessories

Model Name	Number of Poles	Accessories									
		AL	AX	SHT/UVT	AL + AX	ALAX	AL + SHT/UVT	AX + SHT/UVT	AL+AX+SHT/UVT	ALAX+SHT/UVT	
NFC30-SMX NFC60-CMXA NFC60-SMXA NFC100-CMXA NFC100-HMXA	2P 3P,4P	●	○	■ (*2)(*3)	—	▲ (*4)	—	—	—	—	
NFC160-CMXA NFC160-SMXA NFC160-HMXA NFC250-CMXA NFC250-HMXA	3P,4P	●	○	■ (*1)(*2)	—	▲ (*4)	—	—	—	—	
NFC400-SMXA NFC400-HMXA	3P,4P	●	○	■ (*1)(*2)	—	▲ (*4)	—	—	—	—	
NFC630-SMXA NFC630-HMXA	3P,4P	●	○	■ (*1)(*2)	—	▲ (*4)	—	—	—	—	

*1. UVT can not be installed on left pole.
*2. When UVT is provided, the UVT voltage module will come in the vertical lead wire terminal block type. (SHT does not have a voltage module.)
*3. UVT can not be installed for NFC30-SMX.
*4. NFC30-SMX does not have ALAX.
*5. AX can be installed on where AL is installed.
*6. It can be also installed on left and right pole, but it is better to install on left pole unless the AX QTY is more than 3 for NFC400 or more than 4 for NFC630.



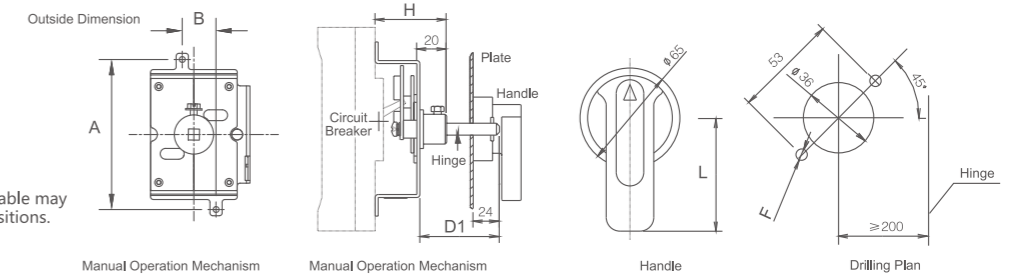
External Accessories

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.

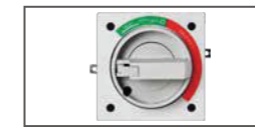


Summary of Dimensions

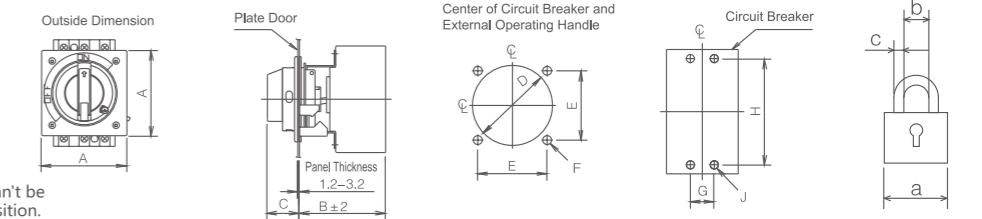
Model Name	Type	Number of Poles	Dimension (mm)						Lock Position	Panel door open position	Padlock(See drawing below)		
			A	B	D1	F	H	L			a	b	c
NFC30-SMX	V-05MX	3P	111	25	MIN:50 MAX:150	Ø5.5	53.5	65	ON,OFF	OFF	35~40	19~22	5~6
NFC60-CMXA NFC60-SMXA NFC100-CMXA NFC100-SMXA	V-05MXA	3P,4P	111	25	MIN:40 MAX:144	Ø7	55						
NFC100-HMXA	V-1MXA	3P,4P	111	25			MIN:50 MAX:150	Ø5.5	55	95			
NFC160-CMXA NFC160-SMXA NFC160-HMXA NFC250-CMXA NFC250-SMXA NFC250-HMXA	V-2MXA	3P,4P	126	35	MIN:50 MAX:150	Ø5.5			85				
NFC400-SMXA NFC400-HMXA	V-4MXA	3P,4P	221	44			MIN:50 MAX:150	Ø5.5	85				
NFC630-SMXA NFC630-HMXA	V-6MXA	3P,4P	242	70					85				

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 in the ON position.
- The handle can be locked while in the ON or OFF position.
- IP30 rating (IEC60529)
- The door lock mechanism makes the door open only in the OFF position.



The user must prepare padlocks.

Summary of Dimensions

Model Name	Type	Number of Poles	Dimension (mm)										Lock Position	Panel door open position	Padlock		
			A	B	C	D	E	F	G	H	J	a			b	c	
NFC30-SMX	F-05MX	3P	104	105	39	90	78	10	25	111	M4 taps or Ø5	ON,OFF,RESET	RESET	35~40	19~22	5~6	
NFC60-CMXA NFC60-SMXA NFC100-CMXA NFC100-SMXA	F-05MXA	3P,4P	104	105	39	90	78	10	25	111							
NFC100-HMXA	F-1MXA	3P,4P	104	105	39	90	78	10	25	111	M6 taps or Ø7	ON,OFF	OFF	35~40	19~22	5~6	
NFC160-CMXA NFC160-SMXA NFC160-HMXA NFC250-CMXA NFC250-SMXA NFC250-HMXA	F-2MXA	3P,4P	104	105	39	90	78	10	35	126							
NFC400-SMXA NFC400-HMXA (*1)	F-4MXA	3P	150	173	60	108	112	10	44	194	M6 taps or Ø7	ON,OFF	OFF	35~40	19~22	5~6	
NFC630-SMXA NFC630-HMXA (*1)	F-6MXA	3P	150	173	60	108	112	10	70	243							

*1. The F handle is unavailable for 4P product of NFC400-SMXA, NFC400-HMXA, NFC630-SMXA, NFC630-HMXA.

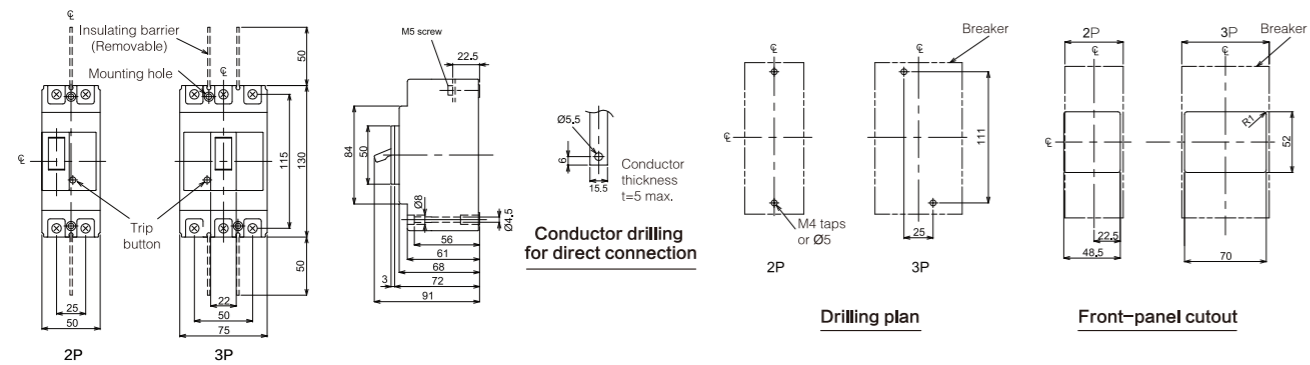
3. Terminal cover

Model Name	Number of Poles	Large Terminal Cover (TC-L)		Small Terminal Cover (TC-S)	
		TC-L	TC-L	TC-S	TC-S
NFC30-SMX	2P	TCL-05MX2	50X65X32	TCS-05MX2	50X65X5
NFC60-CMXA NFC60-SMXA NFC60-HMXA NFC100-CMXA NFC100-SMXA NFC100-HMXA	3P 4P	TCL-05MX3 TCL-05MX4	75X65X32 100X65X32	TCS-05MX3 TCS-05MX4	75X65X5 100X65X5
NFC160-CMXA NFC160-SMXA NFC160-HMXA (*2)	3P	TCL-2MX3	105X65X39	-	-
NFC250-CMXA NFC250-SMXA NFC250-HMXA	4P	TCL-2MX4	140X65X39	-	-
NFC400-SMXA NFC400-HMXA	3P 4P	TCL-4MX3 TCL-4MX4	171X98X110 240X98X110	-	-
NFC630-SMXA NFC630-HMXA	3P 4P	TCL-6MX3 TCL-6MX4	220X98X131 290X98X131	-	-

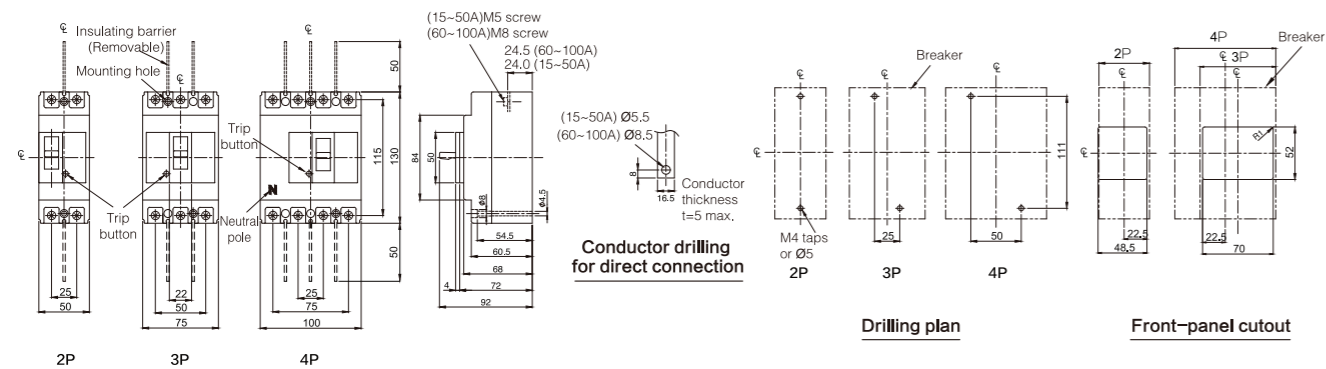
*1. The outside dimension is A×B×C(mm). *2. Installation method: plug-in
*3. Installation method: lock screw *4. The terminal cover cannot be installed while using the V or F type Operating Handle.

Dimension

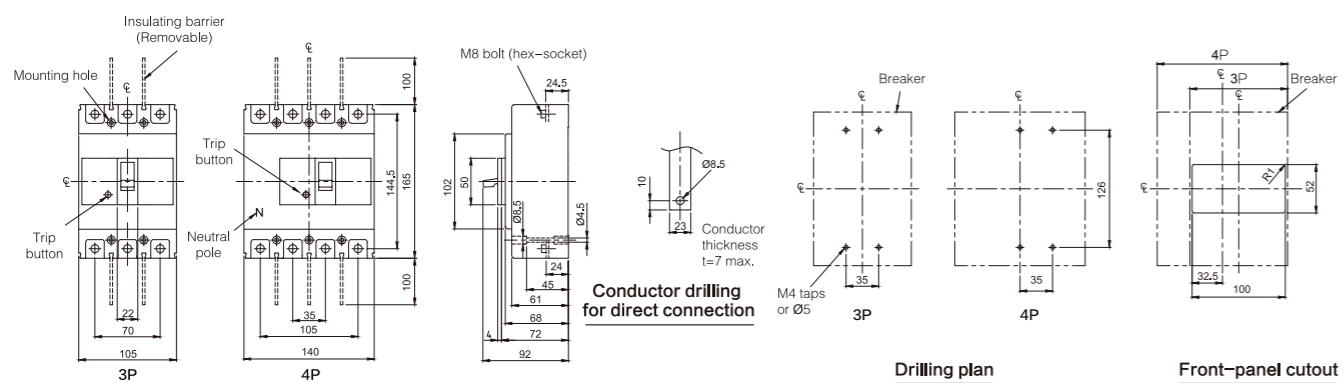
NFC30-SMX



NFC60-CMXA, NFC60-SMXA, NFC60-HMXA
NFC100-CMXA, NFC100-SMXA, NFC100-HMXA

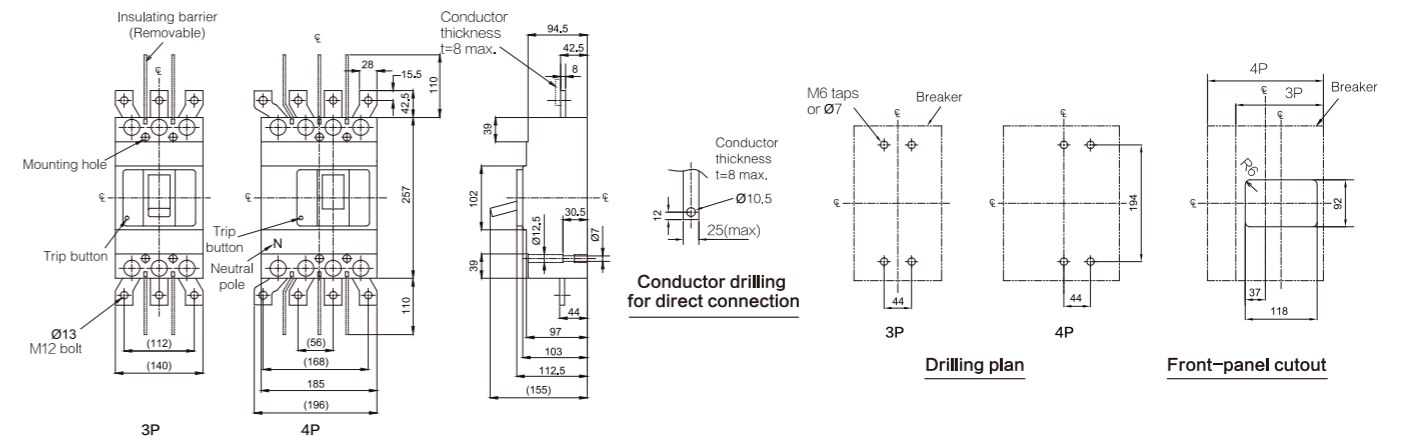


NFC160-CMXA, NFC160-SMXA, NFC160-HMXA
NFC250-CMXA, NFC250-SMXA, NFC250-HMXA

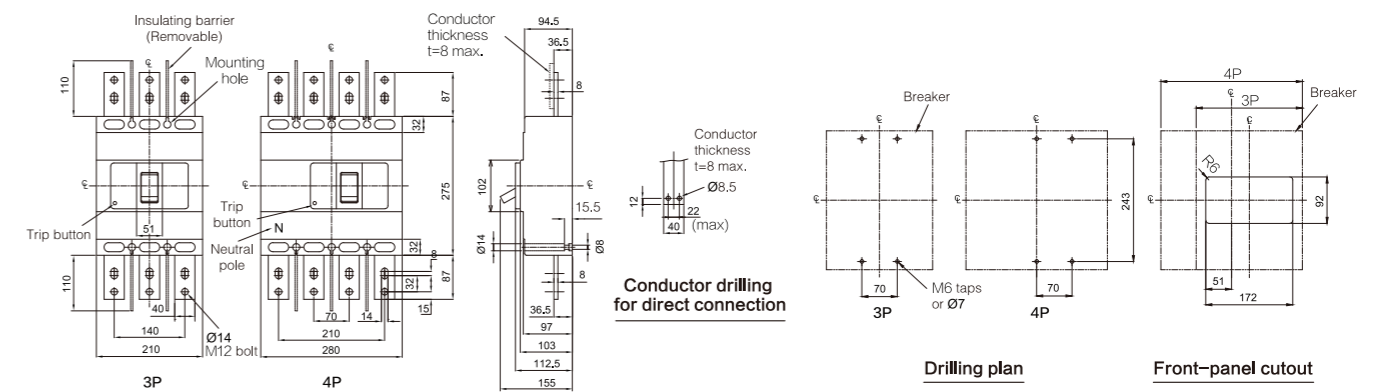


Dimension

NFC400-SMXA, NFC400-HMXA

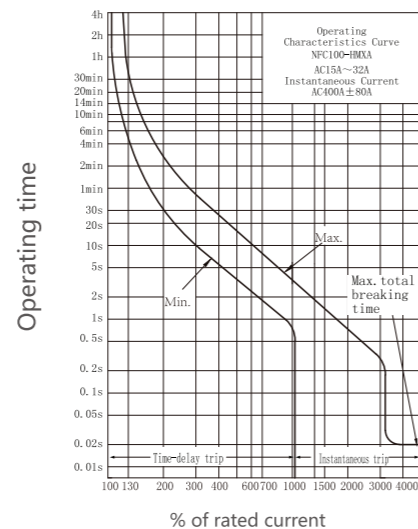
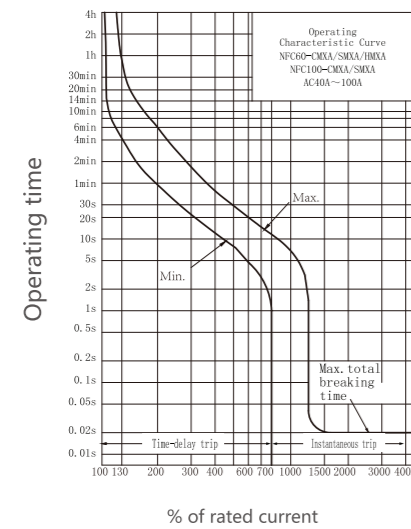
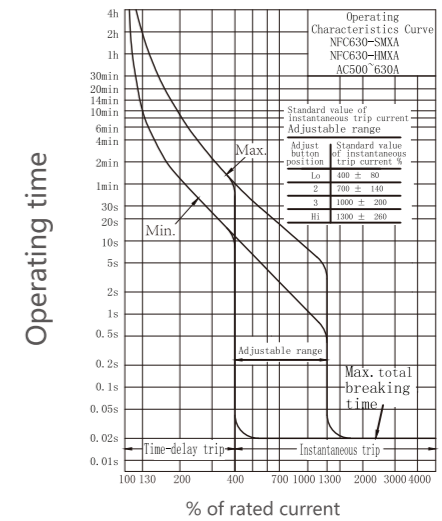
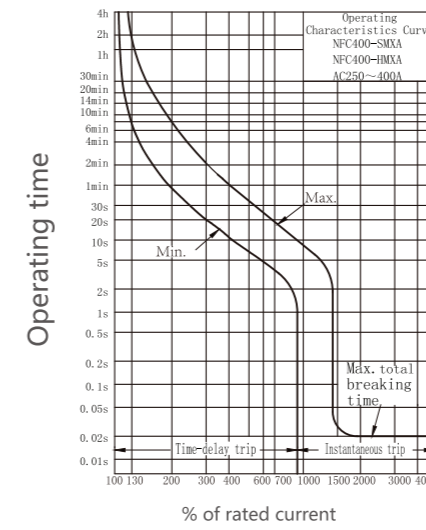
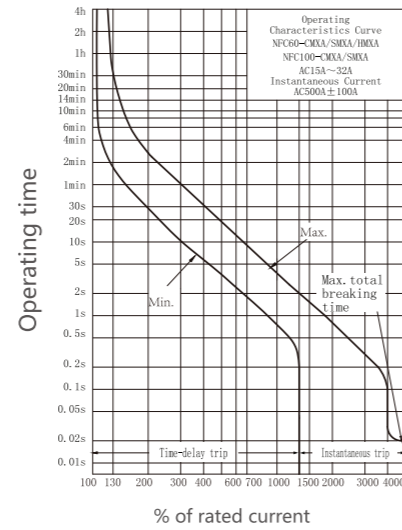
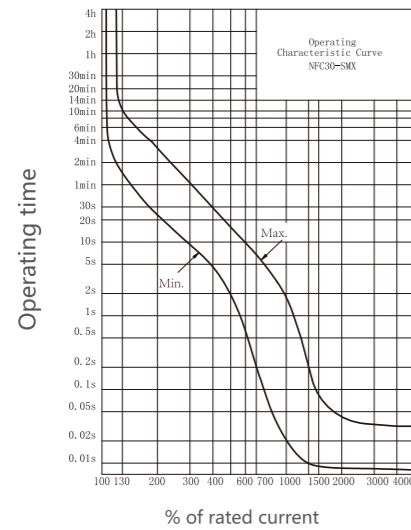


NFC630-SMXA, NFC630-HMXA

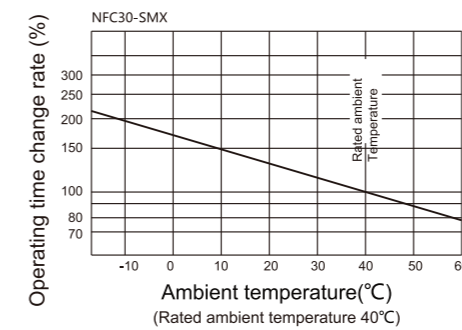


Operating Characteristics

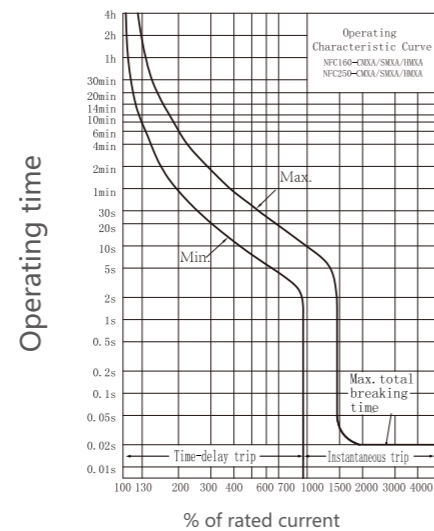
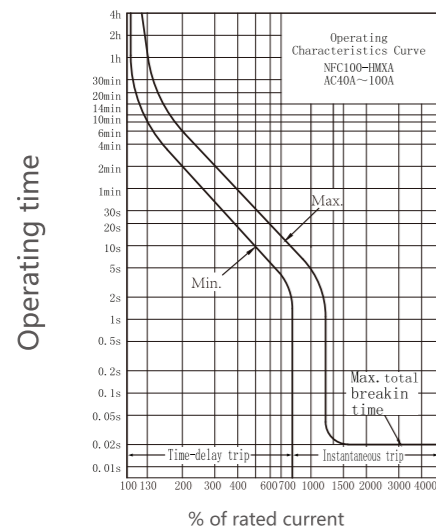
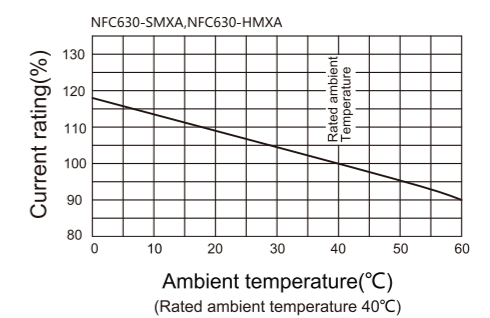
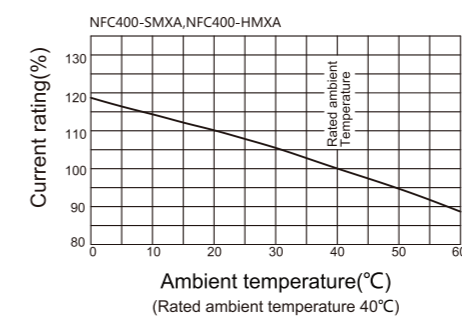
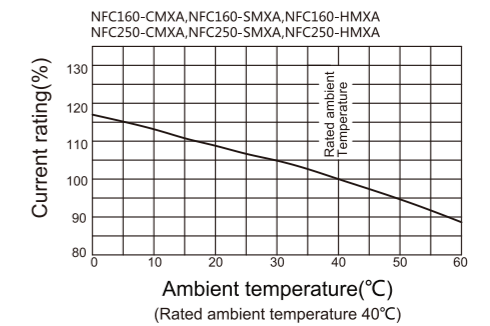
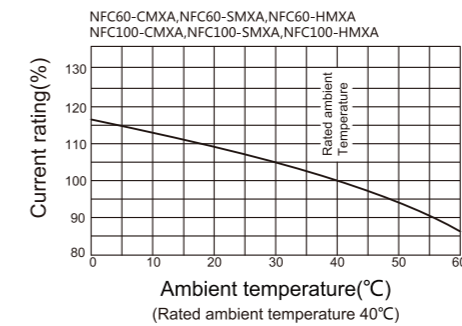
Operating Characteristics



Temperature Characteristics Curve



Temperature Compensation Curve

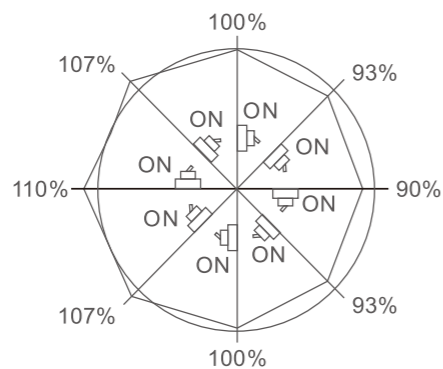


■ Installation direction

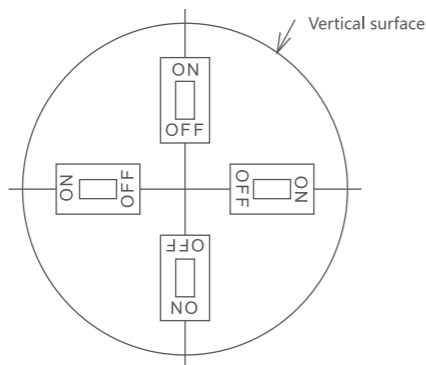
- The trip way of NFC30-SMX is hydraulic-magnetic type. Please pay attention to the mounting position while installing it.
The time-delay trip characteristic varies depending on the mounting position. It is recommended to mount it vertically.

Model
NFC30-SMX

- Change Rate of Rated Current at Different Mounting Angles:



- Mounting methods which will not influence the tripping characteristic.



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

Model
NFC60-CMXA NFC60-SMXA NFC60-HMXA
NFC100-CMXA NFC100-SMXA NFC100-HMXA
NFC160-CMXA NFC160-SMXA NFC160-HMXA
NFC250-CMXA NFC250-SMXA NFC250-HMXA
NFC400-SMXA NFC400-HMXA
NFC630-SMXA NFC630-HMXA



■ Ordering Information

Model	Number of Poles	Rated Current (A)	Internal Accessories	Quantity	External Accessories
NFC60-CMXA	3P	60A	AL,AX,SHT(AC100-120V)	100台	F, V, TC-S, TC-L
NFC30-SMX	2,3P	3,4,6,10,15,20,25,30A	AL (Alarm Switch)		F (External Operating Handle)
NFC60-CMXA	2,3P	15,16,20,25,30,32,40,50,60A	AX (Auxiliary Switch)		V (External Operating Handle)
NFC60-SMXA	2,3,4P	15,16,20,25,30,32,40,50,60A	ALAX (Alarm and Auxiliary Switch)		TC-S (Short Terminal Cover)
NFC60-HMXA	2,3,4P	15,16,20,25,30,32,40,50,60A	SHT (Shunt Trip)		TC-L (Long Terminal Cover)
NFC100-CMXA	2,3P	15,16,20,25,30,32,40,50,60,63,75,80,100A	(AC:100-120, 110-240, 220-440, 380-440V; DC:24, 48, 100V)		
NFC100-SMXA	2,3,4P	15,16,20,25,30,32,40,50,60,63,75,80,100A	UVT (Undervoltage Trip)		
NFC100-HMXA	3,4P	15,16,20,25,30,32,40,50,60,63,75,80,100A	(AC:100-120, 110-120, 200-240, 220-240, 380-400, 380-415, 440-460V)		
NFC160-CMXA	3P	125,140,150,160A			
NFC160-SMXA	3,4P	125,140,150,160A			
NFC160-HMXA	3,4P	125,140,150,160A			
NFC250-CMXA	3P	175,200,225,250A			
NFC250-SMXA	3,4P	175,200,225,250A			
NFC250-HMXA	3,4P	175,200,225,250A			
NFC400-SMXA	3,4P	250,300,350,400A			
NFC400-HMXA	3,4P	250,300,350,400A			
NFC630-SMXA	3,4P	500,600,630A			
NFC630-HMXA	3,4P	500,600,630A			

- The internal accessories for NFC30-SMX need to be assembled at factory. Please order together with the body model.
The other accessories are all cassette-type and realized field installation.
- Please refer to page11~12 for accessories' model name.