

NA1 Air Circuit Breaker





Frankfurt(Oder)



Hangzhou



Shanghai



Wenzhou

Constant Brand Concept

- CHINT is the leading brand in the domestic industrial electrical field.
- The operation concept of CHINT is to "Create Values for Client, Seek Development for Staff and Shoulder Responsibility for Society" .
- The constant brand spirit of CHINT is "Empower the World" .
- CHINT involves new energy, PTD equipment, low-voltage apparatus, instrument, industrial automation, building electric, automotive electrical appliance and etc.



Renewable
Energies



Transmission and
Distribution Equipment



Low-Voltage
Electrical Appliances



Instrument
and Meter



Automation

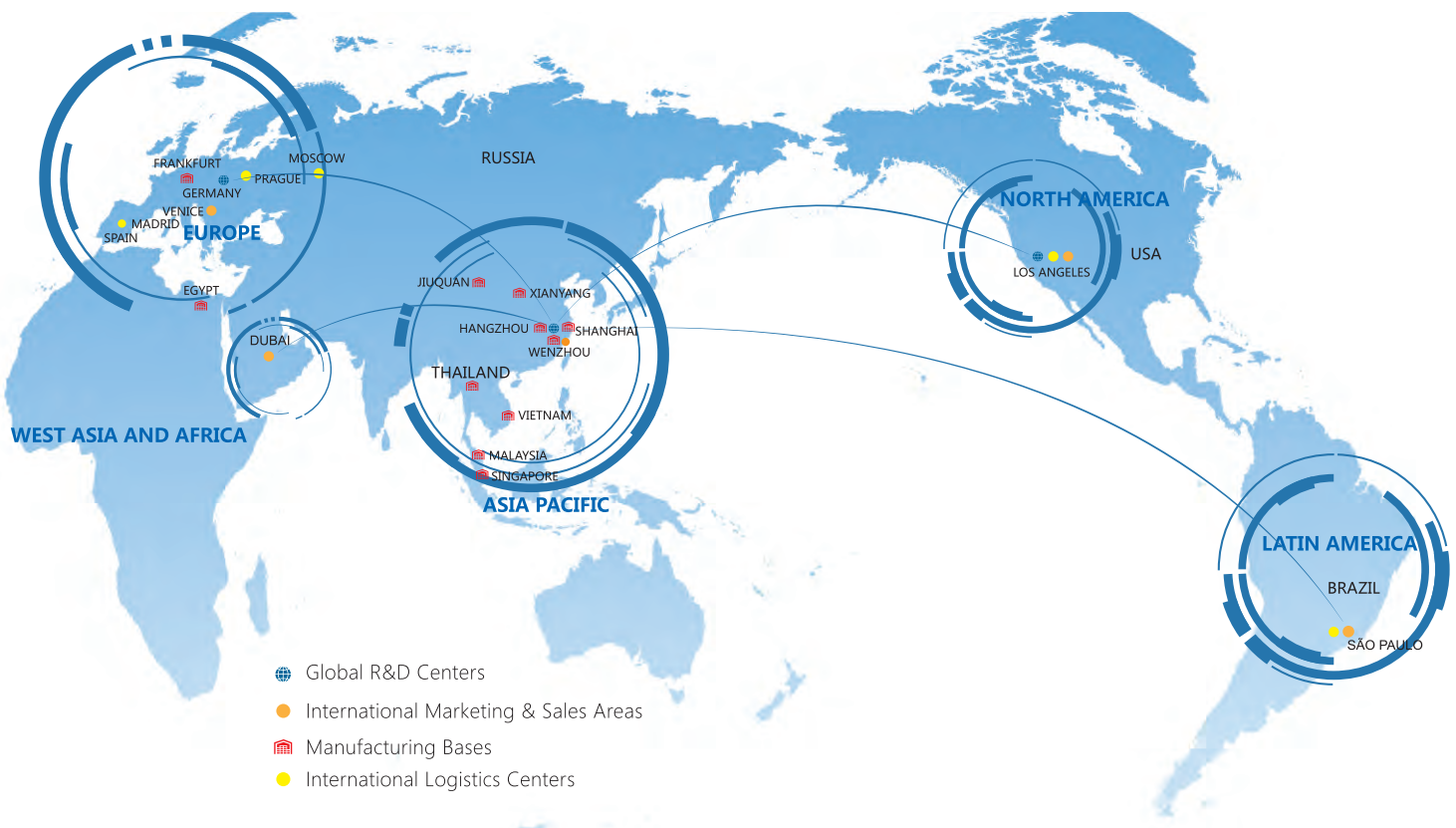


Building Electrical
Appliances

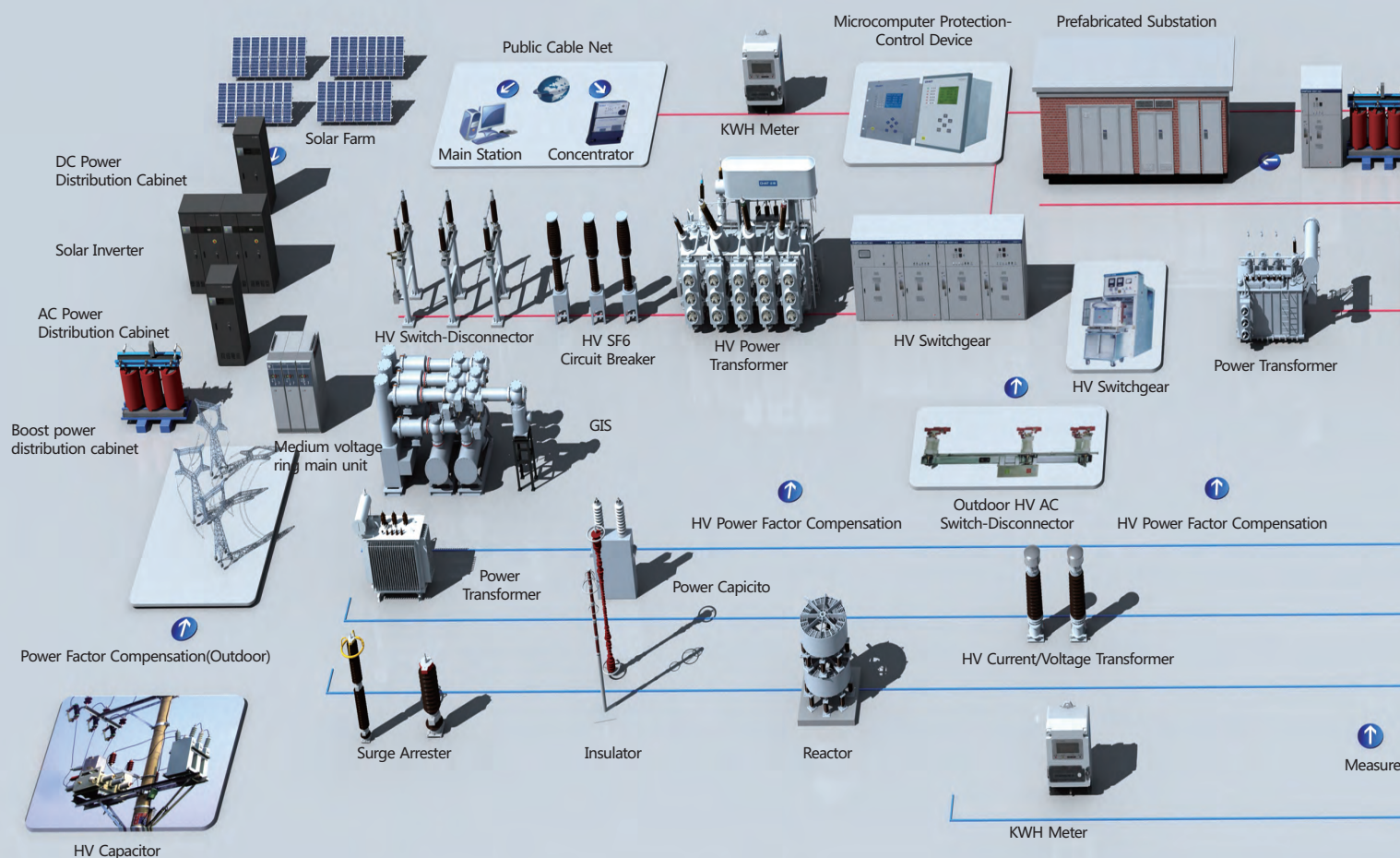
CHINT GLOBAL PRESENCE

China Based, World Visioned

- 3 Global Research Centers: Europe, North America, Asia Pacific
- 6 International Marketing & Sales Areas: Asia Pacific, Middle East and Africa, Europe, Latin America, North America, China
- 9 Manufacturing Bases: China (Wenzhou, Shanghai, Hangzhou, Xianyang, Jiuquan), Egypt, Germany, Thailand
- 14 International Subsidiaries
- 16 Marketing Offices in China
- 22 Logistics Centers
- 2300 Sales Companies

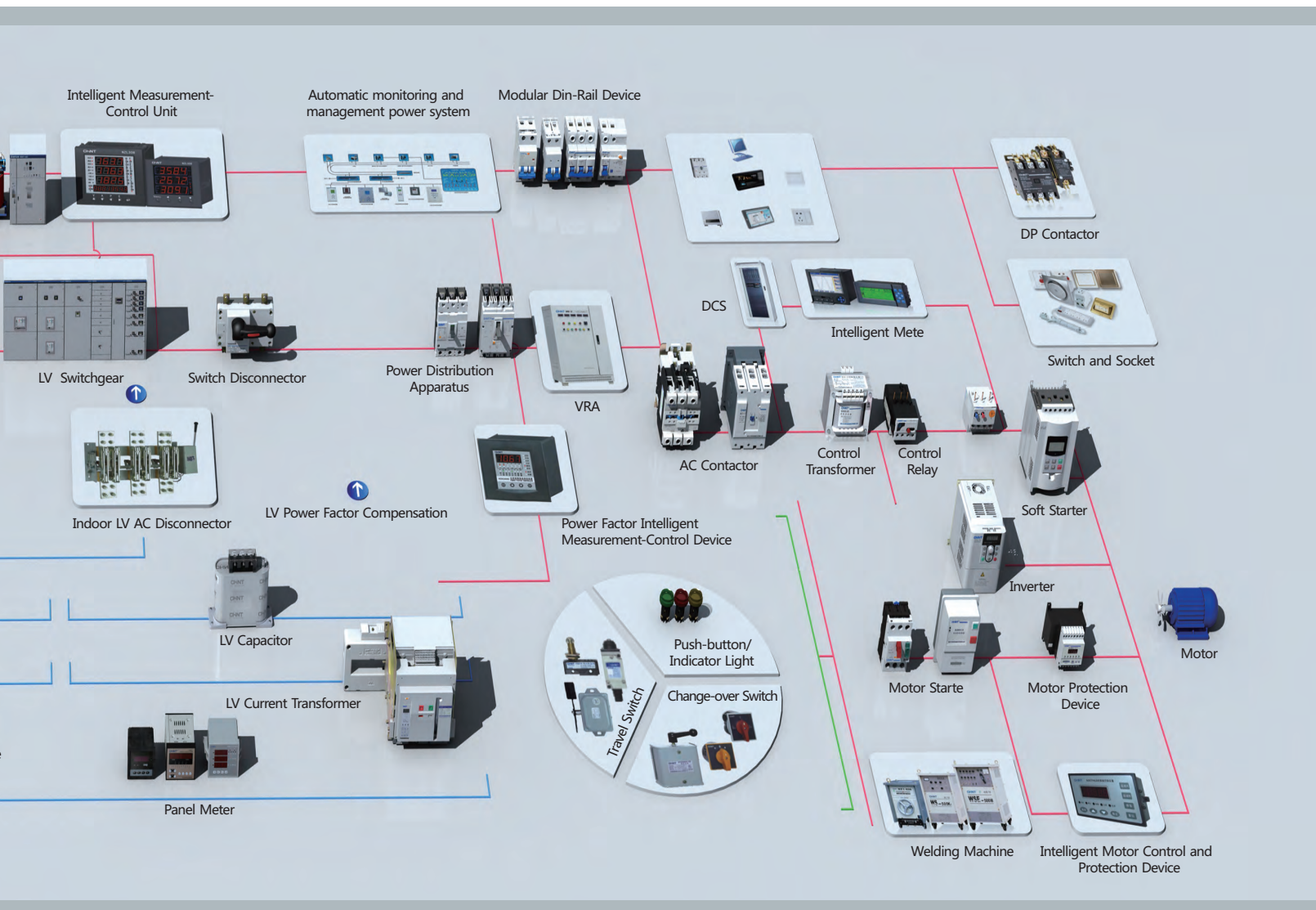


CHINT - the Leading Brand of the Whole Industry Chain in Industrial Electric in Asia



Founded in 1984, CHINT GROUP has been providing the world with safe, reliable and stable industrial electrical equipments and solutions for energy efficiency management system; After 30 years' development, it has been grown from Asia's largest low-voltage electrical products supplier into the leading brand of the whole industry chain in industrial electric in Asia. CHINT's sales revenue has exceeded 5 billion Euros in the year of 2014. With 3 R&D centers located in Europe, US and China, branches in over 20 countries and more than 30000 employees over the whole world, CHINT has provided reliable products, system solutions and services for more than 100 countries worldwide.

CHINT's sub-brands include CHINT, NOARK, ASTRONERGY, XINHUA, CHITIC and others, covering photovoltaic power generation, industrial automation, power transmission and distribution equipment, low voltage electrical apparatus, instruments and meters, building electrical appliance, automotive electrics and other fields. Forming the leading superiority in the whole industry chain in electric from the generation, transmission, substation, distribution of electrical power to the terminal uses, CHINT is providing systems support from products to solutions services to customers worldwide.



CHINT-Empower the World

R&D, QUALITY, SALES, LOGISTICS

Great Quality

By providing reliable products and service for clients, CHINT puts forward the concept "Great Quality." Quality control and upgrade is divided into four systems: scientific research, quality control, marketing service and logistics distribution. These methods and strategies make a comprehensive upgrade to product quality and services. Emphasis on "prevention first, continuous improvement" is the basis of an effective quality inspection system. Leading the management process of "Great Quality" in the production process controls each link of production accurately and realizes the institutional operation of quality improvement.

"Great Quality" is not just a slogan, but a belief rooted in each employee's work. High-quality and accuracy are the basic requirement. Starting from a routine operation by each staff to implementing a high-quality of production and service, CHINT is your most reliable partner.

Service Concept


Sincerely care for customers, quality creates value

Service Purpose

Innovative and progressive, satisfying the customers




Integrated Vertical R&D

 By gathering the global industry elites to Provide safe and stable energy-saving green and advanced electric products.


5%

At least 5% of revenue is invested in research and development


Great Quality System

 Ensuring flaw-free and trouble-free products, the multi-dimensional and multilevel control is conducted through procurement, inspection, quality control and certification.

One-stop Services

 CHINT's concept is that it is not difficult to fulfill a high-quality logistics distribution at one time, while it is difficult to stay as accurate and prompt as the first-time. High-efficiency and high-precision accuracy are our requirement.

48-Hour Response

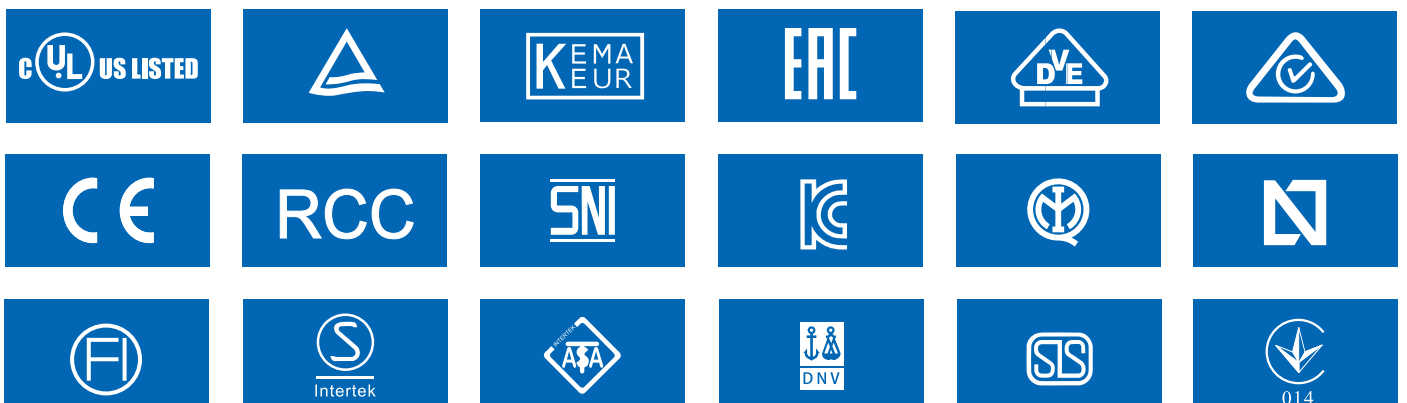
 Providing end-to-end one-stop services for customers with complaints, business consulting and technical support by solving problems immediately and including any possible problems in advance.





Qualifications

Our products are certificated through: UL, CE, TUV, EAC, KEMA, RCM and RCC.



Air Circuit Breaker

NA1



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NA1-1000X
200A to 1000A



NA1-2000X, NA1-2000XN, NA1-2000XH
630A to 2000A



NA1-3200X, NA1-3200XN
2000A to 3000A



Summary

5 basic frame sizes

For your various requirements, the Air Circuit Breaker NA1 includes 3 basic frame sizes as followed.



1. General

1.1 Application scope

NA1 series air circuit breaker is suitable for the circuit of AC 50Hz/60Hz with rated service voltage 400V, 690V and rated service current up to 6300A. It is mainly used to distribute electric energy and protect circuits and electric equipment against over-load, under-voltage, short-circuit and single-phase earthing fault.

With intelligentized and selective protection functions, the breaker can improve the reliability of power supply, and avoid unnecessary power failure. The breaker is applicable for power stations, factories, mines (for 690V) and modern high-buildings, especially for the distribution system of intelligentized building.

1.2 Standard: IEC/EN 60947-2.

2. Operating conditions

2.1 Temperature condition:

-5°C~50°C; the average value within 24h shall not exceed +35°C (special situation excluded);

2.2 Altitude:≤2000m;

2.3 Pollution grade: Grade 3;

2.4 Air conditions:

At mounting site, relative humidity not exceed 50% at the max temperature of +50°C, higher relative humidity is allowable under lower temperature, RH could be 90% at +20°C, special measures should be taken to occurrence of dews;

2.5 Note: Without the intelligent controller, the breaker functions as a switch-disconnector.

2.6 Type designation

NA1 - □□-□□/□-□-□-□

Voltage of secondary circuit
AC220V, AC380V,
AC230V, AC400V
DC220V, DC110V

Wiring of main circuit:
H:Horizontal wiring of main circuit
V:Vertical wiring of main circuit

Mode of installation:
F:Fixed type
D:Draweout type

Mode of operation:
M:Manual
P: Power-driven

No. of poles:
3:3-pole
4:4-pole

Intelligent controller:
M: Standard type
3M: Multifunctional type
3H: Communication type

Rated current:

Frame size rated current	Rated current
1000A	200A
	400A
	630A
	800A
	1000A
2000A	630A
	800A
	1000A
	1250A
	1600A
3200A	2000A
	2500A
	3200A

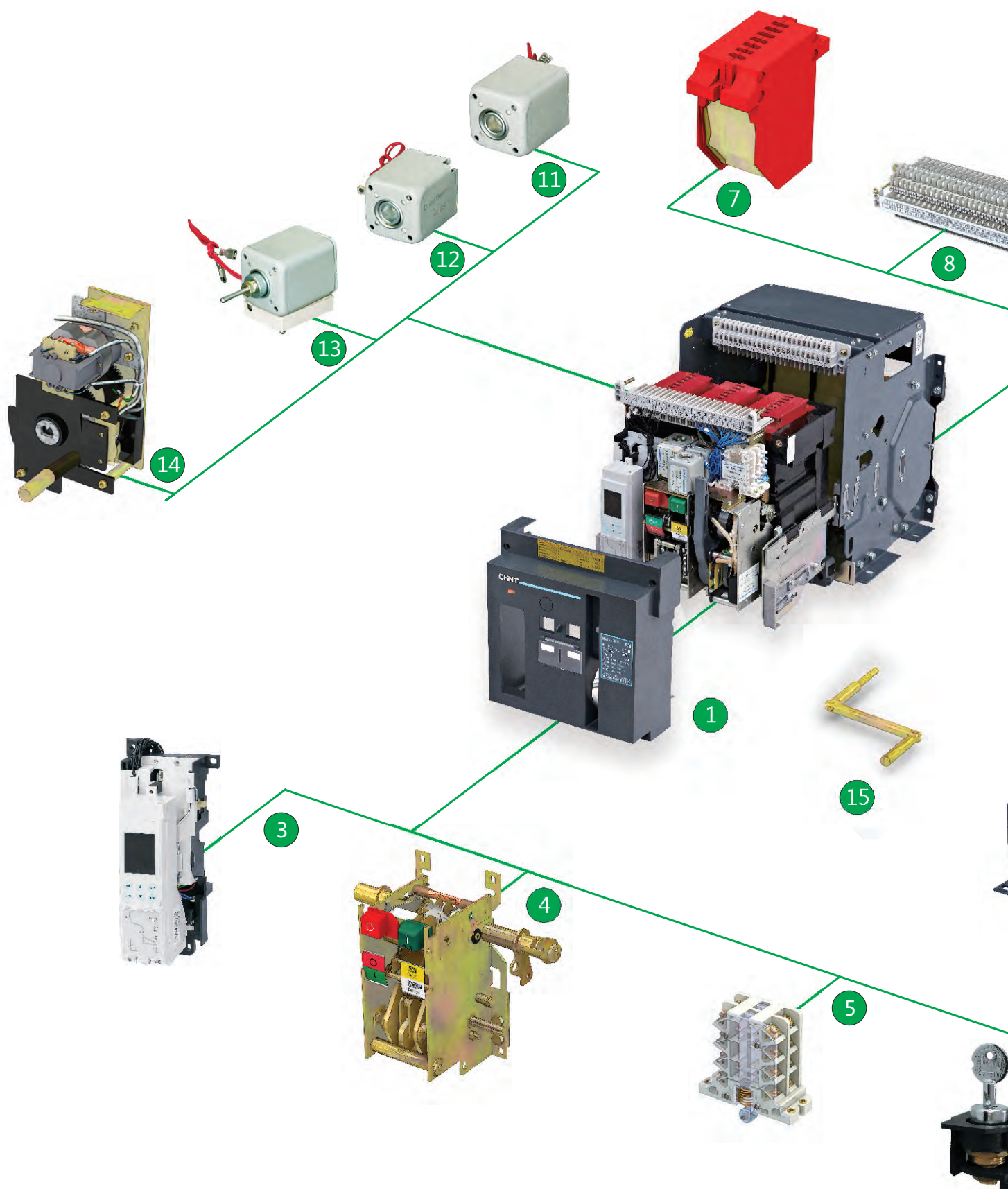
Breaking capacity:
X
XN
XH

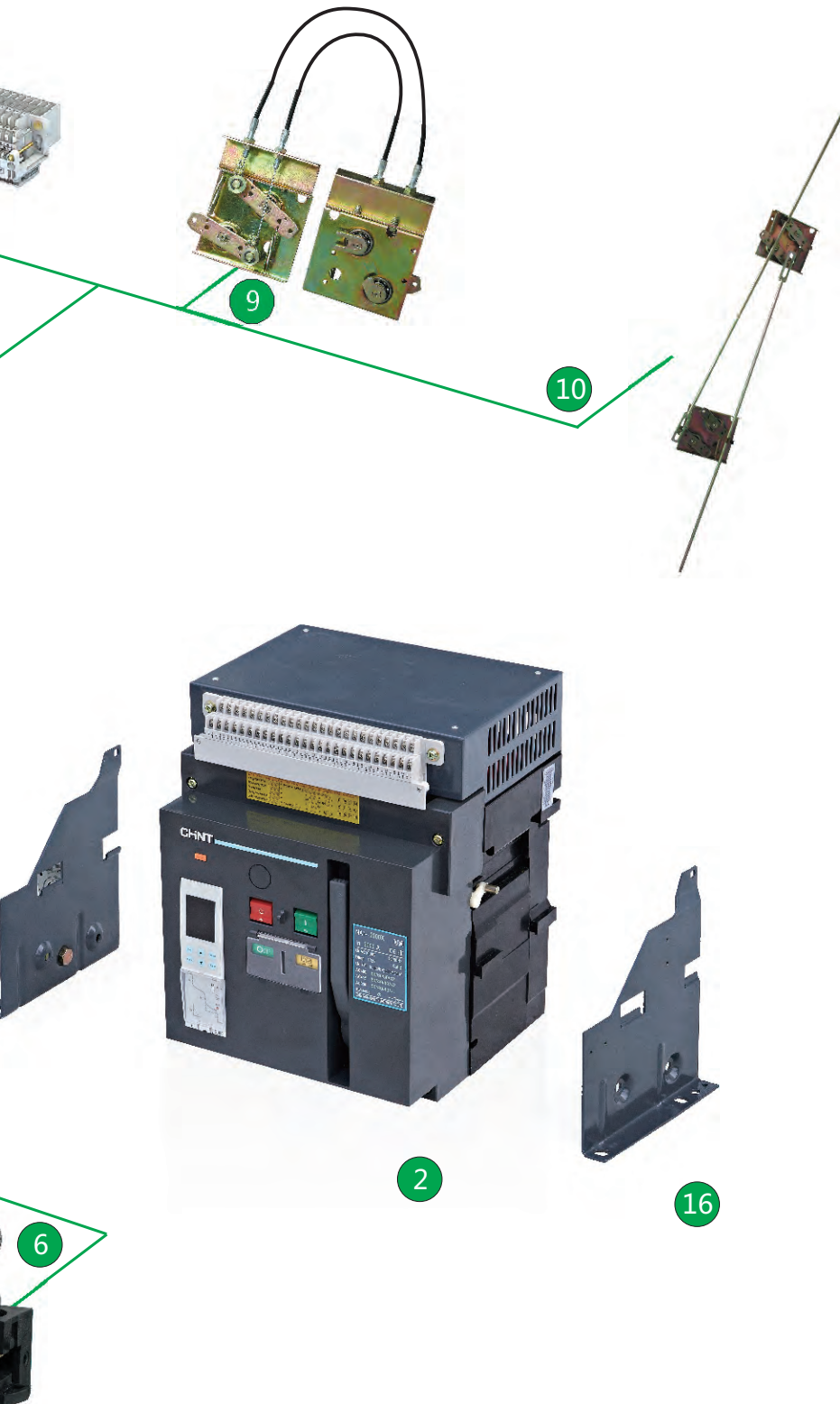
Frame size rated current:
1000,2000,3200

Design sequence number

ACB

Company code

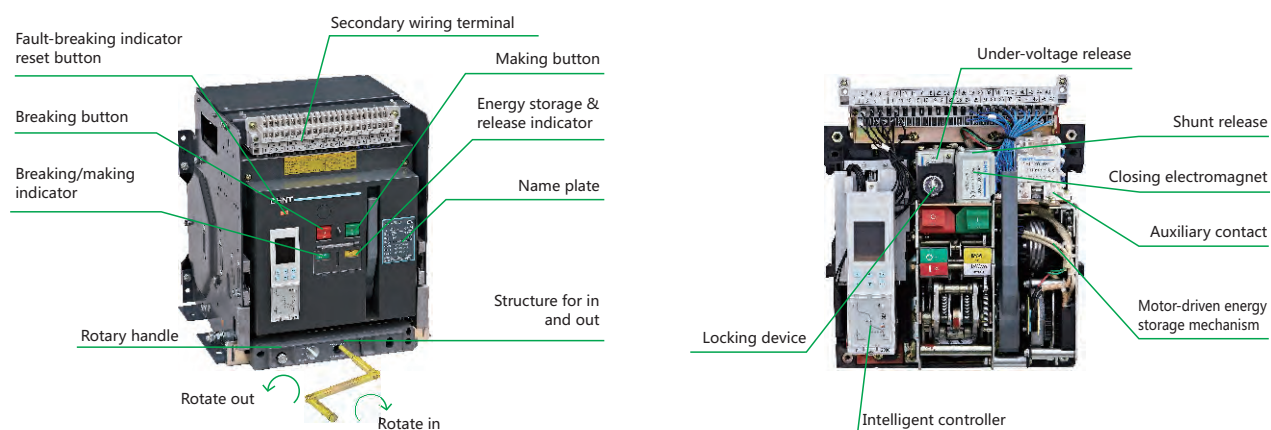
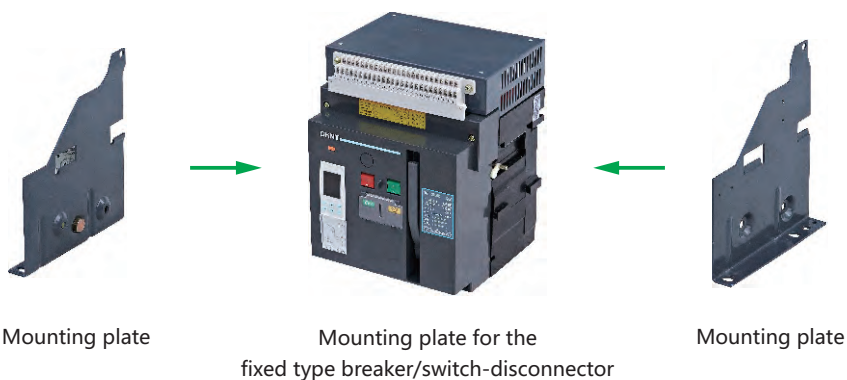
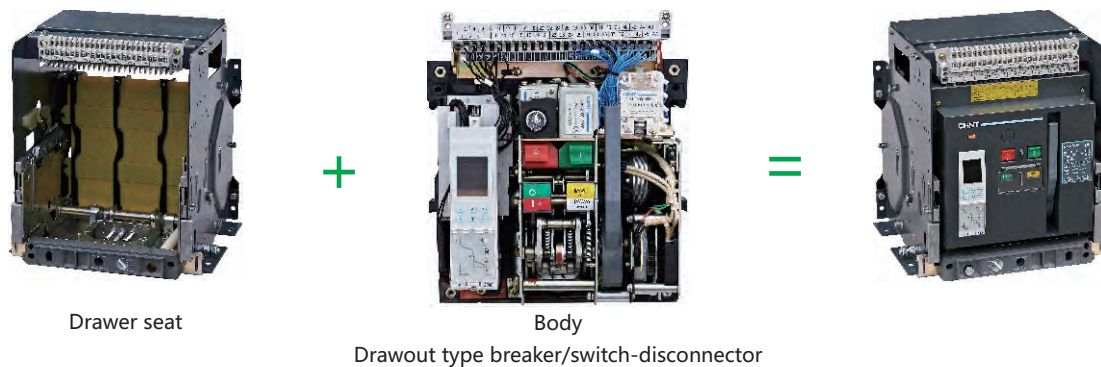





NA1 Air Circuit Breaker


- 1 Drawout type
- 2 Fixed type
- 3 Intelligent controller
- 4 Operating mechanism
- 5 Auxiliary contact
- 6 Locking-device
- 7 Arcing chamber
- 8 Secondary wiring terminal
- 9 Wire-cable mechanical interlock
- 10 Connecting-rod type mechanical interlock
- 11 Shunt release
- 12 Closing electromagnet
- 13 Under-voltage release
- 14 Motor-driven energy-storage mechanism
- 15 Rotary handle
- 16 Mounting plate



3. Structure



4. Main technical parameter

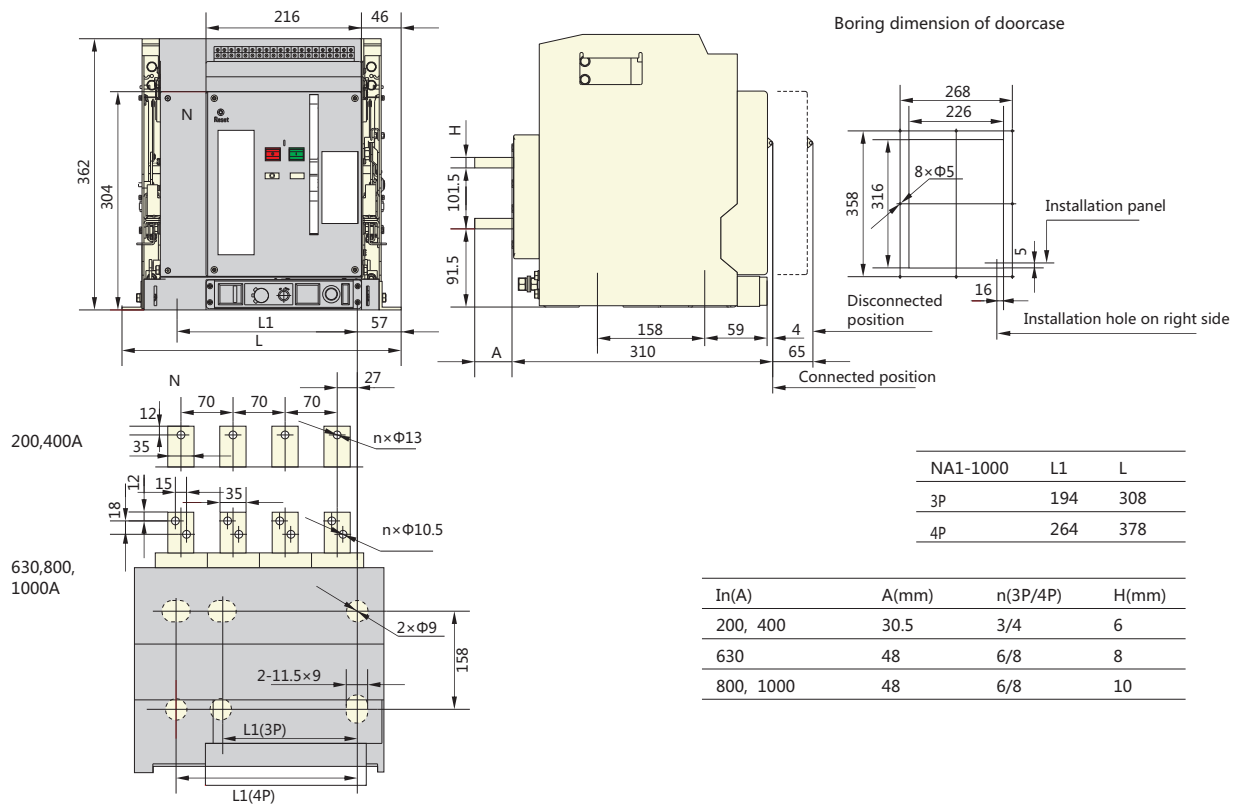
Type		NA1-1000X					
							
Rated ultimate short circuit breaking capacity (Icu)	AC400V	42					
	AC690V	25					
Rated service short circuit breaking capacity (Ics)	AC400V	30					
	AC690V	20					
Rated short-time withstand current (Icw.1s)	AC400V	30					
	AC690V	20					
Rated current In (A)		200	400	630	800	1000	
Number of poles		3, 4					
Rated voltage Ue (V)		AC 400, AC 690					
Rated insulation voltage Ui (V)		800					
Rated current of N-pole In (A)		100%In					
Fixed disconnection time (ms)		23~32					
Intelligent controller	Standard type (M)	●	●	●	●	●	
	Communication type (H)	●	●	●	●	●	
Operation performance	Electric life	AC 400V:6500, AC 690V:3000					
	Mechanical life	Non-maintenance 15,000					
		Maintenance 30,000					
Connection pattern		Horizontal, Vertical					
Motor operational standard configuration weight (kg)	Drawout 3P/4P	38/55					
	Fixed 3P/4P	22/26.5					

Type		NA1-2000X		NA1-2000XN		NA1-2000XH	
							
Rated ultimate short circuit breaking capacity (Icu)	AC400V	80		50		65	
	AC415V	50		40		50	
	AC690V	50		40		50	
Rated service short circuit breaking capacity (Ics)	AC400V	65		50		65	
	AC415V	40		40		40	
	AC690V	40		40		40	
Rated short-time withstand (Icw.1s)	AC400V	50		50		50	
	AC415V	40		40		40	
	AC690V	40		40		40	
Rated short-time withstand (Icw.3s)	AC400V	42		42		42	
	AC415V	42		42		42	
Rated current In (A)		630	800	1000	1250	1600	2000
Number of poles		3, 4					
Rated voltage Ue (V)		AC 400, AC 690					
Rated insulation voltage Ui (V)		1000					
Rated current of N-pole In (A)		100%In					
Fixed disconnection time (ms)		23~32					
Intelligent controller	Standard type (M)	●	●	●	●	●	●
	Communication type (H)	●	●	●	●	●	●
Operation performance	Electric life	AC400:6500 AC690V:3000					
	Mechanical life	Non-maintenance 15,000					
		Maintenance 30,000					
Connection pattern		Horizontal, Vertical					
Motor operational standard configuration weight (kg)	Drawout 3P/4P	67.5 / 80	70 / 84				79 / 90.5
	Fixed 3P/4P	42 / 52	44 / 52				45 / 54

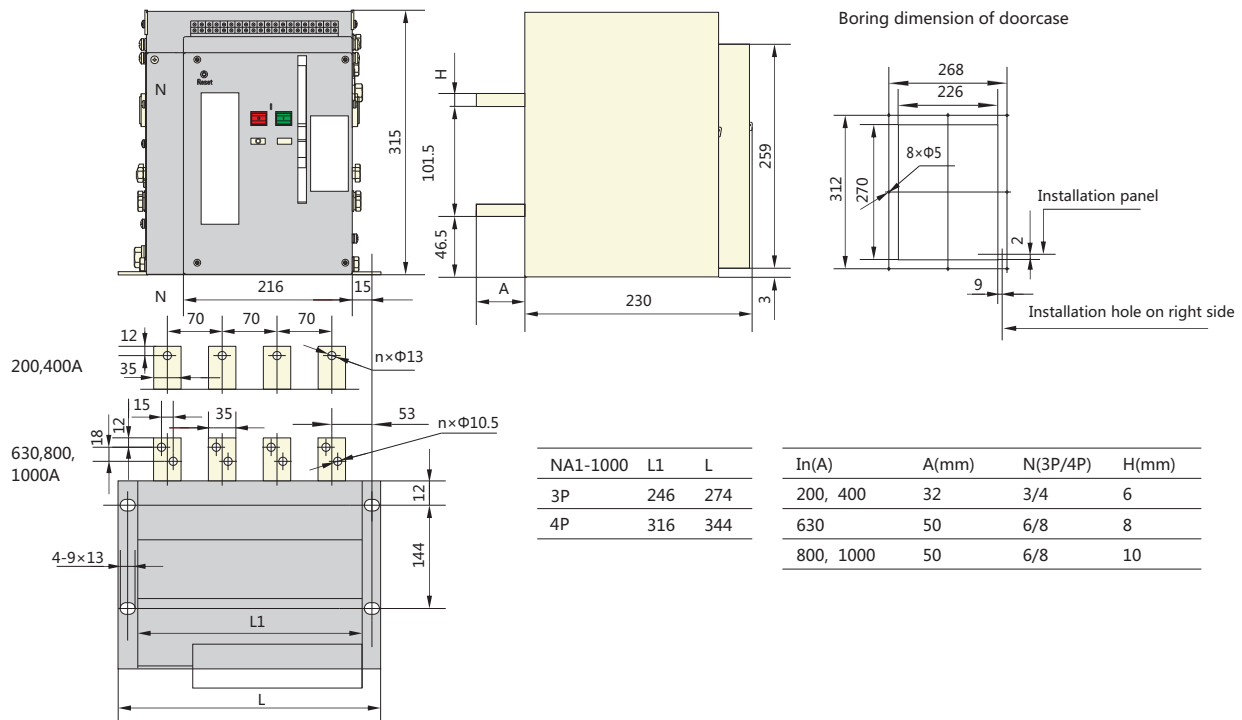
Type		NA1-3200X		NA1-3200XN	
					
Rated ultimate short circuit breaking capacity (Icu)	AC400V	80		65	
	AC415V	65		50	
	AC690V	65		50	
Rated service short circuit breaking capacity (Ics)	AC400V	65		65	
	AC415V	65		50	
	AC690V	65		50	
Rated short-time withstand (Icw.1s)	AC400V	65		65	
	AC415V	50		50	
	AC690V	50		50	
Rated short-time withstand (Icw.3s)	AC400V	45		45	
	AC415V	45		45	
Rated current I _n (A)		2000	2500	3200	
Number of poles		3, 4			
Rated voltage U _e (V)		AC 400, AC 690			
Rated insulation voltage U _i (V)		1000			
Rated current of N-pole I _n (A)		100%In			
Fixed disconnection time (ms)		23~32			
Intelligent controller	Standard type (M)	●	●	●	●
	Communication type (H)	●	●	●	●
Operation performance	Electric life	AC400V:3000 AC690V:2000			AC400V:1500 AC690V:1000
	Mechanical life	Non-maintenance 10,000			
		Maintenance 20,000			
Connection pattern		Horizontal, Vertical			
Motor operational standard configuration	Drawout 3P/4P	90.5 / 116	90.5 / 116	103 / 130	132
weight (kg)	Fixed 3P/4P	55 / 68	55 / 68	56.5 / 71	72 / -

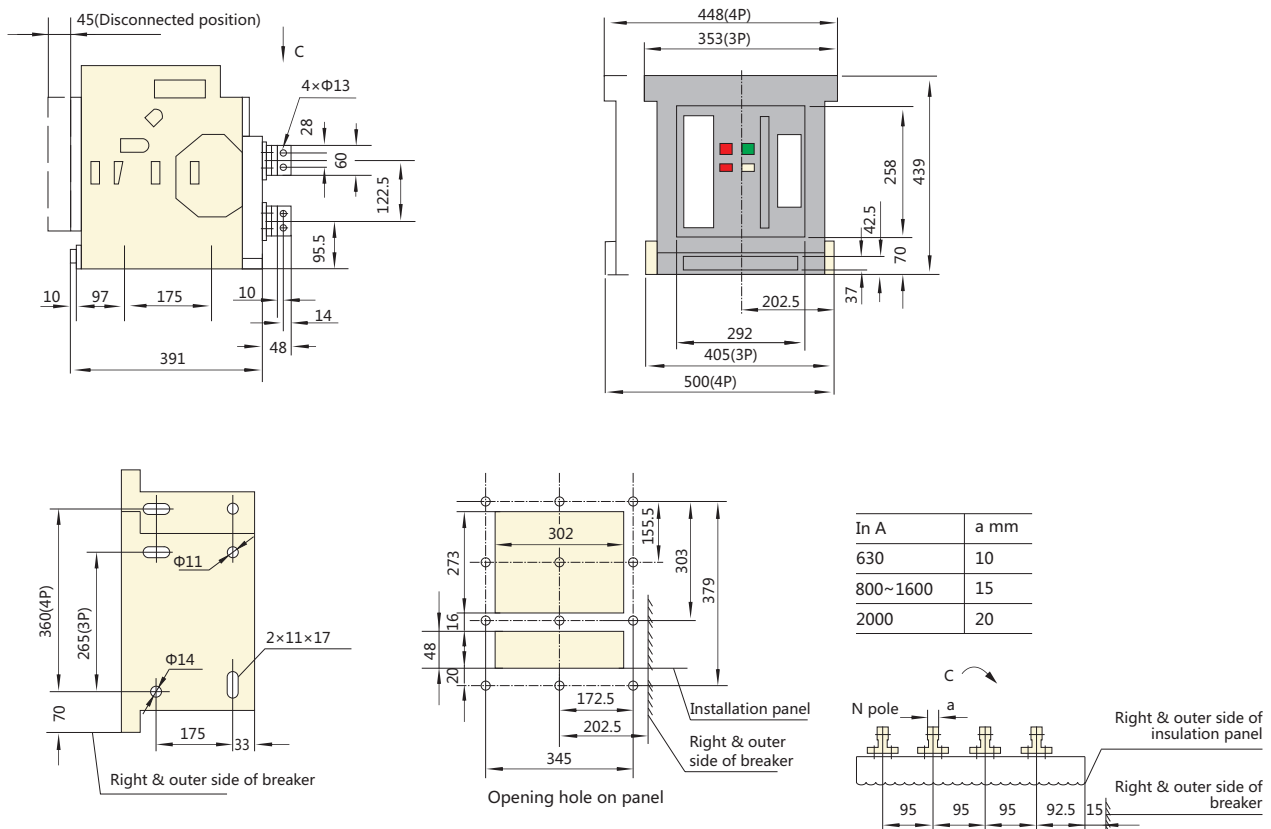
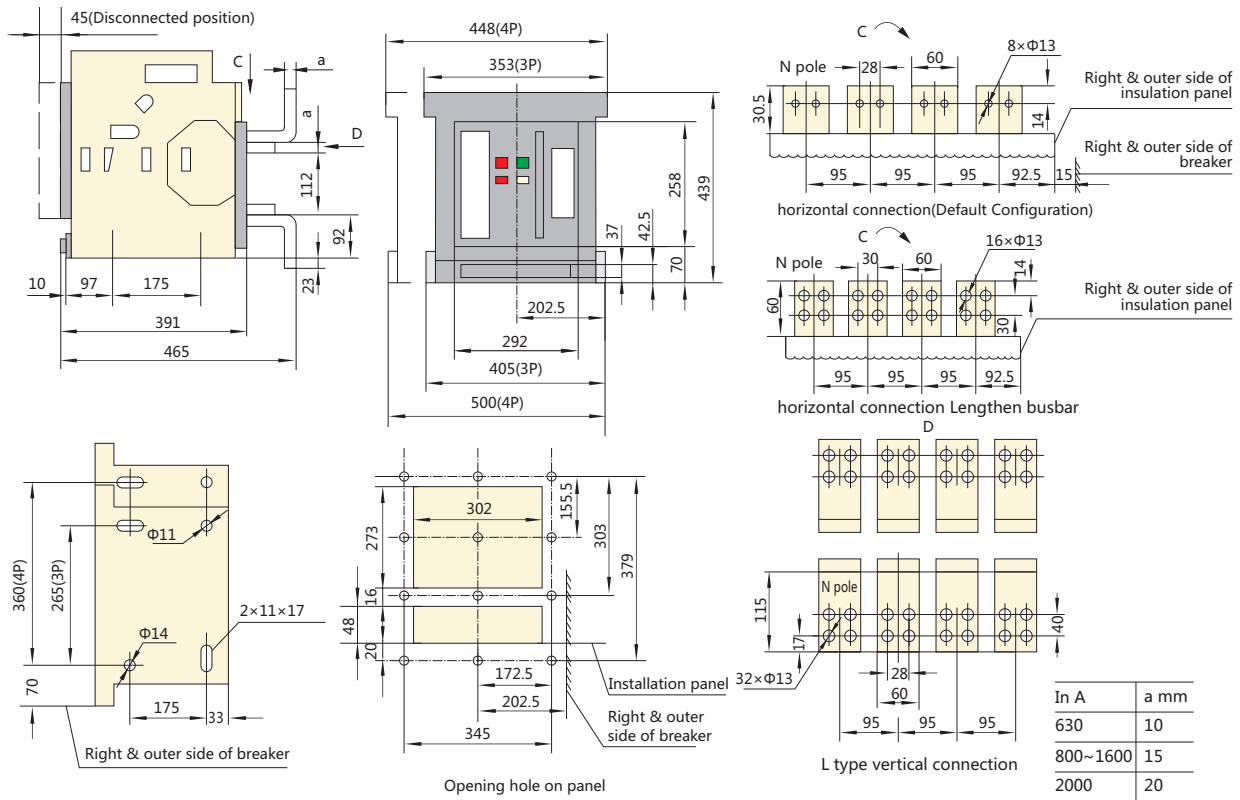
5. Dimensions and connection

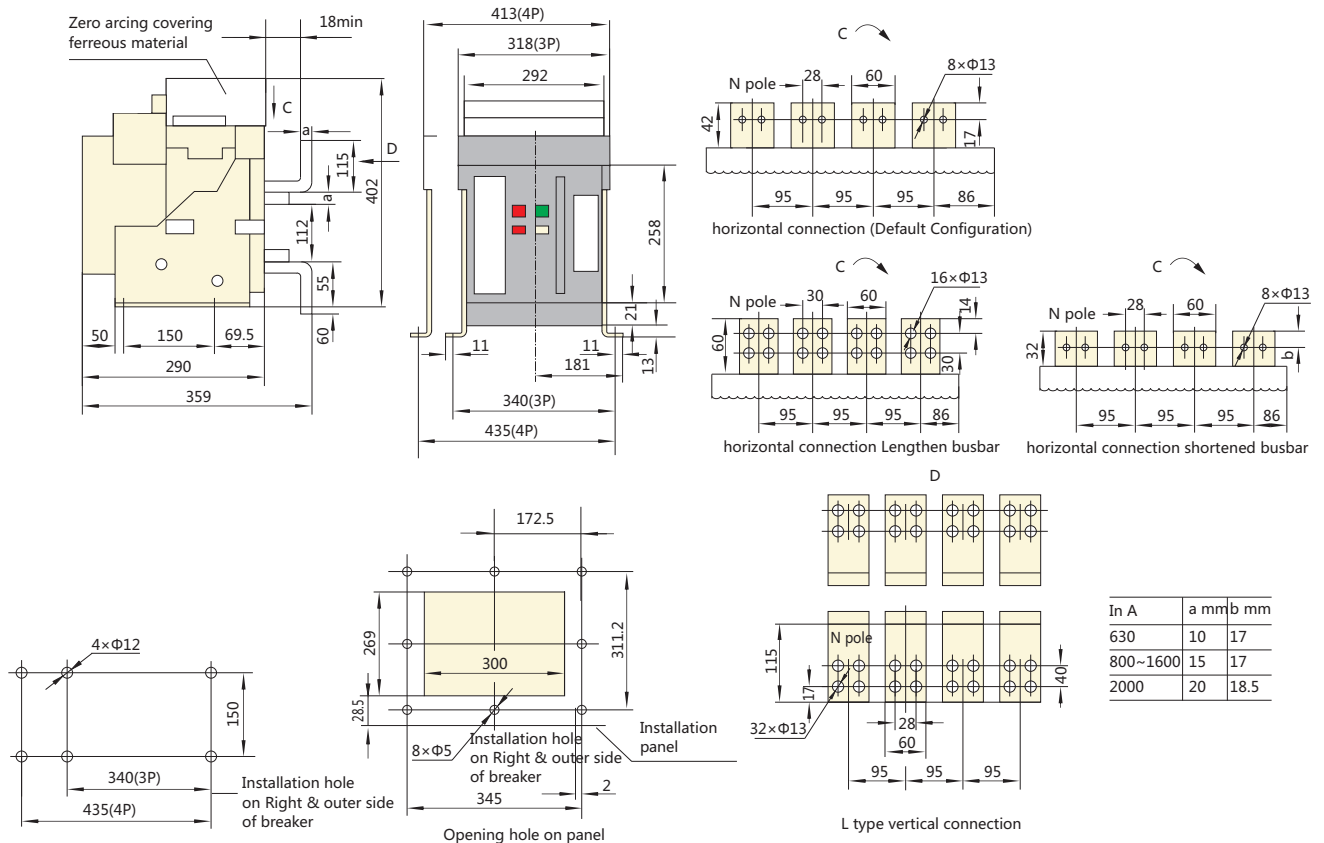
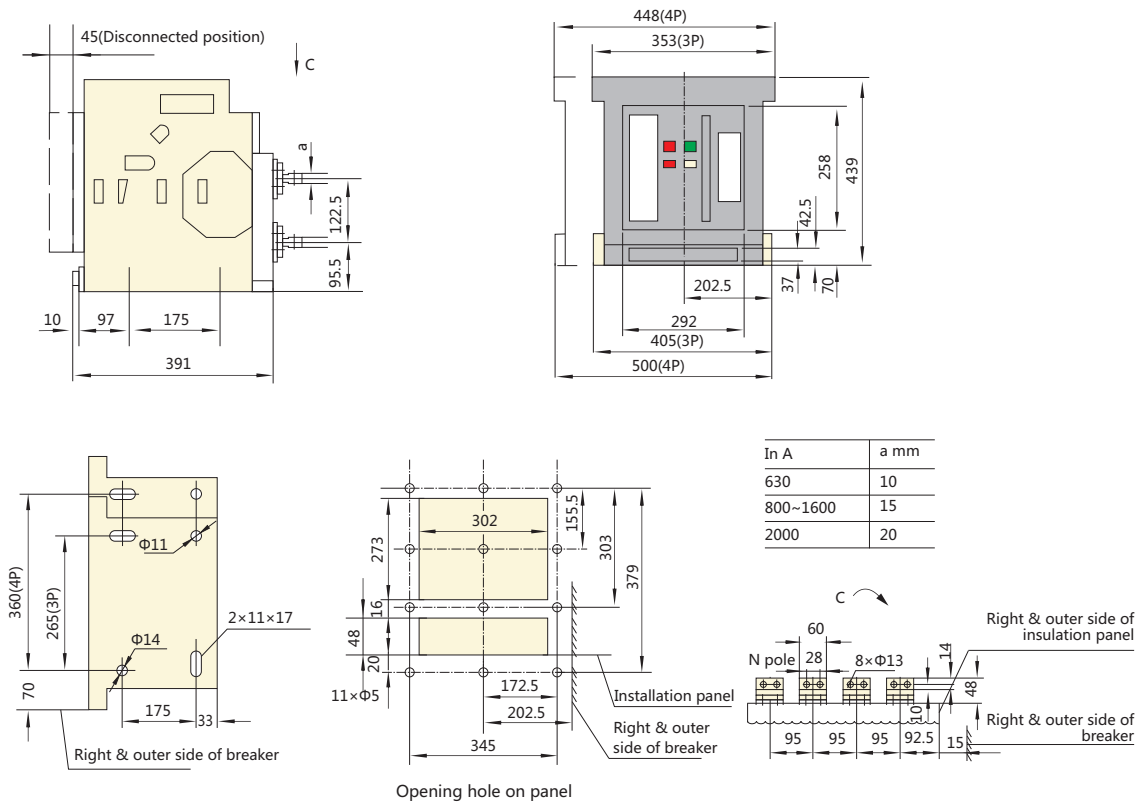
NA1-1000X Drawout-type



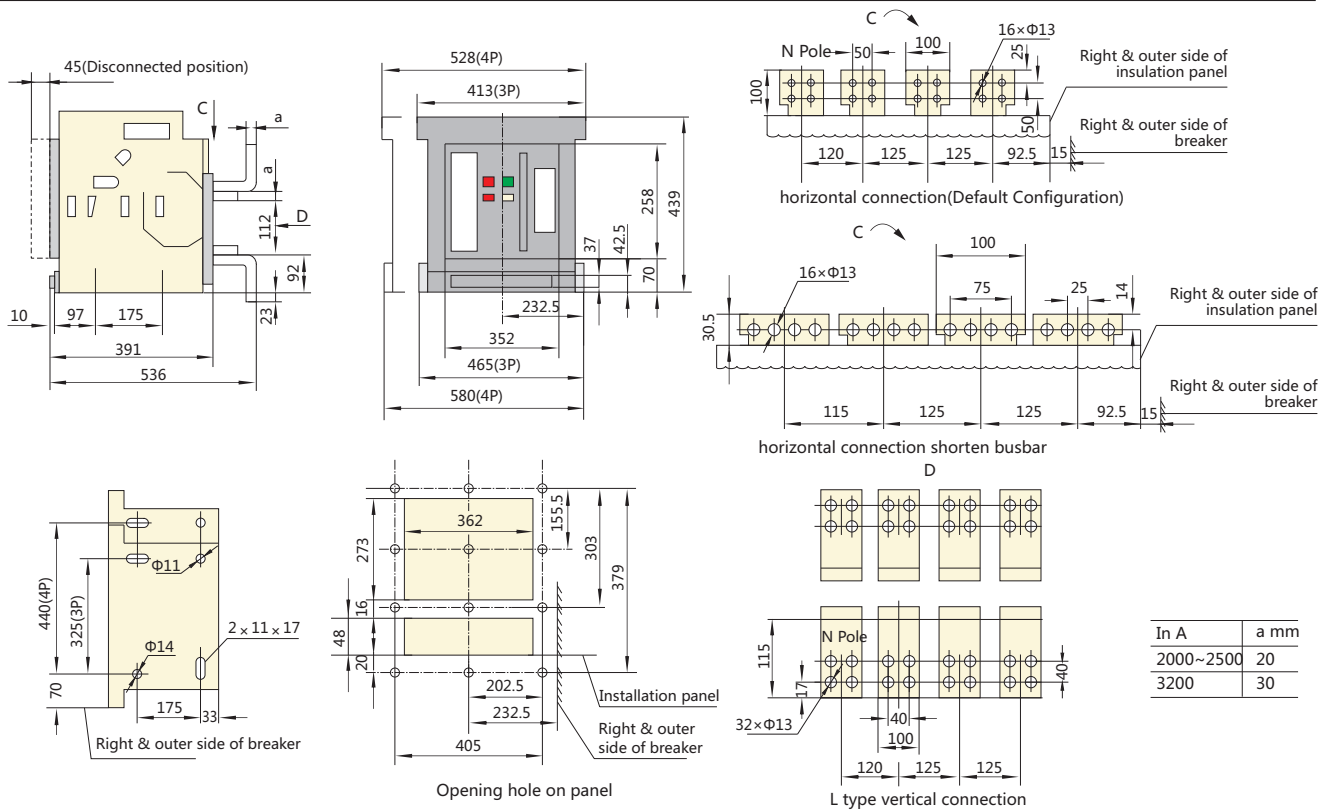
NA1-1000X Fixed-type



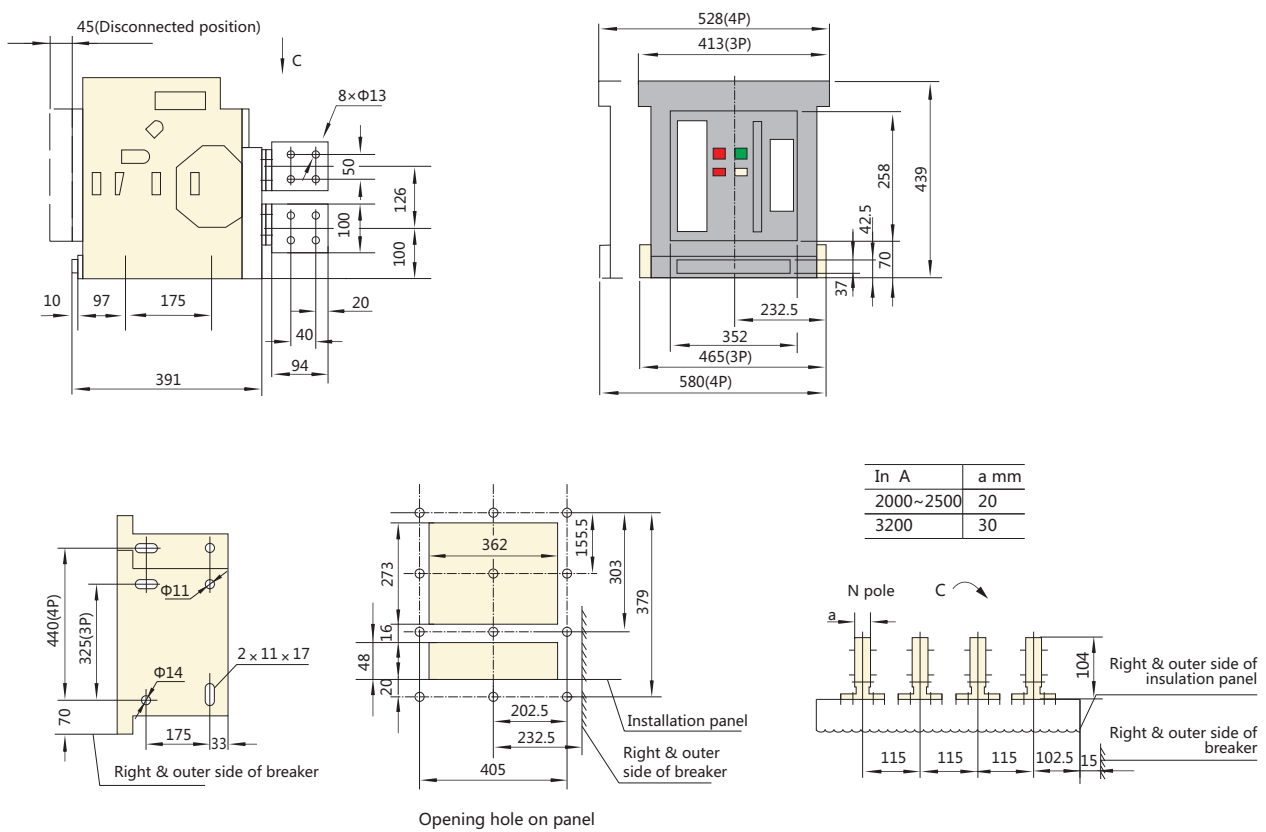




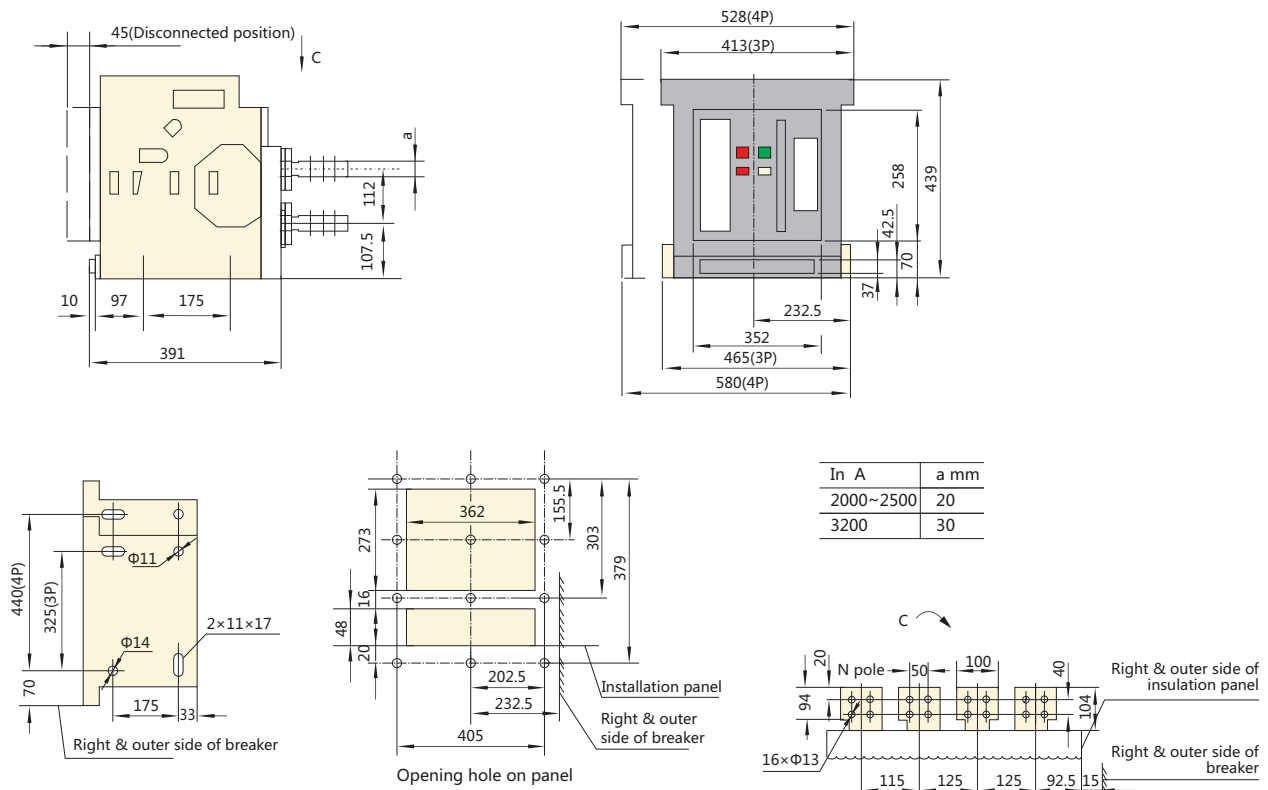
NA1-3200X/NA1-3200XN Drawout-type



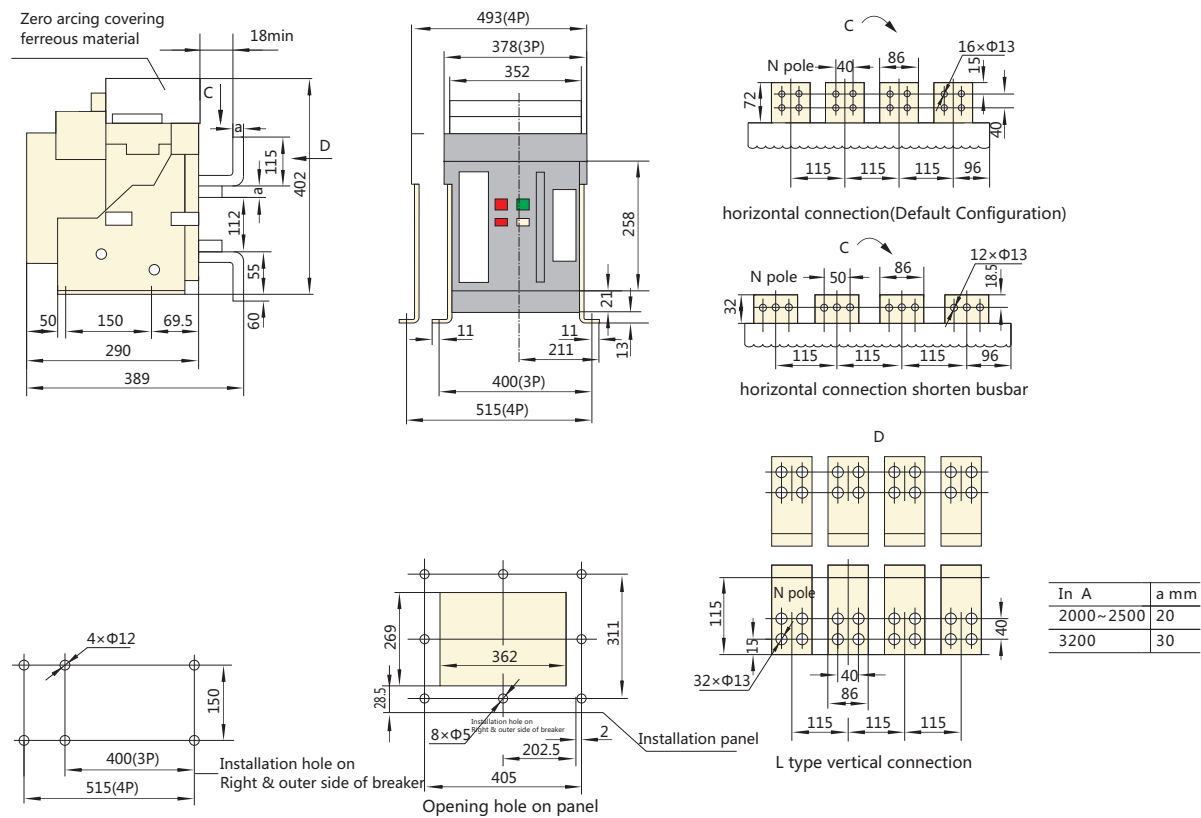
NA1-3200X/NA1-3200XN Drawout-type, horizontal, rear connection



NA1-3200X/NA1-3200XN Drawout-type, horizontal, rear connection



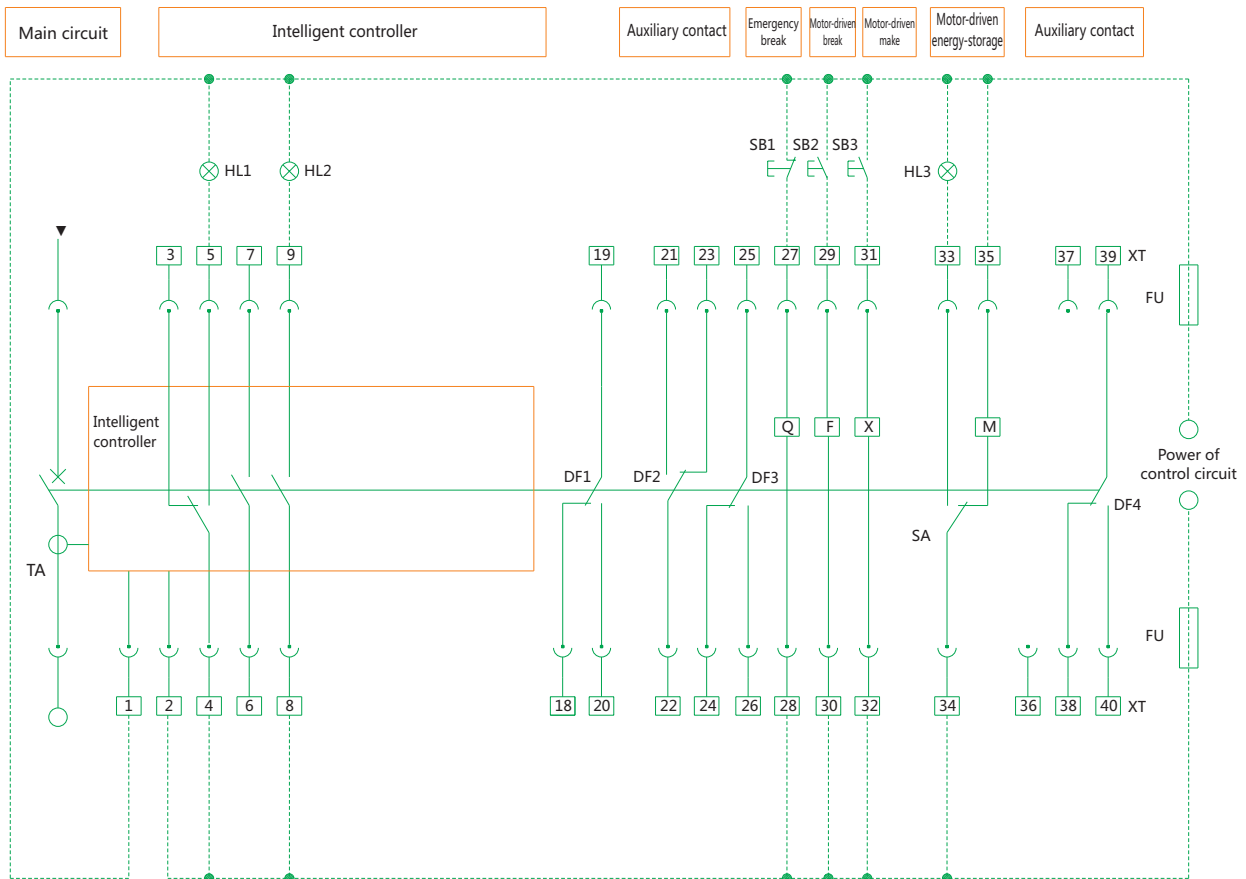
NA1-3200X/NA1-3200XN Fixed-type



6. Secondary circuit wiring

6.1 NA1-1000X

Standard type, type (M)

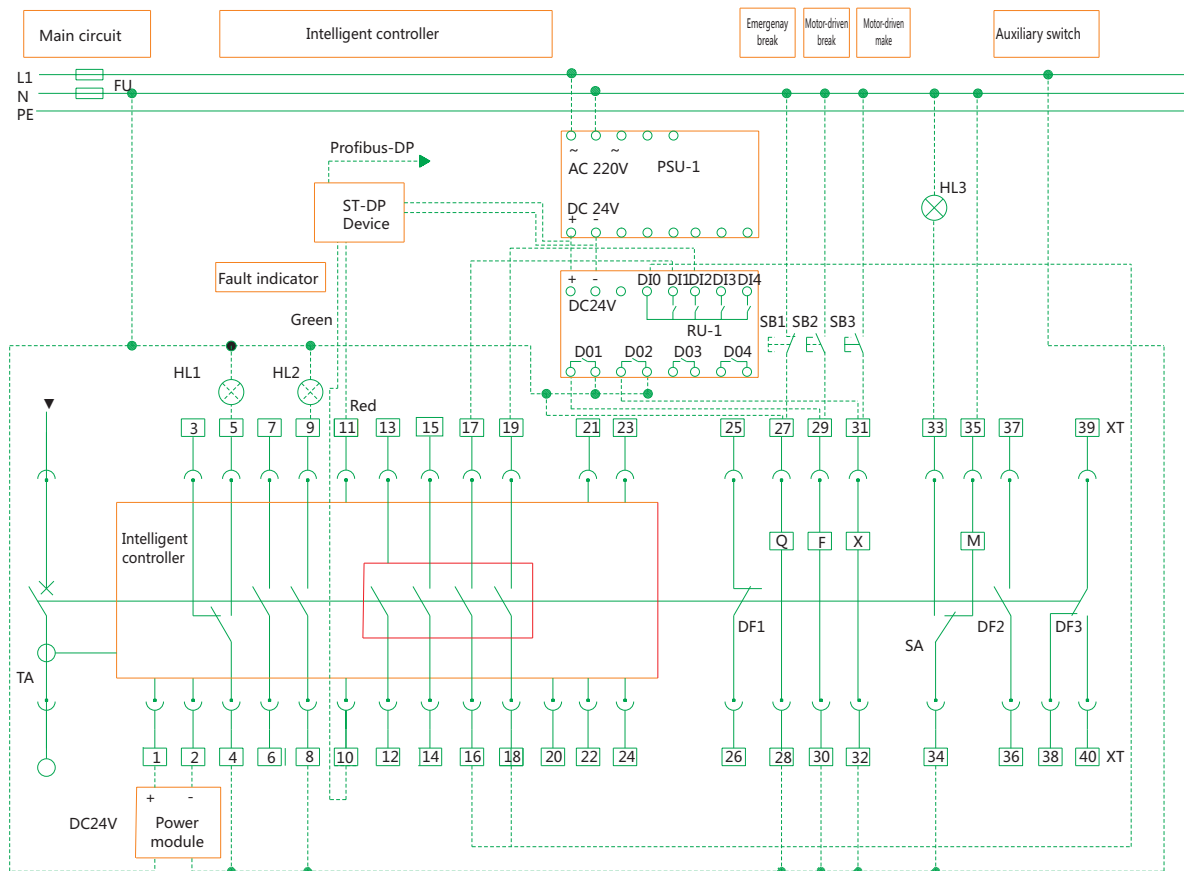


HL1: Failure indicator
HL2: Close indicator
HL3: Energy storage indicator
SB1: Under-voltage button
SB2: Shunt button
SB3: Close button
Q: Under-voltage release
F: Shunt release
X: Close electromagnet
M: Energy storage motor
DF1-DF4: Auxiliary switch
1[#], 2[#]: Auxiliary power input
3[#], 4[#], 5[#]: Fault trip contact output(4[#] common terminal, contact capacity AC230V,5A)
6[#], 7[#]: To be connected with current transformer(selective)

8[#], 9[#]: Making indicator (capacity AC400V,1A)
27[#], 28[#]: Under-voltage release
29[#], 30[#]: Shunt release
31[#], 32[#]: Closing electromagnet
33[#], 34[#], 35[#]: Energy storage motor
18[#]~26[#], 38[#]~40[#]: Auxiliary contact (auxiliary contact capacity: AC230V,5A)

Note:

Dashed is to be connected by users.



HL1: Failure indicator

HL2: Close indicator

HL3: Energy storage indicator

SB1: Under-voltage button

SB2: Shunt button

SB3: Close button

Q: Under-voltage release

F: Shunt release

X: Close electromagnet

M: Energy storage motor

DF1-DF3: Auxiliary switch

1[#], 2[#]: Auxiliary power input(DC24)

3[#], 4[#], 5[#]: Fault trip contact output(4[#] common terminal, contact capacity AC230V,5A

6[#], 7[#]: To be connected with current transformer(N/O auxiliary contact, capacity AC400V, 1A,when no current transformer)

8[#], 9[#]: Making indicator(capacity AC400V,1A)

10[#], 11[#]: communication output

12[#], 13[#]: Signal alarm of load 1 output

14[#], 15[#]: Signal alarm of load 2 output

16[#], 17[#]: Making signal output

18[#], 19[#]: Closing signal output

20[#]: Communication shield ground line

21[#]~24[#]: Voltage signal input of phase N,A,B,C

25[#], 26[#]: Auxiliary contact (capacity:AC230V,5A)

27[#], 28[#]: Under-voltage release

29[#], 30[#]: Shunt release

31[#], 32[#]: Closing electromagnet

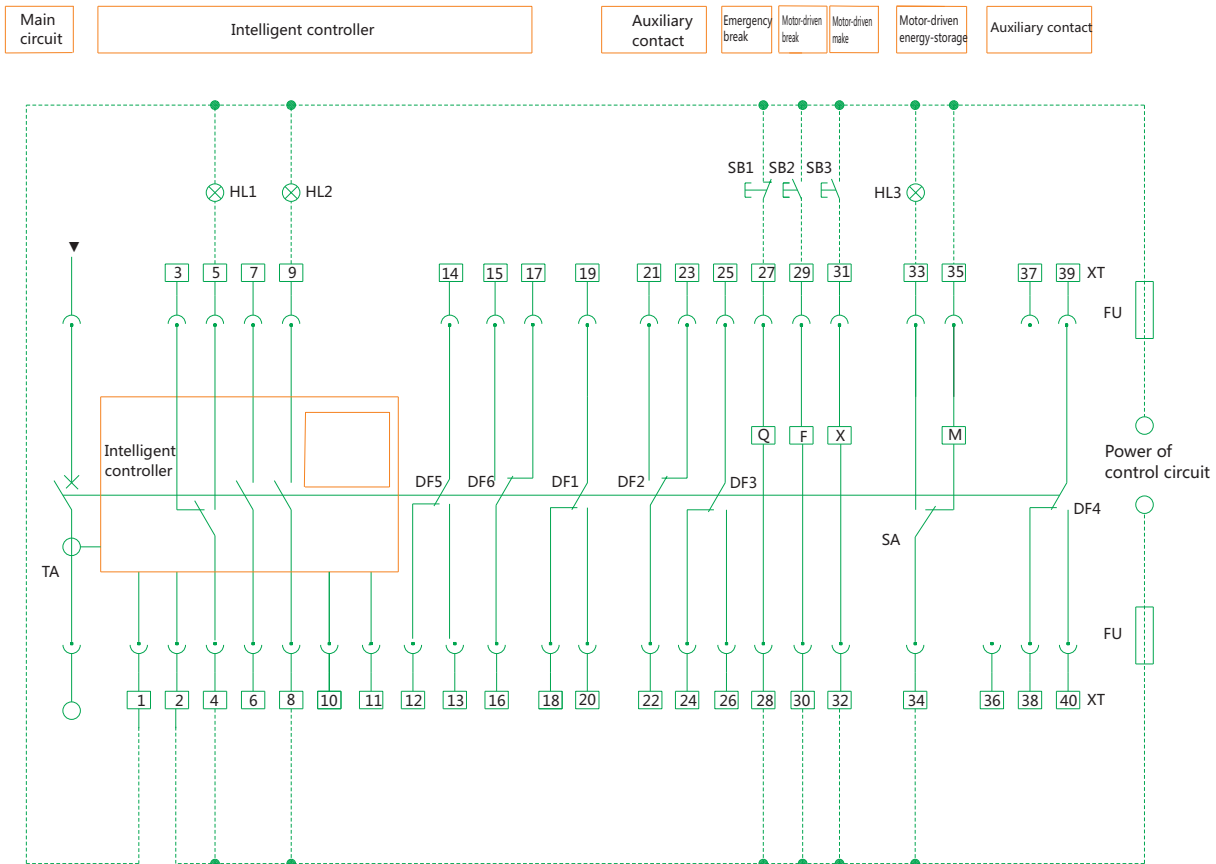
33[#], 34[#], 35[#]: Energy storage motor

36[#]~40[#]: Auxiliary contact (capacity:AC230V,5A)

Note:

Dashed is to be connected by users.

Six switch contact standard type (M)



HL1: Failure indicator
HL2: Close indicator
HL3: Energy storage indicator
SB1: Under-voltage button
SB2: Shunt button
SB3: Close button
Q: Under-voltage release
F: Shunt release
X: Close release
M: Energy storage motor
DF1-DF6: Auxiliary switch
1[#], 2[#]: Auxiliary power input
3[#], 4[#], 5[#]: Fault trip contact output(4[#] common terminal, contact capacity AC230V, 5A)
6[#], 7[#]: to be connected with current transformer(selective)

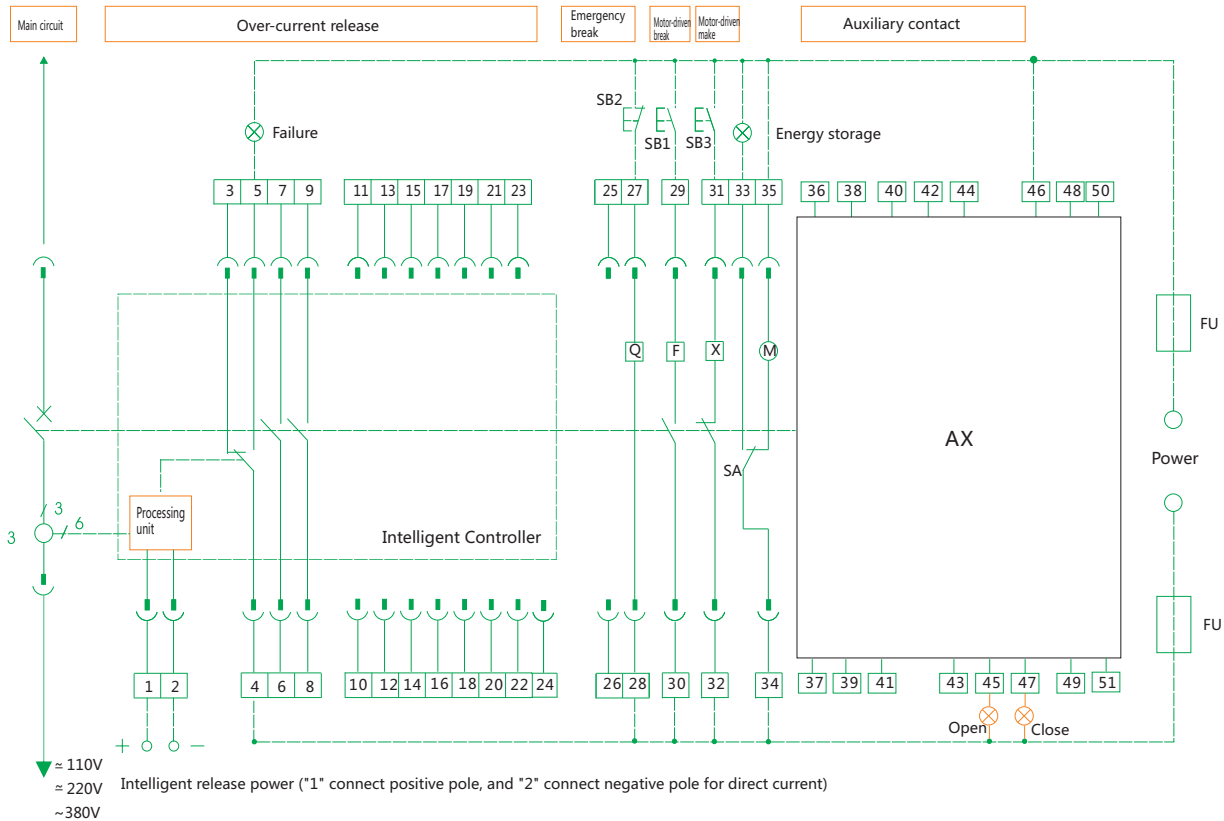
8[#], 9[#]: Making indicator (capacity AC400V, 1A)
12[#]~26[#]: Auxiliary contact(auxiliary contact capacity: AC230V, 5A)
27[#], 28[#]: Under-voltage release
29[#], 30[#]: Shunt release
31[#], 32[#]: Closing release
33[#], 34[#]: Energy storage indicator
34[#], 35[#]: Energy storage motor
38[#]~40[#]: Auxiliary contact(auxiliary contact capacity: AC230V, 5A)

Note:

Six switch contact, without any additional function.
Dashed is to be connected by users.

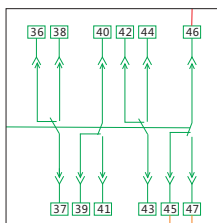
6.2 NA1-2000X~3200X

The secondary circuit wiring for NA1-2000X~6300X with standard type (M) intelligent controller and instantaneous under-voltage release

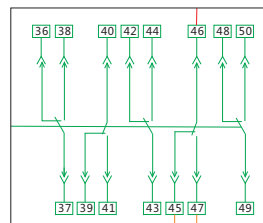


The auxiliary contact modes for customer use

I Four switch contact (acquiescence)



II Five switch contact

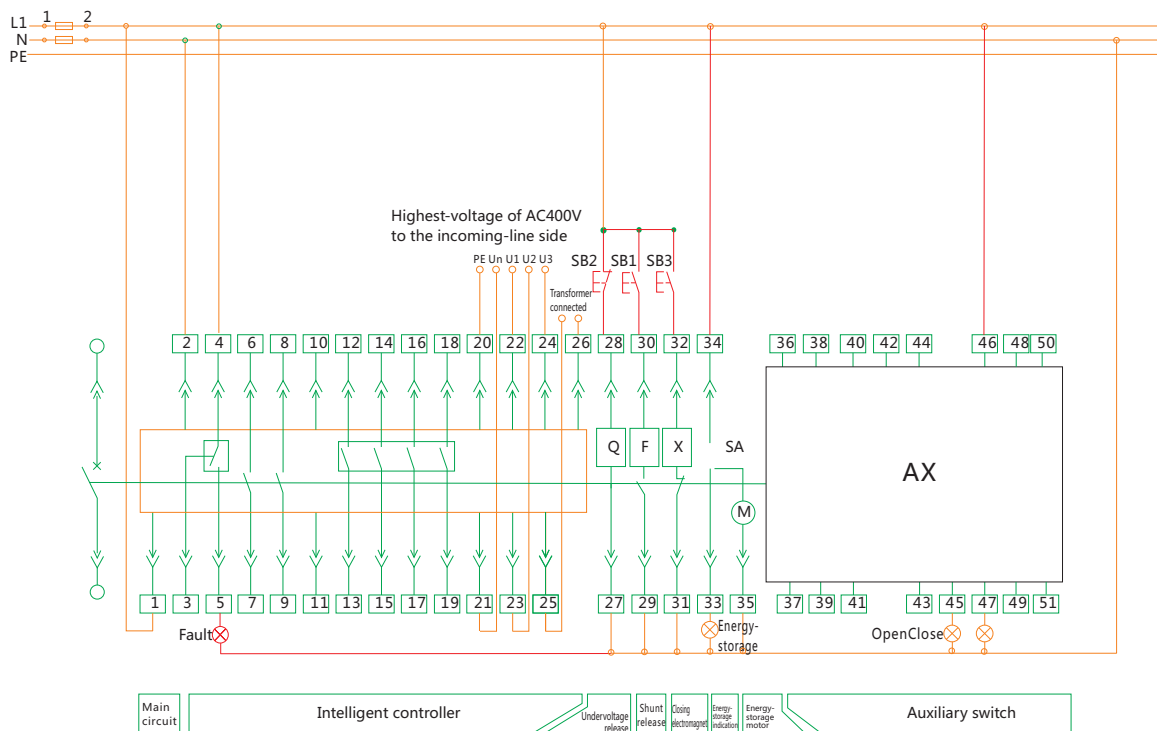


- SB1: Shunt button
SB2: Under-voltage button
SB3: Making button
Q: Under-voltage release
F: Shunt release
X: Closing electromagnet
M: Energy storage motor
XT: Connection terminal
SA: Position switch
Note: If control voltage of Q, F, X is different from each other, they can be connected to different power.
1[#], 2[#]: Auxiliary power input
3[#], 4[#], 5[#]: Fault trip contact output(4[#] common terminal)
6[#], 7[#], 8[#], 9[#]: Auxiliary contact, normal open,
10[#]~24[#]: empty
25[#], 26[#]: to be connected with current transformer(selective)
27[#], 28[#]: Under-voltage release
29[#], 30[#]: Shunt release
31[#], 32[#]: Closing release
33[#], 34[#]: Energy storage indicator
34[#], 35[#]: Energy storage motor
36[#], 51[#]: Auxiliary contact

Circuit explanation for signal output:

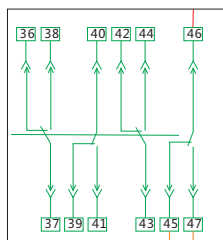
- Broken-line parts shall be provided by customers.
- Terminals 6[#], 7[#] can output NC (normal close) contact if that is required by users.
- Terminal 35[#] can be directly connected to power (automatic pre-storing energy), alternatively connect power after connecting NO button (manual-controlled pre-storing energy).
- Terminals 21[#]~24[#] is only for wiring with function meter display. (excluding the special wiring)

The secondary circuit wiring for NA1-2000X~3200X with type (3M) intelligent controller and instantaneous under-voltage release

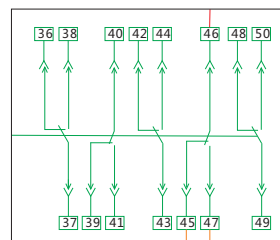


The auxiliary contact modes for customer use

I Four switch contact (acquiescence)



II Five switch contact



SB1: Shunt button
SB2: Under-voltage button
SB3: Making button
Q: Under-voltage release
F: Shunt release
X: Closing release
M: Energy storage motor
XT: connection terminal
SA: Position switch

1[#], 2[#]: Intelligent controller power input
Note: When the power supply of the intelligent controller is AC power, the 1[#]~2[#] connects to the AC power directly. When the power supply is DC power, forbid connecting the 1[#]~2[#] to the DC power directly. Add a DC power supply module, then the DC power connect to the input terminal of the DC power supply module, and the 1[#]~2[#] connect to the output terminal of the DC power supply module, or else the intelligent controller will be damaged.

3[#],4[#],5[#]: Fault trip contact output(4[#]common terminal)

6[#],7[#],8[#],9[#]: Auxiliary contact(normal open)

10[#]~11[#]: empty

12[#]~19[#]: The programmable output terminal. The normal products without these terminals, but if the customer special ordered, the cost extra added.

3M type acquiescence output:

12[#],13[#]: Signal alarm of load 1 output; 14[#],15[#]: Signal alarm of load2 output

16[#],17[#]: Self-diagnose alarm; 18[#],19[#]: Fault trip; 20[#]: PE line; 21[#]~24[#]: Display the voltage of the signal input.

The normal products without these terminals,

if the customer special ordered the function meter, the cost extra added.

21[#]: N phase input terminal

22[#],23[#],24[#]: A, B, C three phase power input terminal (note the sequence)(highest-voltage of AC 400V)

25[#],26[#]: Connect to the N phase current transformer or the input terminal of the current leakage transformer.

The normal products without these terminals, if the customer special ordered, the cost extra added.

27[#],28[#]: Under-voltage release; 29[#],30[#]: Shunt release; 31[#],32[#]: Closing release; 33[#],34[#]: Energy storage indicator

34[#],35[#]: Energy storage motor; 36[#]~51[#]: Auxiliary contact

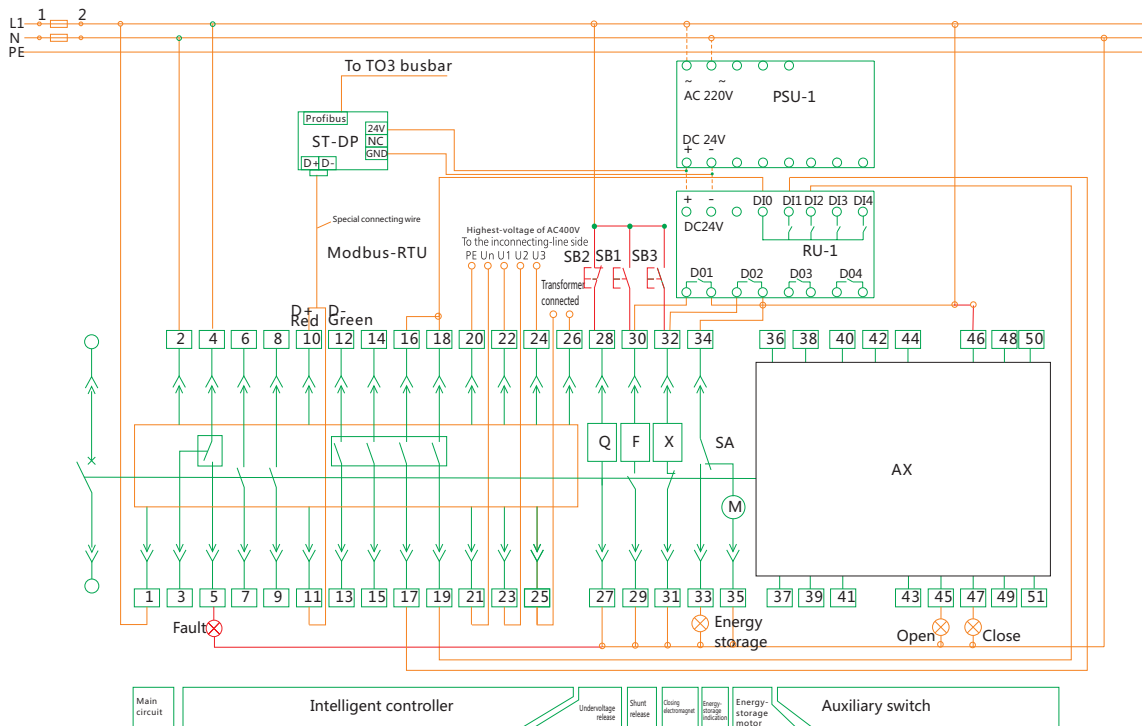
Note:

a. Red colored part is to be connected by users

b. When the power system is three phase three wire, directly connect the Un to U2.

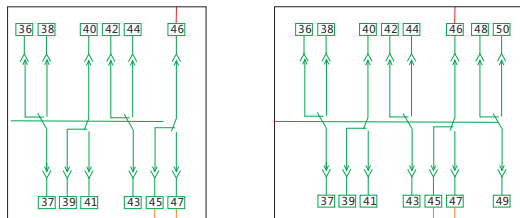
(If the voltage exceeds 400V, special explanation when ordered)

The secondary circuit wiring for NA1-2000X~6300X with type (3H) intelligent controller and instantaneous under-voltage release



The auxiliary contact modes for customer use

I Four switch contact (acquiescence) II Five switch contact



3[#],4[#],5[#]: Fault trip contact output(4[#] common terminal)
6[#],7[#],8[#],9[#]: Auxiliary contact (normal open)
10[#]~11[#]: communication output
12[#],13[#]: Signal alarm of load 1 output; 14[#],15[#]: Signal alarm of load2 output
16[#],17[#]:Breaking signal output; 18[#],19[#]:Making signal output
20[#]: PE line; 21[#]: N phase input terminal
22[#],23[#],24[#]: A, B, C three phase power input terminal (note the sequence)(highest-voltage of AC 400V)

25[#]26[#]: Connect to the N phase current transformer or the input terminal of the current leakage transformer.
The normal products without these terminals, if the customer special ordered, the cost extra added.

ST~DP: DP protocol module. There is no need for the ST-DP protocol module, if the communication protocol is Modbus-RTV. But when the communication protocol is Profibus-DP, the ST-DP protocol module is necessary, but the cost extra added.

ST power module IV: power converter (optional components)

ST201: Magnify the signal capacity of the controller. (optional components) If the customer special ordered, the cost extra added.

27[#],28[#]: Under-voltage release; 29[#],30[#]: Shunt release

31[#],32[#]: Closing release; 33[#],34[#]: Energy storage indicator

34[#],35[#]: Energy storage motor; 36[#]~51[#]: Auxiliary contact

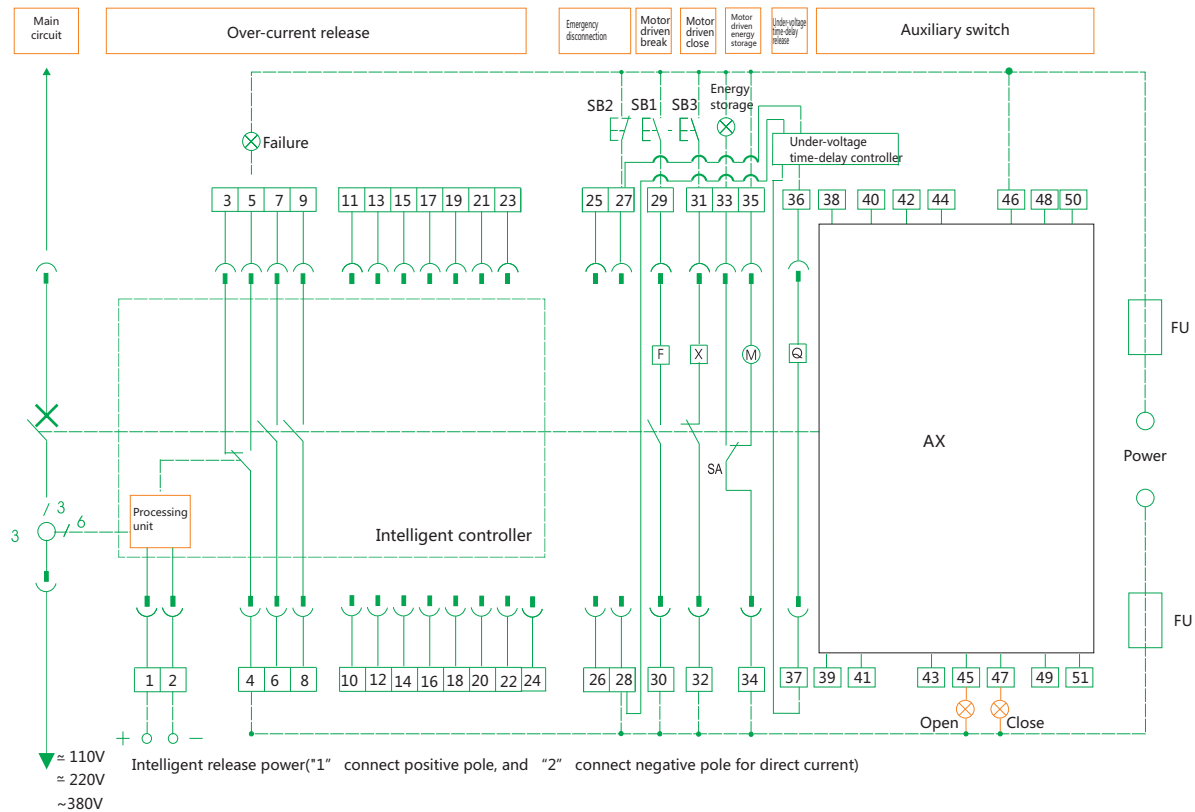
Note:

- Red colored part is to be connected by users
- When the power system is three phase three wire, directly connect the Un to U2.
(If the voltage exceeds 400V, special explanation when ordered)

SB1: Shunt button; SB2: Under-voltage button
SB3: Making button; Q: Under-voltage release
F: Shunt release; X: Closing release
M: Energy storage motor; XT: connection terminal
SA: Position switch

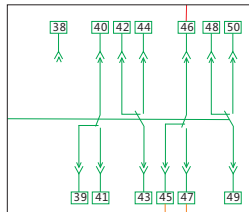
1[#], 2[#]: Intelligent controller power input
Note: When the power supply of the intelligent controller is AC power, the 1[#]~2[#] connects to the AC power directly. When the power supply is DC power, forbid connecting the 1[#]~2[#] to the DC power directly. Add a DC power supply module, then the DC power connect to the input terminal of the DC power supply module, and the 1[#]~2[#] connect to the output terminal of the DC power supply module, or else the intelligent controller will be damaged.

The secondary circuit wiring for NA1-2000X~6300X with standard type (M) intelligent controller and time-delay under-voltage release



The auxiliary contact modes for customer use

I Four switch contact (acquiescence)



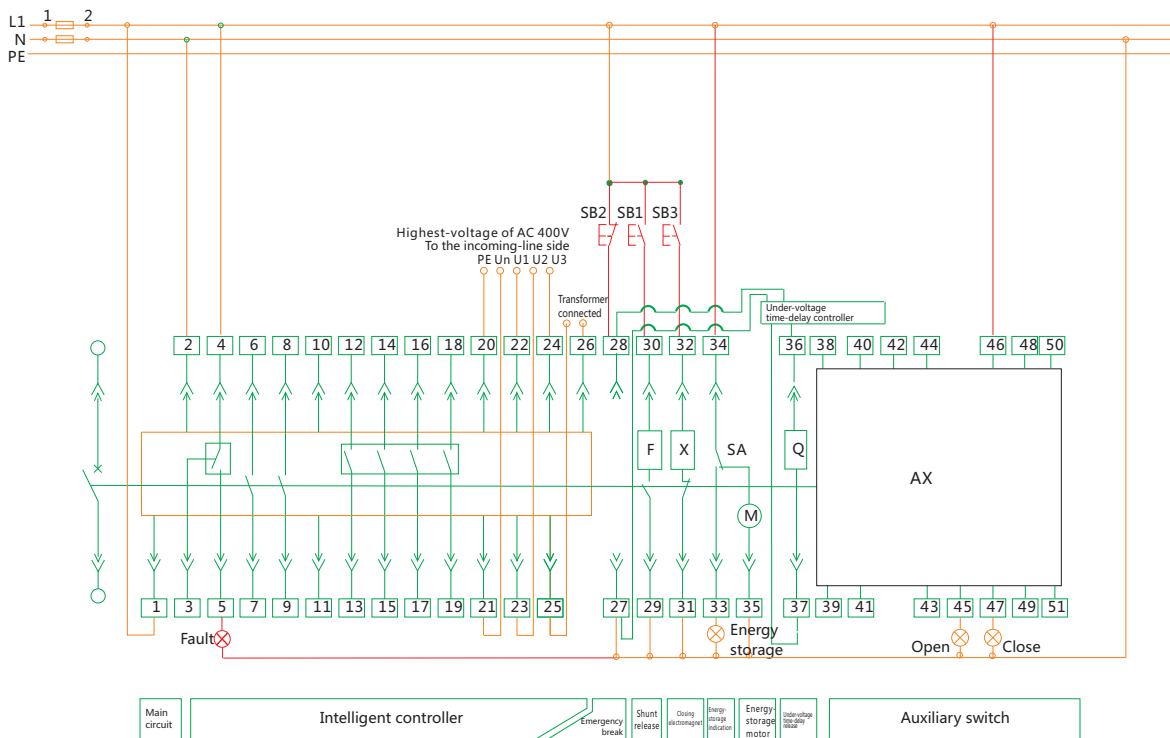
SB1: Shunt button SB2: Under-voltage button SB3: Making button
Q: Under-voltage time-delay release F: Shunt release
X: Closing electromagnet M: Energy storage motor
XT: Connection terminal SA: Position switch
Note: If control voltage of Q, F, X is different from each other, they can be connected to different power.

- 1[#],2[#]: Auxiliary power input
- 3[#],4[#],5[#]: Fault trip contact output(4[#] common terminal)
- 6[#],7[#],8[#],9[#]: Auxiliary contact (normal open)
- 10[#]~24[#]: empty
- 25[#],26[#]: to be connected with current transformer(selective)
- 27[#],28[#]: Under-voltage release
- 29[#],30[#]: Shunt release
- 31[#],32[#]: Closing release
- 33[#],34[#]: Energy storage indicator
- 34[#],35[#]: Energy storage motor
- 36[#],37[#]: Under-voltage time delay release
- 38[#]~51[#]: Auxiliary contact

Circuit explanation for signal output:

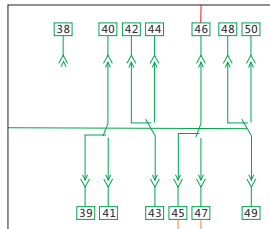
- a. Broken-line parts shall be provided by customers.
- b. Terminals 6[#],7[#] can output NC (normal close) contact if that is required by users.
- c. Terminal 35[#] can be directly connected to power (automatic pre-storing energy), alternatively connect power after connecting NO button (manual-controlled pre-storing energy).
- d. The 21[#]~24[#] is only for wiring with function meter display. (Excluding the special wiring)

The secondary circuit wiring for NA1-2000X~6300X with type (3M) intelligent controller and time-delay under-voltage release



The auxiliary contact modes for customer use

I Four switch contact (acquiescence)



SB1: Shunt button; SB2: Under-voltage button

SB3: Making button; Q: Under-voltage release

F: Shunt release; X: Closing release

M: Energy storage motor; XT: Connection terminal

SA: Position switch

1[#], 2[#]: Intelligent controller power input

Note: When the power supply of the intelligent controller is AC power, the 1[#]~2[#] connects to the AC power directly. When the power supply is DC power, forbid connecting the 1[#]~2[#] to the DC power directly. Add a DC power supply module, then the DC power connect to the input terminal of the DC power supply module, and the 1[#]~2[#] connect to the output terminal of the DC power supply module, or else the intelligent controller will be damaged.

3[#],4[#],5[#]: Fault trip contact output(4[#] common terminal); 6[#],7[#],8[#],9[#]: Auxiliary contact (normal open)

10[#]~11[#]: empty; 12[#]~19[#] are the programmable output terminal. The normal products without these terminals, but if the customer special ordered, the cost extra added.

3M type acquiescence output:

12[#],13[#]: Signal alarm of load 1 output; 14[#],15[#]: Signal alarm of load2 output

16[#],17[#]: Self-diagnose alarm; 18[#],19[#]: Fault trip

20[#]: PE line; 21[#]~24[#]: Display the voltage of the signal input. The normal products without these terminals, if the customer special ordered the function meter, the cost extra added.

21[#]: N phase input terminal; 22[#],23[#],24[#]: A, B, C three phase power input terminal (note the sequence)(Highest-voltage of AC400V)

25[#],26[#] Connect to the N phase current transformer or the input terminal of the current leakage transformer.

The normal products without these terminals, if the customer special ordered, the cost extra added.

27[#],28[#]: Under-voltage release; 29[#],30[#]: Shunt release

31[#],32[#]: Closing release; 33[#],34[#]: Energy storage indicator

34[#],35[#]: Energy storage motor; 36[#],37[#]: Under-voltage time delay release

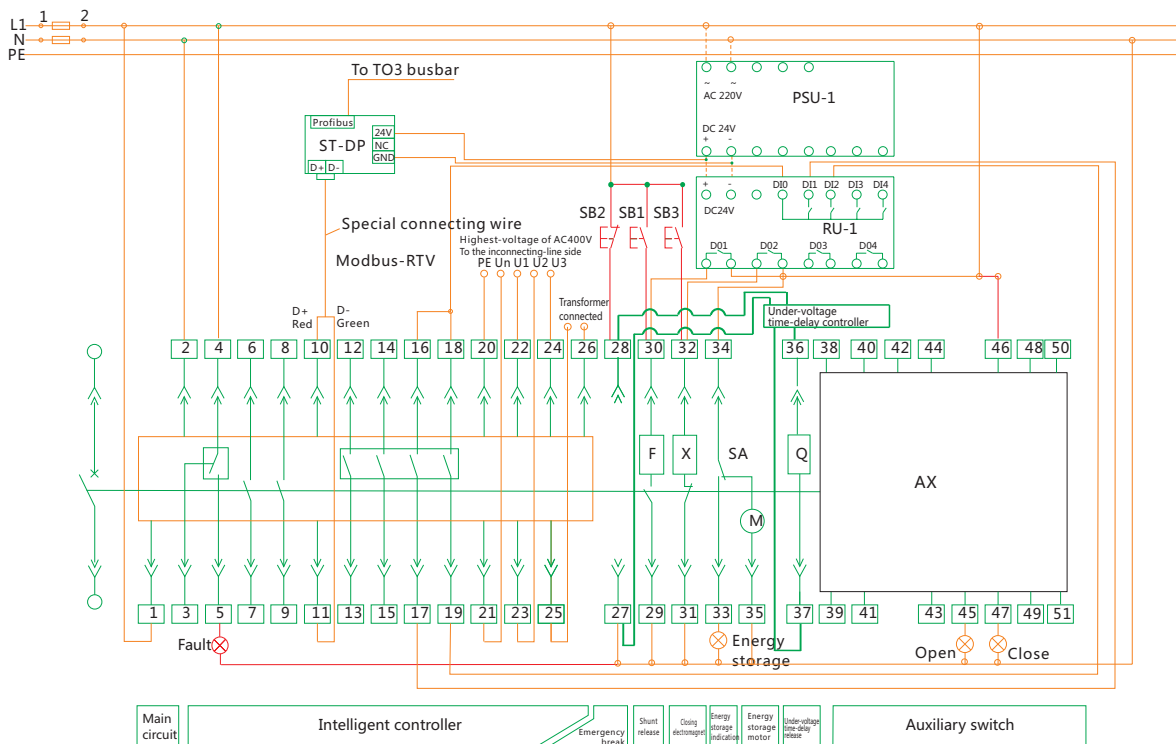
38[#]~51[#]: Auxiliary contact

Note:

a. Red colored part is to be connected by users

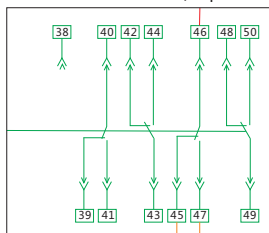
b. When the power system is three phase three wire, directly connect the Un to U2. (If the voltage exceeds 400V, special explanation when ordered)

The secondary circuit wiring for NA1-2000X~6300X with type (3H) intelligent controller and time-delay under-voltage release



The auxiliary contact modes for customer use

I Four switch contact (acquiescence)



3[#],4[#],5[#]: Fault trip contact output(4[#] common terminal)

6[#],7[#],8[#],9[#]: Auxiliary contact (normal open)

10[#]~11[#]: Communication output; 12[#],13[#]: Signal alarm of load 1 output

14[#],15[#]: Signal alarm of load 2 output; 16[#],17[#]: Breaking signal output; 18[#],19[#]: Closing signal output

20[#]: PE line; 21[#]: N phase input terminal

22[#],23[#],24[#]: A, B, C three phase power input terminal (note the sequence)(highest-voltage of AC400V)

25[#],26[#]: Connect to the N phase current transformer or the input terminal of the current leakage transformer.

The normal products without these terminals, if the customer special ordered, the cost extra added.

ST~DP: DP protocol module. There is no need for the ST-DP protocol module,

if the communication protocol is Modbus-RTV. But when the communication protocol is Profibus-DP,

the ST-DP protocol module is necessary, but the cost extra added.

ST power module IV: power converter (optional components)

ST201: Magnify the signal capacity of the controller. (optional components)

If the customer special ordered, the cost extra added.

27[#],28[#]: Under-voltage release; 29[#],30[#]: Shunt release

31[#],32[#]: Closing release; 33[#],34[#]: Energy storage indicator

34[#],35[#]: Energy storage motor; 36[#],37[#]: Under-voltage time delay release

38[#]~51[#]: Auxiliary contact

SB1: Shunt button; SB2: Under-voltage button

SB3: Making button; Q: Under-voltage release

F: Shunt release; X: Closing release

M: Energy storage motor; XT: Connection terminal

SA: Position switch

1[#], 2[#]: Intelligent controller power input

Note: When the power supply of the intelligent controller is AC power, the 1[#]~2[#] connects to the AC power directly. When the power supply is DC power, forbid connecting the 1[#]~2[#] to the DC power directly. Add a DC power supply module, then the DC power connect to the input terminal of the DC power supply module, and the 1[#]~2[#] connect to the output terminal of the DC power supply module, or else the intelligent controller will be damaged.

Note:

a. Red colored part is to be connected by users

b. When the power system is three phase three wire, directly connect the Un to U2.

(If the voltage exceeds 400V, special explanation when ordered)

7. Installation

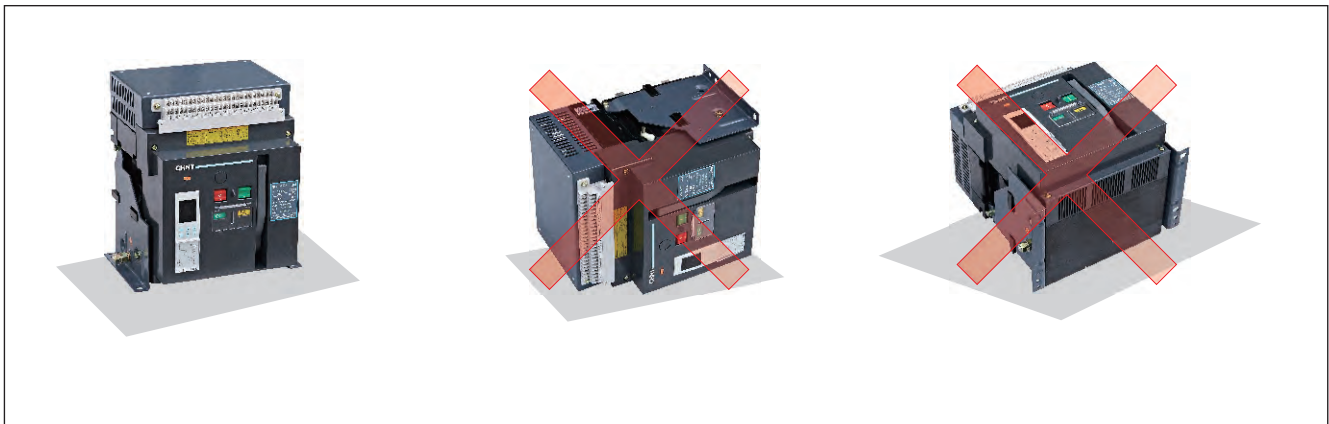
7.1 Installation

7.1.1 Unload the breaker from the soleplate of package.

If it is drawout type, firstly pull out the handle under the drawer-base of breaker, and plug it into the hole on central part of plastic cover under the drawer-base crossbeam, anticlockwise turns the handle, the body will slowly slide along the outside of drawer-base.

When the guide rod points to separated position and handle can't be rotated any longer, pull out the handle and firmly grasp the aluminum handle on drawer-base, pull out the breaker body and remove it from the base, then move the base from the sole plate and clean up the dirty things inside the drawer-base.

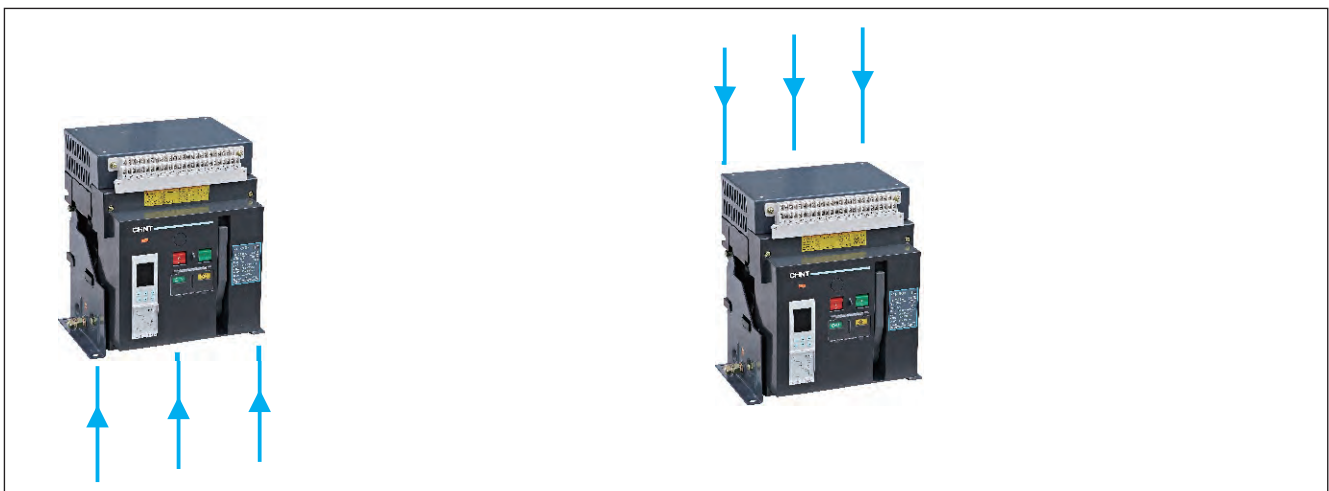
Possible positions



7.1.2 Check the insulation resistance with a 500V megger, resistance should not be less than 20MΩ when ambient temperature is 20°C±5°C and relative humidity is 50%~70%. Otherwise dry it.

7.1.3 Power supply

NA1 devices can be supplied either from the top or from the bottom without reduction in performance, in order to facilitate connection when installed in a switchboard.



7.1.4 Put the breaker (fixed-type) or drawer-base (drawout-type) into the installation-bracket, and make it fixed, directly connect the cable wire of main circuit to the bus wire of fixed-type circuit breaker. Alternatively put breaker body onto the slideway of drawer-base. Plug the handle into installation hole, clockwise turns it until the under-part of drawer-base points at the connection position and "click" sound is heard. It indicates that breaker body has been connected to its place, then connect the cable of main circuit to drawer-base.

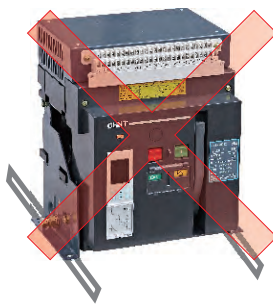
Mounting the circuit-breaker

It is important to distribute the weight of the device uniformly over a rigid mounting surface such as rails or a base plate.

This mounting plane should be perfectly flat (tolerance on support flatness: 2 mm). This eliminates any risk of deformation which could interfere with correct operation of the circuit breaker.

NA1 devices can also be mounted on a vertical plane using the special brackets.

Mounting with vertical brackets



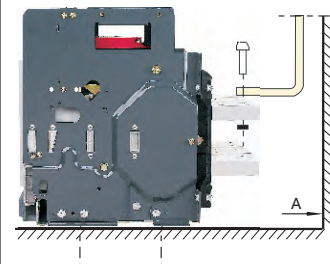
Mounting on rails



7.1.5 Partitions

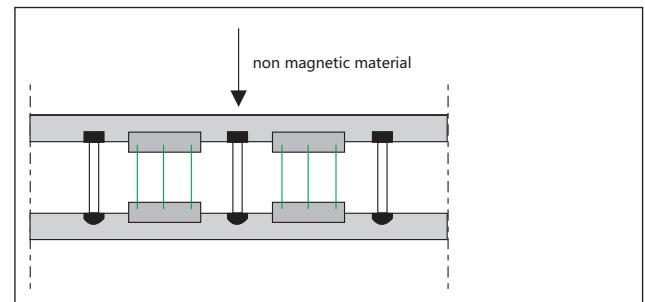
Sufficient openings must be provided in partitions to ensure good air circulation around the circuit breaker;
Any partition between upstream and downstream connections of the device must be made of nonmagnetic material.
For high-currents, of 2500 A and upwards, the metal supports or barriers in the immediate vicinity of a conductor must be made of non-magnetic material A; Metal barriers through which a conductor passes must not form a magnetic loop.

A: non magnetic material



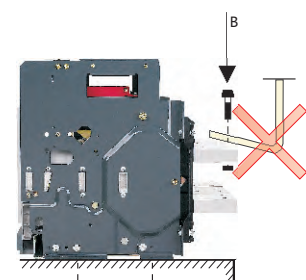
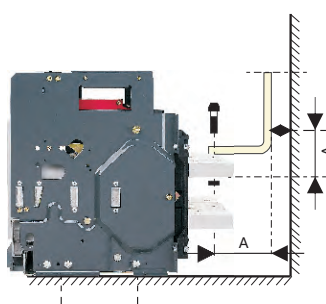
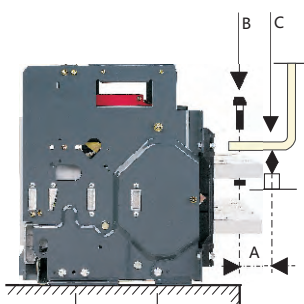
Busbars

The mechanical connection must exclude the possibility of formation of a magnetic loop around a conductor.



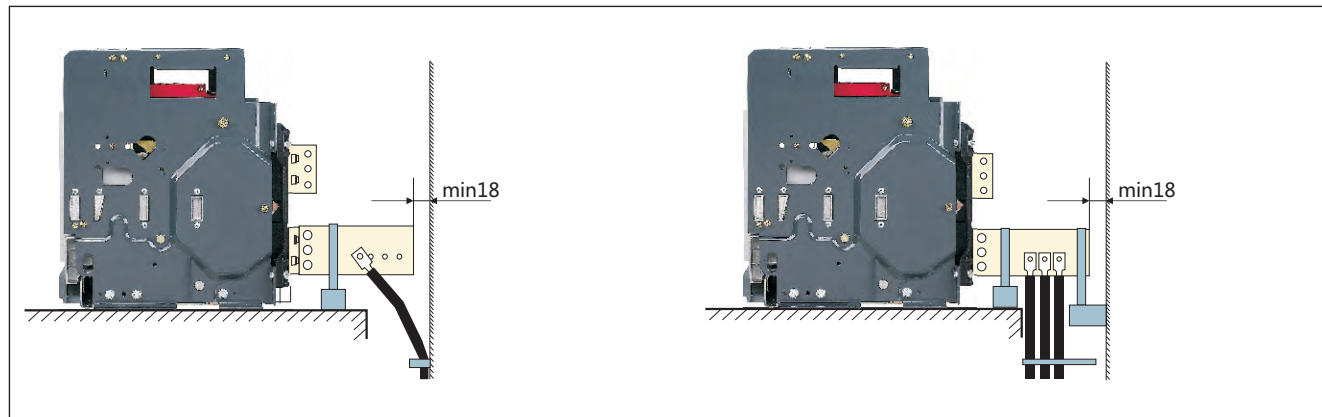
7.1.6 Busbar connections

The busbars should be suitably adjusted to ensure the connection points are positioned on the terminals before the bolts are inserted B The connections are held by the supporter which is fixed to the framework of the switchboard, in this way the circuit breaker terminals do not have to support its weight C.
(This support should be placed close to the terminals).



7.1.7 Main circuit adopts cable connection

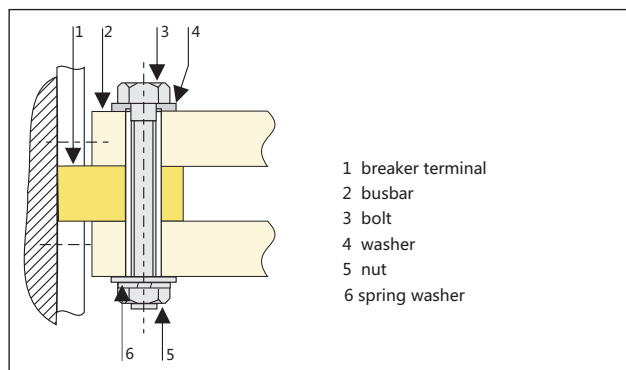
Users should not apply too strong mechanical strength on the terminals of Air Circuit Breaker. Extend the bus-bar of circuit breaker with connecting bus-bar, position the wiring piece of cable before inserting bolts; the cable should be fixed on the frame of distributing cabinet firmly.



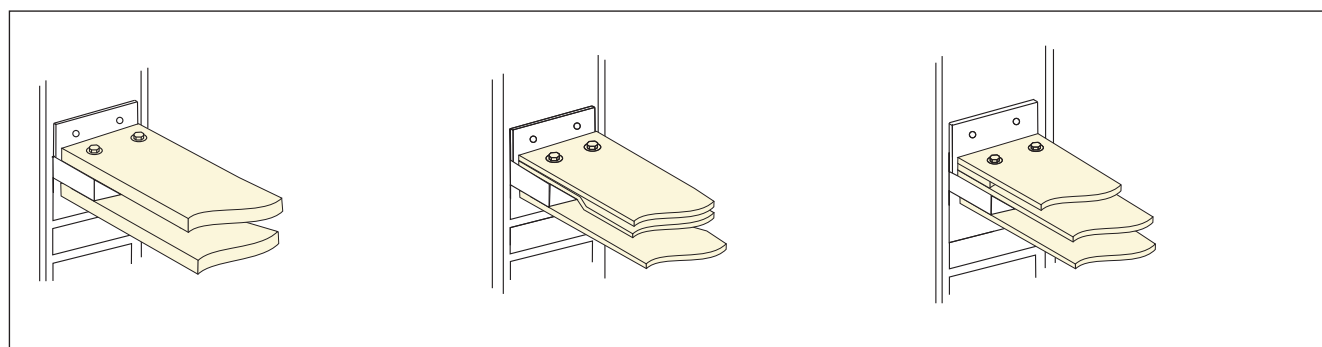
7.1.8 Clamping

Correct clamping of busbars depends on the tightening torques used for the nuts and bolts, etc. Over-tightening may have the same consequences as under-tightening.

For connecting busbars to the circuit breaker, the tightening torques to be used are shown in the table below. These values are for use with copper busbars and steel nuts and bolts, class 8.8.

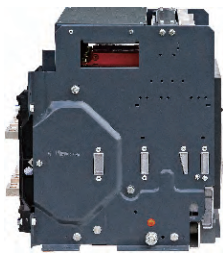
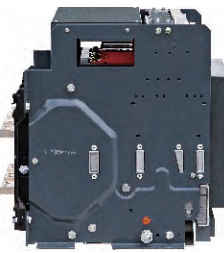
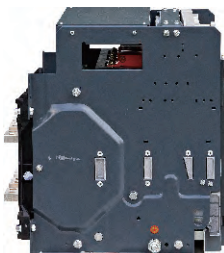
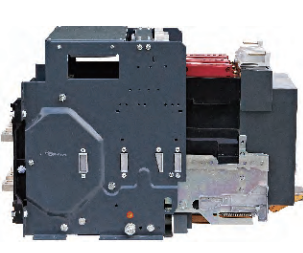

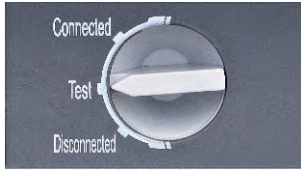

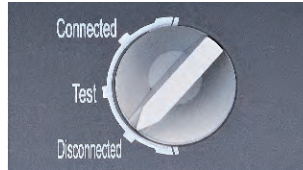


Examples



Preferred tightening torque for NA1's tightening components

Type of screw	Application	Preferred tightening torque
M3	Screws for secondary terminals	0.5~0.7 Nm
M10	Installing bolts of Air Circuit Breaker	38~55 Nm
M12	Connection terminals	61~94 Nm

Connected position	Test position	Disconnected position	Drawout position
			
			
<p>1. Both main circuit and control circuit are connected.</p> <p>2. Normal application conditions</p>	<p>1. The main circuit is disconnected, and the control circuit is connected.</p> <p>2. Test application conditions.</p>	Neither the main circuit nor the control circuit is connected.	Main body is out of the drawer seat.

7.2 Wiring the secondary circuit according to electric principle diagram.

Note: Bolts, nuts, gaskets shouldn't be left inside the drawer seat to avoid being blocked.

7.3 Operation

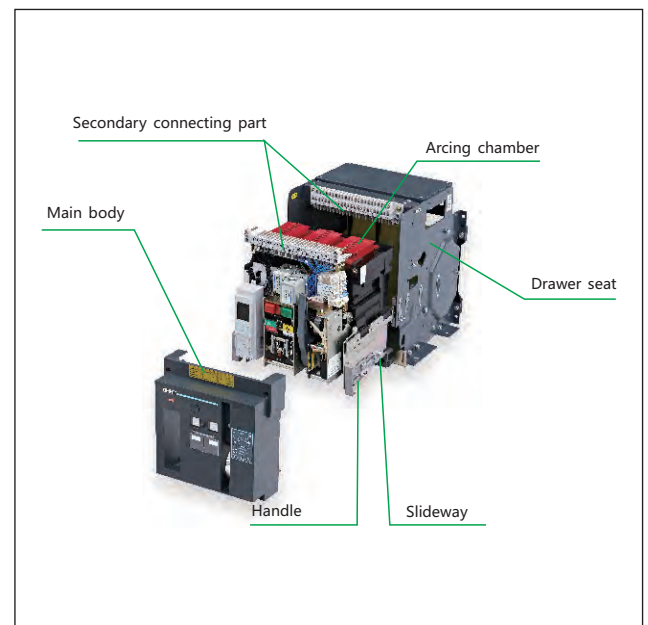
Check the rated voltage of the following components whether conforms to the power voltage. Such as under voltage release, shunt release, closing electromagnet, motor-driven mechanism and intelligent controller.

7.4 Maintenance

Check the technical parameters in time or add some lubricating oil, etc.

This breaker structure is arranged vertically and modularized composition with each function cell separated, which make the maintenance easy.

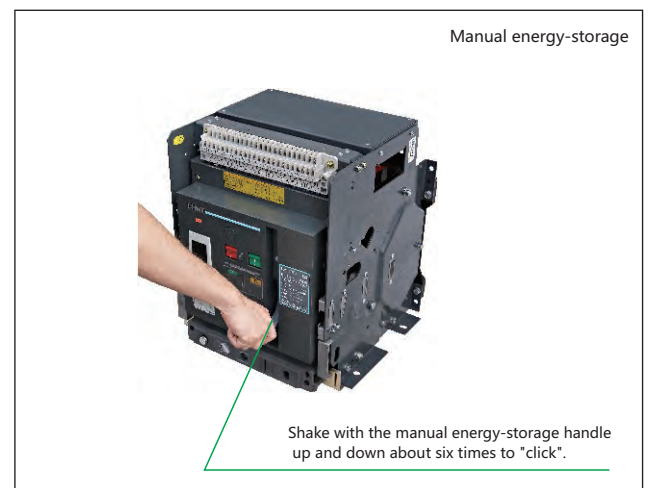
It has compact structure, reliable operation and strong free maintenance capability. Please check the technical parameters on the nameplate in accordance with the requirements of order before installation.



Making the secondary circuit power, the motor-driven mechanism can store energy automatically until hearing the click and energy stored indicating on the panel.

Otherwise press the storage handle for 6 times until hearing the click and the indicator display energy stored

And the closing operation can be realized either by closing electromagnet or manual button.



8. Recommendation for user's connecting bus-bar

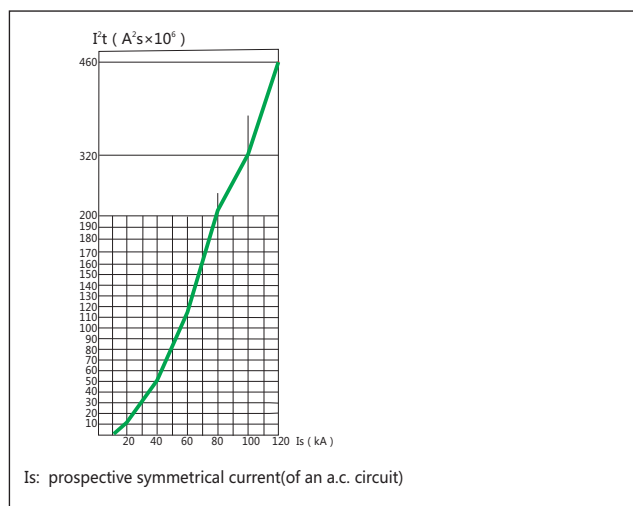
Inm(A)		NA1-1000X					NA1-2000X/NA1-2000XN/NA1-2000XH					NA1-3200X/NA1-3200XN			
630		200	400	630	800	1000		800	1000	1250	1600	2000	2000	2500	3200
Busbar	Thickness(mm)	5	5	5	6	85		6	8	10	12	10	8	10	10
	Width(mm)	30	30	40	50	50		60	60	60	60	60	100	100	100
	Number	1	2	2	2	22		2	2	2	2	3	2	2	4

Note: the specifications in the table is obtained as the ambient temperature of air circuit breaker is 50°C, with open installation; this is in compliance with the specification of copper busbars adopted under the heating conditions regulated in IEC/EN60947-2.

9. Power loss

Inm(A)		NA1-1000X					NA1-2000X/NA1-2000XN/NA1-2000XH					NA1-3200X/NA1-3200XN			
3200		200	400	630	800	1000	630	800	1000	1250	1600	2000	2000	2500	
Power loss (W)	Drawer type	40	101	123	110	171	70	110	172	268	440	530	384	600	737
	Fixed type	33	85	107	94	146	34.4	50	78	122	200	262	200	312	307

10. A²S curve



11. Temperature compensation correction

Standard	Ambient temperature	NA1-1000X					NA1-2000X/NA1-2000XN/NA1-2000XH					NA1-3200X/NA1-3200XN			
IEC/EN60947-2	40°C	200	400	630	800	1000	630	800	1000	1250	1600	2000	2000	2500	3200
	45°C	200	400	630	800	1000	630	800	1000	1250	1600	2000	2000	2500	3200
	50°C	200	400	630	800	1000	630	800	1000	1250	1600	2000	2000	2500	3200
	55°C	182	328	584	725	924	630	800	1000	1250	1500	1900	2000	2300	3000
	60°C	174	248	548	696	870	610	800	1000	1150	1300	1800	2000	2200	2800
	65°C	163	192	500	620	810	610	800	1000	1150	1300	1650	2000	2200	2600
	70°C	150	170	473	600	750	473	640	750	938	1200	1400	1760	2000	2208

12. Coordination recommendations

Capacity of transformer (kVA) & parallelly connected number	Rated current of transformer In(A)	Short circuit current of main circuit (kA)	Breaking capacity of air circuit breaker for main circuit (kA)
1×250	360	9	9
2×250	360	9	9
3×250	360	9	18.5
1×315	455	11.4	11.4
2×315	455	11.4	11.4
3×315	455	11.4	22.7
1×400	578	14.4	14.4
2×400	578	14.4	14.4
3×400	578	14.4	28.8
1×500	722	18	18
2×500	722	18	18
3×500	722	18	36.1
1×630	910	22.7	22.7
2×630	910	22.7	22.7
3×630	910	22.7	44.5
1×800	1154	19.3	19.3
2×800	1154	19.3	19.3
3×800	1154	19.3	38.5
1×1000	1444	24	24
2×1000	1444	24	24
3×1000	1444	24	48.1
1×1250	1805	30	30
2×1250	1805	30	30
3×1250	1805	30	60.1
1×1600	2310	36.5	36.5
2×1600	2310	36.5	36.5
3×1600	2310	36.5	73
1×2000	2887	48.2	48.2
2×2000	2887	48.2	48.2
3×2000	2887	48.2	96.3
1×2500	3608	60	60
2×2500	3608	60	60
1×3150	4550	75.8	75.8
2×3150	4550	75.8	75.8

Type of air circuit breaker for main circuit	Number and area of the busbar for main circuit (n×W×T)	Breaking capacity of air circuit breaker for branch circuit (kA)	Air circuit breaker for branch circuit
NA1-1000X-400	2×(5×30)	9	NA1, NM8
NA1-1000X-400		18.5	
NA1-1000X-400		27.5	
NA1-1000X-630	2×(5×40)	11.4	NA1, NM8
NA1-1000X-630		22.7	
NA1-1000X-630		34.1	
NA1-1000X-630	2×(5×40)	14.4	NA1, NM8
NA1-1000X-630		28.8	
NA1-1000X-630		43.2	
NA1-1000X-800	2×(6×50)	18	NA1, NM8
NA1-1000X-800		36.1	
NA1-1000X-800		54.1	
NA1-1000X-1000	2×(8×50)	22.7	NA1, NM8
NA1-1000X-1000		44.5	
NA1-2000X-1000		67.2	
NA1-2000X-1250	2×(10×60)	19.3	NA1, NM8
NA1-2000X-1250		38.5	
NA1-2000X-1250		57.8	
NA1-2000X-1600	2×(12×60)	24	NA1, NM8
NA1-2000X-1600		48.1	
NA1-2000X-1600		72.1	
NA1-2000X-2000	3×(10×60)	30	NA1, NM8
NA1-2000X-2000		60.1	
NA1-2000X-2000		90.1	
NA1-3200X-2500	2×(10×100)	36.5	NA1, NM8
NA1-3200X-2500		73	
NA1-3200X-2500		109.5	
NA1-3200X-3200	4×(10×100)	48.2	NA1, NM8
NA1-3200X-3200		96.3	
NA1-3200X-3200		144.5	

13. Selectivity protection

13.1 Selective protection between NM8 and NA1

				Circuit breaker	NA1-2000X/NA1-2000XN/NA1-2000XH			
Downstream			Upstream	Rated current (A)	630	800	1000	1250
				Default setting ratings of short time-delay 8In (kA)	5.04	6.4	8	10
				Setting range (kA)	0.63~9.45	0.8~12	1~15	1.25~18.75
				Delayed tripping time (s)	0.1, 0.2, 0.3, 0.4			
				Returnable time	0.06, 0.14, 0.23, 0.35			
Frame size rated current	Rated current (A)	Instantaneous setting ratings (kA)						
NM8-125 NM8S-125	16	0.16 0.19(motor)			0.63~9.45 0.63~9.45	0.8~12 0.8~12	1~15 1~15	1.25~18.75 1.25~18.75
	20	0.2 0.24(motor)			0.63~9.45 0.63~9.45	0.8~12 0.8~12	1~15 1~15	1.25~18.75 1.25~18.75
	25	0.25 0.30(motor)			0.63~9.45 0.63~9.45	0.8~12 0.8~12	1~15 1~15	1.25~18.75 1.25~18.75
	32	0.32 0.38(motor)			0.63~9.45 0.63~9.45	0.8~12 0.8~12	1~15 1~15	1.25~18.75 1.25~18.75
	40	0.40 0.48(motor)			0.63~9.45 0.6624~9.45	0.8~12 0.8~12	1~15 1~15	1.25~18.75 1.25~18.75
	50	0.50 0.60(motor)			0.69~9.45 0.828~9.45	0.8~12 0.828~12	1~15 1~15	1.25~18.75 1.25~18.75
	63	0.63 0.75(motor)			0.8694~9.45 1.035~9.45	0.8694~12 1.035~12	1~15 1.035~15	1.25~18.75 1.25~18.75
	80	0.80 0.96(motor)			1.104~9.45 1.325~9.45	1.104~12 1.325~12	1.104~15 1.325~15	1.25~18.75 1.325~18.75
	100	1.0 1.20(motor)			1.38~9.45 1.656~9.45	1.38~12 1.656~12	1.38~15 1.656~15	1.38~18.75 1.656~18.75
	125	1.25 1.5(motor)			1.725~9.45 2.07~9.45	1.725~12 2.07~12	1.725~15 2.07~15	1.725~18.75 2.07~18.75
NM8-250 NM8S-250	100	1.0 1.2(motor)			1.38~9.45 1.656~9.45	1.38~12 1.656~12	1.38~15 1.656~15	1.38~18.75 1.656~18.75
	160	1.6 1.92(motor)			2.208~9.45 2.65~9.45	2.208~12 2.65~12	2.208~15 2.65~15	2.208~18.75 2.65~18.75
	200	2.0 2.4(motor)			2.76~9.45 3.312~9.45	2.76~12 3.312~12	2.76~15 3.312~15	2.76~18.75 3.312~18.75
	250	2.5 3.0(motor)			3.45~9.45 4.14~9.45	3.45~12 4.14~12	3.45~15 4.14~15	3.45~18.75 4.14~18.75

			NA1-3200X/NA1-3200XN		
	1600	2000	2000	2500	3200
	12.8	16	16	20	25.6
	1.6~24	2~30	2~30	2.5~37.7	3.2~48
0.1, 0.2, 0.3, 0.4					
0.06, 0.14, 0.23, 0.35					

[illegible]

			Circuit breaker	NA1-2000X/NA1-2000XN/NA1-2000XH			
Downstream			Rated current (A)	630	800	1000	1250
			Default setting ratings of short time-delay 8In (kA)	5.04	6.4	8	10
			Setting range (kA)	0.63~9.45	0.8~12	1~15	1.25~18.75
			Delayed tripping time (s)	0.1, 0.2, 0.3, 0.4			
			Returnable time	0.06, 0.14, 0.23, 0.35			
Frame size rated current	Rated current (A)	Instantaneous setting ratings (kA)					
NM8-630 NM8S-630	250	2.5 3.0(motor)		3.45~9.45 4.14~9.45	3.45~12 4.14~12	3.45~15 4.14~15	3.45~18.75 4.14~18.75
	315	3.15 3.78(motor)		4.347~9.45 5.216~9.45	4.347~12 5.216~12	4.347~15 5.216~15	4.347~18.75 5.216~18.75
	350	3.5 4.2(motor)		4.83~9.45 5.796~9.45	4.83~12 5.796~12	4.83~15 5.796~15	4.83~18.75 5.796~18.75
	400	4.0 4.8(motor)		5.52~9.45 6.624~9.45	5.52~12 6.624~12	5.52~15 6.624~15	5.52~18.75 6.624~18.75
NM8S-630	500	5.0 6.0(motor)		6.9~9.45 8.28~9.45	6.9~12 8.28~12	6.9~15 8.28~15	6.9~18.75 8.28~18.75
	630	6.3 7.56(motor)		8.694~9.45	8.694~12 10.44~12	8.694~15 10.44~15	8.694~18.75 10.44~18.75
	630	6.3 7.56(motor)		8.694~9.45	8.694~12 10.44~12	8.694~15 10.44~15	8.694~18.75 10.44~18.75
NM8-1250 NM8S-1250	700	7.0 8.4(motor)			9.66~12 11.59~12	9.66~15 11.59~15	9.66~18.75 11.59~18.75
	800	8.0 9.6(motor)			11.04~12	11.04~15 13.25~15	11.04~18.75 13.25~18.75
	1000	10 12(motor)				13.8~15	13.8~18.75 16.56~18.75
	1250	12.5 15.0(motor)					17.25~18.75

			NA1-3200X/NA1-3200XN		
	1600	2000	2000	2500	3200
	12.8	16	16	20	25.6
	1.6~24	2~30	2~30	2.5~37.7	3.2~48
0.1, 0.2, 0.3, 0.4					
0.06, 0.14, 0.23, 0.35					
	3.45~24 4.14~24	3.45~30 4.14~30	3.45~30 4.14~30	3.45~37.7 4.14~37.7	3.45~48 4.14~48
	4.347~24 5.216~24	4.347~30 5.216~30	4.347~30 5.216~30	4.347~37.7 5.216~37.7	4.347~48 5.216~48
	4.83~24 5.796~24	4.83~30 5.796~30	4.83~30 5.796~30	4.83~37.7 5.796~37.7	4.83~48 5.796~48
	5.52~24 6.624~24	5.52~30 6.624~30	5.52~30 6.624~30	5.52~37.7 6.624~37.7	5.52~48 6.624~48
	6.9~24 8.28~24	6.9~30 8.28~30	6.9~30 8.28~30	6.9~37.7 8.28~37.7	6.9~48 8.28~48
	8.694~24 10.44~24	8.694~30 10.44~30	8.694~30 10.44~30	8.694~37.7 10.44~37.7	8.694~48 10.44~48
	8.694~24 10.44~24	8.694~30 10.44~30	8.694~30 10.44~30	8.694~37.7 10.44~37.7	8.694~48 10.44~48
	9.66~24 11.59~24	9.66~30 11.59~30	9.66~30 11.59~30	9.66~37.7 11.59~37.7	9.66~48 11.59~48
	11.04~24 13.25~24	11.04~30 13.25~30	11.04~30 13.25~30	11.04~37.7 13.25~37.7	11.04~48 13.25~48
	13.8~24 16.56~24	13.8~30 16.56~30	13.8~30 16.56~30	13.8~37.7 16.56~37.7	13.8~48 16.56~48
	17.25~24 20.7~24	17.25~30 20.7~30	17.25~30 20.7~30	17.25~37.7 20.7~37.7	17.25~48 20.7~48

13.2 Selective protection in NA1

				Circuit breaker	NA1-2000X/NA1-2000XN/NA1-2000XH			
Downstream			Upstream	Rated current (A)	630	800	1000	1250
				Default setting ratings of short time-delay 8In (kA)	5.04	6.4	8	10
				Setting range (kA)	0.63 ~ 9.45	0.8~12	1~15	1.25~18.75
				Delayed tripping time (s)	0.1, 0.2, 0.3, 0.4			
				Returnable time	0.06, 0.14, 0.23, 0.35			
Frame size rated current	Rated current (A)	Default instantaneous setting ratings 12In (kA)						
NA1-2000X	400	4.8			6.348~9.45	6.348~12	6.348~15	6.348~18.75
	630	7.56				9.998~12	9.998~15	9.998~18.75
	800	9.6					12.696~15	12.696~18.75
	1000	12						15.87~18.75
	1250	15						
NA1-3200X	1600	19.2						
	2000	24						
	2000	24						
	2500	30						
	3200	38.4						
NA1-4000X	3200	38.4						
	4000	48						
NA1-6300X	4000	48						
	5000	60						
	6300	75						

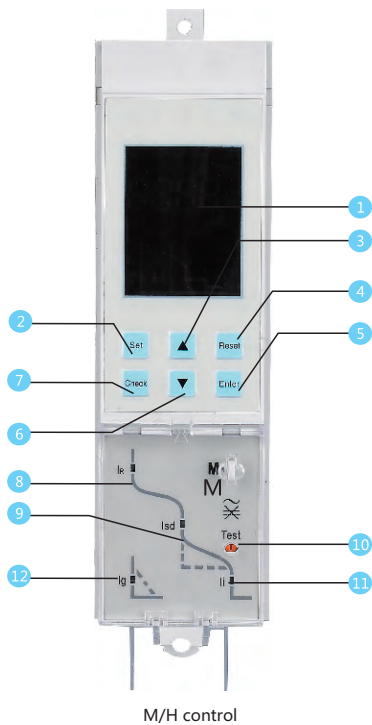
Note: It can satisfy the selective protection if only the short time-delay setting value of the superior breaker 1.32 times more than the subordinate breaker, when the instantaneous setting value is adjustable.

			NA1-3200X/NA1-3200XN		
	1600	2000	2000	2500	3200
	12.8	16	16	20	25.6
	1.6~24	2~30	2~30	2.5~37.7	3.2~48
0.1, 0.2, 0.3, 0.4					
0.06, 0.14, 0.23, 0.35					
	6.348~24	6.348~30	6.348~30	6.348~37.7	6.348~48
	9.998~24	9.998~30	9.998~30	9.998~37.7	9.998~48
	12.696~24	12.696~30	12.696~30	12.696~37.7	12.696~48
	15.87~24	15.87~30	15.87~30	15.87~37.7	15.87~48
	19.837~24	19.837~30	19.837~30	19.837~37.7	19.837~48
		25.392~30	25.392~30	25.392~37.7	25.392~48
				31.74~37.7	31.74~48
				31.74~37.7	31.74~48
					39.675~48

Intelligent Controller of NA1 series

14 Protection Features of intelligent controller

14.1 M/H and 3M/3H intelligent controller UI



- ① Display window
Display current value, setting value, tripping time and so on
- ② "Set"
Switch to setting menu
- ③ "Up"
Change the marquee or the selected parameter
- ④ "Return"
Escape from this grade and return to upper menu or cancel the current selected parameter
- ⑤ "Enter"
Enter into the next menu directed by the current item, or select current parameter and store modifications
- ⑥ "Down"
Change the marquee or the selected parameter
- ⑦ "Check"
Switch to query menu
- ⑧ "IR" light
Overload long delay fault indication
- ⑨ "Isd" light
Short-circuit Short delay indication
- ⑩ "Test"
Trip test button
- ⑪ "Ii" light
Instantaneous Short-circuit fault indication
- ⑫ "Ig" light
Asymmetric earthing or neutral line fault indication
- ⑬ Alarm light
- ⑭ Communication light
- ⑮ Run light

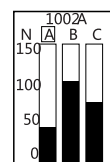
Note: Method of 3M/3H controller application please refer to 3M/3H controller instruction

14.2 3M/3H controller default interface and menu structure


3M/3H controller has four subjects menus and a default interface:

The subjects menus are composed of 4 parts: measurement menu, parameter set menu, protection parameter set menu, history and maintenance menu.

3M/3H controller default interface



14.3 Explanation of M/H controller symbols
14.3.1 Explanation of symbols for reference

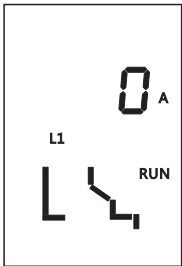
No.	symbol	explanation
1	IR= tR=	Long delay current setting, long delay time setting
2	Isd= tsd=	Short delay current setting, short delay time setting
3	Ig= tg=	Earthing current setting, earthing time setting
4	Ii=	Instantaneous current setting
5	N=	Neutral line protection parameter setting
6	TM	Trip simulated by software
7	TRIP	Tripped
8	RUN	Run normally
9	SET	Normally on: in settable state; Flickering: modifiable parameter
10	LIN	Storing state
11	P 0	Protection setting interface
12	TES	Trip simulated by software setting interface
13	RLR	Alarm setting or query interface
14	SYS	System setting interface (current calibration , frequency setting ...)
15	DBS	Communication setting interface of H-type controller
16	DOS	DO setting interface (H type with DO function)
17	FRU	Fault record query interface
18	COU	Operation times and life query interface
19	HDI	Thermal capacity query interface
20	DOC	DO state query interface
21	H	Thermal capacity data
22	F--	Fault record number
23	R--	Alarm record number
24	Lg L1 L2 L3 LN	Earthing ,A,B,C,N phase
25		The corresponding LED lamp will flash to indicate the fault type after tripping. The LED lamps are always on when the system is normal.

14.3.2 Operation and display instruction

There are four states, default state, setting state, query state and tripping state.

① Default state: default state is also called measuring state. All fault indicating lamps are off and maximum phase current is displayed.
In this state, if “▲” or “▼” button is pressed, L1,L2,L3(LN),Lg current can be displayed in turn.

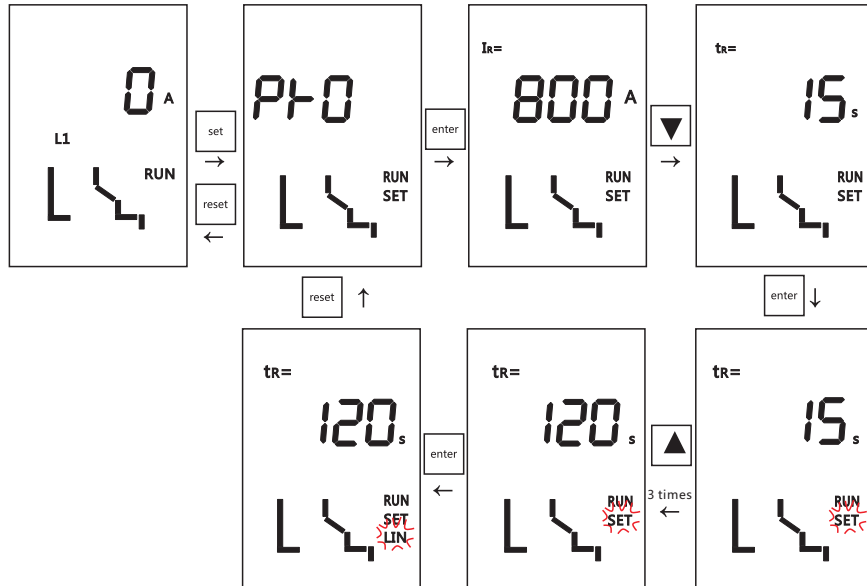
Example is shown below:



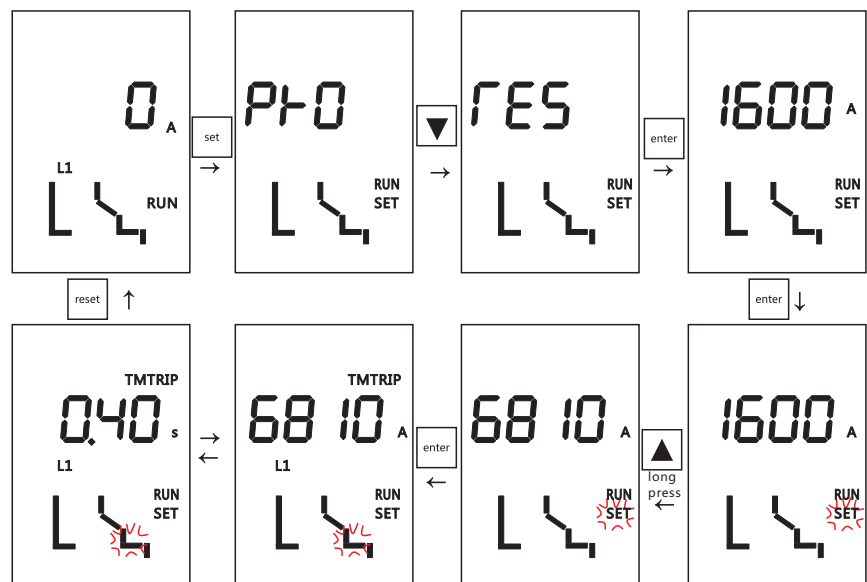
L1 phase current display interface

②Setting state: press "Set" button in default interface to enter into setting interface. Current protection parameters, overload pre-alarm value, earthing alarm threshold value and delay time can be queried or changed in setting state. Tripping can be simulated by software. In this state, "▲" or "▼" button can be pressed to add or subtract value when "SET" indicating lamp is flickering. Don't forget to press "Enter" button to save data after setting.

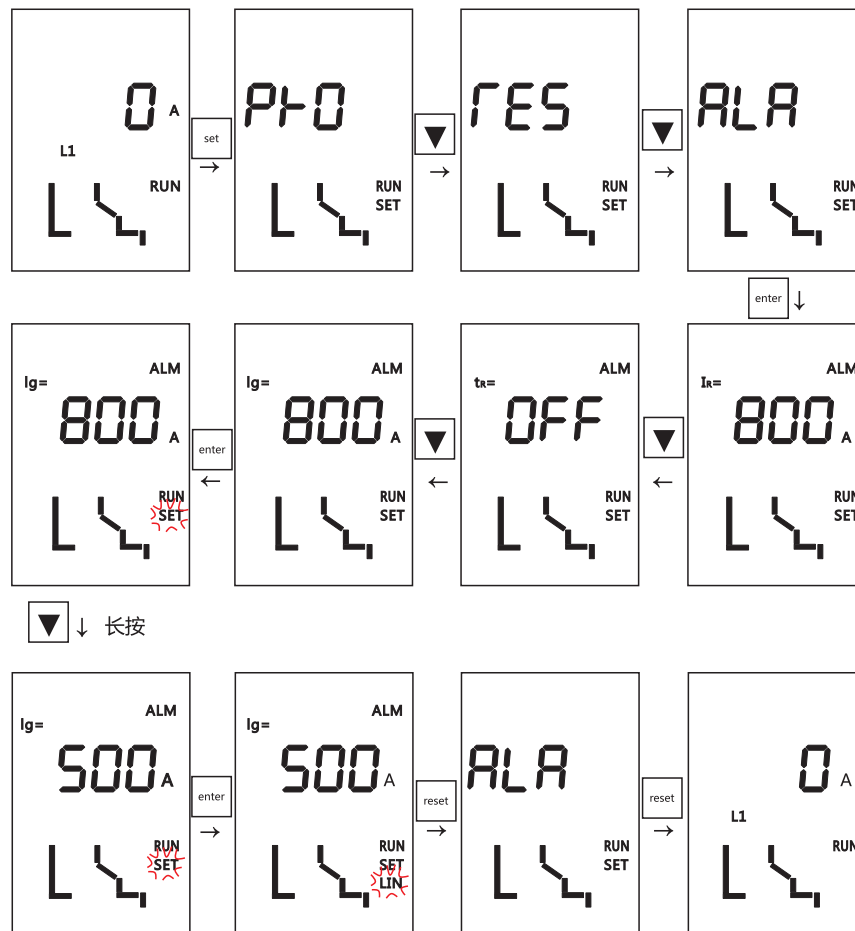
Example 1 of changing long delay time is shown below:



Example 2 of short delay tripping simulated by software is shown below:

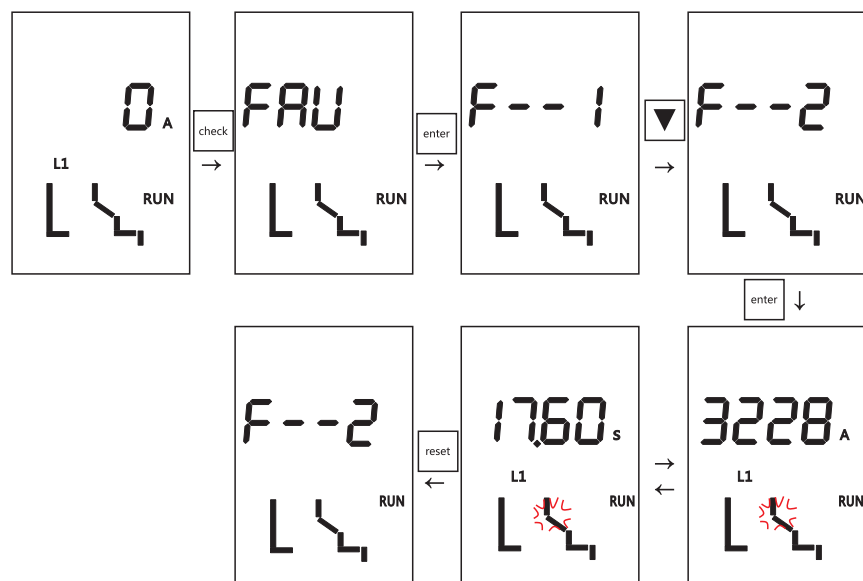


Example3 of setting earthing alarm threshold current is shown below:



③Query state: press "Check" button in default interface to enter into query interface. Last 8 fault records, last 8 alarm records, breaker operation times, life record and thermal capacity can be queried in query state.

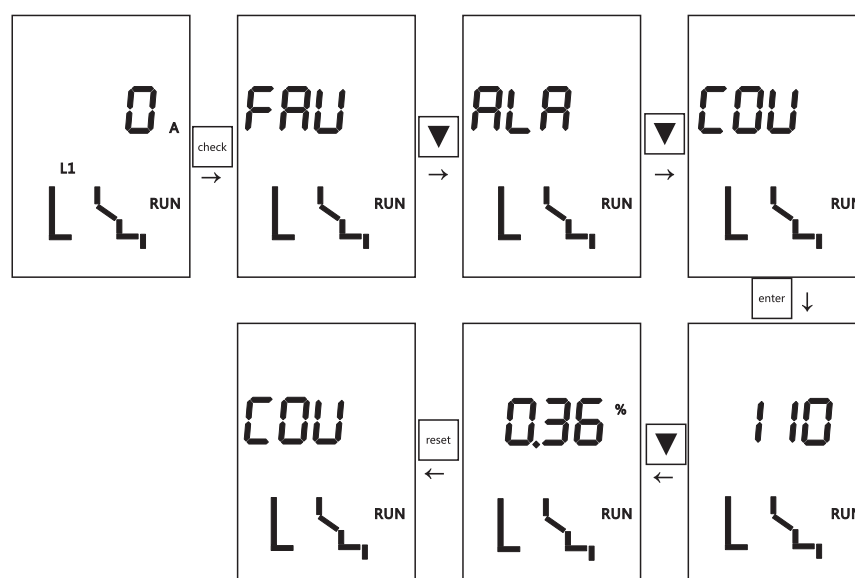
Example4 of querying second fault record is shown below:



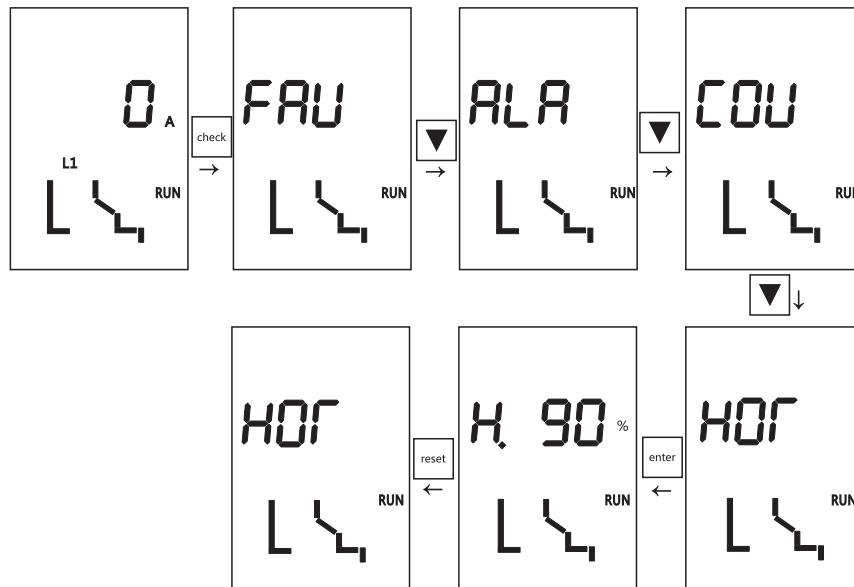
Example5 of querying first alarm record is shown below:



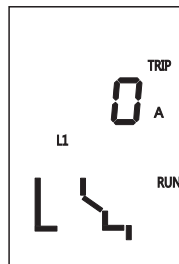
Example6 of querying breaker operation times and life record is shown below:



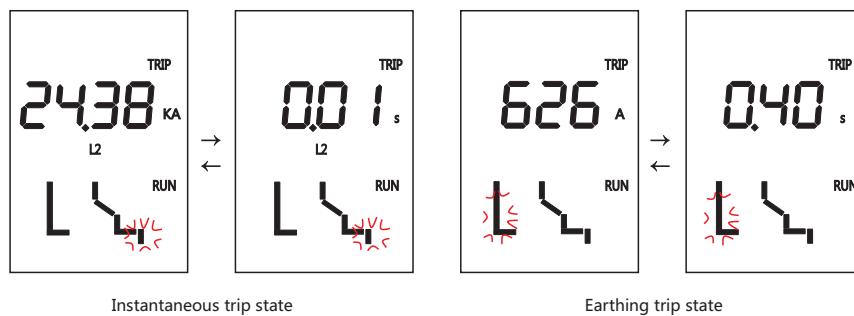
Example7 of querying thermal capacity after tripping is shown below:



④Tripping state: "Return" button should be press to return default interface after tripping at fault.



Press "Test" button to simulate Instantaneous trip



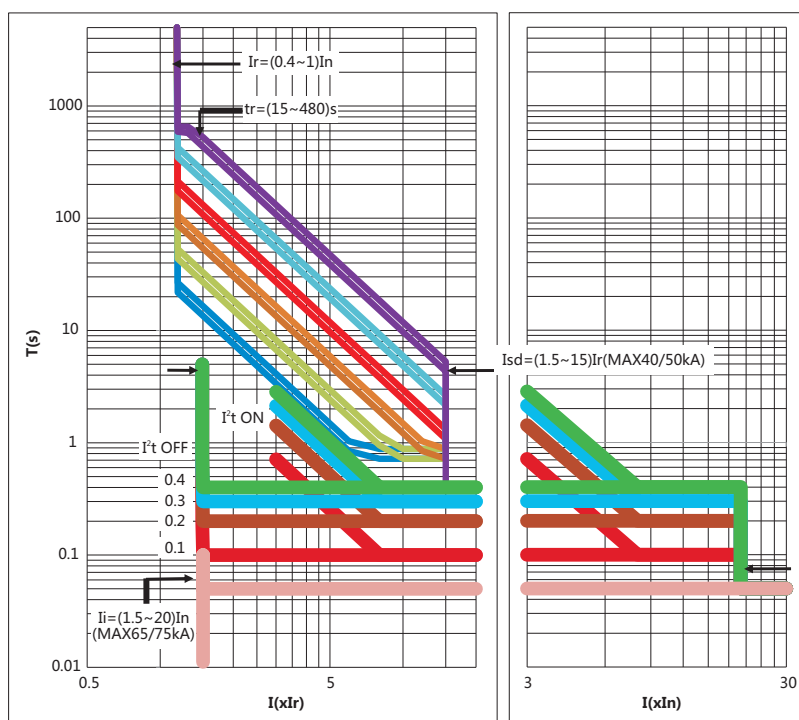
14.3.3 Controller functions list

M type	H type
<ul style="list-style-type: none"> 1 over-current protection (overload, short delay, instantaneous, earthing); vector sum grounding mode. 2 Neutral line protection 3 Current measurement 4 two test functions: <ul style="list-style-type: none"> (1)Instantaneous trip test simulated by mechanical button (2)Other trip tests simulated by software 5 Eight fault records 6 Eight alarm records 7 MCR protection 8 operation times records 9 thermal capacity 10 overload pre-alarm 	<ul style="list-style-type: none"> 1 over-current protection (overload, short delay, instantaneous, earthing); vector sum grounding mode. 2 Neutral line protection 3 Current measurement 4 two test functions: <ul style="list-style-type: none"> (1)Instantaneous trip test simulated by mechanical button (2)Other trip tests simulated by software 5 Eight fault records 6 Eight alarm records 7 MCR protection 8 operation times records 9 thermal capacity 10 overload pre-alarm 11 communication function: MODBUS protocol 12 four DO function (optional)
3M type	3H type
<ul style="list-style-type: none"> 1 all functions of M-type controller are included 2 HMI:128*64 LCD 	<ul style="list-style-type: none"> 1 all functions of 3M-type controller are included 2 voltage measurement and protection 3 frequency measurement and protection 4 power measurement and protection 5 electric energy, power-factor, harmonic measurement 6 communication function: MODBUS protocol 7 DI/DO function

14.4 specifications of characteristics

14.4.1 Over-current protection characteristic curve

Over-current protection characteristic curve



14.4.2 Overload long time-delay protection

Operating characteristics

Current Ratings Range(Ir)	tolerance	Current	Action time(s)						Time tolerance
(0.4~1)In+ OFF	±10%	≤1.05Ir	<2h Non-trip						
		> 1.3Ir	<1h trip						
		1.5Ir(setting time)	15	30	60	120	240	480	±10%
		2.0Ir	8.4	16.9	33.7	67.5	135	270	±10%
Phase N Overload and Over-Current Characteristic			100% or 50%(Applicable to 3P+N or 4P)						

14.3 Short-circuit short-delay protection

Short-circuit short delay protection has two protection modes. One is inverse time and definite time protection. $I^2Tsd = (8Ir)^2tsd$ works when current is low. In this formula, I is actual current, Tsd is actual trip time, tsd is set trip delay time. When I is over inverse time set value but below 8Ir, controller will operate according to over-current protection characteristic curve. When I is over both of inverse time set value and 8Ir, controller will operate according to definite time protection. The other is definite time protection and set time is 0.11s, 0.21s, 0.31s, and 0.41s. When I is over Isd but below Ii, controller will operate according to definite time protection.

Operating characteristics

Current Ratings Range(Isd)	tolerance	Current	Action time(s)				Time tolerance
(1.5~15)Ir+ OFF	±10%	≤0.9Isd	In the 2tsd Non-trip				
		> 1.1Isd	In the 2tsd Delayed-trip				
		tsd	0.1	0.2	0.3	0.4	±15%
		Returnable time	0.06	0.14	0.25	0.33	±15%

Note: a. When the intelligent controller is Frame II (Inm=3200A、4000A), Isd shouldn't be more than 40KA.
b. When the intelligent controller is Frame III (Inm=6300), Isd shouldn't be more than 50KA.
c. When tsd is 0.1s or 0.2s, time permissible error is ±0.040s.

14.4.4 Instantaneous protection

Instantaneous protection trip time should be less than 100ms.

Operating characteristics

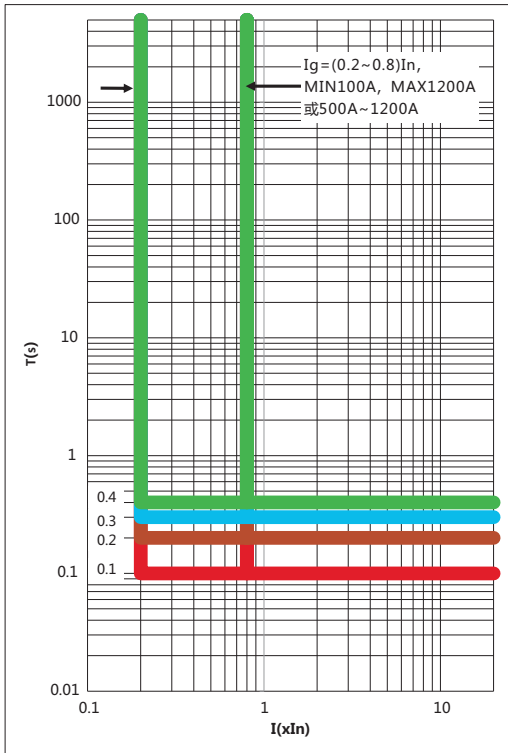
Current Ratings Range(Ii)	tolerance	Current	Time tolerance
(1.5~20)In+ OFF	±15%	≤0.85Ii	In the 0.2s Non-trip
		> 1.15Ii	In the 0.2s trip

Note: a. When the intelligent controller is Frame I (Inm=2000A), Ii shouldn't be more than 50KA.
b. When the intelligent controller is Frame II (Inm=3200A、4000A), Ii shouldn't be more than 65KA.
c. When the intelligent controller is Frame III (Inm=6300), Ii shouldn't be more than 75KA.

14.4.5 Earthing protection

Earthing protection has definite time characteristic. Fault delay time is shown below.

Earthing protection characteristic curve



Operating characteristics of single-phase earthing protection

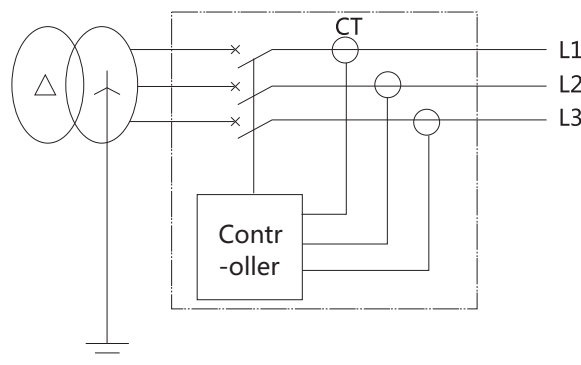
Current Ratings Range(Ii)	tolerance	Current	Action time(s)				Time tolerance
Inm=1000/2000 , (0.2~0.8)In+ OFF Inm=3200/4000/6300, (500~1200)A+ OFF	10%	≤0.9Ig	In the 2tg Non-tripping				
		> 1.1Ig	In the tg±0.032s or tg(1±25%) Tripping				
		tg	0.1	0.2	0.3	0.4	±15%
		Returnable time	0.06	0.14	0.25	0.33	±15%

Note: a. When tg is 0.1s or 0.2s, time permissible error is ±0.040s;
b. When Inm is 1000A, Ig should be more than 100A. When Inm is 2000A, Ig shouldn't be more than 1200A.
c. When Inm is 3200A, 4000A or 6300A, Ig should be between 500A and 1200A.

Bolted single-phase protection is usually used in neutral-point solid ground system. Controller has two different protection modes, being vector sum mode and external transformer mode.

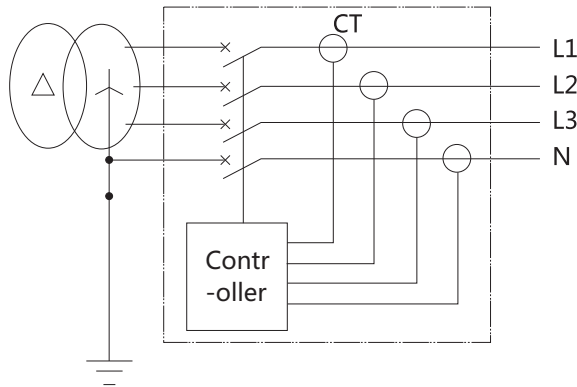
In three-phase three-wire system using 3-pole breaker without external transformer, earthing fault signal comes from three- phase current vector sum. Operating characteristic is definite time protection.

3PT mode



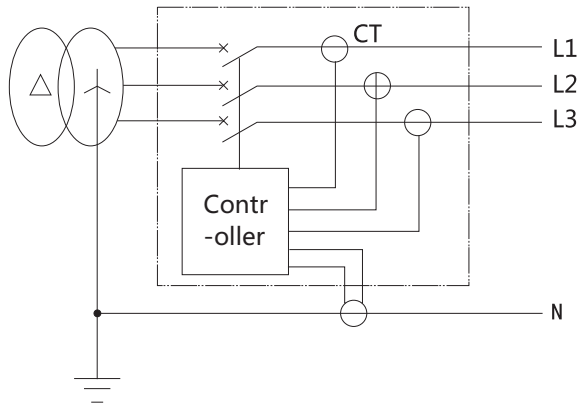
In three-phase four-wire system using 4-pole breaker without external transformer , earthing fault signal comes from three- phase current and N-Pole current vector sum. Operating characteristic is definite time protection.

4PT mode



In three-phase four-wire system using 3-pole breaker with external N-pole transformer, earthing fault signal comes from three- phase and N-Pole current vector sum. Operating characteristic is definite time protection.

(3P+N)T mode



Note:

- ① External N-pole transformer (connected to 6#, 7# terminal for NA1-1000, connected to 25#, 26# terminal for NA1-2000-6300) is a special product. Default lead wire is 2 meters long.
- ② Earthing protection in 3PT mode can only be used in balance load. It should be turned off or set value above allowable unbalance current when the load is unbalance or the controller may operate.
- ③ The distance between external transformer and breaker should be less than 5m in (3P+N)T mode. When lead wire of external transformer needs to be longer than 2 meters, special requirement should be noted when ordering.

15. Accessories

15.1 Under-voltage release

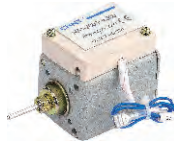
Without power supply, under-voltage release can't close.

It is classified into instantaneous and time-delay type.

Delay time 1s, 3s, 5s, 7s are fixed for NA1-1000; 1s, 3s, 5s are fixed for NA1-2000, 3200, 4000, 6300.

Within 1/2 time-delay range, circuit breaker does not trip when power voltage recovers and exceeds 85%Ue.

Characteristic



Type	NA1-1000X	NA1-2000X/NA1-2000XN/NA1-2000XH/NA1-3200X/NA1-3200XN	
Rated control power voltage Us(V)	AC230, 400	AC400, 230, 127	DC220, 110
Action voltage(V)	(0.35-0.7)Us		
Reliable making voltage(V)	(0.85-1.1)Us		
Reliable non-making voltage(V)	≤0.35Us		
Power loss(W)	20VA	48VA	48W

Optional configure: Auto suction type under-voltage release, and this device can substitute normal one, it can prevent mechanism from misoperation.

Make sure there is power supply on the under-voltage release, before making the circuit breaker.

15.2 Shunt release

Shunt release can realize the remote control to break the circuit breaker.

Characteristic



Type	NA1-1000X		NA1-2000X/NA1-2000XN/NA1-2000XH/NA1-3200X/NA1-3200XN		
Rated control power voltage Us(V)	AC230, 400	DC220, 110	AC400, 230, 127		DC220, 110
Work voltage	(0.7-1.1)Us				
Power loss	56VA	250W	300VA		132W70W
Breaking time	(50±10)ms	(50±10)ms	(30~50)ms		(30~50)ms

Forbid making the power for long time to avoid the shunt release being damaged.

15.3 Closing electromagnet

After the motor finishing the energy storage, closing release can instantly close the circuit breaker.

Characteristic



Type	NA1-1000X		NA1-2000X/NA1-2000XN/NA1-2000XH/NA1-3200X/NA1-3200XN		
Rated control power voltage Us(V)	AC230, 400	DC220, 110	AC400, 230, 127		DC220, 110
Work voltage (V)	(0.85-1.1)Us				
Power loss (W)	56VA	250W	300VA		132W 70W
Closing time	(50±10)ms	(50±10)ms	≤70ms		≤70ms

Forbid making the power for long time to avoid the closing release being damaged.

15.4 Motor-driven energy-storage mechanism

With the function of motor-driven energy storing and auto restoring energy after closing the circuit breaker, the mechanism can ensure closing the circuit breaker instantly after breaking the circuit breaker.

Manual energy-store is available.

Characteristic



Type	NA1-1000X		NA1-2000X/NA1-2000XN/NA1-2000XH/NA1-3200X/NA1-3200XN	
Rated control power voltage Us(V)	AC230, 400	DC220, 110	AC400, 230, 127	DC220, 110
Work voltage (V)	(0.85-1.1)Us			
Power loss (W)	90W	90W	85/110/150W	85/110/150W
Energy-storage time	<4s	<4s	<5s	<5s
Operation frequency	No more than 3 times per minute			

15.5 Auxiliary contact NO

Standard model: 4NO(normal open)/4NC(normal close) and 6NC(normal close).

Characteristic

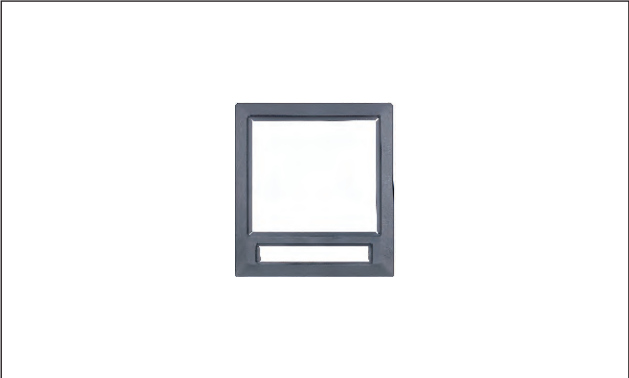


Type	NA1-1000X			NA1-2000X/NA1-2000XN/NA1-2000XH/NA1-3200X/NA1-3200XN		
Rated voltage (V)	AC230	AC400	DC220	AC230	AC400	DC220
conventional free-air thermal current Ith (A)	10	6	0.5	6	6	6
Rated control capacity	300VA	100VA	60W	300VA	300VA	60W

NA1-1000X			NA1-2000X/NA1-2000XN/NA1-2000XH/NA1-3200X/NA1-3200XN		
Category	Voltage	Current	Category	Voltage	Current
AC-15	AC230V	1.3A	AC-15	AC230V	1.3A
	AC400V	0.25A		AC400V	0.75A
DC-13	DC110V	0.55A	DC-13	DC110V	0.55A
	DC220V	0.27A		DC220V	0.27A

15.6 Doorcase

Installed on the door of the distribution cubicle, for sealing the distribution cubicle and making the protection class to IP40(fixed type and drawout type).



15.7 Phases barrier (Optional)

Installed between the busbars to increase the creepage distance.



15.8 Transparent shield (NA1-2000) (Optional)

Installed on the doorcase of the cubicle's small door, make the protection class to IP54. It is suitable for the fixed, drawout type circuit breaker and the load switch.



15.9 Off position locking mechanism

When the circuit breaker is disconnected, padlock can be used to lock it after pulling out the lock lever, then the circuit breaker can't be "Test" or "connected" position. (Padlock is prepared by users)

15.10 Key lock

Lock the circuit breaker on the OFF position, then the circuit breaker can't be closed.

Locks and keys will be provided by us.

Separate lock and key is matched with one set of the circuit breaker.

Three same locks and two same keys are matched with three circuit breaker.

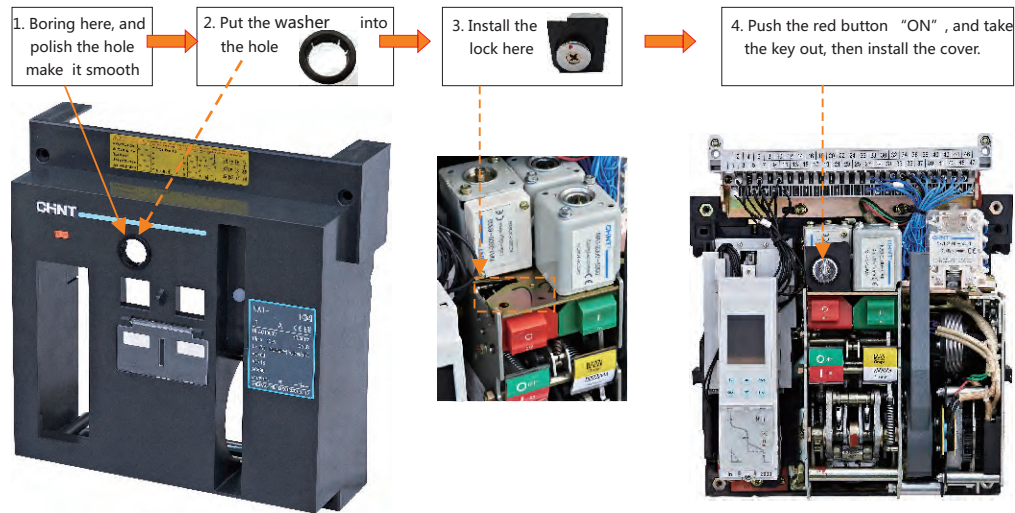
Note: Before pulling out the key, the break pushbutton should be pressed first, rotate the key anticlockwise, then pull it out.

★ NA1 Install the locking system

1. Components of the locking system:



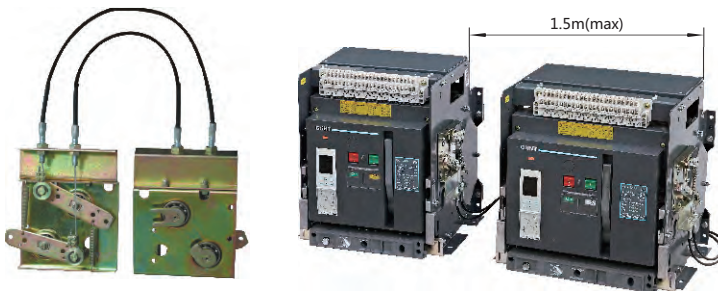
2. Installation sequence:



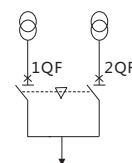
15.11 Cable mechanical interlock

It can realize the interlock of two horizontal or vertical-installed, three poles or four poles, drawout type or fixed type circuit breaker.

- If need bend the cable, make sure the radian is more than 120° .
- Check and make sure enough lubricating oil of the cable.
- The maximum distance between two interlock circuit breakers is 1.5m.



Circuit diagram



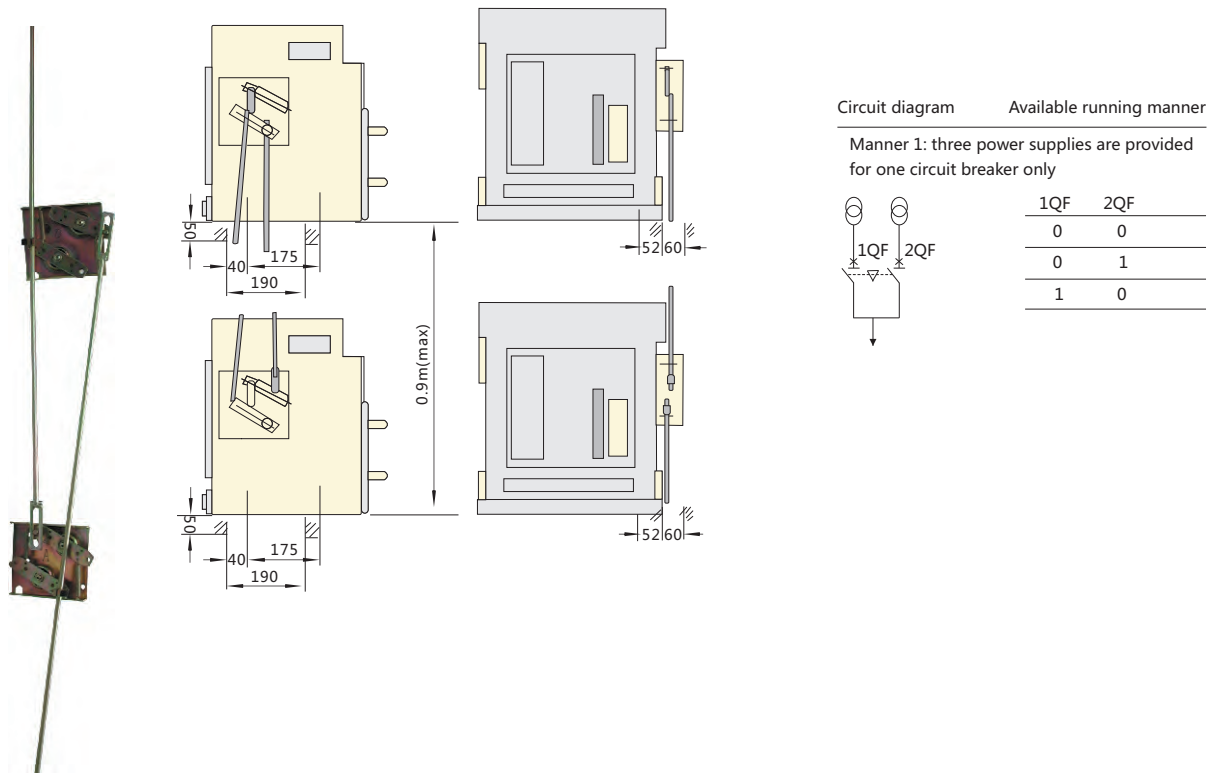
Available running manner

1QF	2QF
0	0
0	1
1	0

Notes: a. when the steel cable needs to be bent, enough transition arc should be reserved to guarantee flexible movement of steel cable;
b. check the steel cable and make sure there is enough lubricant in the steel cable to guarantee flexible movement of steel cable.

15.12 Connecting-rod type mechanical interlock

Three vertical-installed three-poles or four-poles, drawout-type or fixed type circuit breakers realize the interlock between one breaker with another two different-state breakers.



16. Regular malfunction and solutions

Fault description	Reasons analysis	Maintenance method
Tripping of circuit breaker	Over load tripping (IL indicator flashing)	1. Check the breaking current value and operation time of intelligent release. 2. Analyze the load and electric network, exclude the overload if it happens. 3. Match the actual operating current with long time-delay current setting value. 4. Press the reset button to reclose the breaker
	Short circuit tripping ("Is" or "Ii" indicator flashing)	1. Check the breaking current value and operation time of intelligent release. 2. Exclude the short circuit fault if it happens 3. Check the setting value of intelligent release 4. Check the normal state of breaker 5. Press the reset button to reclose the breaker
	Earthing fault tripping (IG indicator flashing)	1. Check the breaking current value and acting time of intelligent release. 2. Exclude the earthing fault if that happens. 3. Match the fault current setting value with the actual protection. 4. Press the reset button to reclose the breaker.
	Under-voltage release fault: 1. Rated working voltage is less than 70%Ue 2. Fault of control unit	1. Check the power is on or not 2. Check the power voltage of under-voltage release, it shouldn't be less than 85%Ue. 3. Replace the control unit of under-voltage release
	Mechanical interlock acting	Check the working state of two circuit breakers fixed with mechanical interlock
The breaker can't be closed	Intelligent release don't reset (panel is raised)	Press the reset button to reclose the breaker
	Secondary circuit of drawerout-type breaker isn't connected	Make the breaker to "making" position ("click" sound will be heard)
	Breaker hasn't stored energy	Check the secondary circuit: 1. Power voltage of motor shouldn't less than 85%Ue. 2. Check the storage mechanism, replace it if necessary.
The breaker can't be closed	Mechanical interlock acting leads to locking of breaker	Check the working state of two circuit breakers fixed with mechanical interlock
	Closing electromagnet: 1. Rated control voltage is less than 85%Us; 2. Closing electromagnet is damaged	1. Power voltage of closing electromagnet shouldn't less than 85%Us. 2. Replace the electromagnet.
Tripping after closing the circuit breaker (Fault indicator flashing)	Tripping immediately: 1. Short circuit current is closed 2. Delay tripping because of transient current is high when closing; 3. Overload current is closed	1. Check the breaking current value and operation time of intelligent release; 2. Exclude the short circuit fault if it happens; 3. Exclude overload fault 4. Check the normal state of breaker 5. Modify the current setting value of intelligent release 6. Press the reset button to reclose the breaker
Circuit breaker can't be opened	The breaker can't be opened manually 1. There is fault with mechanical operating mechanism	1. Check the mechanism, if there is fault happened.
	The breaker can't be opened by motor remotely 1. There is fault with mechanical operating mechanism 2. Power voltage of shunt release is less than 70%Us; 3. Shunt release is damaged	1. Check the mechanism, if there is fault happened. 2. Check the Power voltage of shunt release is less than 70%Us or not 3. Replace shunt release

Fault description	Reasons analysis	Maintenance method
Circuit breaker can't store energy	Manual storage can't be realized	Mechanical fault with the energy-storage device
	Motor storage can't be realized 1.Power voltage of motor energy-stored device is less than 85%Us; 2.There is mechanical fault with energy-storage device	1. Power voltage of motor energy-stored device shouldn't less than 85%Us 2. Mechanical fault with the energy-storage device
Handle of drawerout-type circuit breaker can't be drawn in or out	1. There is padlock at the "opening" position 2. Slideway or breaker body isn't pulled into its position	1. Take away the padlock 2. Pull the slideway or breaker body into its position
Drawerout-type breaker can't be drawn out at the "opening" position	1.Handle isn't pulled out 2.Breaker is not totally at the "opening" position	1.Pull out the handle 2.Keep the circuit breaker totally at "opening" position
Drawerout-type breaker can't reach the "making" position	1. Something drop into the drawer base, and lock the mechanism or mechanism fault happens. 2. Breaker body not match with the frame-size rated current of drawer base	1. Check and clean the drawer base, or contact with manufacturer 2. Match the body with relevant drawer base
No display on intelligent release panel	1. Release isn't connected with power 2.There is fault with release	1.Check the power is connected or not 2.Cut off the power, then connect again. Otherwise contact with manufacturer
	Closing electromagnet: 1. Rated control voltage is less than 85%Us; 2. Electromagnet is damaged	1. Check the electromagnet power voltage shouldn't be less than 85%Us. 2. Replace the closing electromagnet.
Fault indicator still flashing after pressing the clear button	Fault happened with intelligent release	Cut off the power, then connect again. Otherwise contact with manufacturer

NA1-1000X~6300X Ordering specification

Customer:

Tel:

Date:

Quantity:

Model		<input type="checkbox"/> NA1-1000X	<input type="checkbox"/> NA1-2000X <input type="checkbox"/> NA1-2000XN <input type="checkbox"/> NA1-2000XH	<input type="checkbox"/> NA1-3200X <input type="checkbox"/> NA1-3200XN	
Rated current In (A)		<input type="checkbox"/> 200 <input type="checkbox"/> 400 <input type="checkbox"/> 630 <input type="checkbox"/> 800 <input type="checkbox"/> 1000	<input type="checkbox"/> 630 <input type="checkbox"/> 800 <input type="checkbox"/> 1000 <input type="checkbox"/> 1250 <input type="checkbox"/> 1600 <input type="checkbox"/> 2000	<input type="checkbox"/> 2000 <input type="checkbox"/> 2500 <input type="checkbox"/> 3200	
Installation mode		<input type="checkbox"/> Drawout type <input type="checkbox"/> Fixed type (Note: no fixed type when In> 4000A)			
Number of poles		<input type="checkbox"/> Three poles <input type="checkbox"/> Four poles			
Intelligent Controller		Protection function		Auxiliary functions	Optional function
	<input type="checkbox"/> M type Standard (Default configuration)	1. <input type="checkbox"/> Ir overload long delay Isd short-circuit short delay inverse time + definite time Ii transient short-circuit, Ig single-phase grounding 4-section protection 2. <input type="checkbox"/> Ir overload long delay, Isd definite time short-circuit short delay,Ii transient short-circuit, Ig single-phase grounding 4-section protection		1. Ammeter function 2. Self-diagnostic function 3. Tuning function 4. Test function 5 Display function	<div>／</div> <div><input type="checkbox"/> Voltage display <input type="checkbox"/> Frequency display <input type="checkbox"/> Power Factor show <input type="checkbox"/> Active power display <input type="checkbox"/> Load monitoring function Note: For the specific optional function, refer to List of controller functions in the sample (The coast of optional functions will be calculated additionally).</div>
	<input type="checkbox"/> 3M type Multifunctional (Optional configuration)	1. <input type="checkbox"/> Ir overload long delay Isd short-circuit short delay inverse time + definite time Ii transient short-circuit, Ig single-phase grounding 4-section protection 2. <input type="checkbox"/> Ir overload long delay, Isd definite time short-circuit short delay,Ii transient short-circuit, Ig single-phase grounding 4-section protection			
	<input type="checkbox"/> 3H-type Communication type (Optional configuration)	1. <input type="checkbox"/> Ir overload long delay Isd short-circuit short delay inverse time +definite time Ii transient short-circuit, Ig single-phase grounding 4-section protection 2. <input type="checkbox"/> Ir overload long delay, Isd definite time short-circuit short delay, Ii transient short-circuit, Ig single-phase grounding 4-section protection 3. <input type="checkbox"/> with PROFIBUS-DP communication protocol <input type="checkbox"/> with MODBUS communication protocol			
	Notes: Protection function Settable range and conventional factory tuning	Ir long delay current setting range: (0.4 to 1) In Overload 1.5Ir action time setting range: 15,30,60 480s		! Conventional factory tuning: overload long delay 1.0In ! Conventional factory tuning: overload 1.5Ir; action 15s	
		Isd short delay current setting range: (1.5 to 15) Ir; short delay action time (0.1 ~ 0.4) s		! Conventional factory setting: short delay current 8Ir of; ! Conventional factory tuning: Short delay action time 0.4s [Note: 3M, 3H for (1.5 to 15) Ir]	
Ii instantaneous current setting range: 1.5In ~ 50kA/65kA/75kA ! Conventional factory tuning: the, 12In [Note: 3M, 3H for (1.5In 50kA/65kA/75kA)]					
Ig earthing protection current setting range: (0.2 to 0.8) In; the earthing protection time setting range: (0.1 to 0.4) s ! Conventional factory setting: 0.5 In; OFF					
Controller power	<input type="checkbox"/> AC380V, <input type="checkbox"/> AC400V, <input type="checkbox"/> AC220V, <input type="checkbox"/> AC230V, <input type="checkbox"/> AC127V, <input type="checkbox"/> DC220V, <input type="checkbox"/> DC110V			(Optional)	
Electrical accessories	Undervoltage release (default configuration)	<input type="checkbox"/> AC380V, <input type="checkbox"/> AC400V, <input type="checkbox"/> AC220V, <input type="checkbox"/> AC230V, <input type="checkbox"/> AC127V, <input type="checkbox"/> Order___V , <input type="checkbox"/> Non-undervoltage			(Optional)
		<input type="checkbox"/> Instantaneous <input type="checkbox"/> delay, s; <input type="checkbox"/> Resistance capacity loss release delay (1,3,5) s, and optional non-adjustable			(Optional)
	Shunt release	<input type="checkbox"/> AC380V, <input type="checkbox"/> AC400V, <input type="checkbox"/> AC220V, <input type="checkbox"/> AC230V, <input type="checkbox"/> AC127V, <input type="checkbox"/> DC220V, <input type="checkbox"/> DC110V			(Optional)
	Closing electromagnet	<input type="checkbox"/> AC380V, <input type="checkbox"/> AC400V, <input type="checkbox"/> AC220V, <input type="checkbox"/> AC230V, <input type="checkbox"/> AC127V, <input type="checkbox"/> DC220V, <input type="checkbox"/> DC110V			(Optional)
	Electric motor	<input type="checkbox"/> AC380V, <input type="checkbox"/> AC400V, <input type="checkbox"/> AC220V, <input type="checkbox"/> AC230V, <input type="checkbox"/> AC127V, <input type="checkbox"/> DC220V, <input type="checkbox"/> DC110V			(Optional)
Special requirements	Interlock device (surcharge)	Mechanical linkage: <input type="checkbox"/> Link interlock <input type="checkbox"/> Cable interlock Door interlock: <input type="checkbox"/> Switch body position door interlock <input type="checkbox"/> Switch on/off state door interlock (drawer-type)			(Optional)
	Accessories (surcharge)	Button lock: <input type="checkbox"/> Panel products on/off button lock Key lock: <input type="checkbox"/> 1 lock 1 key <input type="checkbox"/> 2 locks 1 key <input type="checkbox"/> 3 locks 1 key <input type="checkbox"/> 3 locks 2 keys <input type="checkbox"/> 5 locks 3 keys <input type="checkbox"/> Special custom__lock__ key External transformer: <input type="checkbox"/> External N phase transformer [(3P+N)T type, [No 3P+N:NA1-4000/3(In:4000A), NA1-6300(In:6300A)] <input type="checkbox"/> External leakage zero sequence current transformer (E mode) <input type="checkbox"/> External ground current transformer (W) Module: <input type="checkbox"/> PSU-1 Power module <input type="checkbox"/> RU-1 relay module <input type="checkbox"/> ST-DP protocol converting module <input type="checkbox"/> Position signaling devices (<input type="checkbox"/> Connected <input type="checkbox"/> Test <input type="checkbox"/> Unconnected) <input type="checkbox"/> Mechanical counting device			(Optional)
	The main circuit connection	<input type="checkbox"/> Horizontal connection (default) <input type="checkbox"/> Vertical connection (with L vertical bus-bar) <input type="checkbox"/> Rotation busbar horizontal connection (Drawer In ≤ 3200) <input type="checkbox"/> Rotation busbar vertical connection (drawer-type In ≤ 3200)			(Optional)

Note: The casing current, rated current and auxiliary control voltage must be specified when ordering!

Note: 1) Please mark "√" or fill figure in the relative " ☐ " if no mark, we will provide according to conventional.

Note: 2) The operational fuction of the intelligent controller and special requirements require additional costs.

Tel.:0577-6287777-6213 Fax :0577-6287777-6288



NA1-3200X



NA1-2000X



NA1-1000X

Configuration instructions

1. NA1-2000X~6300X fundamental configurations

a. Motor-driven:

Under-voltage instantaneous release;
Shunt release;
Closing electromagnet;
4 suits of transform contact;
Motor driven operating mechanism;
M-type Intelligent Controller;
Horizontal wiring of main circuit;
Doorcase;
Element of main circuit;
Operating instructions of M-type Intelligent Controller
Operating instructions of Air Circuit Breaker;
Packing box;
Drawer seat (Drawout type)

b. Manual:

Under-voltage instantaneous release;
4 suits of transform contact;
M-type Intelligent Controller;
Horizontal wiring of main circuit;
Doorcase;
Element of main circuit;
Operating instructions of M-type Intelligent Controller
Operating instructions of Air Circuit Breaker;
Packing box;
Drawer seat(Drawout type)

3. NA1-2000X~6300X operational configuration (additional costs)

Nonadjustable under voltage delayed release (1s, 3s, 5s);
Connecting-rod type mechanical interlock (for drawout type);
Wire-cable mechanical interlock; Button lock; Key lock;
Door interlock'Locking device;
External current transformer earthing protection; Vertical busbar;
Rotating busbar ($I_N \leq 3200$);
3NO (normal open) and 3NC (normal close) contacts;
4NO and 4NC contacts; 5 groups changeover contacts;
3 groups changeover contacts; H type intelligent controller;
Position signal; Counter; Protecting cover (NA1-2000);
Double power controller.

2. NA1-1000X fundamental configurations

a. Motor-driven:

Under-voltage instantaneous release;
Shunt release;
Closing electromagnet;
Motor driven operating mechanism;
4 normal open and 4 normal close auxiliary contacts;
M-type Intelligent Controller;
Closing and breaking push button lock;
Horizontal wiring of main circuit;
Doorcase;
Element of main circuit;
Operating instructions of Air Circuit Breaker;
Packing box;
Drawer seat(Drawout type)

b. Manual:

Under-voltage instantaneous release;
4 normal open and 4 normal close auxiliary contacts;
M-type Intelligent Controller;
Horizontal wiring of main circuit;
Closing and breaking push button lock;
Doorcase;
Element of main circuit;
Operating instructions of Air Circuit Breaker;
Packing box;
Drawer seat(Drawout type)

4. NA1-1000X operational configuration (additional costs)

Under voltage delayed release; wire-cable mechanical interlock;
key lock; External current transformer earthing protection;
Vertical busbar; 6 groups changeover contacts;
H type intelligent controller; Phases barrier position signal.

U.A.E

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