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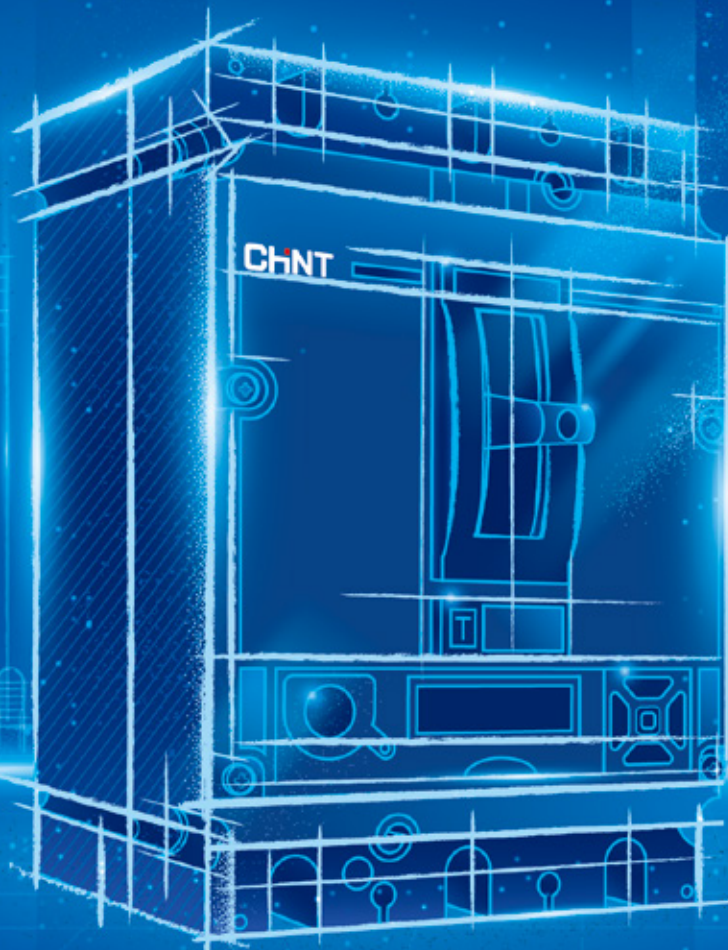
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Empower the World



NM8N HIGH VOLTAGE SERIES

Moulded Case Circuit Breaker





NM8N HV Series Moulded Case Circuit Breaker



Introduction

NM8N high voltage (HV) series moulded case circuit breakers, are suitable applied in AC circuit with 50Hz/60Hz, and with rated voltage ac1140V, rated current 630A and below.

It mainly used for making, breaking and carrying current under normal conditions and protect circuits and electric equipment against abnormal conditions such as over-load, under-voltage and short-circuit.



Rated Working
Voltage

AC800V, AC1000V, AC1140V



Frame Current

250A, 400A, 630A



Rated Ultimate
Breaking Capacity

36/50kA

NM8N HV Series Moulded Case Circuit Breaker



Features

Excellent Performance



- **Feature**
Highest working voltage can reach up to AC1140V, insulation voltage is up to AC1250
- **Advantage**
Capable to be applied in higher voltage rating power system
- **Benefit**
Stable enough to be installed on high altitude area



- **Feature**
High breaking capacity, Icu is up to 50kA
- **Advantage**
Effectively protect circuit against short circuit before grid connection
- **Benefit**
Safer operation guaranteed, damage of Short circuit are significantly reduced

Safe and Reliable



- **Feature**
Pass 72h salt mist test, and the working environment temperature covers -40~ + 80°C
- **Advantage**
Adaptability of working with various harsh environment
- **Benefit**
Reliably work in the dessert, coastal and other harsh environments



- **Feature**
Modular design, contact / arc extinguishing system package design
- **Advantage**
Full series support zero arc flash
- **Benefit**
Optimize the size of power distribution panel and save costs

Installation and Application Friendly



- **Feature**
Product realise top/bottom free incoming line, and support vertical and horizontal mounting
- **Advantage**
Meet demand of various mounting method
- **Benefit**
Customized installation method, no copper bus connection, more convenient to use



- **Feature**
Modular designed, multi-functional accessories
- **Advantage**
More protection function can be realised with same size
- **Benefit**
Product model is more concise, effectively save customers inventory level

NM8N HV Series Moulded Case Circuit Breaker



Environmental Conditions

Working Environment



-40°C ~ +80°C **+35°C**

Ambient temperature

24 hours average temperature not exceed



≤ 2000 m

Installation Altitude

● Please use derating coefficient if altitude is higher than 2000 meters

Pollution / Protection



3

Pollution degree

IP20

Protection grade

Standard



CCC CE TUV **RoHS2.0**

Certification

Complied with RoHS2.0

GB/T 14048.2 Low-voltage switchgear and controlgear –

Part 2: Circuit-breakers

IEC/EN 60947.2 Low-voltage switchgear and controlgear –

Part 2: Circuit-breakers

NM8N HV Series Moulded Case Circuit Breaker



Product Data Sheet

Model		NM8N-250HV		NM8N-400HV		NM8N-630HV	
Frame Current Inm(A)		250		400		630	
Rated Current In (A),40°C		63-80-100-125-160-180-200-225-250		250-315-350-400		400-500-630	
Insulation Voltage Ui (V)		1250		1250		1250	
Rated impulse withstand voltage Uimp (kV)		8		12		12	
Rated Voltage Ue (V)		800/1000/1140		800/1000/1140		800/1000/1140	
Number of Poles		3P		3P		3P	
Breaking Capacity		C	S	C	S	C	S
Rated Ultimate Breaking Capacity Icu (kA)	AC800V	36	50	36	50	36	50
	AC1000V	15	30	25	35	25	35
	AC1140V	10	10	10	10	10	10
Rated Service Breaking Capacity Ics (kA)	AC800V	36	36	36	50	36	50
	AC1000V	15	15	15	20	15	20
	AC1140V	10	10	10	10	10	10
Mechanical Durability		15000		15000		15000	
Electrical durability		1500		1500		1500	
Outline and Installation Dimension (mm)	W	106		140		140	
	H	200		250		250	
	D	121		138		138	

NM8N HV Series

Moulded Case Circuit Breaker

▶ Main functions and tripping characters P-012

▶ Size and Installation P-014

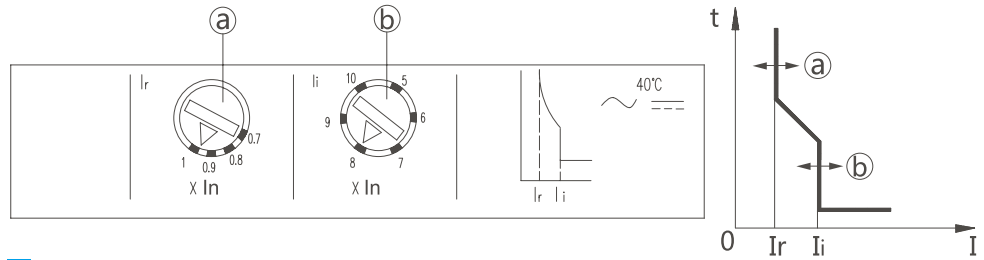
▶ Accessory and Installation P-020

▶ Supplemented Technical Information P-025

▶ Model-Selection Guide P-026

Main functions and tripping characters

1. Release

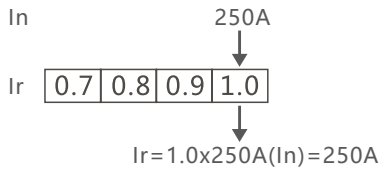


a Overload long time-delay protection setting

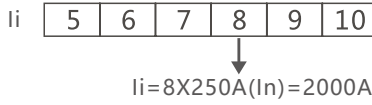
b Short circuit protection setting

Example: take NM8N-250HVS TM 250 3P as an example

a: Long time-delay protection setting



b: Instantaneous protection setting



*Note: NM8N-250HV 63A, 80A, 100A I_i is fixed: $I_i = 10I_n$;
125A, 160A I_i is adjustable: $I_i = 7 \sim 12I_n$.



2. Overload protection

Long time-delay protection

Frame	Poles	Rated current (A)	Setting $I_r = X * I_n$
NM8N-250HV	3P	63-80-100-125-160-180-200-225-250	0.7-0.8-0.9-1.0
NM8N-400HV		250-315-350-400	
NM8N-630HV		400-500-630	



3. Short circuit instantaneous protection

a. When $I = 0.8I_i$, no action within 0.2s;

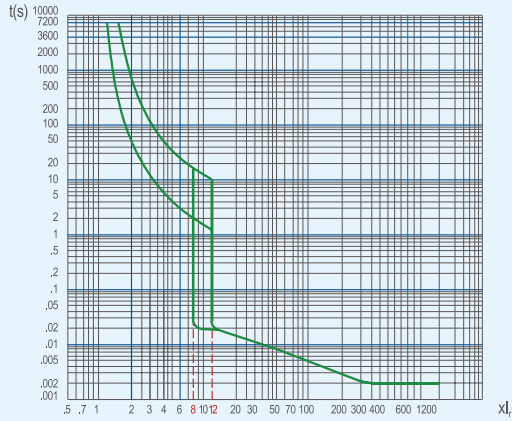
b. When $I = 1.2I_i$, trip within 0.2s;

Instantaneous Protection

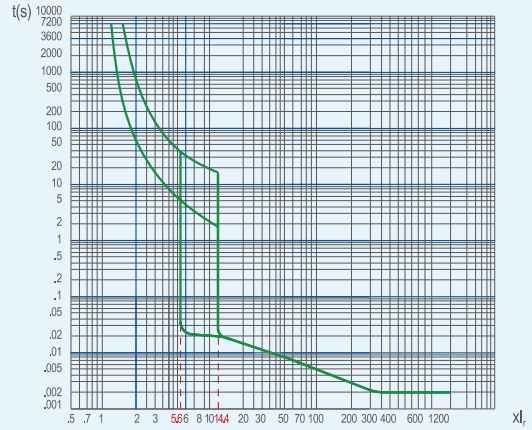
Frame	poles	Rated current (A)	Setting $I_r = X * I_n$
NM8N-250HV	3P	63, 80, 100	10
		125, 160	7-8-9-10-11-12
		180, 200, 225, 250	5-6-7-8-9-10
NM8N-400HV	250, 315, 350, 400		
NM8N-630HV		400, 500, 630	

4.Tripping Curve

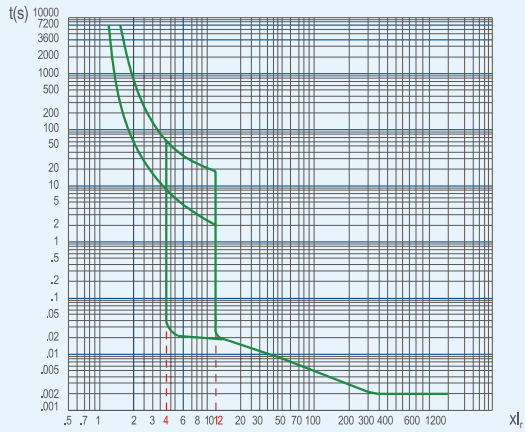
NM8N-250HV(63A、80A、100A)



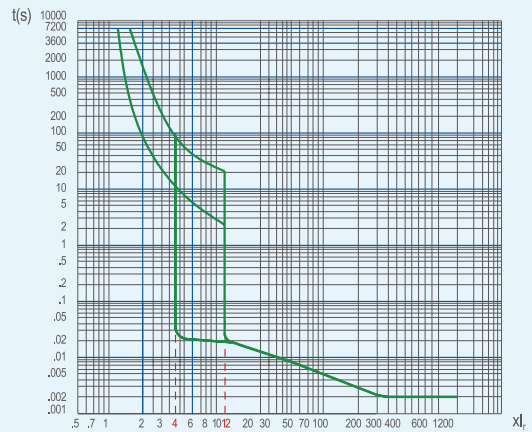
NM8N-250HV(125A、160A)



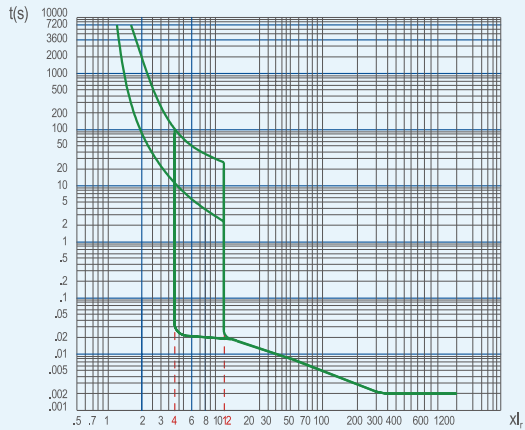
NM8N-250HV(180A、200A、225A、250A)



NM8N-400HV(250A、315A、350A、400A)

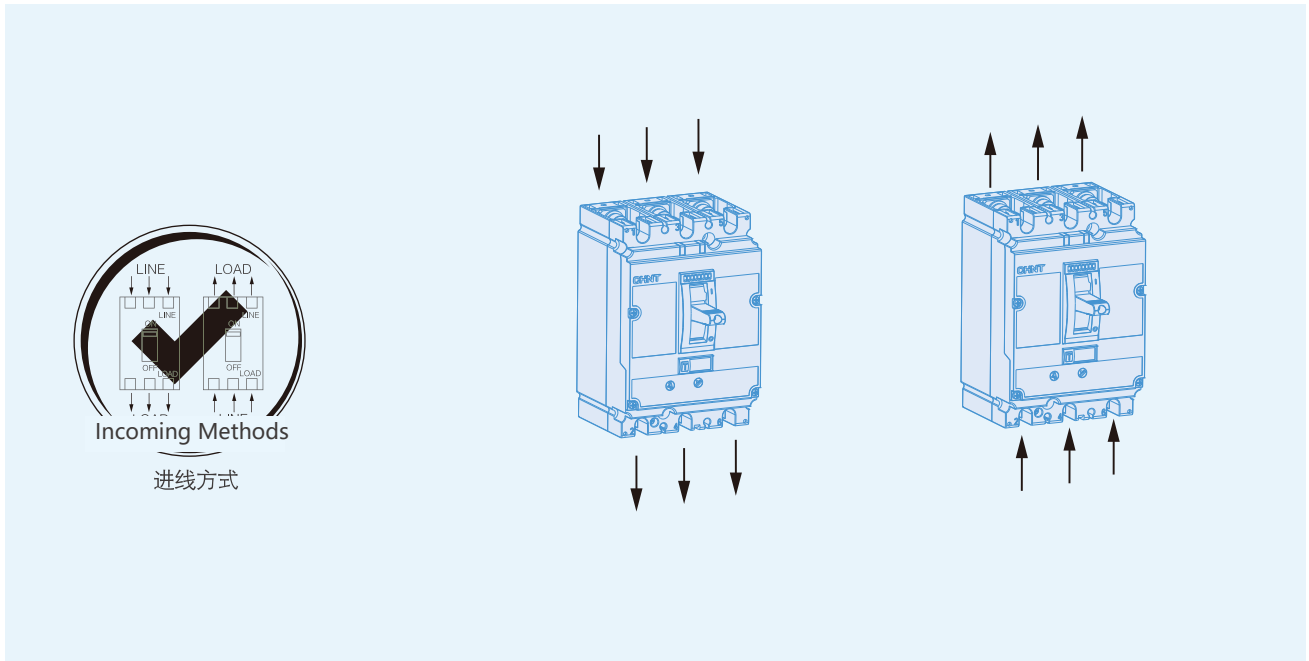


NM8N-630HV(500A 630A)

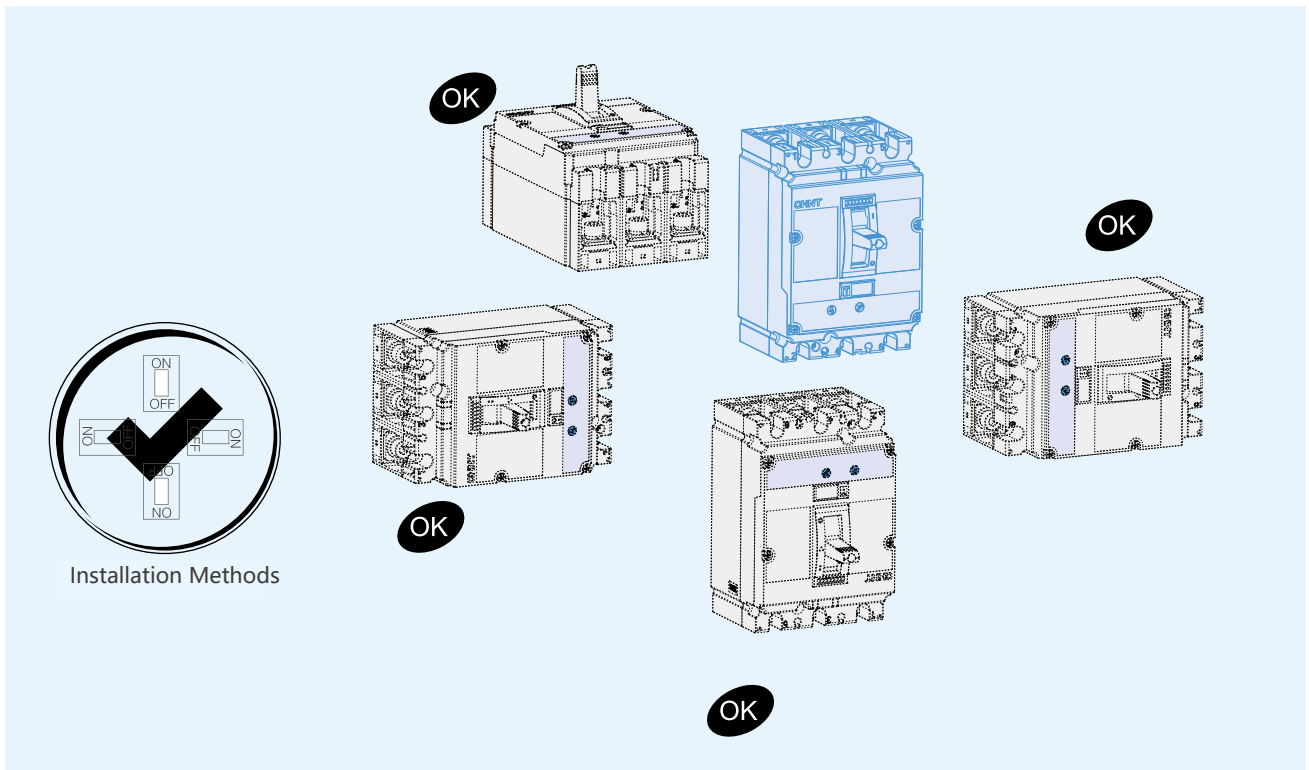


Size and Installation

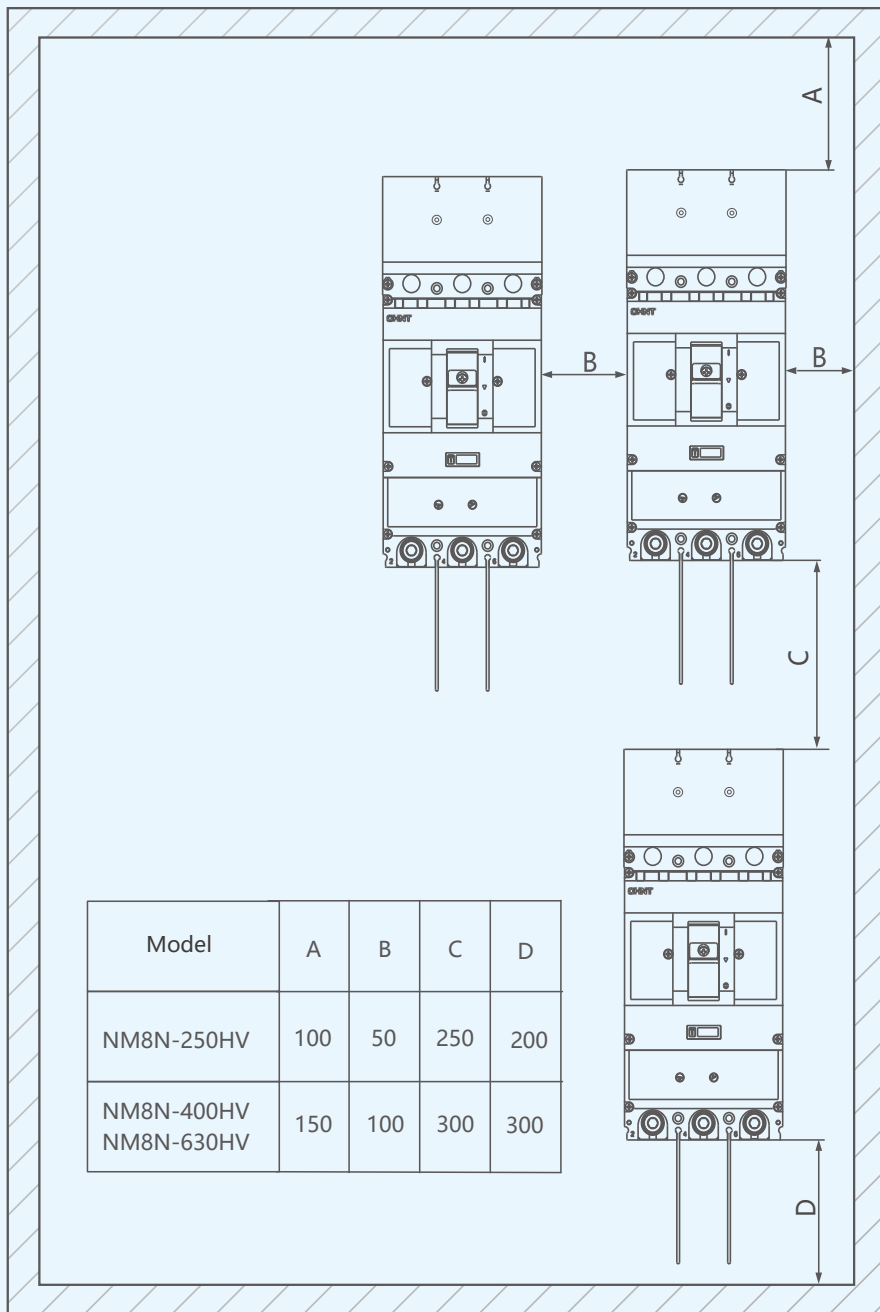
1. Incoming Methods



2. Installation Methods



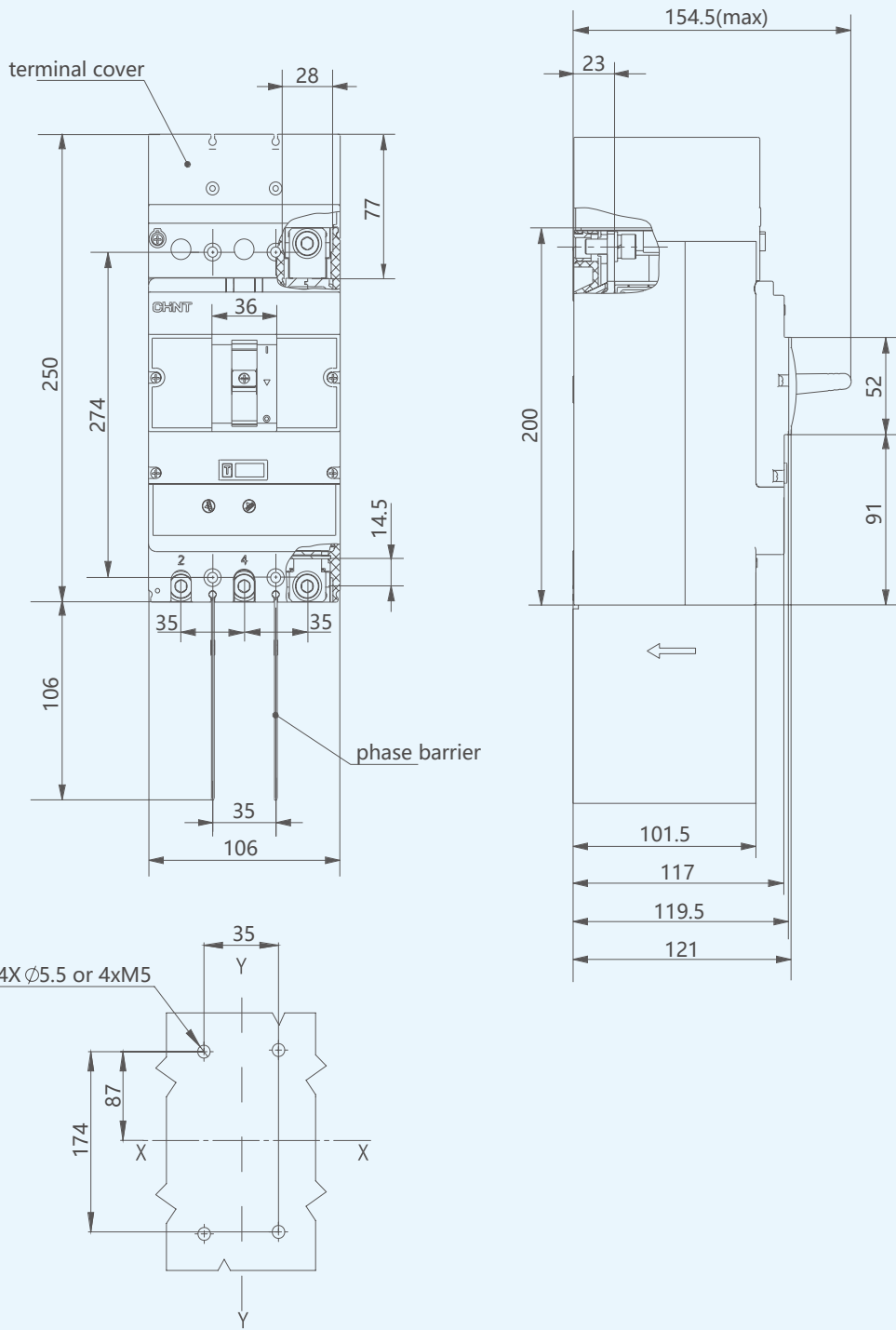
3.Safe distance



Minimum Mounting distance must be ensured.

4. Drawings

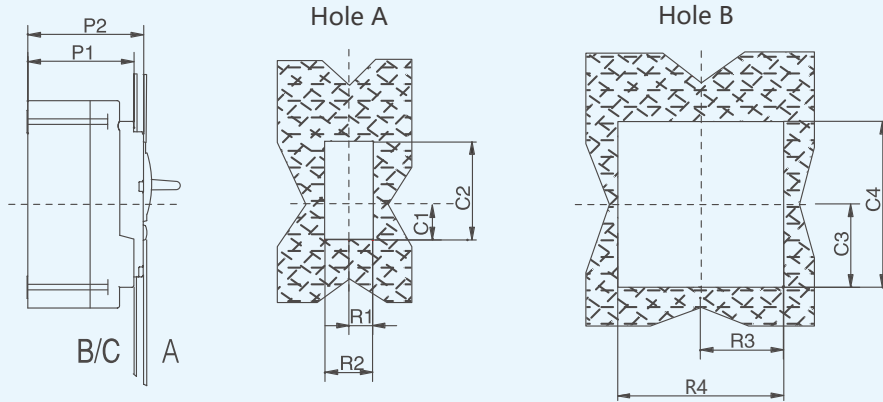
NM8N-250HV outline, installation size



Unit: mm

6. Panel front hole opening drawing

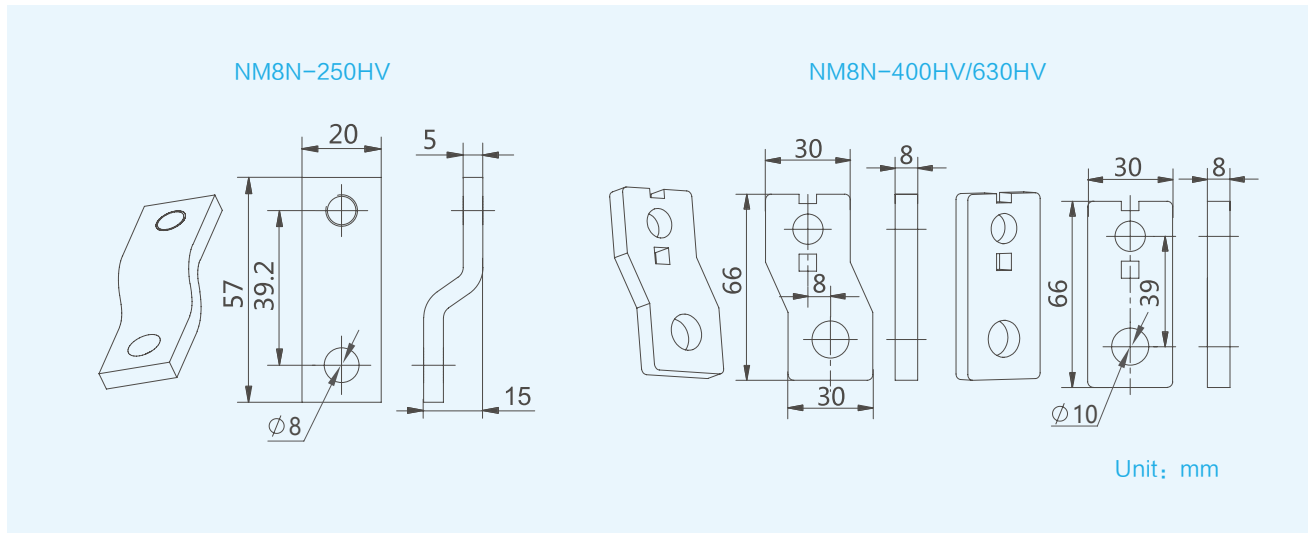
NM8N-250~630HV



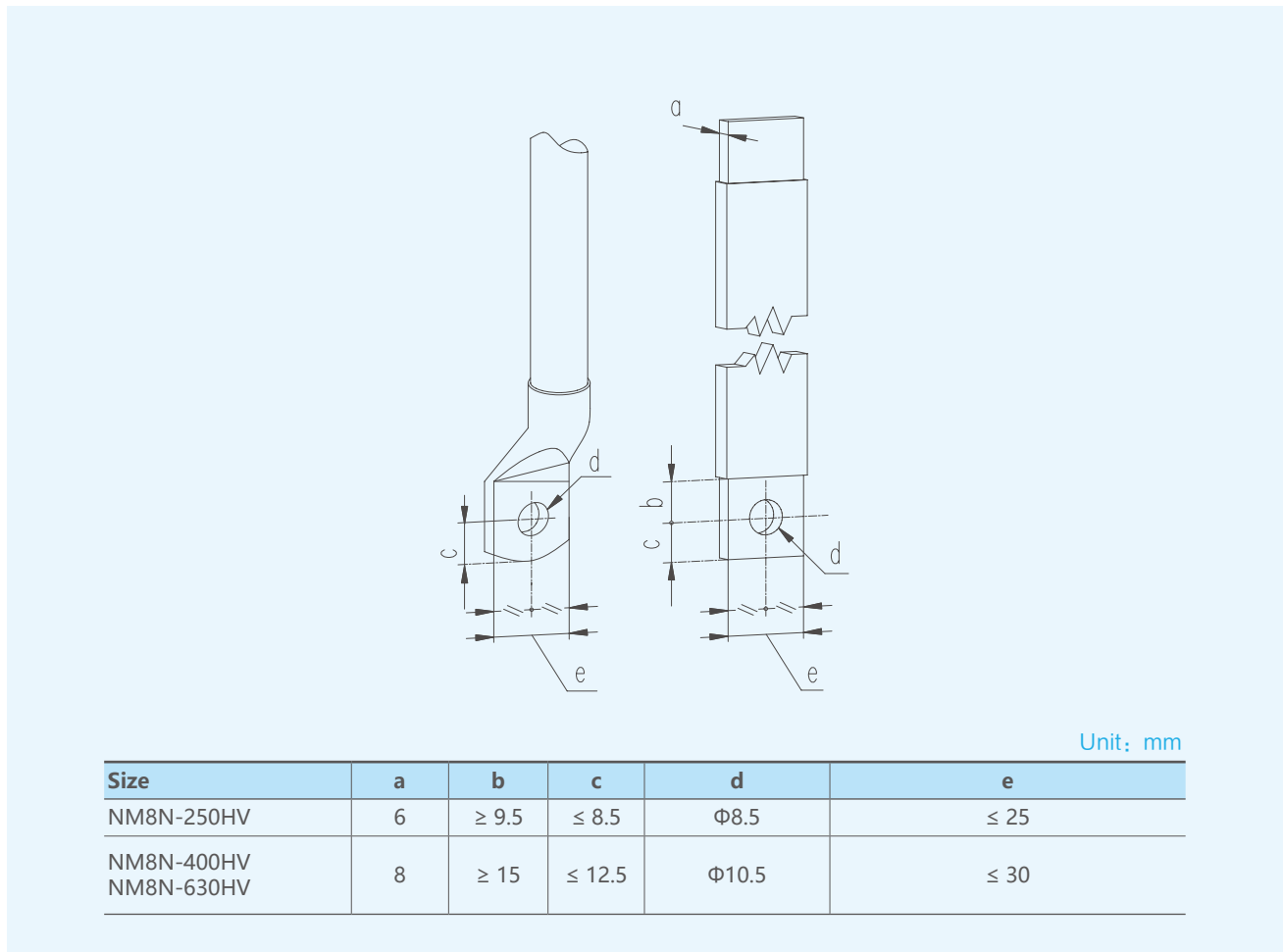
Unit: mm

Size type	Size code	Product Model	
		NM8N-250HV	NM8N-400HV/630HV
Panel front hole opening size	P1	117	130
	P2	120	135
	R1	7.5	14
	R2	15	28
	R3	18.5	27.5
	R4	37	55
	C1	10	13
	C2	54	77
	C3	10	13
	C4	54	77

7. Front connection plate drawing



8. Cable Drawing



Accessory and Installation

1.AX Auxiliary contact

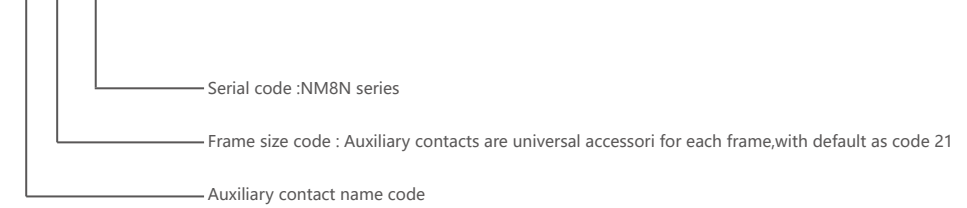
1.1 Function



Remotely indicate the circuit breaker's making (on) or breaking / tripping (OFF) status, connected to the auxiliary circuit of the circuit breaker.

1.2 Model description

AX 21-M8



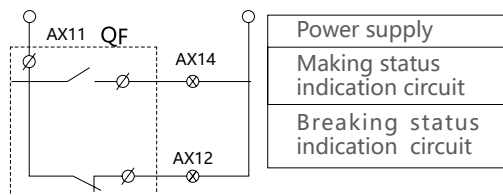
1.3 Circuit Breaker status indication

Breaker is at breaking / free trip status	
Breaker is at making status	

1.4 Electrical characteristics

Rated voltage (V)	Rated current (A)	
	AC-15	DC-13
AC 110	5	—
AC 240	4	—
AC 415	2	—
DC 110	—	0.25
DC 220	—	0.25

1.5 Wiring diagram



2.AL Alarm contact

2.1 Function

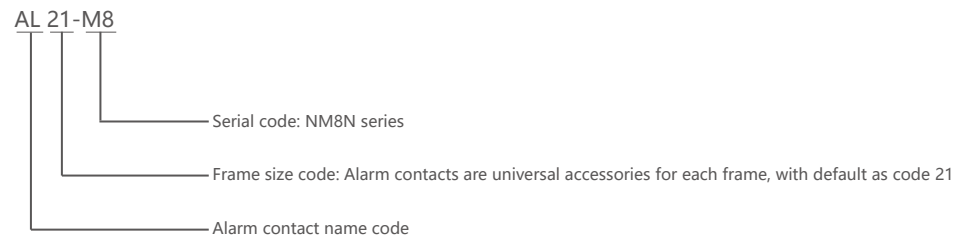


It is mainly used to provide a signal when the load of the circuit breaker is overloaded, short-circuited or undervoltage, or tripped.

The reasons for the failure of the alarm signal are:

- Over-load or short-circuit
- Undervoltage trip
- Manual free trip

2.2 Model description



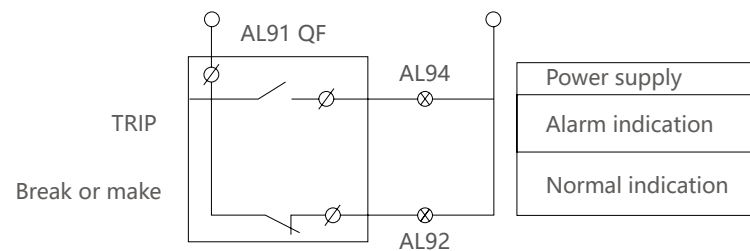
2.3 Circuit Breaker status indication

Breaker is at breaking / Making status	
Breaker is at free trip status	

2.4 Electrical characteristics

Rated voltage (V)	Rated current (A)	
	AC-15	DC-13
AC 110	5	—
AC 240	4	—
AC 415	2	—
DC 110	—	0.25
DC 220	—	0.25

2.5 Wiring diagram



3.SHT Shunt release

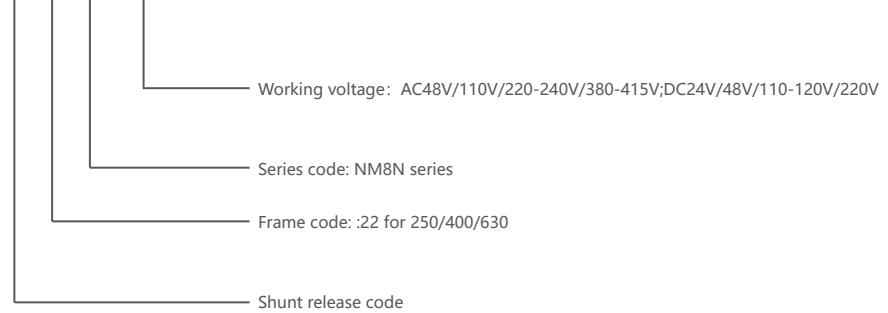
3.1 Function



Shunt releases operate according to electrical signals, enabling remote control and automatic control of circuit breakers. When the supply voltage is equal to any voltage between 70% and 110% of the rated control power supply voltage, the shunt release should enable the circuit breaker to operate reliably.

3.2 Model description

SHT 22-M8 AC48V



Note: Shunt release of 400/630A frame and 250A frame is compatible.

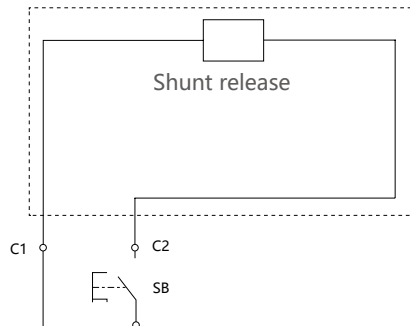
3.3 Electrical characteristics

Frame	Power loss (W)							
	AC48V	AC110V	AC220-240V	AC380-415V	DC24V	DC48V	DC110-120V	DC220V
250/400/630A	2.3	2.5	2.2	2.5	2.2	2.5	2.5	2.5

3.4 Trip characteristics

Can be powered for a long time. Response time: pulse type > 20ms, <60ms

3.5 Wiring diagram



Note: When the rated control power supply voltage DC24V shunt release is used, the maximum length of the copper wire (each of the two wires) must meet the following table:

Conductor cross-sectional area rated control voltageUs(DC24V)	1.5mm ²	2.5mm ²
	100%Us	150m
85%Us	100m	160m

4.UVT Under-voltage release

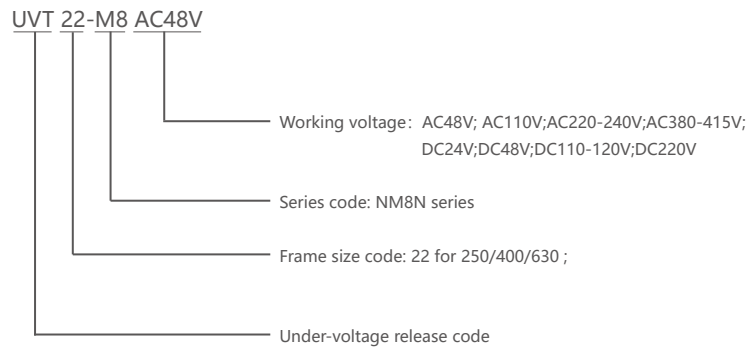
4.1 Function



Realize the under-voltage protection function of the circuit breaker, open the circuit breaker when the power supply voltage is too low, and protect the electrical equipment.

- When the supply voltage drops (even slowly) to 70% to 35% of the rated control supply voltage, the undervoltage trips The breaker should open the circuit breaker reliably.
- When the supply voltage is equal to or greater than 85% of the rated control supply voltage of the undervoltage release, the circuit breaker should be guaranteed to close.
- When the supply voltage is less than 35% of the rated control supply voltage of the undervoltage release, the undervoltage release should prevent the circuit breaker.

4.2 Model description

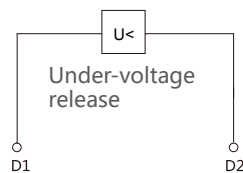


Note: Shunt release of 400/630A frame and 250A frame is compatible.

4.3 Electrical characteristics

Frame	Power loss (W)							
	AC48V	AC110V	AC220-240V	AC380-415V	DC24V	DC48V	DC110-120V	DC220V
250/400/630A	1.5	1.5	2.2	3	0.8	1.5	2	2.5

4.4 Wiring diagram



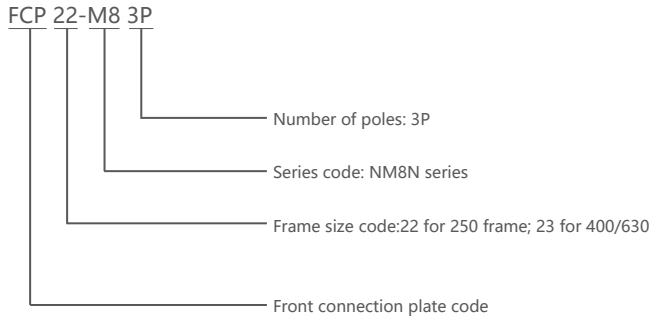
5.FCP front connection plate

5.1 Function



Make the circuit breaker have a flexible wiring mode. By installing this accessory, the pole spacing can be increased to increase the electrical gap between adjacent poles at the inlet and outlet ends of the circuit breaker and enhance the safety between lines.

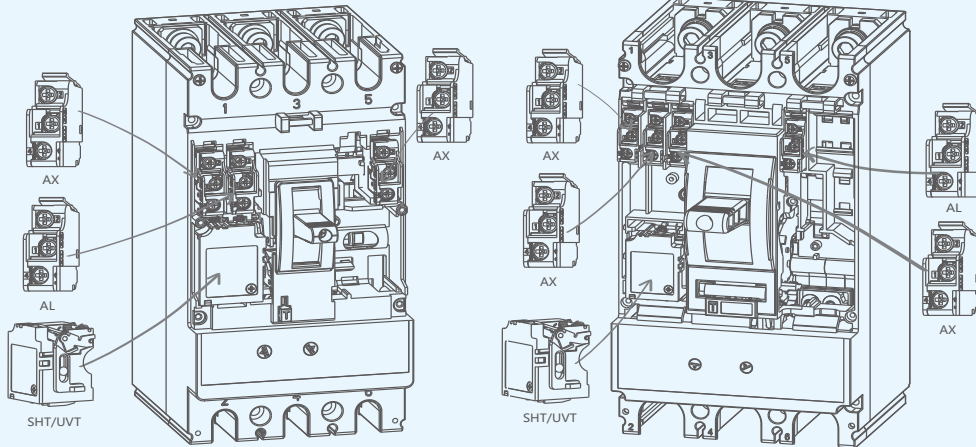
5.2 Model description



5.3 Internal accessories installation diagram

NM8N-250HV

NM8N-400/630HV



AX	辅助触头 Auxiliary Contact
AL	报警触头 Alarm Contact
SHT	分励脱扣器 Shunt Release
UVT	欠电压脱扣器 Under-voltage Release

AX	合闸 ON	AX12 ——— AX11 AX14 ——— AX11
	分闸 OFF	AX12 ——— AX11 AX14 ———
AL	分、合闸 OFF & ON	AL92 ——— AL91 AL94 ———
	自由脱扣 TRIP	AL92 ——— AL91 AL94 ——— AX11

Supplemented Technical Information

1. Power loss

Altitude derating coefficient table	Product model Rated current (A)	Fixed breaker internal resistance per pole (mΩ)	Power loss per pole (W)
NM8N-250HV	63	1.7	6.7
	80	1.3	8.3
	100	0.88	8.8
	125	0.7	10.9
	160	0.55	14.1
	180	0.55	17.8
	200	0.55	22.0
	225	0.4	20.3
NM8N-400HV/630HV	250	0.4	25.0
	250	0.35	21.9
	315	0.25	24.8
	350	0.25	30.6
	400	0.20	32.0
	500	0.12	30.0
	630	0.12	47.6

2. Temperature compensation coefficient table

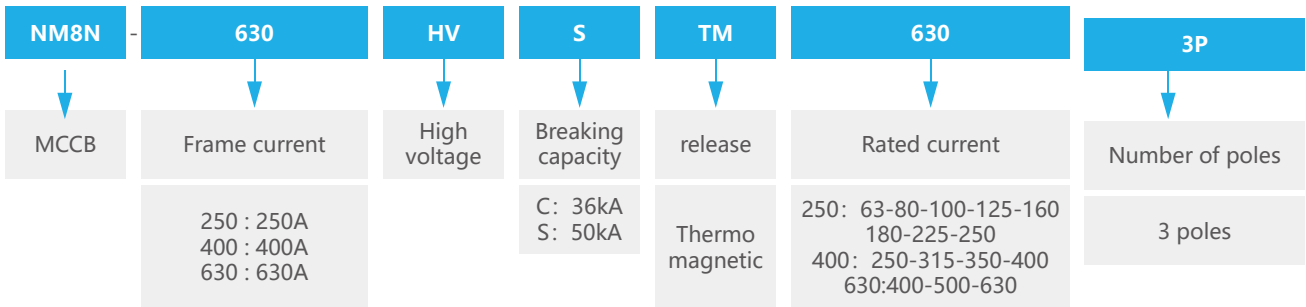
Air temperature Rated current (A)		-40°C	-35°C	-25°C	-15°C	-5°C	-0°C	10°C	20°C	30°C	40°C	50°C	60°C	70°C	80°C
		NM8N-250HV	63	88	86.5	83	80	77	75	72	69	66	63	58.5	53
80	112		110	106	102	98	96	92	88	84	80	74.5	67	56	56
100	140		137	132	127	122	120	115	110	105	100	93	84	80	70
125	175		172	165	159	153	150	144	137	131	125	118	106	96	88
160	224		220	212	204	196	192	184	176	168	160	152	136	120	112
180	252		247	238	229	220	216	207	198	189	180	171	157	144	126
200	280		275	265	255	245	240	230	220	210	200	190	175	166	146
225	315		309	300	288	276	270	259	247	236	225	213	196	180	158
250	350		343	332	319	306	300	287	275	262	250	237	218	207	175
NM8N-400HV/630HV	250	350	343	332	319	306	300	287	275	262	250	237	225	212	175
	315	441	433	418	402	386	378	362	346	331	315	300	286	271	220
	350	490	481	465	447	429	420	402	385	367	350	332	295	276	245
	400	560	550	530	510	490	480	460	440	420	400	380	360	320	280
	500	700	687	662	637	612	600	575	550	525	500	450	406	360	350
	630	882	865	834	802	770	756	725	693	661	630	567	511	454	441

3. Altitude derating coefficient table

Altitude (m)		2000m	3000m	4000m	5000m
Rated working current I_n		$1 \times I_n$	$0.96 \times I_n$	$0.93 \times I_n$	$0.9 \times I_n$
Rated voltage U_e (V)		1140	1140	1140	950
Rated Insulation voltage U_i (V)		1250	1150	1150	950
Dielectric ability (V)		2550	2370	2200	2050
Rated impulse withstand voltage U_{imp} (kV)	NM8N-250HV	8	8	8	8
	NM8N-400HV	12	10	8	8
	NM8N-630HV				

Model-Selection Guide

Model fast selection guide



Note: example of model purchase

NM8N-630 HV S TM 630 3P

This means to order an NM8N high voltage (HV) series, with 630 frame, breaking capacity of 50kA, thermomagnetic power distribution protection type, rated working current 630A, 3 poles AC moulded case circuit breaker.

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