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A CHINT COMPANY

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 2022.07

CHNT

Empower the World



NA8 Air Circuit Breaker

ABOUT CHINT



CHINT A leading global provider of smart energy solutions

CHINT was established 38 years ago in 1984 and built from the capital of approximately 8,000 US dollars. With our rapid development these years, CHINT has become the world's leading intelligent energy solutions provider for the whole industrial chain with the most complete product ranges. In 2021, our annual sales revenue exceeded 16.1 billion dollars and total assets of more than 16.2 billion.

Over two decades of global expansion, our business network covers more than 140 countries and regions worldwide in business industries of low-voltage electric, power transmission and distribution, smart technology, energy instruments and meters, green energy, solar and more. CHINT has more than 40,000 employees worldwide, creating more than 200,000 jobs in the industrial chains.

As the market localization progresses steadily, CHINT Global further establishes its supply chain through business integration and industrial upgrade. Optimizing the service system and project financing, providing innovatively integrated technical services for the global energy market, and a flexible working business model. energy, intelligent manufacturing and digital technology, CHINT has adopted "One Cloud & Two Nets" as the business strategy, takes "CHINT Cloud" as the carrier of intelligent technology and data application, and takes the lead in building the energy Internet of things (EIoT) and industrial Internet of things platforms (IIoT).

Focusing on the energy system of supply, storage, transmission, distribution and consumption, CHINT has core businesses of clean energy, energy distribution, big data and energy value-added services. Furthermore, CHINT's pillar businesses include photovoltaic equipment, energy storage, power transmission & distribution, low-voltage apparatuses, intelligent terminals, software development and control automation. By developing into a platform-based enterprise, CHINT provides a package of energy solutions for public institutions, industrial & commercial users and end-users, by building a regional smart energy operation ecosphere.

Main Businesses



Clean Energy



Low-voltage Apparatus



Power Transmission and Distribution



Instrumentation and Apparatus



Smart Home



Intelligent Building



Intelligent Manufacturing



Industry Automation



Smart Heating



Smart Water



Home Electrical Apparatus



Energy Efficiency Management

ABOUT CHINT LOW VOLTAGE

Zhejiang CHINT Electrics Co., Ltd. is a wholly owned subsidiary of CHINT Group. Cultivating R&D, manufacturing and sales of low-voltage products, we provide system solutions for building, power supply, hoisting, HVAC, telecommunication and other industrial customers. For nearly 40 years since its founding, CHINT Electrics has provided reliable products and services to over 140 countries and regions. Today, CHINT has grown to be one of the world's renowned low-voltage brands.

CHINT Honors

2022

- "AAAAA" standardized good behavior certificate
- "Global Partnership" and "Countries along the Belt and Road" in the "2021 Best Practices for Realizing the Sustainable Development Goals".
- CSR Impact Leading Enterprise

2021

- No. 1 in "China's Top 100 Private Enterprises with Social Responsibility" in 2021
- For 8 consecutive years, CHINT has won the sales champion of Tmall double 11 in electrical and hardware industry
- No. 92 in "2021 China's Top 500 Private Enterprises".
- No. 244 in "2021 Top 500 Chinese Enterprises"
- The intelligent manufacturing factory of low-voltage electrical appliances was selected as the national "2021 Intelligent Manufacturing Demonstration Factory".

2020

- CHINT was selected in the 2020 Zhejiang Province "Future Factory" recognized list, and was rated as the leading "Leading Goose Factory".
- The key inverter technology of CHINT won the second prize of China Electric Power Science and Technology.
- CHINT Astrometry was selected as the smart PV demonstration enterprise list of the Ministry of Industry and Information Technology and won the honor of "Influential PV cell/module brand", "Influential PV EPC / End User", "Influential PV power station operation and maintenance brand".

2019

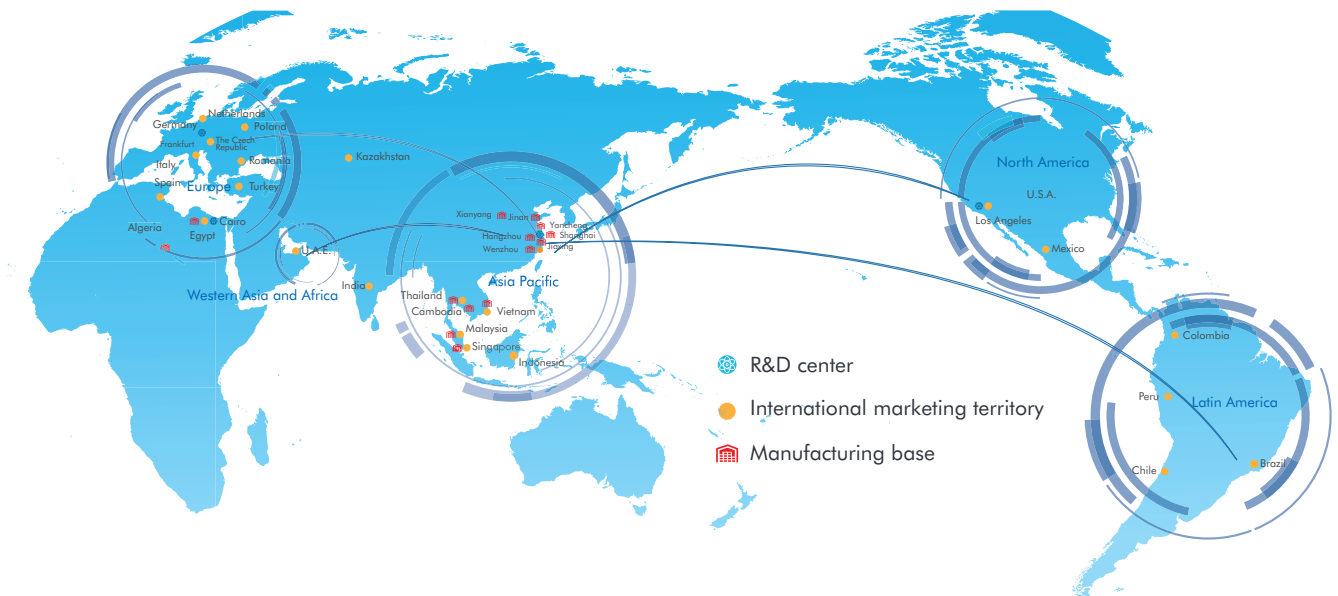
- National Green Factory
- National Industrial Design Center of the MIIT
- Global Top 20 PV Enterprise
- China's Top 10 Successful PV Enterprise
- Top 100 Innovative Enterprises in Zhejiang Province
- Technology innovation system was awarded the 2018 Science and Technology Progress Award in Zhejiang

Qualification Certification

The products have been accredited through China Compulsory Certification (CCC) as well as UL of US, CE of EU, VDE and TÜV of Germany, KEMA of Netherlands, RCM of Australia, RCC of South Africa and other international product certifications.



GLOBAL FOOTPRINT



4 National R&D Centers: North America, Europe, Asia Pacific, North Africa

6 International Marketing Territories: Asia Pacific, Western Asia and Africa, Europe, Latin America, North America, China

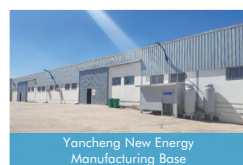
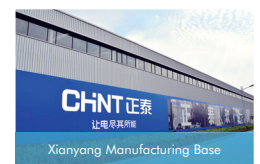
14 Manufacturing Bases: China (Wenzhou, Hangzhou, Shanghai, Jiaxing, Xianyang, Jinan, Yancheng), Thailand, Singapore, Vietnam, Malaysia, Egypt, Algeria and Cambodia

20+ International Logistics Centers

2300+ Sales Companies

GLOBAL CAPACITY LAYOUT

The industrial manufacturing bases are mainly located in Wenzhou, Hangzhou, Shanghai, Jiaxing, Xianyang and Yancheng. Additionally, CHINT has set up factories in Thailand, Singapore, Vietnam, Malaysia, Egypt, Cambodia etc.



R&D, QUALITY, SALES, LOGISTICS

Main Advantages

Global R&D System

CHINT has established national R&D centers in North America, Europe, Asia Pacific, North Africa and other areas. We have explored the mode of Industry-University Research Institute Collaboration and Integration together with the universities and research institutions worldwide so as to integrate the global innovation resources and promote corporate R&D innovation and talent cultivation.



24 research institutes



The average annual R&D investment accounts for 4-12% of the revenue



Over 6000 patents in total

Global Certification

The products have passed the standards and specifications in various regions around the world and obtained numerous international certifications



Honors

- No. 1 in China's Top 100 Private Enterprises with Social Responsibility in 2021
- No. 92 in 2021 China's Top 500 Private Enterprises
- No. 244 in 2021 Top 500 Chinese Enterprises
- The intelligent manufacturing factory of low-voltage electrical appliances was selected as the national 2021 Intelligent Manufacturing Demonstration Factory



Integrated Vertical R&D

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

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 complains, business consulting and technical support by solving problems immediately and including any possible problems in advance.

5%

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



Air Circuit Breaker

ACB



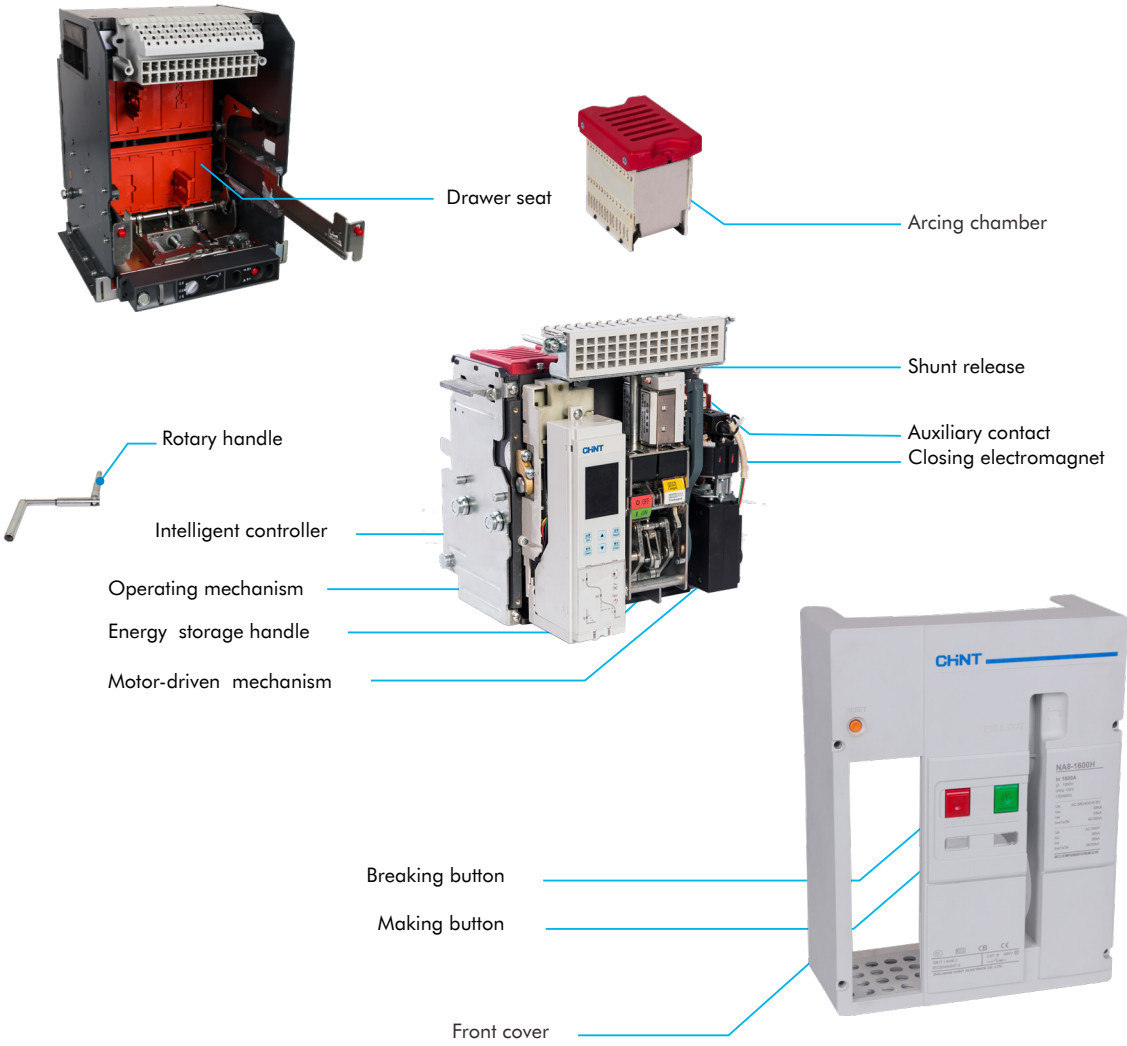
NA8



NA1

NA8 Air Circuit Breaker

Structural Features of Circuit Breaker



Identification of Circuit Breaker Panel



1 Trademark

2 Secondary wiring terminal

3 Breaking button

4 Energy- storage handle

5 Making button

6 Name plate

7 Energy-storage/release indicator

8 Breaking/Making indicator

9 Draw-out plate

10 Three-position locking device

11 Drawer padlock

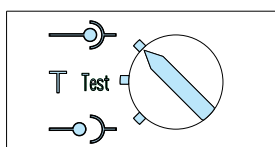
12 Racking- handle entry

13 Position indicator

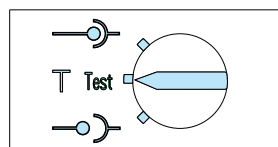
14 Rotary handle storage hole

15 Intelligent controller

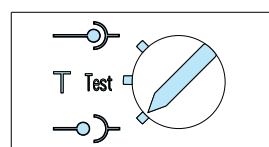
16 Fault-breaking indicator reset button



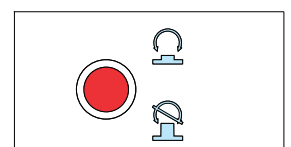
—○— : "Connected" position, main circuit and secondary circuit are both connected



T Test : "Test" position, main circuit disconnected and isolated with safety barrier, only secondary circuit is connected



—○— : "Disconnected" position, main circuit and secondary circuit are both disconnected



Button does not pop up, and handle is free to rotate;
Button pops up, and handle can not be rotated until button is reset manually.



Circuit Breaker

- Frame size (A): 1600, 2500, 3200, 4000, 7500
- Three kinds of breaking capacity: N, H, HU
- Rated voltage U_e (VAC): 380/400/415, 690, 800, 1000/1150
- Number of poles: 3 or 4 poles
- Mounting mode: draw-out type or fixed type
- Mode of connection: horizontal connection, vertical connection, mixed connection

Operating Conditions and Environmental

Suitability

- NA8 products can operate normally at the following temperature.

Electric and mechanical characteristic applicable for ambient temperature $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$ (certified), and also peripheral ambient temperature $-45^{\circ}\text{C} \sim +70^{\circ}\text{C}$ (M type), $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$ (H type).

- For specific derating factor, see P23.

Storage conditions: Applicable for $-45^{\circ}\text{C} \sim +70^{\circ}\text{C}$.

- NA8 may resist against the following electromagnetic interference:

EMI-generated overvoltage;

Overvoltage caused by environmental disturbance or distribution system;

Radio wave (radio, interphone, radar, etc.)

Static discharge of terminal users

- NA8 circuit breakers have successfully accredited through the EMC test specified in the following standards:

IEC/ EN 60947-2

The above tests may ensure:

no false tripping fault, tripping time not interrupted.

- Protection grade

Front IP20, other sides IP00



Intelligent Controller

- M type (basic type)
 - Basic functions: current measurement and display, protection function (L, S, I&G)
- H type (communication type)
 - Including all protection functions of M Type
 - LCD display
 - Communication function
- H type +optional functions
 - Including all protection and measurement functions of H type
 - (optional) voltage, power and other measurement functions
 - (optional) advanced protection function
 - (optional) harmonic measurement and analysis
 - (optional) multiple auxiliary functions

Connection

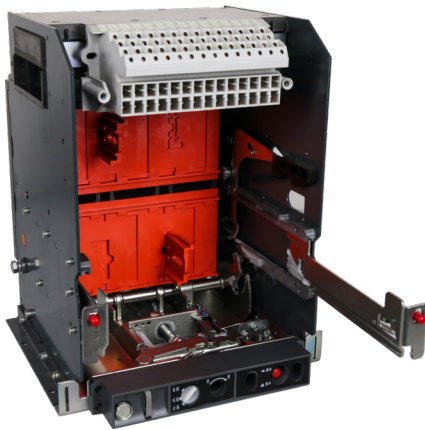
- Rear connection
 - Horizontal connection, vertical connection, mixed connection are optional, and horizontal connection is of standard configuration
- Optional accessories
 - Interphase insulating barrier, NA8-1600 expansion busbar

Lock

- Key lock
- Drawer position padlock (to lock the circuit breaker at the disconnected position)
- Drawer shutters padlock
- Breaking/Making button padlock
- Door interlock

Indication Contacts

- Standard contacts
 - Breaking/Making indication contact
 - Fault tripping indication contact
 - Spring energy storage indication contact
- Options
 - Drawer seat position indication contact
 - The ready to close contact may be added
 - (There is no such function for 1600A frame).



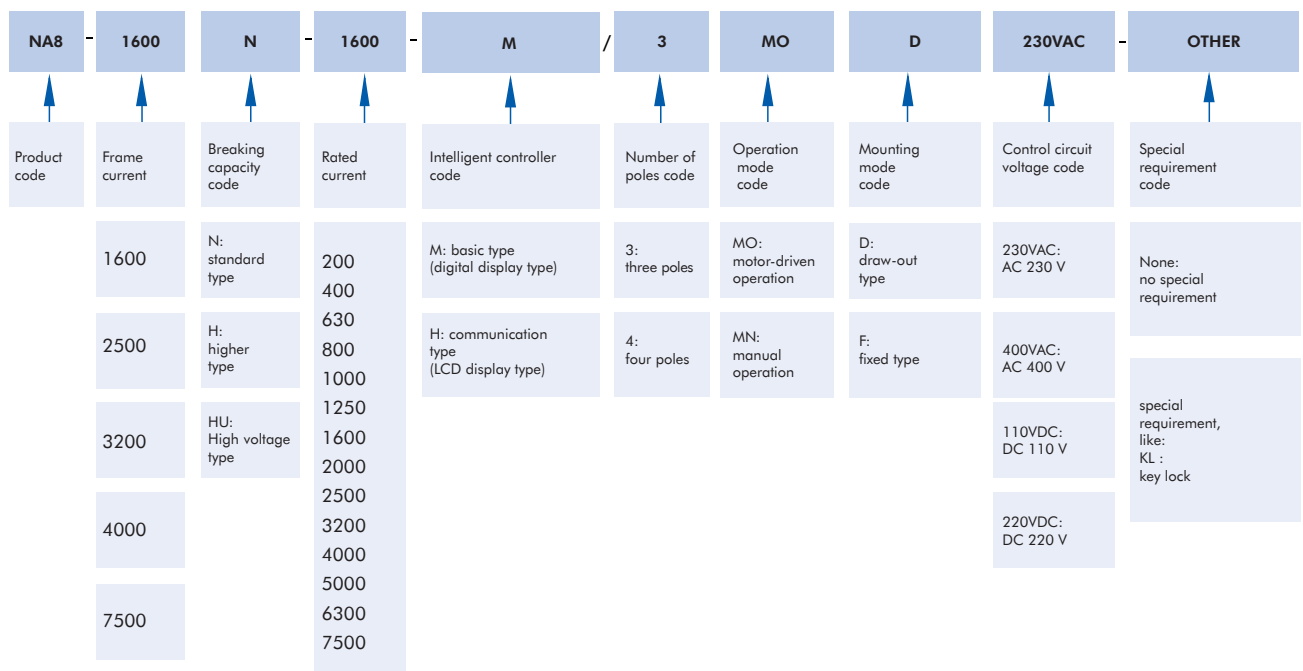
Remote Operation

- Standard accessories
 - Motor-driven mechanism: MO
 - Closing electromagnet: CC
 - Shunt release: ST
- Options
 - Undervoltage time delay release: UVTD
 - Undervoltage instantaneous release: UVT
 - Under-voltage delay release-zero: UVTZ

NA8 Air Circuit Breaker

Product model	Breaking capacity	Rated current	200	400	630	800	1000	1250	1600	2000	2500	3200	4000	5000	6300	7500
NA8-1600	N		■	■	■	■	■	■	■							
NA8-2500	N、H、HU				■	■	■	■	■	■	■					
NA8-3200	N								■	■	■	■				
NA8-4000	N、H、HU								■	■	■	■	■			
NA8-7500	N、H												■	■	■	■

NA8 Product Model Definition and Explanations

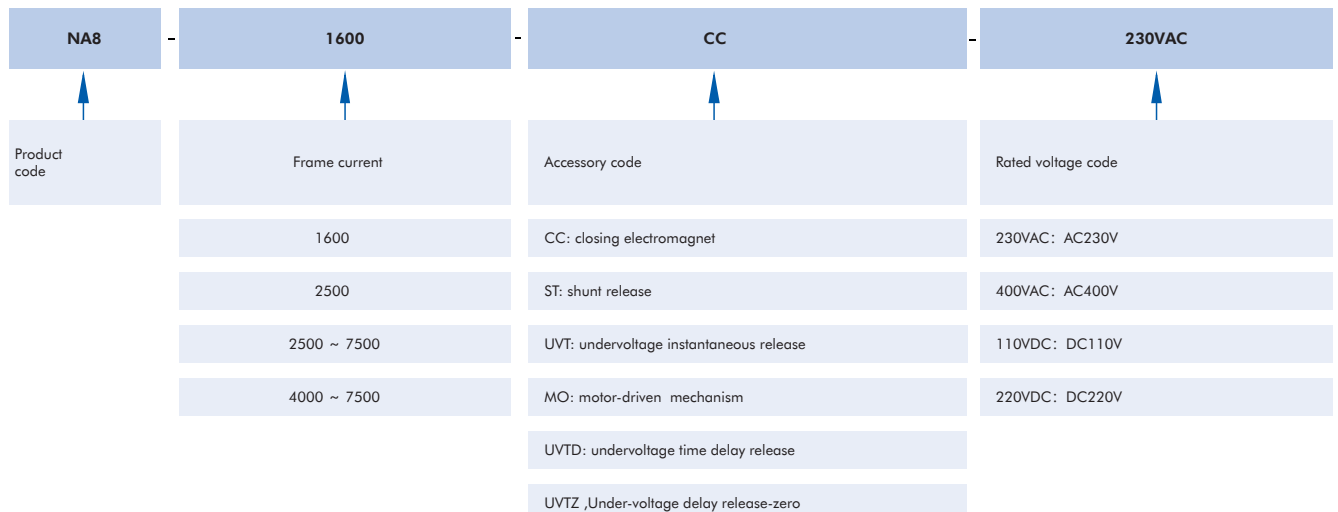


Notes: 1) "N" needs not be indicated for type N breaking capacity of NA8-7500, and may be omitted; if type H breaking capacity is selected, "H" needs to be indicated."

2) Manual operation: excluding motor-driven mechanism and closing electromagnet, shunt release. motor-drivenoperation: including all remote operation standard accessories.

3) Code instance: NA8-2500H-2000M/3MO-D AC230V: 2500A frame H type breaking capacity, rated current 2000A ,M type intelligent controller, 3poles,motor-driven operation, draw-out type, control voltage AC230V

NA8 Accessory Model Definition and Explanations (1)



NA8 Accessory Model Definition and Explanations (2)

NA8	1600	OF	C04
Product code	Frame current	Accessory code	Accessory specification
	1600	OF: auxiliary contact	C04: four groups of contacts
	2500		C06: six groups of contacts
	4000		N3: 3 NO 3 NC
	7500		N4: 4 NO 4 NC
	2500 ~ 7500		N5: 5 NO 5 NC
	4000 ~ 7500		
		KL: key lock	1S1S: one lock one key
			2S1S: two locks one key
			3S2S: three locks two keys
		FCDP: fixed door frame	
		DCDP: draw-out type door frame	
		FD3: fixed three-pole interphase insulating barrier	
		FD4: fixed four-pole interphase insulating barrier	
		DD3: draw-out type three-pole interphase insulating barrier	
		DD4 : draw-out type four-pole interphase insulating barrier	
		CE-CD-CT: drawer seat three-position signal	
		ILK2: draw-out type two wire rope mechanical interlock	
		ILK2F: fixed two wire rope mechanical interlock	
		ILK3: mechanical interlock (3 in 2)	
		ILK4 :mechanical interlock (3 in 1)	



Main Technical Parameters of Circuit Breaker

Characteristics

Number of poles	3/4	
Rated operational voltage Ue (V)	380/400/415、 690、 800、 1000/1150V	
Rated insulation voltage Ui (V)	1000、 1250、 1500	
Rated impulse withstand voltage Uimp (kV)	12	
Rated frequency (Hz)	50/60	
Flashover distance (mm)	0	
Suitability for isolation	IEC/EN 60947-2	Applicable
Pollution grade	IEC 60664-1	N:3

Frame size

Rated current (A)

Rated current of the N pole (A)

Type of the circuit breaker

Rated ultimate short-circuit breaking capacity (kA rms) VAC 50/60Hz	I_{cu}	380/400/415V、690V、800V、1000/1150V
Rated service short-circuit breaking capacity (kA rms) VAC 50/60Hz	I_{cs}	380/400/415V、690V、800V、1000/1150V
Utilization category		
Rated short-time withstand current (kA rms) VAC 50/60Hz	I_{cw} 1s	380/400/415V、690V、800V、1000/1150V
	I_{cw} 3s	380/400/415V、690V
Rated short-circuit making capacity (kA peak) VAC 50/60Hz	I_{cm}	380/400/415V、690V、800V、1000/1150V
Making current tripping protection function (MCR kA rms)		
Breaking time (ms)		
Closing time (ms)		

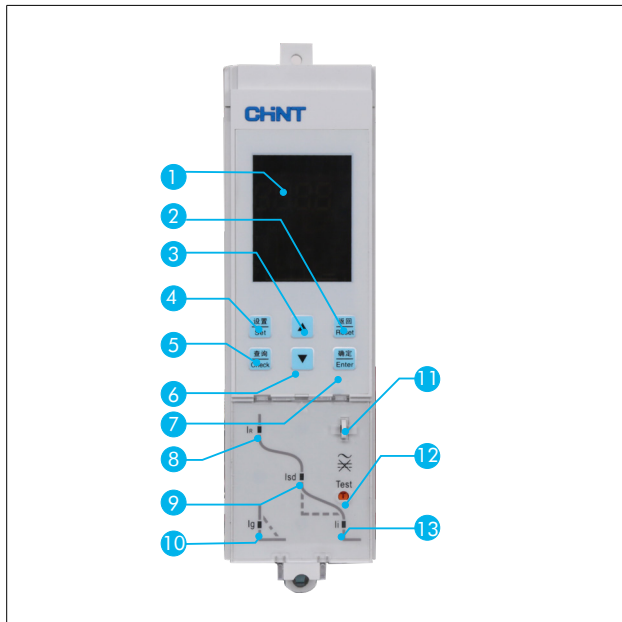
Mounting, connection and service life

Service life C/O cycle	Mechanical	No maintenance
	Electrical	No maintenance
Connection	Horizontal、Vertical、Mixed	
Size (H×W×D)	Fixed type	3P _____ 4P _____
	Draw-out type	3P _____ 4P _____

	NA8-1600							NA8-2500							NA8-3200			
	200	400	630	800	1000	1250	1600	630	800	1000	1250	1600	2000	2500	1600	2000	2500	3200
	200	400	630	800	1000	1250	1600	630	800	1000	1250	1600	2000	2500	1600	2000	2500	3200
	N (415V)			N (690V)				N(415V)	N(690V)	H(415V)	H(690V)	HU(800V)	HU(1000V/1150V)		N(415V)	N(690V)		
	65		36					65	55	85	65	65	55		100	75		
	50		36					65	55	85	65	65	55		100	75		
	B							B							B	B		
	50		36					65	55	85	65	65	55		85	65		
	30		30					50 50										
	143		75					143	121	176	143	143	121		220	165		
	16							16								26		
	20 ~ 30							20 ~ 30								20 ~ 30		
	30 ~ 40							30 ~ 40								30 ~ 40		
	15000							15000							10000			
	1600A:10000(415V) 3000(690V) ≤1250A:8000(415V)							8000(415V) 4000(690V) 2000(1150V)							6500(415V) 3000(690V)			
	■							■							■			
	320×254×250							396×370×367							396×430×340			
	320×324×250							396×465×367							396×545×340			
	351×282×348							431.5×375×476							427.5×439×449			
	351×352×348							431.5×470×476							427.5×554×449			

NA8-4000						NA8-7500							
1600	2000	2500	3200	4000		4000	5000	6300		7500			
1600	2000	2500	3200	4000		4000	5000	6300		3750			
N(415V)	N(690V)	H(415V)	H(690V)	HU(800V)	HU(1000V/1150V)	N (440V)	N (690V)	H (440V)	H (690V)	N(440V)	N (690V)	H (440V)	H (690V)
85	75	100	85	75	65	135	100	150	100	135	100	150	100
85	75	100	85	75	65	135	100	135	100	135	100	150	100
B						B							
85	75	100	85	75	65	135	100	135	100	135	100	135	100
			75	75		100	100	100	100	100	100	100	100
187	165	220	187	165	143	297	220	330	220	297	220	330	220
26						26							
20 ~ 30						20 ~ 30							
30 ~ 40						30 ~ 45							
10000						1000							
6500(415V) 4000A:600(1150V) 3000(690V) ≤4000A:3000(1150V)						1500(400V)		1000(690V)					
■						■							
396×430×340													
396×545×340													
427.5×439×449						471.5×786×464							
427.5×554×449						471.5×1016×464							

Function Overview of Intelligent Controller



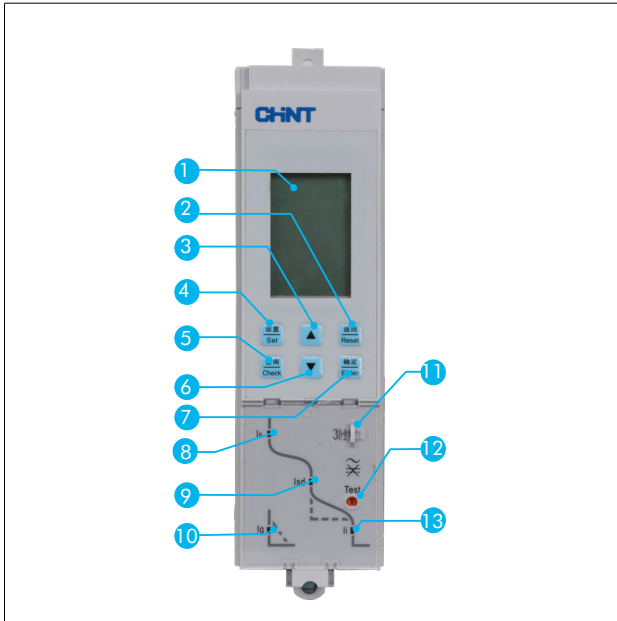
- 1 Display window: display the current value, setting parameter, fault current, tripping time, etc.
- 2 Return button: exit from current menu and enter the upper-level menu, or cancel current setting parameter value.
- 3 Up button: move up the check box submenu at the current menu, or realize "+" parameter setting in parameter setting.
- 4 Set button: switch to the default setting menu.
- 5 Check button: switch to the default query menu.
- 6 Down button: move down the check box submenu at the current menu, or realize "-" parameter setting in parameter setting.
- 7 Enter button: enter the next-level menu of current selected box, or save current parameter setting.
- 8 Ir indicator for overload long-time-delay tripping.
- 9 Isd indicator for short circuit short-time-delay tripping.
- 10 Ig indicator for earth fault tripping.
- 11 Cover lock hole
- 12 Button for tripping test
- 13 Ii indicator for short-circuit instantaneous tripping.

M Type intelligent controller (basic type)

Protection

All protective threshold values and time delays are set using buttons.

- Overload protection
 - True RMS long time delay protection.
 - Thermal memory: heat accumulation before and after tripping.
- Short circuit protection
 - Short time delay (RMS) and instantaneous protection
 - 4 definite time-delay options in terms of time delay
- Earth fault protection
 - 4 definite time-delay options in terms of time delay
- Test function
 - Simulate $6I_n$ test current for tripping test.
- Tripping recording function
 - Tripping reason display function
- Ammeter
 - M Type intelligent controller measures the current true effective value (RMS) from 40% to 150% with an accuracy of 2%.



- 1 Display window: display the current value, setting parameter, fault current, tripping time, etc.
- 2 Return button: exit from current menu and enter the upper 3.8-level menu, or cancel current setting parameter value.
- 3 Up button: move up the check box submenu at the current menu, or realize "+" parameter setting in parameter setting.
- 4 Set button: switch to the default setting menu.
- 5 Check button: switch to the default query menu
- 6 Down button: move down the check box submenu at the current menu, or realize "-" parameter setting in parameter setting.
- 7 Enter button: enter the next-level menu of current selected box, or save current parameter setting.
- 8 Ir indicator for overload long-time-delay tripping.
- 9 Isd indicator for short circuit short-time-delay tripping .
- 10 Ig indicator for earth fault tripping.
- 11 Cover lock hole
- 12 Test button for tripping test
- 13 Li indicator for overload long-time-delay tripping.

H Type Intelligent Controller (communication type)

Protection

All protective threshold values and time delays are set using buttons.

□ Contain all protection functions of M type control unit.

□ Communication function

Modbus - RTU communication protocol

□ Leakage protection function (optional)

Special external transformer is equipped.

□ Advanced protection function

Voltage unbalance protection

Overvoltage and undervoltage protection

Overfrequency and under-frequency protection

Phase sequence protection

Reverse power protection function

Demand value protection function

□ Expanded functions

Intelligent controller self-diagnostics

Operation times/fault tripping/alarm/ deflection recording

function: providing the record of the latest 10 times.

Main contact abrasion display function: evaluate the contact

abrasion degree according to the mechanical life, electric life and

breaking capacity of different frames.

Internal clock function.

Button Trip-test function.

□ Electric energy meter

Voltage measurement

Frequency measurement

Demand value measurement

Power (active power, reactive power, apparent power) measurement

Electric energy (active power, reactive power, apparent power)

measurement

Power factor measurement

□ Load monitoring function

□ Zone selectivity interlock (optional)

□ Input/output function (optional)

3DO, 4DO or 2DI, 2DO

DI signal: AC230 V (standard, other optional); DC110V;

DO requires the power module (24VDC output) and relay module.

□ Harmonic analysis function (optional)

Measuring the fundamental wave current, fundamental wave line

voltage, fundamental wave phase voltage, fundamental wave power

and each 3-31 odd harmonic current ratio (HR_{ih}), harmonic voltage

ratio (HR_{Uh}), total harmonic current distortion [THD_i, thd_i], total

harmonic voltage distortion [THD_u, thd_u].

Harmonic wave ratio (HR):

the ratio of the RMS value of the hth of harmonic component

contained in the cyclic AC quantity to the RMS value of fundamental

wave component (in percentage).

Protective Characteristics of Intelligent Controller

Protective characteristics of intelligent controller consist of inverse time-delay and definite time-delay.

When the fault current exceeds the inverse time-delay

setting, the controller provides time delay protection according to the definite time-delay.

The inverse time-delay current conforms to the characteristic curve I^2t .

Overload long-time-delay protection characteristics

Overload long-time-delay protection acting by threshold value.

Setting parameter	Setting range					Error				
Long time-delay setting current I _r	(0.4-1 .0) I _n +OFF					± 15%				
Long time-delay setting step size	1A (1600-2500 Frame size) ; 2A(4000-7500 Frame size)									
Long time-delay setting time t _r	(1-2- 4-8 -12-16-20 -24 -30)s					± 10%				
Anti-time-limit characteristic curve	$t=(\frac{6}{N})^2\times t_r$									
Fault current	Action time									
I< 0.85I _i	No action									
I> 1.15I _i	Action									
1.5I _r	16	32	64	128	192	256	320	384	480	
2.0I _r	9	18	36	72	108	144	180	216	270	
6.0I _r	1	2	4	8	12	16	20	24	30	

Notes: N --- the multiple of fault current divided by set current I/I_r

t --- fault operating delay time

t_k --- long time delay set value

Operating time permissible error $\pm 15\%$

Conventional factory setting: overload long time delay current $1.0I_n$;

Conventional factory setting: overload $6I_r$; operating time 2s

Example: Given that overload long time delay current $1.0I_n$, delay time 2s (at $6I_r$), now line current $I = 1.8I_n$, actual fault operating delay time t may be calculated:

$$N = 1.8I_n / 1.0I_n = 1.8$$

$$t = (6/1.8)^2 \times 2 = 22.2s$$

Short circuit short-time-delay protection characteristics

Short circuit short time delay protection acting by threshold value.

Setting parameter	Setting range	Error
Short time-delay setting current I_{sd}	(1.5-10) I_n +OFF	$\pm 10\%$
Short time-delay setting step size	1A (1600-2500 Frame size) ; 2A(4000-7500 Frame size)	
Short time-delay setting time t_{sd}	Definite-time-limit: 0.11、0.21、0.31、0.41; Anti-time-limit: 0.1、0.2、0.3、0.4	$\pm 15\%$ or inherent 40ms (take the maximum)
Fault current	Action time	
$I < 0.9I_{sd}$	No action	
$I > 1.15I_{sd}$	Time-delay action	
$I_{sd} < I \leq 10I$	Anti-time-limit	Action characteristics $I^2t = (10I_r)^2 t_{sd}$
		Setting times 0.1、0.2、0.3、0.4
$I \geq 1.1I_{sd}$	Definite-time-limit	Setting times 0.11、0.21、0.31、0.41
		Min.s 0.06、0.16、0.255、0.34
		Max.s 0.14、0.24、0.345、0.46
	Return time	0.05、0.14、0.25、0.33

Notes: I_{sd} --- short time delay current set value

I --- fault current

I_r --- long time delay set value

t --- fault operating delay time

t_{sd} --- short time delay inverse time-delay set value

Operating time permissible error $\pm 15\%$

Conventional factory setting: short time delay current $8I_r$

Conventional factory setting: short time delay operating time 0.4s

Short circuit instantaneous protection characteristic

Short circuit instantaneous protection acting by threshold value.

Setting parameter	Setting range
Instantaneous setting current I_i	(2~1.5) I_n + OFF
Short time-delay setting step size	1A (1600-2500 Frame size) ; 2A(4000-7500 Frame size)
Operating characteristics	$I < 0.85I_i$ No action
	$I > 1.15I_i$ Action
	$\leq 100\text{ms}$ Action time

Earth Fault Protection Characteristic

Earth fault protection operating threshold

$< 0.9I_g$: no action;

$> 1.1I_g$: action;

NA8 -1600\2500: $0.2I_n \sim 1.0I_n$ + OFF (MAX:1200A)

NA8-4000\7500: 500 A~1200 A + OFF

Definite time-delay	Setting time (s)	0.1	0.2	0.3	0.4
	Min (s)	0.06	0.16	0.255	0.34
	Max (s)	0.14	0.24	0.345	0.46
	Return time	0.05	0.14	0.25	0.33
Inverse time-delay	$t = \frac{(I_a)^2}{I^2} \times t_g$				

Notes: I_g — earth protection setting, NA8-1600\2500 default factory setting $I_g = 0.5I_n$, 4000\7500 default factory setting $I_g = 800\text{A}$

I --- fault current

T --- fault operating delay time

t_g --- earth inverse time-delay set value

Inverse time-delay operating time permissible error $\pm 15\%$

Conventional factory setting: OFF

Controller Minimum Factory Display Current

Frame	Rated current	Minimum display value
1600	400~1600	80
2500	630 ~ 2500	80
≥ 4000	≥ 1600	160

Measuring Accuracy of Intelligent Controller

Current measurement	
Measuring range	I _a , I _b , I _c and I _N not more than 15I _n (circuit breaker rated current)
Measuring accuracy	Below 0.1I _n , measurement is inaccurate.
	0.1I _n ~0.4I _n , the accuracy will linearly change from 5% to 2%.
	0.4I _n ~1.5I _n , the accuracy is 2%.
	> 1.5I _n , the accuracy will linearly change from 2% to 15%.
	Measuring accuracy of earth current is 10%.

Voltage measurement	
Measuring range	Line voltage: 0~600 V Phase voltage: 0~300 V
Measuring accuracy	Error: ±1%

Frequency	
Measuring range	40Hz~70Hz
Error	Error: ±0.1Hz

Power	
Measurement mode	Effective value
Measuring content	3P: total active power, total reactive power, total apparent power
	4P: split phase active power, split phase reactive power, split phase apparent power, total active power, total reactive power, total apparent power
Measuring range	Active power: -32768kW~+32767kW
	Reactive power: -32768Kvar~+32767Kvar
	Apparent power: 0KVA~65535kVA
	Error: ±2.5%

Power factor	
Measuring content	3P: total power factor 4P: split phase power factor
Measuring range	-1.00~+1.00

Electric energy	
Measuring content	Input reactive electric energy (EQ _{in}), output reactive electric energy (EQ _{out})
	Input active electric energy (EP _{in}), output active electric energy (EP _{out})
	Total active electric energy (EP _{total}), total reactive electric energy (EQ _{total}), total apparent electric energy (ES _{total})
Measuring range	Active electric energy: -32768kWh~+32767kWh
	Reactive electric energy: -32768Kvarh~+32767Kvarh
	Apparent electric energy: 0~65535kVAh
Measuring accuracy	±2.5%

Harmonic measurement	
Fundamental wave measurement	Current: I _a , I _b , I _c Voltage: U _{ab} , U _{bc} , U _{ca}
Total harmonic distortion	THD: total distortion ratio of harmonic wave in relative to fundamental wave
THD and Thd	Thd: total distortion ratio of harmonic wave in relative to effective value
Harmonic amplitude spectrum	The controller may display FFT amplitude of 3~31 odd harmonic in percentage "%".
Control unit measuring accuracy	±2%

Tripping Characteristic Curve of Intelligent Controller

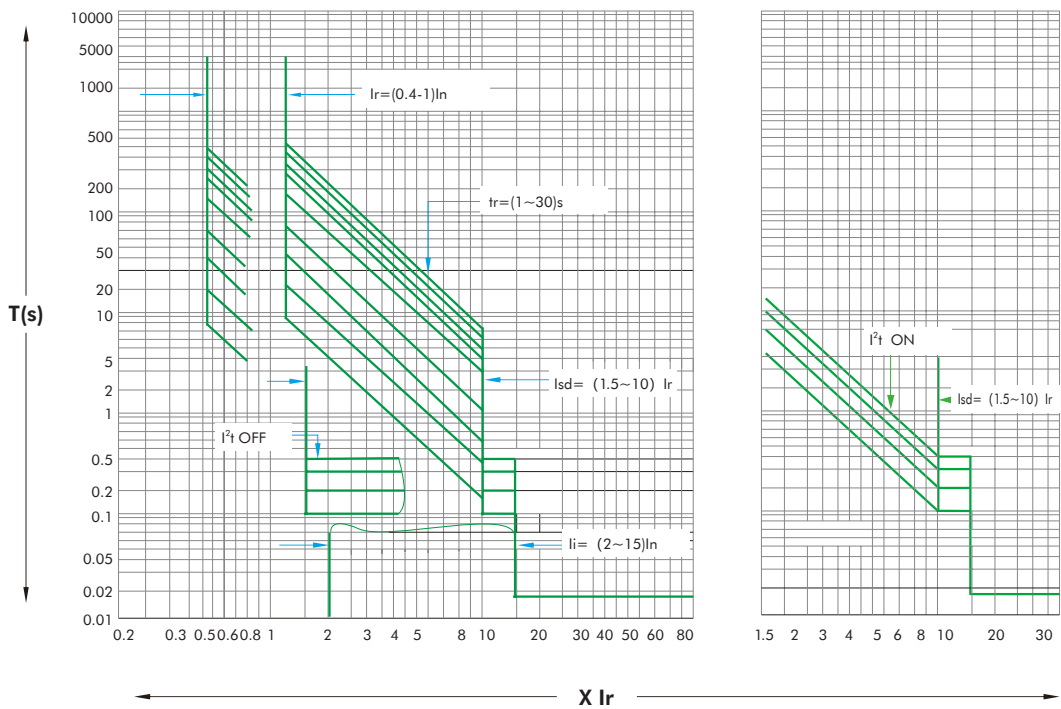


Fig.1 Overcurrent protection curves

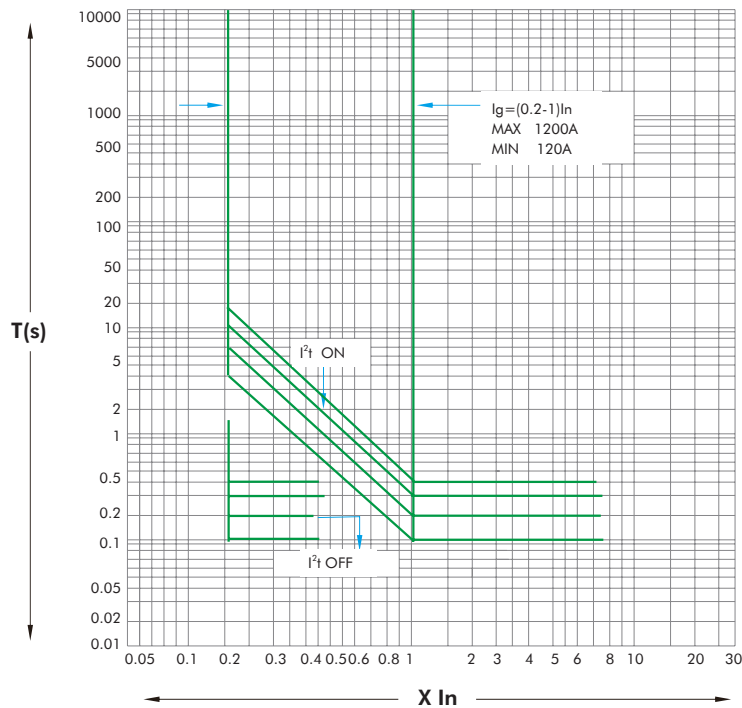
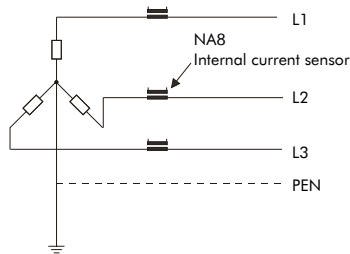


Fig.2 Asymmetrical earth fault protection curves

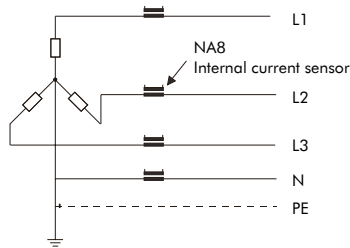
Explanations on Earth Fault Protection

Single Phase Earth Fault Protection

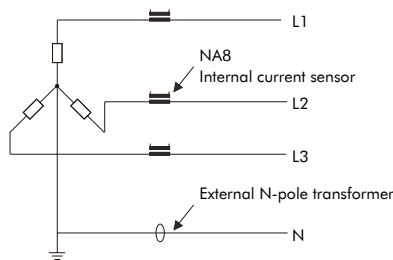
- The three-pole circuit breaker realizes earth protection through testing whether the three-phase current vector sum is zero or not via internal three current transformers.



- The four-pole circuit breaker realizes earth protection through testing whether the three-phase current and N phase current vector sum is zero or not via internal four current transformers.

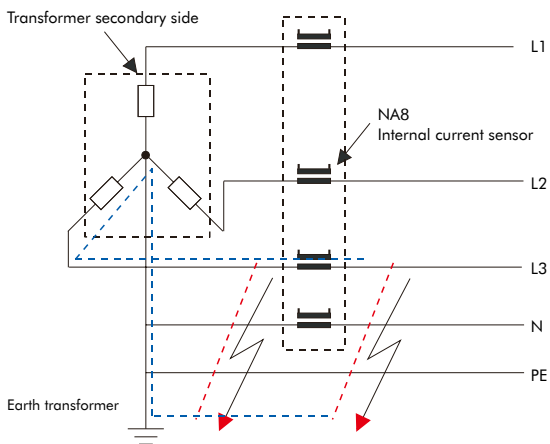


- The 3P+N system realizes earth protection through the vector sum calculation via the three-pole circuit breaker and external N-pole transformer.



- Notes:
- ① The external N-phase current transformer is special transformer configured by the company, and the default lead wire is 2m long.
 - ② At 3PT, the earth protection can be only used for balanced load; for unbalanced load, this function should be closed or the set value is set above the permissible unbalanced current; otherwise, it might cause the operation of intelligent controller.
 - ③ At (3P+N) T, maximum distance between transformer and circuit breaker cannot exceed 5m; when the transformer lead wire exceeds 2m long, it should be particularly indicated upon placing an order.

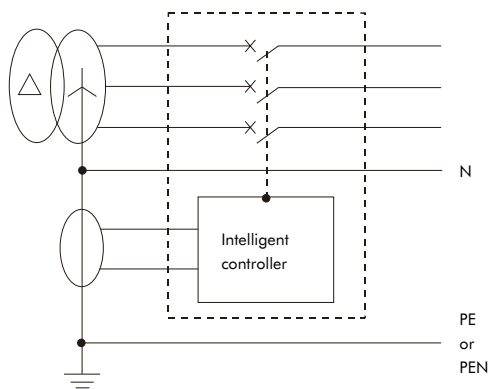
As show below, a load side fault of NA8 circuit breaker: The fault current only flows through one phase. If the three-phase current vector sum detected by 4 current sensors is higher than the set threshold, the intelligent control unit will activate the differential earth protection function. Such earth protection realizes the load side earth fault protection.



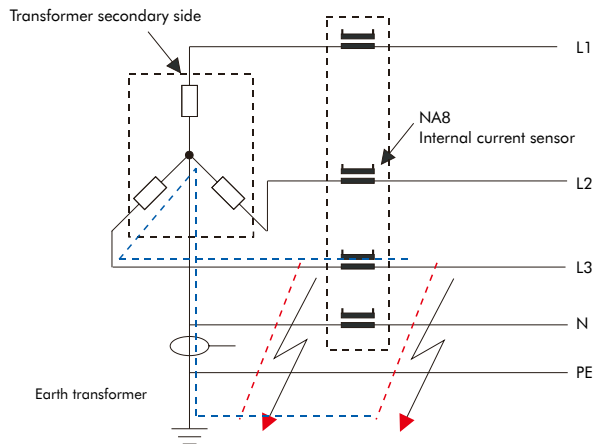
Earth Current Type Earth Protection

The earth transformer is used at the transformer star center to fulfill earth protection.

On condition of the circuit breaker protection of medium voltage/low voltage transformer, an earth transformer can be equipped at the transformer star connection center (the circuit breaker should be equipped with the H type controller, and the earth current protection transformer should be selected), and this earth transformer may measure the earth fault current at the power supply side and load side of NA8 circuit breaker, as shown below.



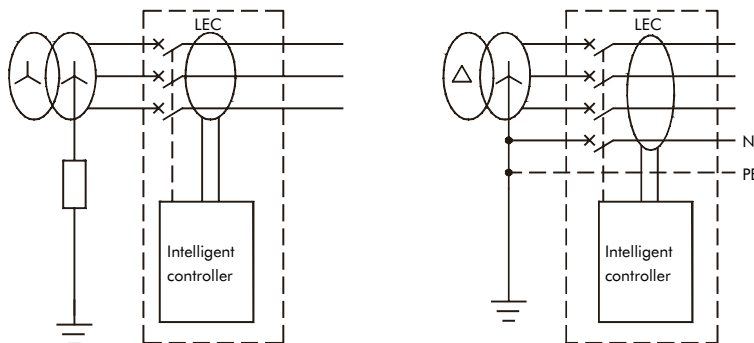
As shown below, through installing the external earth transformer, the earth fault at the power supply side of circuit breaker can be checked, and the earth fault at the load side of NA8 circuit breaker can also be detected.



Residual Leakage Protection

It is especially suitable for places having high-sensitivity requirement for the residual current protection to prevent man-made indirect contact. For NA8 circuit breaker, the H type controller should be selected, and the leakage protection function and leakage transformer (LEC) accessory should be added so as to realize leakage protection.

Leakage current $I_{\Delta n}$	[A]0.5-1-2-3-5-7-10-20-30
Tripping time Δt	[S]0.06-0.17-0.25-0.33-0.42-0.58-0.75-0.83



The NA8 circuit breaker realizes the residual current protection function and needs to meet the following requirements:

1. Select the H-type controller;
2. Adding the leakage protection function of the controller;
3. Adding leakage current transformer (LEC) accessories;
4. The outgoing terminal of the circuit breaker is connected vertically;
5. It is available when the rated current of the circuit breaker is $\leq 3200A$,

Accessory: Lock

Key Lock KL



There are 3 kinds of key lock (The later two kinds are used in the distribution system of two incoming cabinets and one connection cabinet):

one lock one key (1S1S)

two locks one key (2S1S)

three locks two keys (3S2S)

Drawer shutters Padlock

The padlock should be self prepared by the user.

If the padlock is selected, when the circuit breaker body is at the disconnected or test position, it should ensure the body terminal is not connected with external live circuit



Drawer Position Padlock

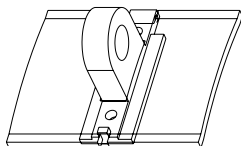
The padlock should be self prepared by the user.

After the drawer seat and body are locked at the disconnected using the padlock, the drawer seat rocker couldn't be inserted into the drawer seat rocking-handle hole, so the draw-out type circuit breaker body position cannot be changed.

Door Interlock

Circuit breaker condition door interlock

When the circuit breaker is closed, it is forbidden to open the switchgear door; when the circuit breaker is opened, it is allowed to open the switchgear door.



Circuit breaker position door interlock

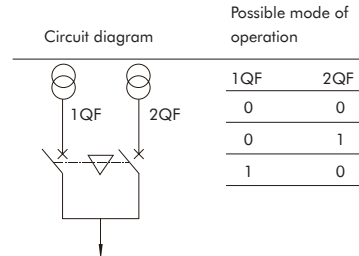
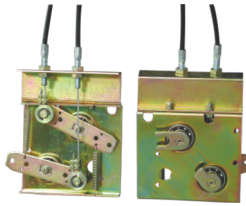
When the circuit breaker is at the connection and test position, it is forbidden to open the switchgear door; when the circuit breaker is at the detachment position, it is allowed to open the switchgear door.

Pushbutton Lock PL

Pushbutton lock: used to lock up the mechanical button opening and closing the circuit breaker, and the padlock is used. After locking, manual opening and closing operation couldn't be done. (the padlock should be self-prepared by the user).

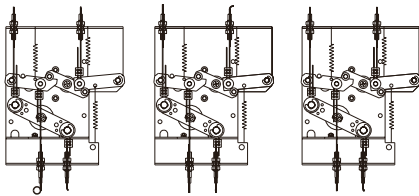
Mechanical Interlock IKL-2 (Wire rope two interlock):

It may realize the interlocking of two horizontal or vertically installed three- or four-pole circuit breakers.

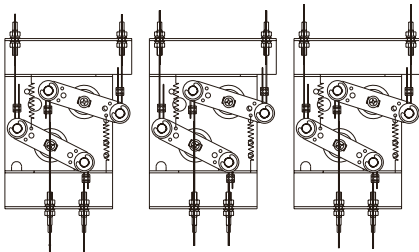


- Notes: a. When it needs to bend the wire rope, the transition arc at the bend should be higher than R120mm to ensure it can move flexibly.
b. Check the wire rope and ensure enough lubricating oil in it to ensure its flexible movement.

ILK -3 three interlock diagram

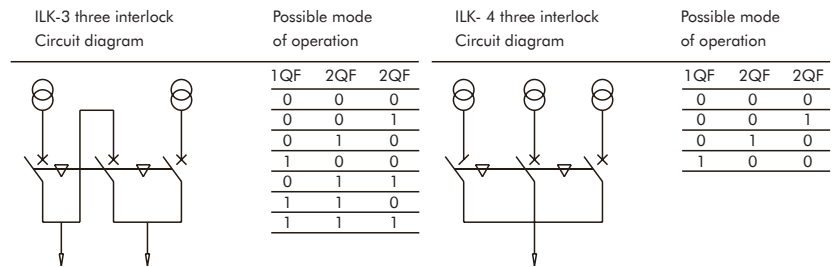


ILK -4 three interlock diagram



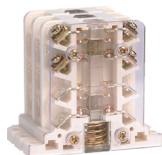
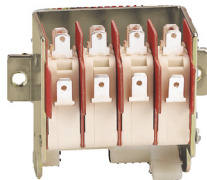
Mechanical Interlock ILK-3/4 (wire rope three interlock)

It may realize the interlocking of three flat or vertically installed three- or four-pole circuit breakers



- Notes: a. When it needs to bend the wire rope, the transition arc at the bend should be higher than R120mm to ensure it can move flexibly.
b. Check the wire rope and ensure enough lubricating oil in it to ensure its flexible movement.

Accessory: Indication Contact



Auxiliary contact OF			
Standard configuration		4CO	6CO (NA8-1600)
Breaking capacity		current (A)/voltage (V)	current (A)/voltage (V)
Utilization category	VAC (AC-15)	1.3/240, 0.75/415	1.3/240, 0.75/415
	VDC (DC-13)	0.55/110, 0.27/220	- -

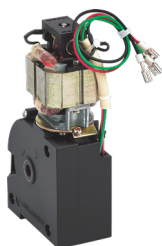
Drawer seat three-position indication contact CD - CE - CT		
Standard configuration		1CO/3
Breaking capacity		current (A)/voltage (V)
Utilization category	VAC (AC-15)	1.3/240, 0.75/415
	VDC (DC-13)	0.55/110, 0.27/220

Tripping alarm contact		
Standard configuration		1CO
Breaking capacity		current (A)/voltage (V)
Utilization category	VAC (AC-15)	1.3/240, 0.75/415
	VDC (DC-13)	0.55/110, 0.27/220

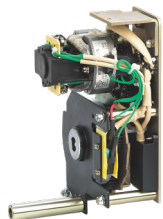
Spring energy storage indication contact		
Standard configuration		1NO
Breaking capacity		current (A)/voltage (V)
Utilization category	VAC (AC-15)	1.3/240, 0.75/415
	VDC (DC-13)	0.55/110, 0.27/220

Notes: 1) CO is the changeover contact, 1NO 1NC is matched with a common terminal.

2) NO is normally open contact, NC is normally closed contact.



1600 frame MO



2500~7500 frame MO

Motor-driven mechanism (MO)

It has the function of motor energy storage and automatic re-energy storage after closing of circuit breaker to ensure the circuit breaker can be closed immediately after opening. Where there is no auxiliary power supply, the energy storage handle is used as standby.

Characteristic		
Power supply	VAC 50/60Hz	220/230/240, 380/400/415
	VDC	110, 220
Operating threshold		0.85-1.1Us
Frame: power consumption (VA or W)		1600:75W; 2500:85W; 4000 ~ 7500: 150W
Motor over-current time		≤1 min
Energy storage time		≤7s
Operating frequency		≤2times/min



1600 frame CC&ST

**Electric remote operation coil (CC and ST)****Closing electromagnet (CC)**

If energy storage of the mechanism is done, CC may fulfill remote closing after being energized.

Characteristic		CC
Power supply	VAC 50/60Hz	220/230/240
	VDC	380/400/415
Operating voltage		220, 110
Frame: power consumption (VA or W)	AC	0.85-1.1Us
	DC	400VA
Circuit breaker response time		1600: 380W; 2500~7500: 130W
		30ms-45ms



2500, 4000~7500 frame CC&ST

**Shunt release (ST)**

After being energized, ST will open the circuit breaker instantaneously.

Characteristic		ST
Power supply	VAC 50/60Hz	220/230/240
	VDC	380/400/415
Operating voltage		220, 110
Frame: power consumption (VA or W)	AC	0.85-1.1Us
	DC	400VA
Circuit breaker response time		1600: 380W; 2500~7500: 130W
		20ms-30ms



1600 frame UVT

2500、4000~7500 frame UVT

Undervoltage release (UVT)

If the supply voltage reduced to a value between 35% and 70% of rated voltage, this tripping coil leads to the instantaneous opening of circuit breaker. If the UVT tripping coil is not energized, the circuit breaker cannot be closed, manually (closing button) or electrically (closed electromagnet). Only when the supply voltage of UVT tripping coil reaches 85% of rated voltage, the circuit breaker can be closed.

Characteristic			
Power supply	VAC 50/60Hz		220/230/240, 380/400/415
	VDC		-
Operating threshold	Opening	0.35-0.7Ue	0.35-0.7Ue
	Closing	0.85Ue	0.85-1.1Ue
Frame: power consumption (W)			1600: 220W/15W; 2500、4000~7500: 220W/13W

Note: attracting/holding.

Undervoltage time delay release (UVTD)

To prevent the false tripping circuit breaker resulting from short time voltage drop, it requires UVT operating time delay. A time delay unit is added besides UVT to realize this function.

Characteristic		
Power supply	VAC 50/60Hz	
Operating threshold	Opening	0.35-0.7Ue
	Closing	0.85Ue
Frame: power consumption (VA)	1600: 20VA; 2500~7500: 48VA	
Adjustable time	1s~5s, the time delay can be selected and adjustable.	

Note: Only NA8 - 1600 uses the external undervoltage time delay module, and 2500、4000~7500 product undervoltage time delay release has built-in undervoltage time delay unit.

Capacity Derating and Power Loss

NA8-1600

Ambient temperature	200A		400A		630A		800A		1000A		1250A		1600A	
Connection mode	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
40°	-	-	-	-	-	-	-	-	-	-	-	-	--	-
45°	-	-	-	-	-	-	-	-	-	-	-	-	1550	-
50°	-	-	-	-	-	-	-	-	-	-	-	-	1485	1540
55°	-	-	-	-	-	-	-	-	950	950	1150	1200	1390	1450
60°	-	-	-	-	580	580	700	700	900	900	1050	1100	1320	1370

NA8-2500

Ambient temperature	630A		800A		1000A		1250A		1600A		2000A		2500A	
Connection mode	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
40°	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45°	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50°	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55°	-	-	-	-	-	-	-	-	1500	1520	1850	1850	2420	2450
60°	-	-	-	-	-	-	-	-	1400	1420	1720	1750	2290	2320

NA8-3200

Ambient temperature	1600A		2000A		2500A		3200A	
Connection mode	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
40°	-	-	-	-	-	-	-	-
45°	-	-	-	-	-	-	-	-
50°	-	-	-	-	-	-	3100	-
55°	-	-	-	-	-	2450	3000	3050
60°	-	-	-	-	-	2350	2400	2900

NA8-4000

Ambient temperature	1600A		2000A		2500A		3200A		4000A	
Connection mode	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
40°	-	-	-	-	-	-	-	-	-	-
45°	-	-	-	-	-	-	-	-	3800	3850
50°	-	-	-	-	-	-	3100	-	3600	3650
55°	-	-	-	-	2450	-	3000	3050	3400	3450
60°	-	-	1900	1950	2350	2400	2900	2950	3200	3250

NA8-7500

Ambient temperature	4000A		5000A		6300A		7500A	
Connection mode	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
40°	-	-	-	-	/	-	/	-
45°	-	-	-	-	/	6100	/	7000
50°	-	-	4700	4800	/	6000	/	6550
55°	3900	3900	4600	4650	/	5500	/	6050
60°	3800	3800	4400	4500	/	5200	/	5650

Note: "-" represents no derating; "/" means no horizontal connection.

Altitude Capacity Derating Factor

Voltage performance corrections under different altitudes

Altitude (m)		2000	3000	4000	5000
Rated impulse withstand voltage (kV)	U _{imp}	12	11	10	8
Average insulation grade (V)	U _i	1000	900	800	700
Power frequency withstand voltage (V)		2200	2100	1950	1760
Maximum operational voltage (V)	U _e	690	580	520	460

Current performance corrections under different altitudes

Altitude (m)	Rated operating current (I _e)
2000	1.0I _e
2500	0.96I _e
3000	0.93I _e
3500	0.89I _e
4000	0.75I _e
4500	0.82I _e
5000	The factory must be contacted for confirmation

Note: If the ambient temperature is lower than 40 °C, I_e = I_n; if the ambient temperature is higher than 40 °C, derating use must be done in strict accordance with the requirement of operation manual; in such case, I_e ≠ I_n, I_e and I_n can be looked up according to the temperature derating table.

Power loss

Power loss is the power consumption measured at I_n, 50/60 Hz.

Frame	Rated current (A)	Power loss of draw-out type (W)	Power loss of fixed type (W)
1600A	200	115	45
	400	140	80
	630	161	100
	800	215	110
	1000	230	120
	1250	250	130
2500A	1600	460	220
	630	58.6	26.4
	800	73.7	36.6
	1000	172	78
	1250	268	122
	1600	440	200
3200A	2000	530	262
	2500	600	312
	1600	390	170
	2000	470	250
4000A	2500	550	280
	3200	670	420
	4000	1047	656
	4000	550	-
	5000	590	-
7500A	6300	950	-
	7500	1500	-

Dimension Of Busbar

Bolt Configuration and Mounting Torque

Bolt type	Application	Preferred tightening torque
M3	Fasten the secondary connecting conductor	(0.5~0.7) N·m
M8 (with flat washer only)	Fasten the product on the switchgear (1600A frame)	(18~25) N·m
M10 (with flat washer only)	Fasten the product on the switchgear (2500A and above frame)	(25~40) N·m
M10	Fasten the busbar	(36~52) N·m

Connection Busbar Specification Reference under Different Temperatures

Permissible maximum busbar temperature: 100℃

The busbar material is bare copper, and the unit of width and thickness is both mm.

Frame current	Rated current (A)	Ambient temperature (-5~40) °C				Ambient temperature 50℃				Ambient temperature 60℃			
		Recommended busbar specification				Recommended busbar specification				Recommended busbar specification			
		Width	Thickness	Number of panels	Specification	Width	Thickness	Number of panels	Specification	Width	Thickness	Number of panels	Specification
1600A	200	30	5	1	30*5*1	30	5	1	30*5*1	40	5	1	40*5*1
	400	30	5	2	30*5*2	30	5	2	30*5*2	30	10	1	30*10*1
	630	40	5	2	40*5*2	40	5	2	40*5*2	50	5	2	50*5*2
	800	50	5	2	50*5*2	50	5	2	50*5*2	50	6	2	50*6*2
	1000	50	5	3	50*5*3	50	5	3	50*5*3	50	6	3	50*6*3
	1250	60	8	2	60*8*2	60	8	2	60*8*2	60	10	2	60*10*2
2500A	1600	60	10	2	60*10*2	60	10	2	60*10*2	60	10	3	60*10*3
	630	40	5	2	40*5*2	50	5	2	50*5*2	50	5	2	50*5*2
	800	50	5	2	50*5*2	50	5	2	50*5*2	60	5	2	60*5*2
	1000	50	5	3	50*5*3	50	5	3	50*5*3	60	5	3	60*5*3
	1250	60	8	2	60*8*2	60	8	2	60*8*2	60	8	3	60*8*3
	1600	60	10	2	60*10*2	60	10	2	60*10*2	60	10	3	60*10*3
3200A	2000	100	5	3	100*5*3	100	5	3	100*5*3	100	5	4	100*5*4
	2500	100	10	2	100*10*2	100	10	2	100*10*2	80	10	3	80*10*3
	1600	80	6	2	80*6*2	80	5	3	80*5*3	80	6	3	80*6*3
4000A	2500	80	10	2	80*10*2	80	10	2	80*10*2	100	10	2	100*10*2
	3200	100	10	2	100*10*2	100	10	2	100*10*2	100	10	3	100*10*3
	4000	100	10	4	100*10*4	100	10	4	100*10*4	100	10	5	100*10*5
	1600	80	6	2	80*6*2	80	5	3	80*5*3	80	6	3	80*6*3
7500A	2000	80	10	2	80*10*2	80	10	2	80*10*2	100	10	2	100*10*2
	2500	100	10	2	100*10*2	100	10	2	100*10*2	100	10	3	100*10*3
	3200	100	10	4	100*10*4	100	10	4	100*10*4	100	10	5	100*10*5
	4000	100	10	5	100*10*5	100	10	5	100*10*5	120	10	5	120*10*5
7500A	4000	100	10	5	100*10*5	100	10	5	100*10*5	100	10	6	100*10*5
	5000	100	10	7	100*10*7	100	10	7	100*10*7	120	10	7	120*10*7
	6300	120	10	7	120*10*7	120	10	7	120*10*7	120	10	8	120*10*8
	7500	120	10	9	120*10*9	120	10	9	120*10*9	120	10	10	120*10*10

Notes: a. When the copper busbar selected by the user is not matched with the circuit breaker connection terminal, it needs to design and process the extension busbar for

connection. The extension busbar will be designed by the user; its section area cannot be less than the above requirement, and the clearance between extension busbars cannot be less than that between the circuit breaker connection terminals.

b. After installing the above recommended busbar, it shall ensure the electric clearance between adjacent phases of the circuit breakers is not less than 18mm.

c. For electric components using thyristor for three-phase rectification and high-frequency inversion in the load devices, like high-frequency induction heating electric furnace (intermediate frequency furnace steel facility), solid state high frequency welder (such as submerged arc welder), vacuum heating melting facility (like single crystal growing furnace), upon selecting the circuit breaker, it should take into account not only the impact of ambient temperature and altitude, but also the impact of higher harmonic generated by thyristor on the circuit breaker; in such case, it must be used by derating, and the recommended derating factor is (0.5~0.8).

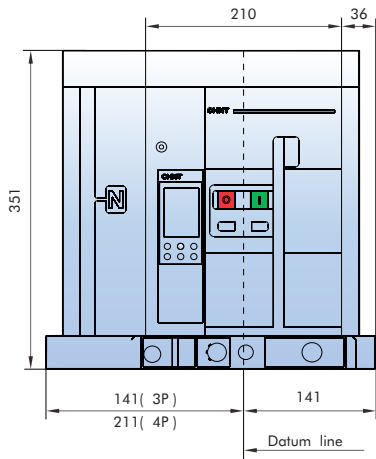
d. After the user installs the busbar, the electric clearance between upper and lower busbar fastening bolts should not be less than 20 mm.

e. After the circuit breaker is installed, the safe spacing between different potential electrified bodies and between the electrified body and ground should be not less than 18mm.

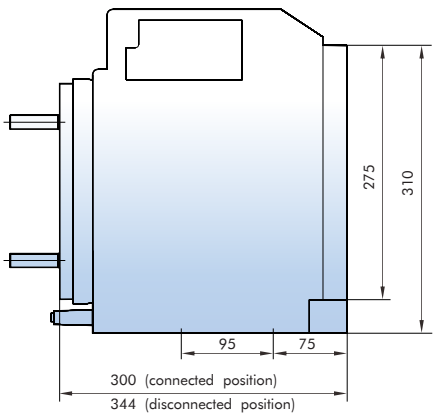
Dimension And Installation

NA8-1600 draw-out type

Front view

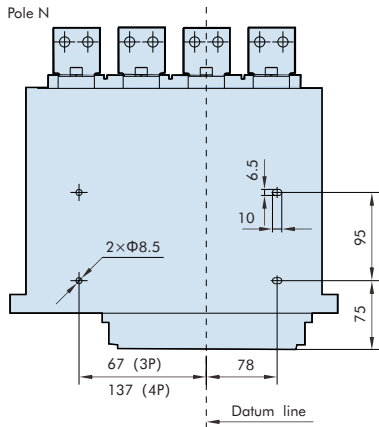


Side view

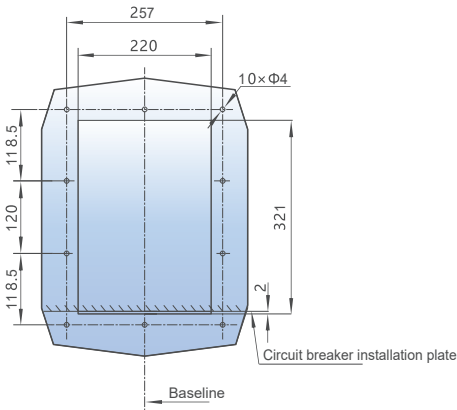


Hole size

Hole size of the base

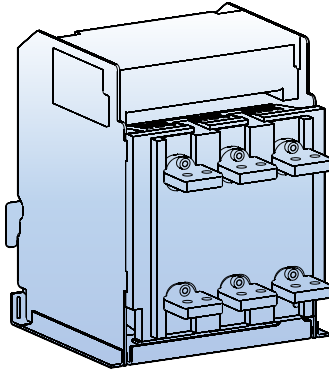


Hole size of the panel



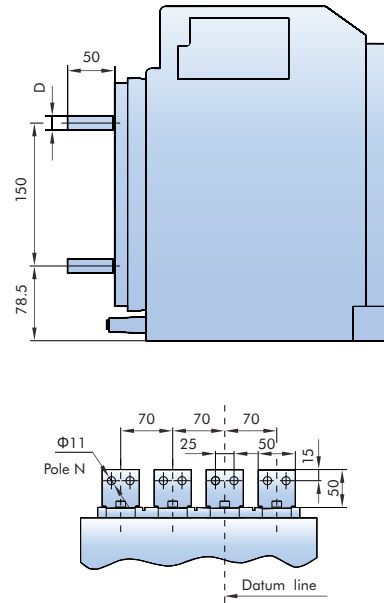
Horizontal connection

Side view



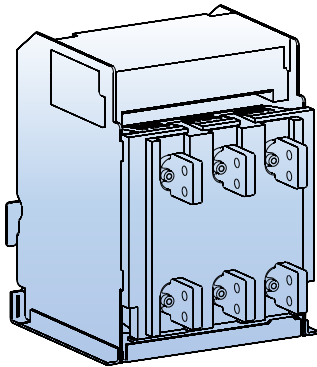
In(A)	D(mm)
200~800	10
1000~1600	16

Busbar mounting dimensions

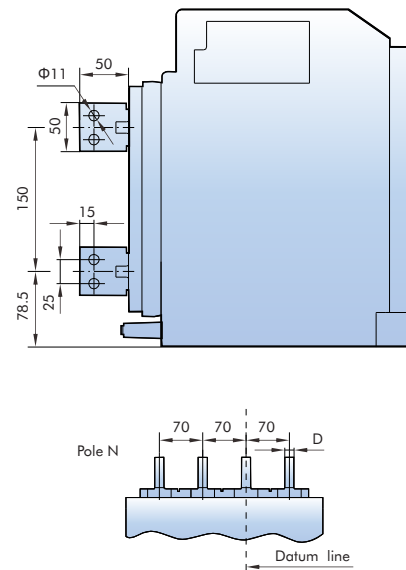


Vertical connection

Busbar mounting dimensions

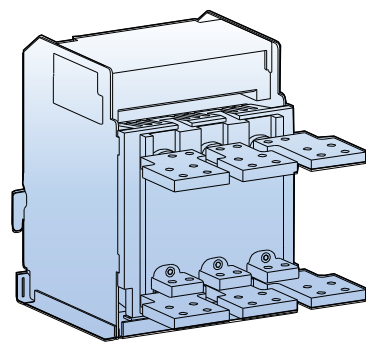


In(A)	D(mm)
200~800	10
1000~1600	16



Three-pole product horizontal extension busbar (optional)

Side view

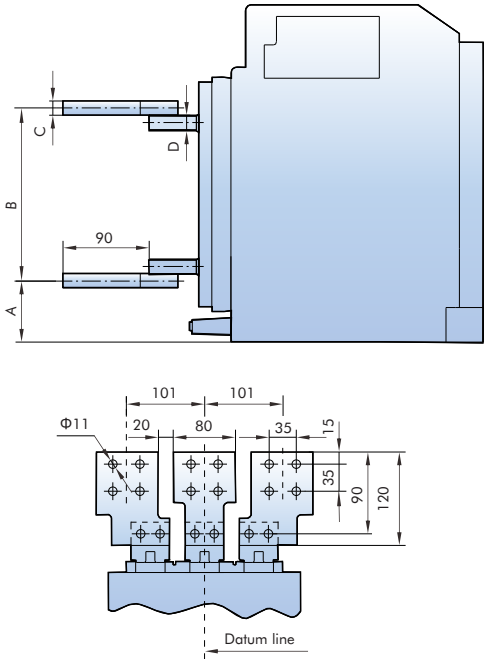


Unit: mm

In(A)	A	B	C	D
200~800	68.5	170	10	10
1000~1600	63	181	15	16

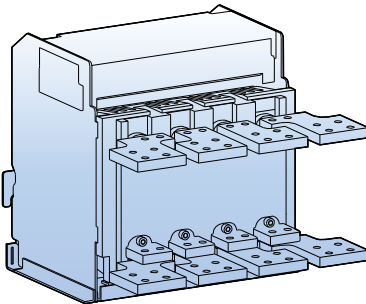
Note: The extension busbar is of optional accessory, requiring additional expense.

Busbar mounting dimensions



Four-pole product horizontal extension busbar (optional)

Side view

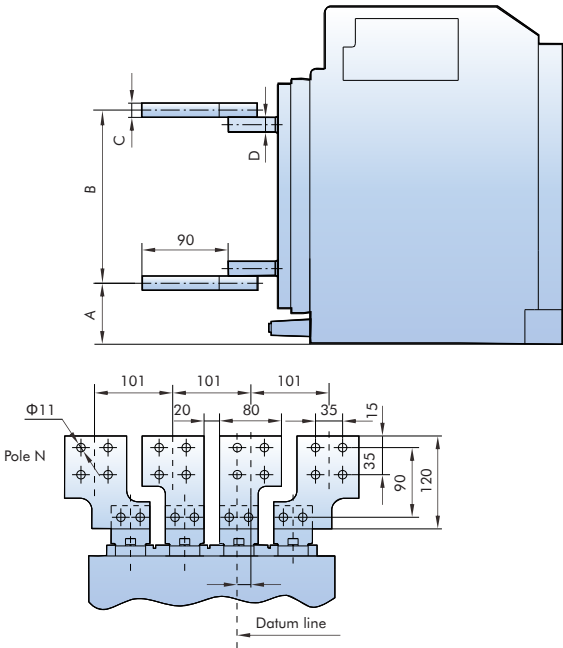


Unit: mm

In(A)	A	B	C	D
200~800	68.5	170	10	10
1000~1600	63	181	15	16

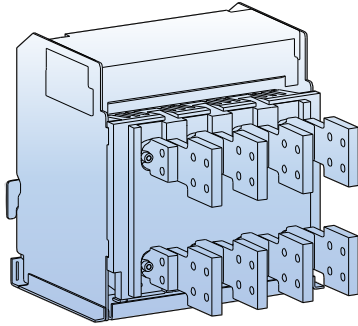
Note: The extension busbar is of optional accessory, requiring additional expense.

Busbar mounting dimensions



Vertical extension busbar (optional)

Side view

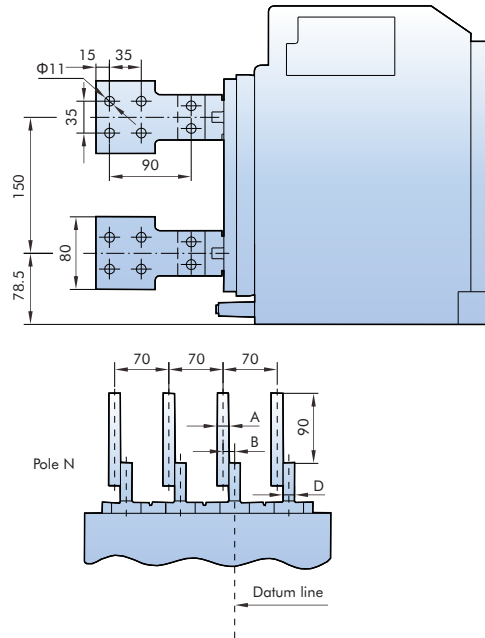


Unit: mm

In(A)	A	B	D
200~800	10	10	10
1000~1600	15	15.5	16

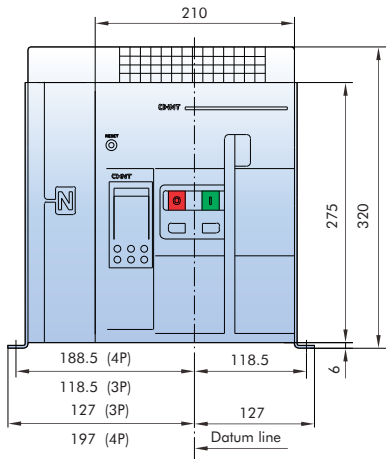
Note: The extension busbar is of optional accessory, requiring additional expense.

Busbar mounting dimensions

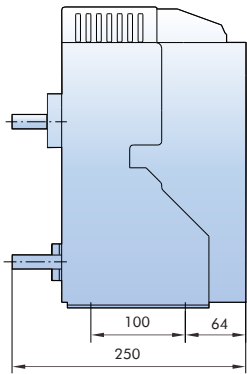


NA8-1600 fixed type

Front view

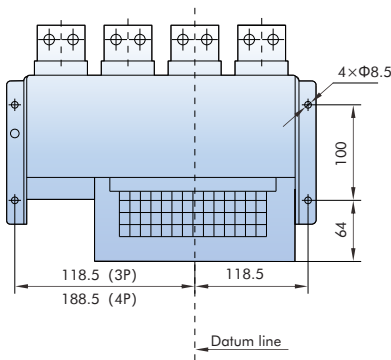


Side view

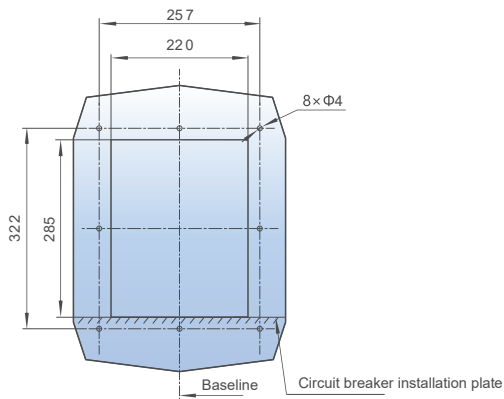


Hole size

Hole size of the base

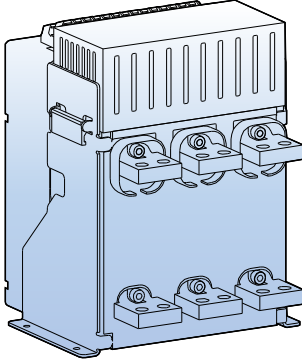


Hole size of the panel

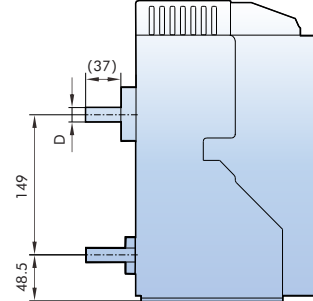


Horizontal connection

Side view

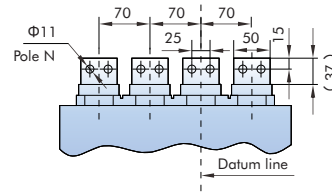


Busbar mounting dimensions



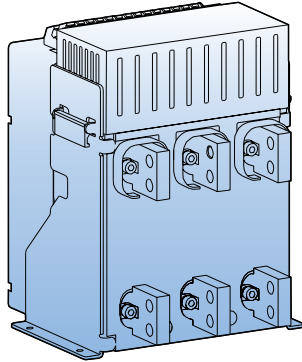
In(A)	D(mm)
200~800	10
1000~1600	16

Note: If the user intends to change horizontal connection into vertical connection at site, it only needs to rotate the busbar by 90°.

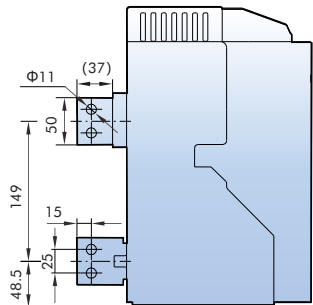


Vertical connection

Side view

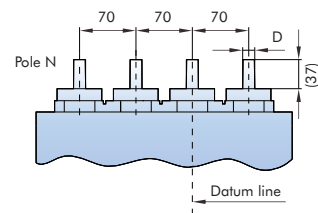


Busbar mounting dimensions



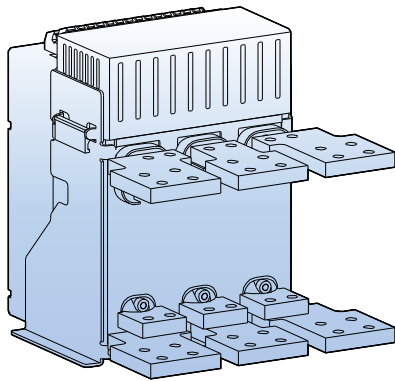
In(A)	D(mm)
200~800	10
1000~1600	16

Note: If the user intends to change vertical connection into horizontal connection at site, it only needs to rotate the busbar by 90°.



Three-pole product horizontal extension busbar connection (optional)

Side view

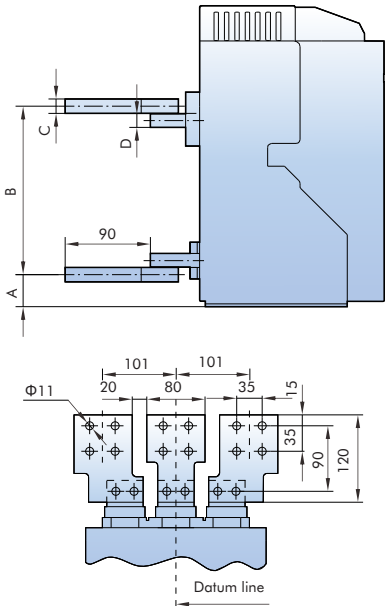


Unit: mm

In(A)	A	B	C	D
200~800	38.5	169	10	10
1000~1600	33	180	15	16

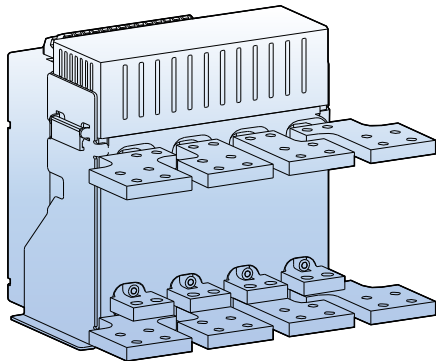
Note: The extension busbar is of optional accessory, requiring additional expense.

Busbar mounting dimensions



Four-pole product horizontal extension busbar connection (optional)

Side view

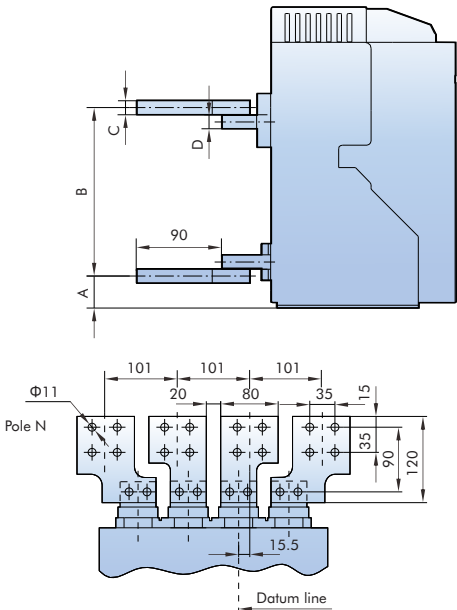


Unit: mm

In(A)	A	B	C	D
200~800	38.5	169	10	10
1000~1600	33	180	15	16

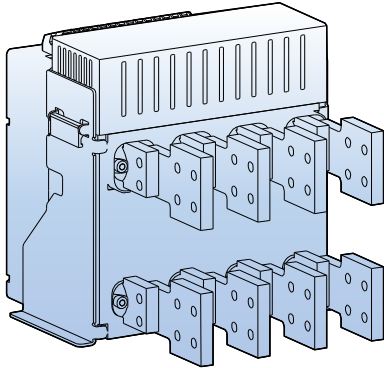
Note: The extension busbar is of optional accessory, requiring additional expense.

Busbar mounting dimensions



Vertical connection of extension busbar (optional)

Side view

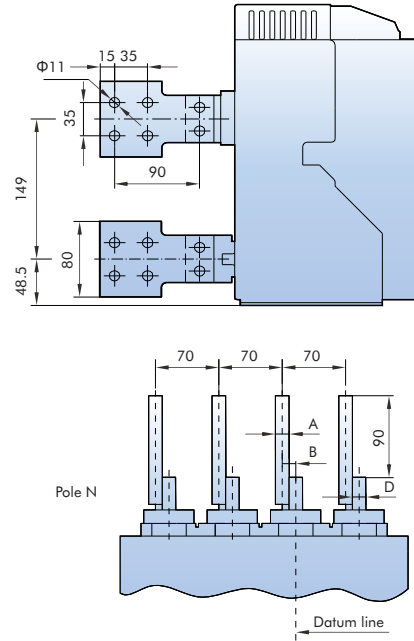


Unit: mm

In(A)	A	B	D
200~800	10	10	10
1000~1600	15	15	16

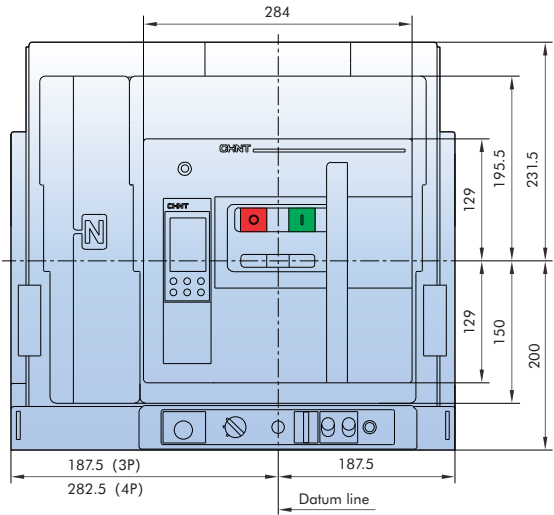
Note: The extension busbar is of optional accessory, requiring additional expense.

Busbar mounting dimensions

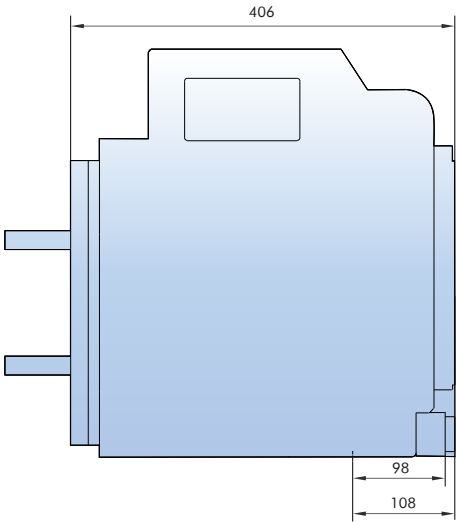


NA8-2500 Draw-out type

Front view

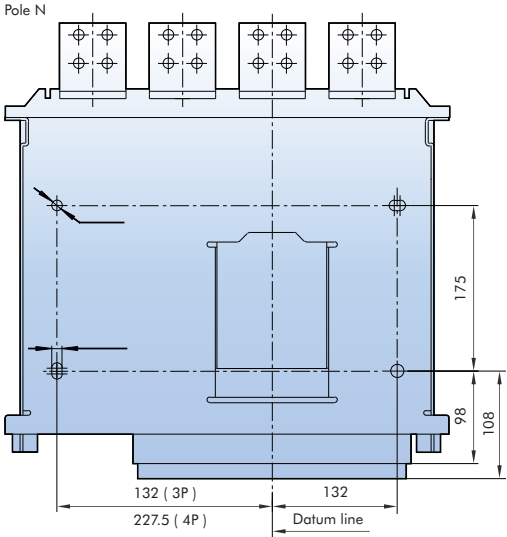


Side view

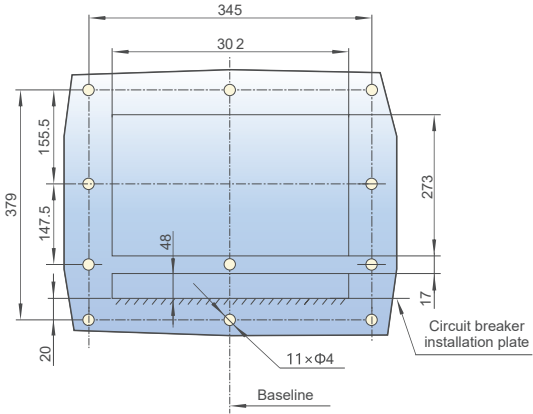


Hole size

Hole size of the base

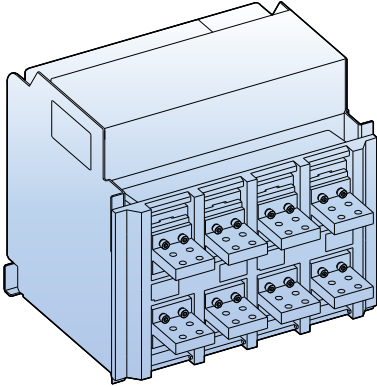


Hole size of the panel



Horizontal connection

Side view

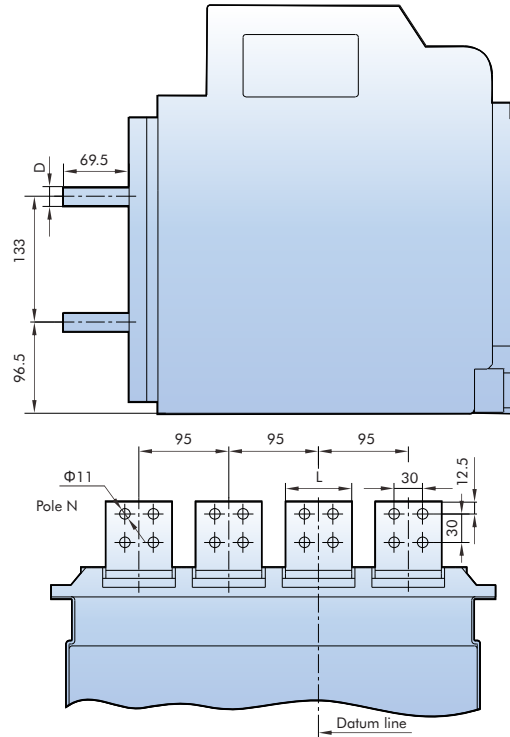


Unit: mm

In(A)	D	L
630~1600	15	60
2000~2500	20	70

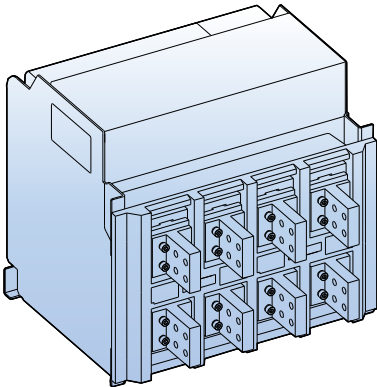
Note: If the user intends to change horizontal connection into vertical connection at site, it only needs to rotate the busbar by 90°.

Busbar mounting dimensions



Vertical connection

Side view

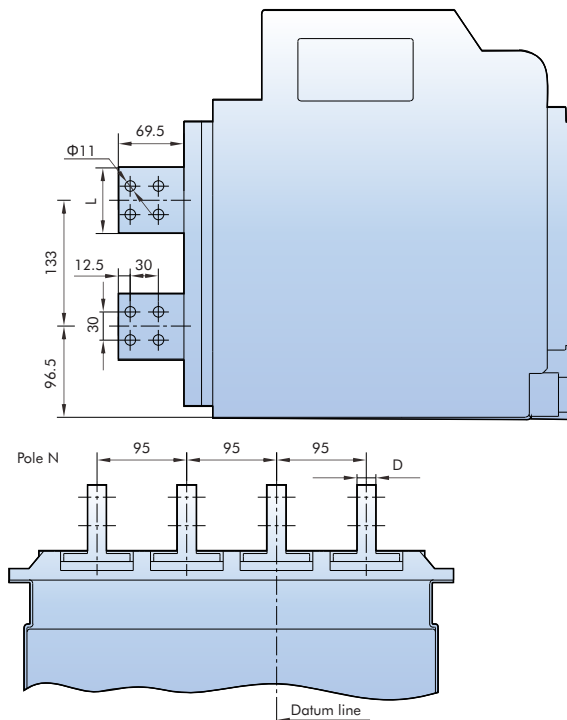


Unit: mm

In(A)	D	L
630~1600	15	60
2000~2500	20	70

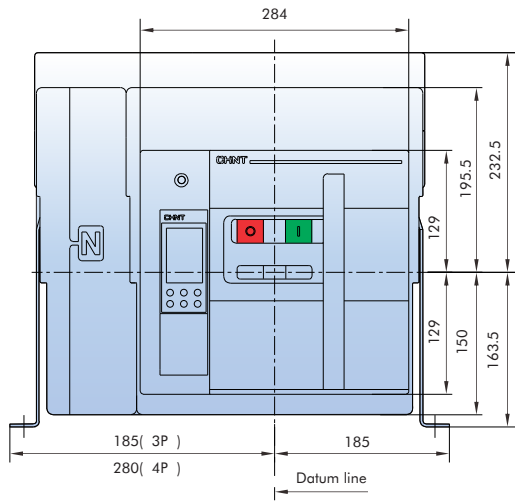
Note: If the user intends to change vertical connection into horizontal connection at site, it only needs to rotate the busbar by 90°.

Busbar mounting dimensions

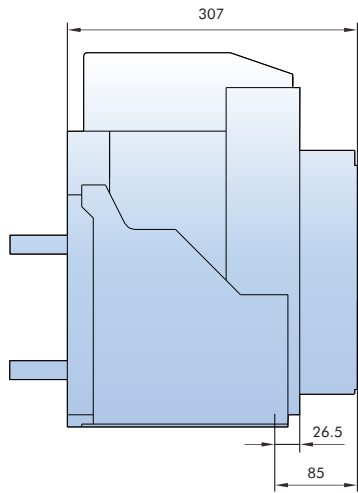


NA8-2500 fixed type

Front view

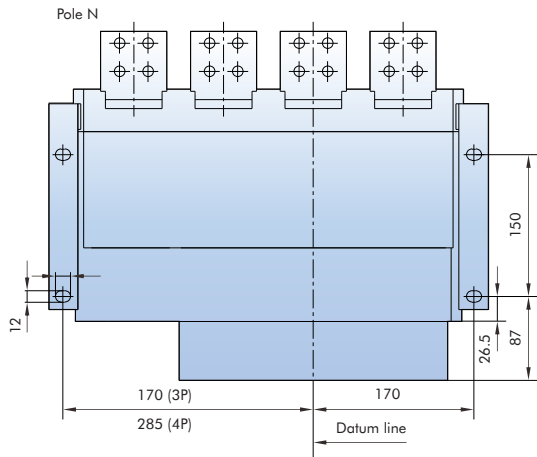


Side view

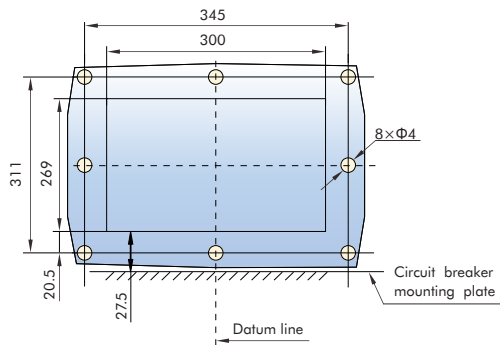


Hole size

Hole size of the base

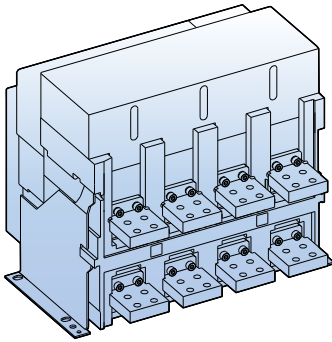


Hole size of the panel



Horizontal connection

Side view

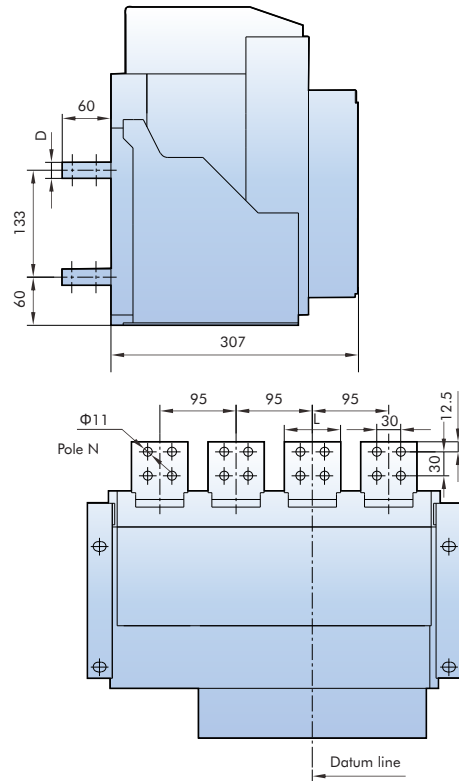


Unit: mm

ln(A)	D	L
630~1600	15	60
2000~2500	20	70

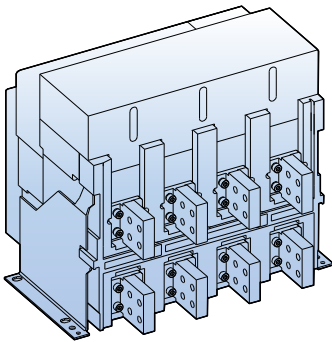
Note: If the user intends to change horizontal connection into vertical connection at site, it only needs to rotate the busbar by 90°.

Busbar mounting dimensions



Vertical connection

Side view

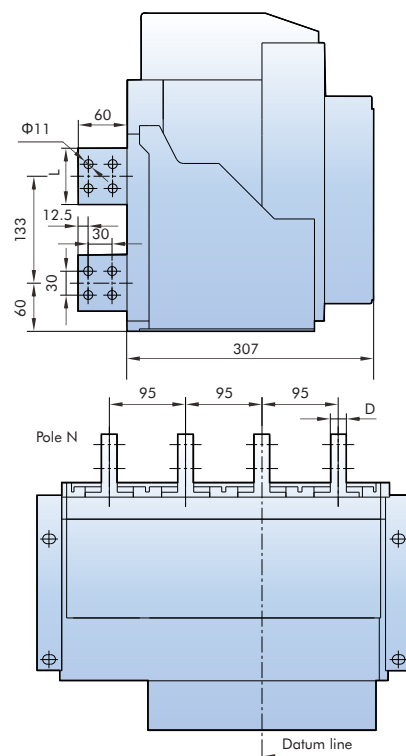


Unit: mm

In(A)	D	L
630~1600	15	60
2000~2500	20	70

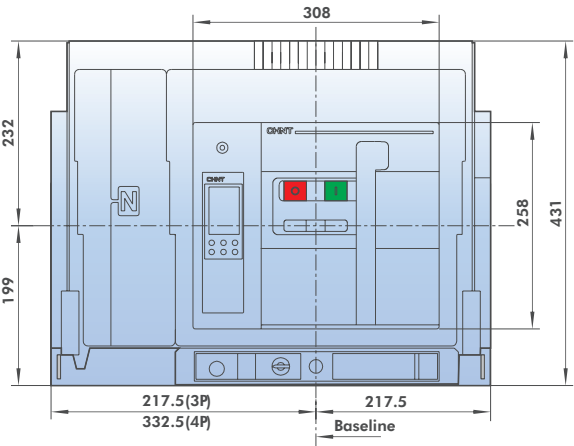
Note: If the user intends to change vertical connection into horizontal connection at site, it only needs to rotate the busbar by 90°.

Busbar mounting dimensions

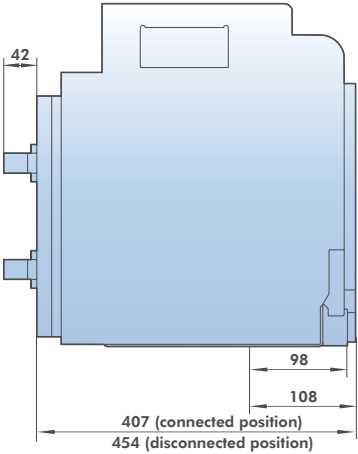


NA8-3200 Withdrawable type

Front view

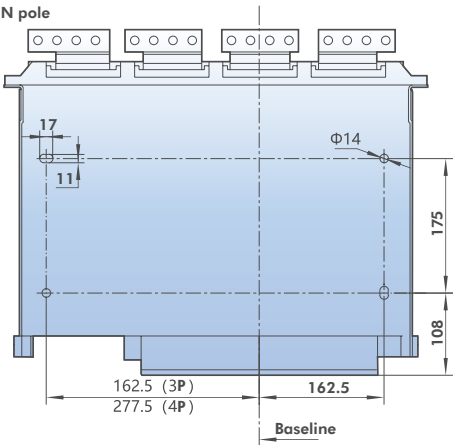


Side view

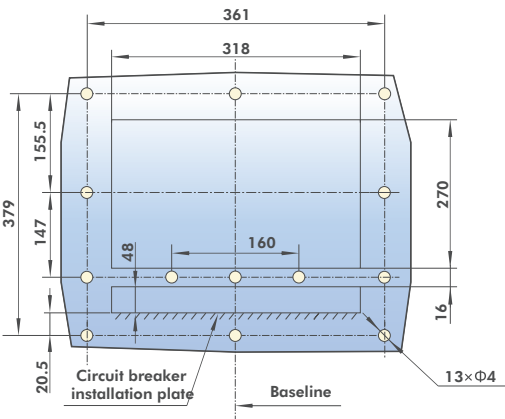


Hole size

Hole size of the base

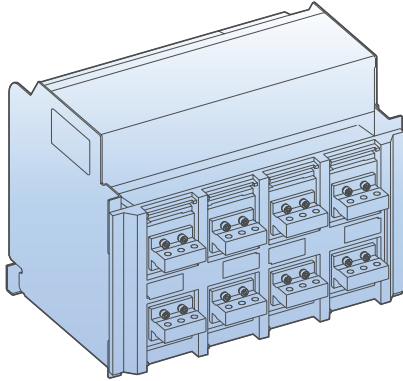


Hole size of the panel



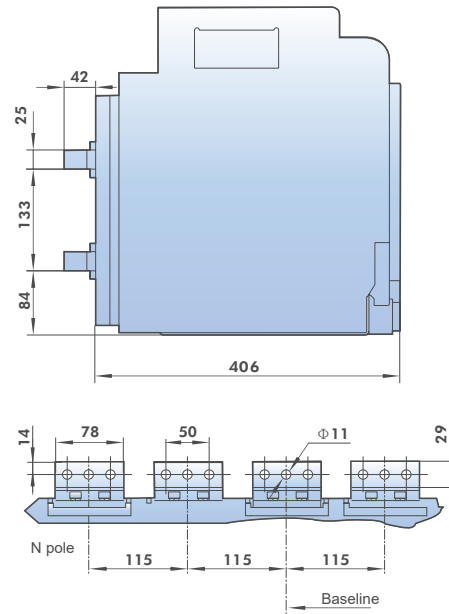
Horizontal connection (In=1600A~2500A)

Side view



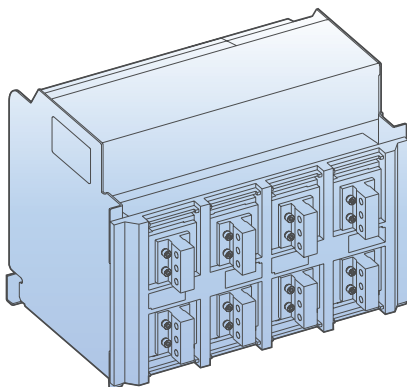
Note: User only needs to rotate the bus 90° to change horizontal connection to vertical connection.

Busbar mounting dimensions



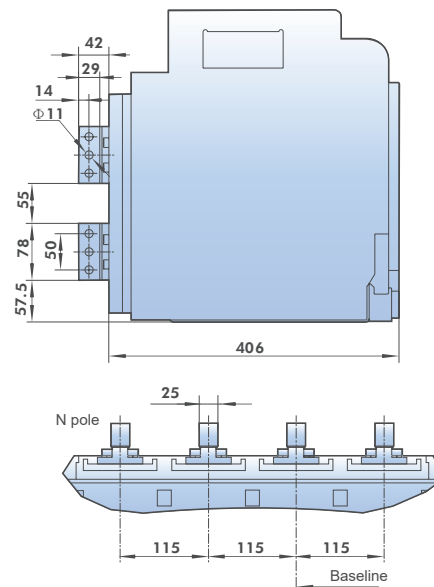
Vertical connection (In=1600A~2500A)

Side view



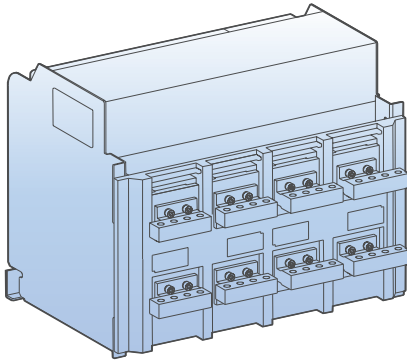
Note: User only needs to rotate the bus 90° to change vertical connection to horizontal connection.

Busbar mounting dimensions



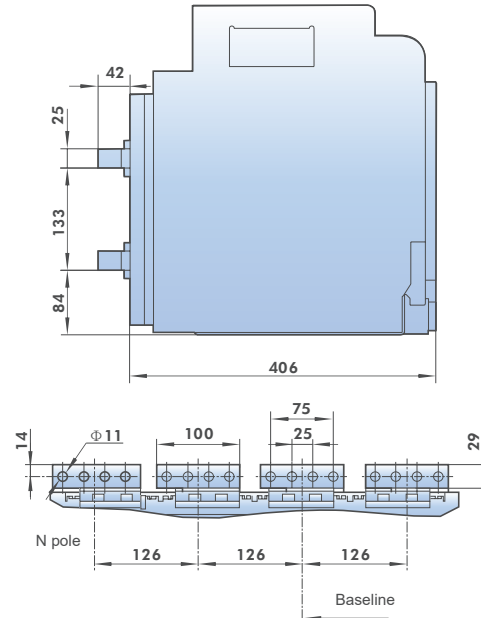
Horizontal connection (In=3200A)

Side view



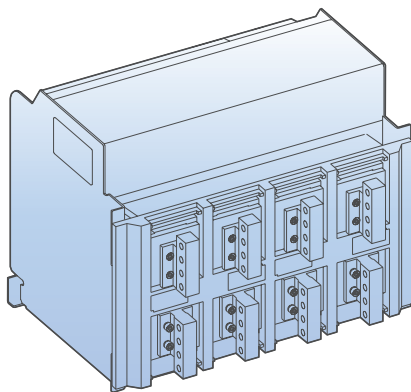
Note: To change horizontal connection to vertical connection, user needs to change the upper and lower buses of phase N and phase B to the same as those of phase A and phase C.

Busbar mounting dimensions



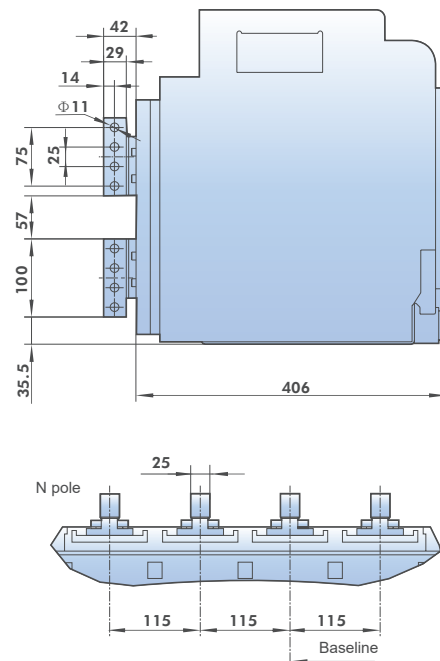
Vertical connection (In=3200A)

Side view



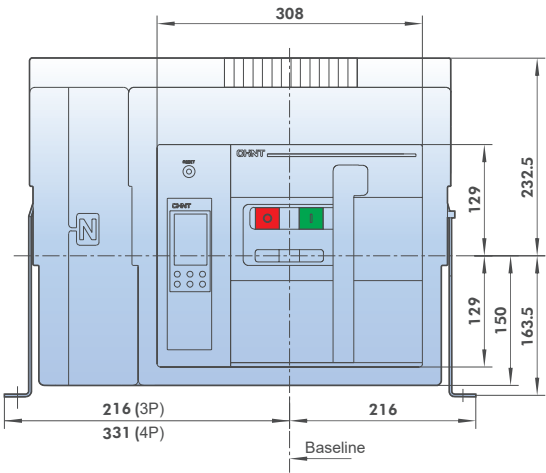
Note: To change vertical connection to horizontal connection, user needs to change the upper and lower buses of phase N and phase B to the same as those of phase A and phase C.

Busbar mounting dimensions

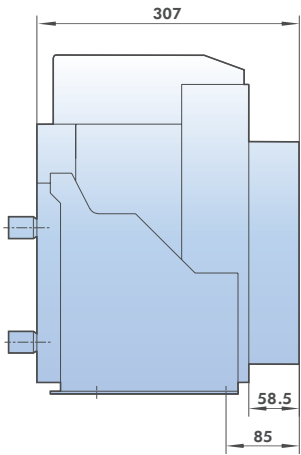


NA8-3200 fixed type

Front view

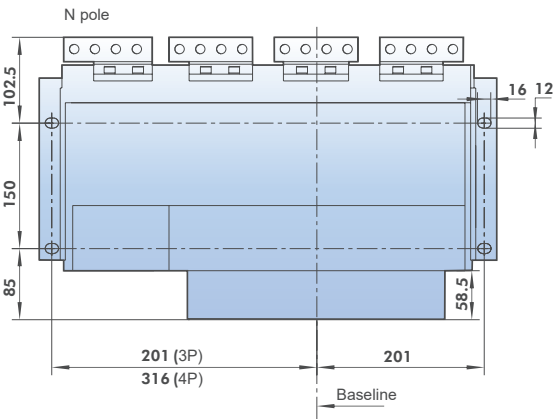


Side view

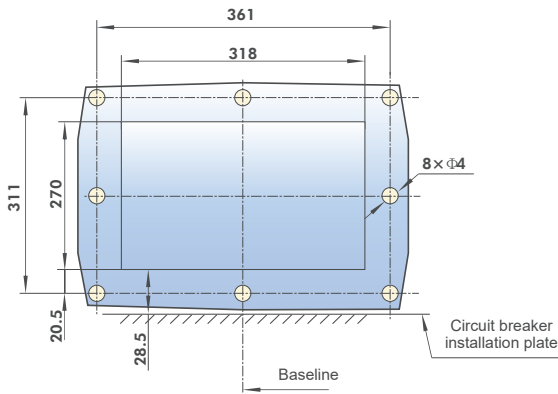


Hole size

Hole size of the base

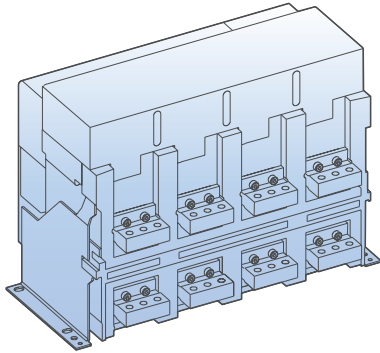


Hole size of the panel

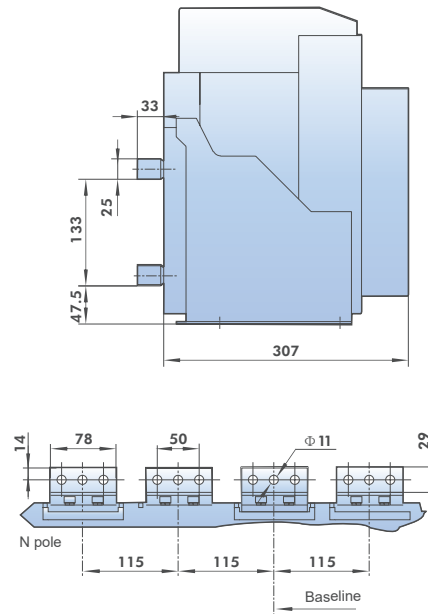


Horizontal connection (In=1600A~2500A)

Front view



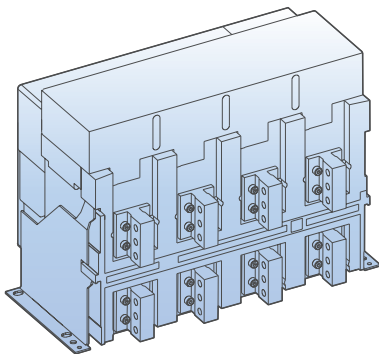
Side view



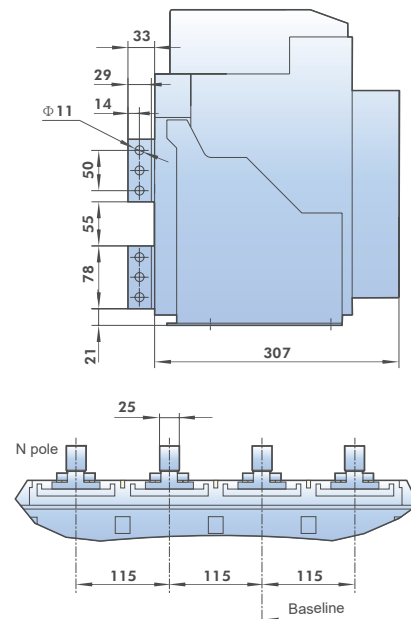
Note: User only needs to rotate the bus 90° to change horizontal connection to vertical connection.

Vertical connection (In=1600A~2500A)

Hole size of the base



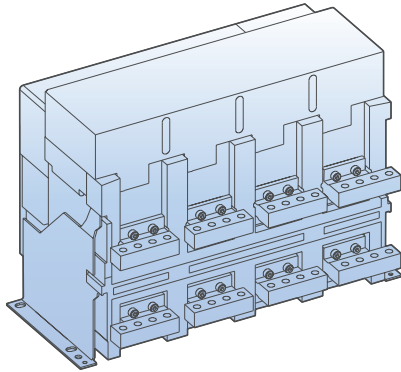
Hole size of the panel



Note: User only needs to rotate the bus 90° to change vertical connection to horizontal connection.

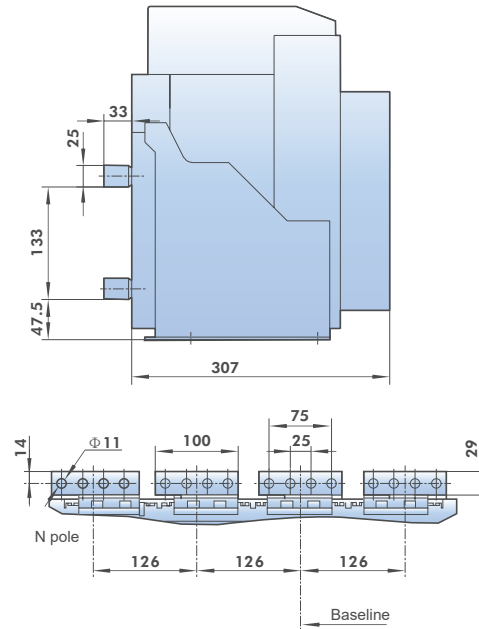
Horizontal connection (In=3200A)

Front view



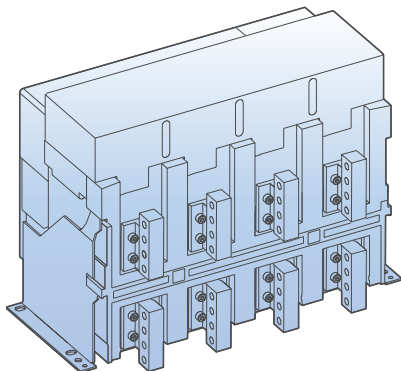
Note: To change horizontal connection to vertical connection, user needs to change the upper and lower buses of phase N and phase B to the same as those of phase A and phase C.

Side view



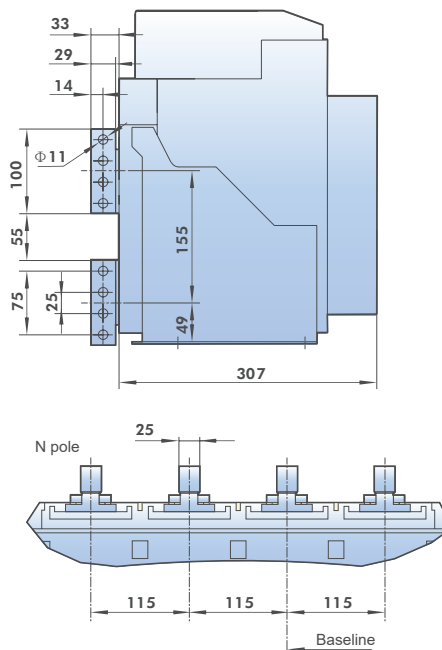
Vertical connection (In=3200A)

Hole size of the base



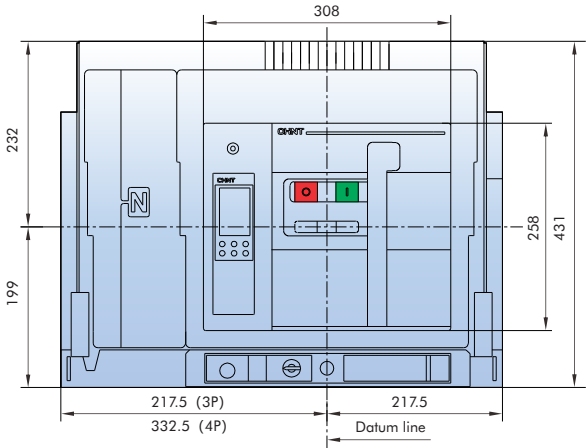
Note: To change vertical connection to horizontal connection, user needs to change the upper and lower buses of phase N and phase B to the same as those of phase A and phase C.

Hole size of the panel

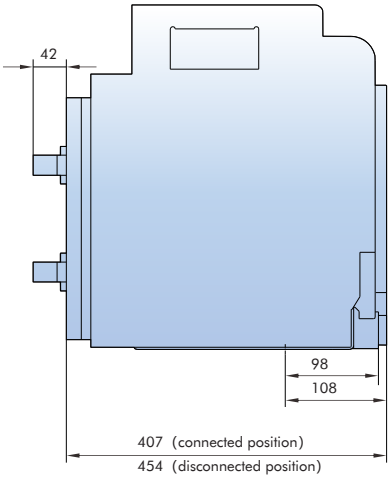


NA8-4000 draw-out type

Front view

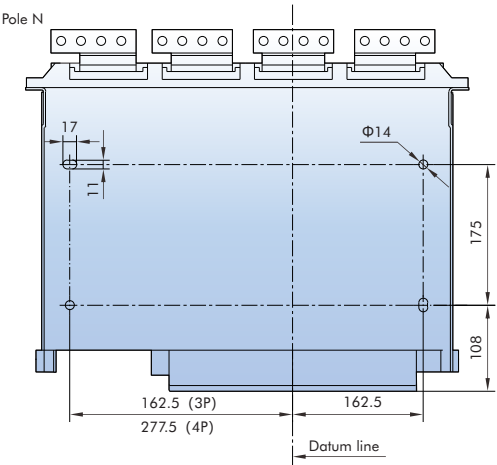


Side view

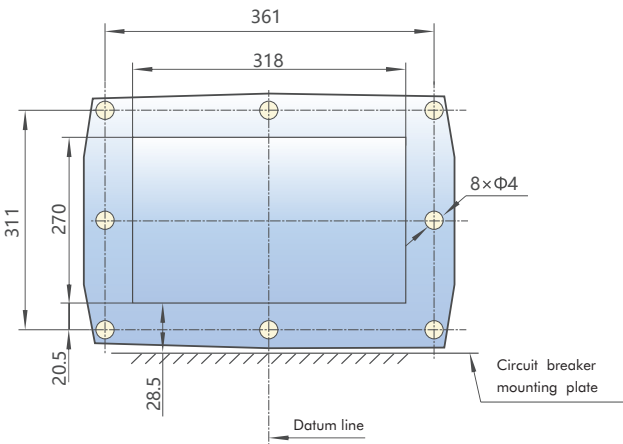


Hole size

Hole size of the base

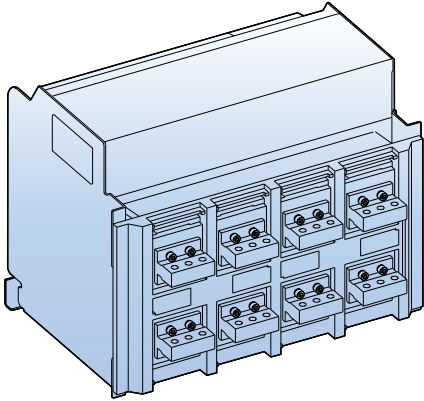


Hole size of the panel

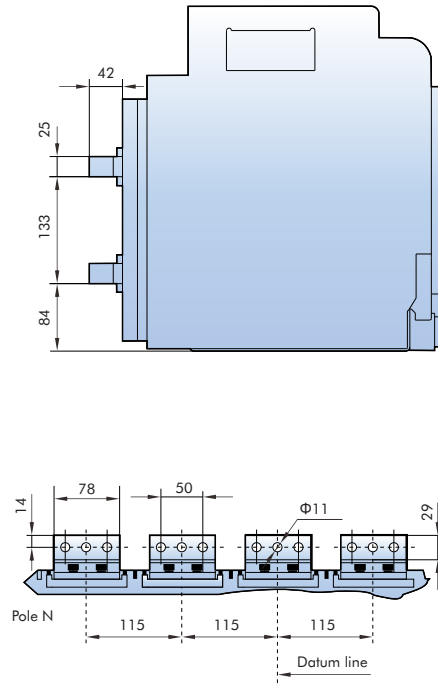


Horizontal connection ($I_n=1600A\sim2500A$)

Side view



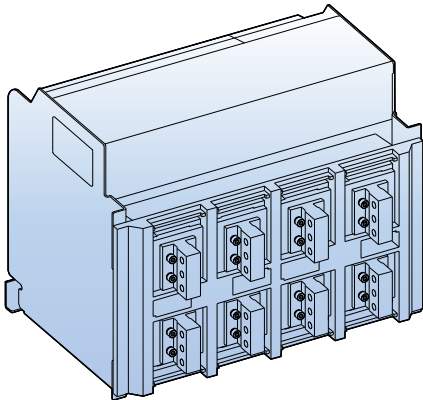
Busbar mounting dimensions



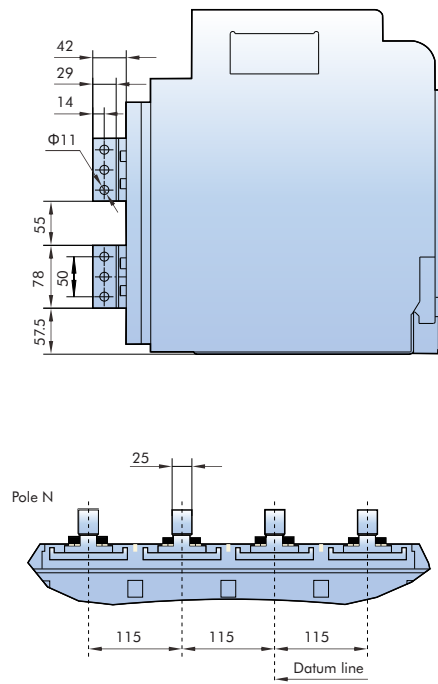
Note: If the user intends to change horizontal connection into vertical connection at site, it only needs to rotate the busbar by 90°.

Vertical connection ($I_n=1600A\sim2500A$)

Side view



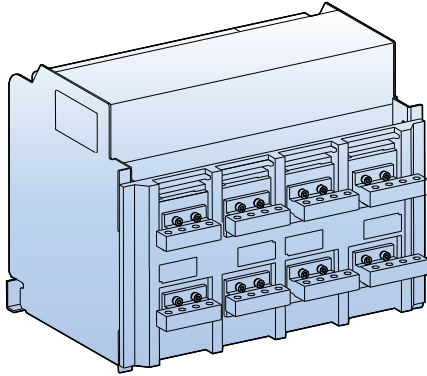
Busbar mounting dimensions



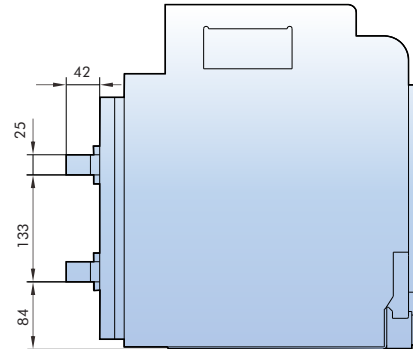
Note: If the user intends to change vertical connection into horizontal connection at site, it only needs to rotate the busbar by 90°.

Horizontal connection ($I_n=3200A\sim 4000A$)

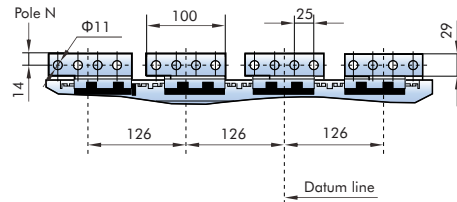
Side view



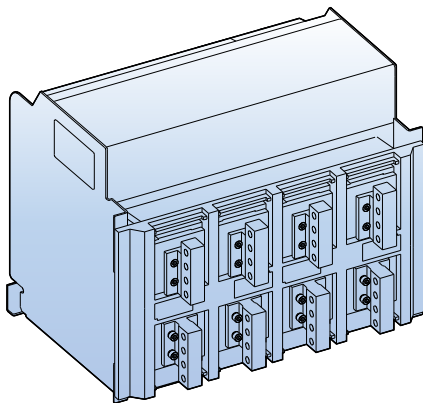
Busbar mounting dimensions



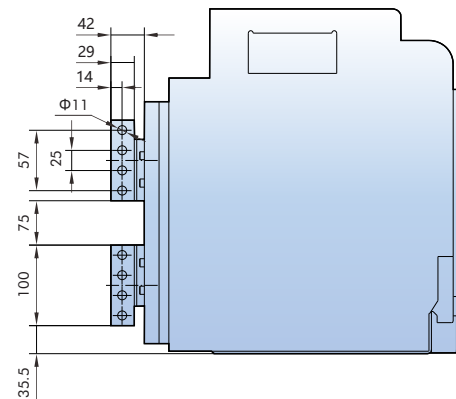
Note: If the user intends to change horizontal connection into vertical connection at site, it needs to change the upper and lower busbars of phases N and B into the same busbars of phases A and C.

Vertical connection ($I_n=3200A\sim 4000A$)

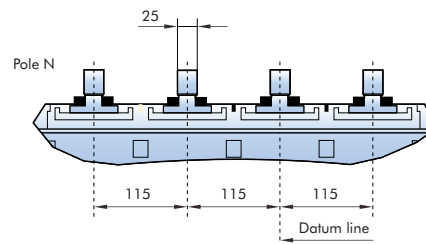
Side view



Busbar mounting dimensions

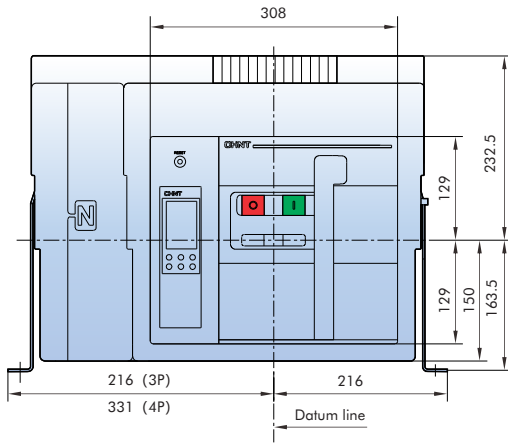


Note: If the user intends to change vertical connection into horizontal connection at site, it needs to change the upper and lower busbars of phases N and B into the same busbars of phases A and C.

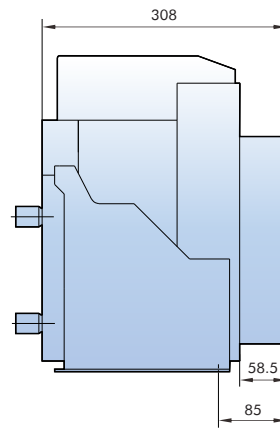


NA8-4000 fixed type

Front view

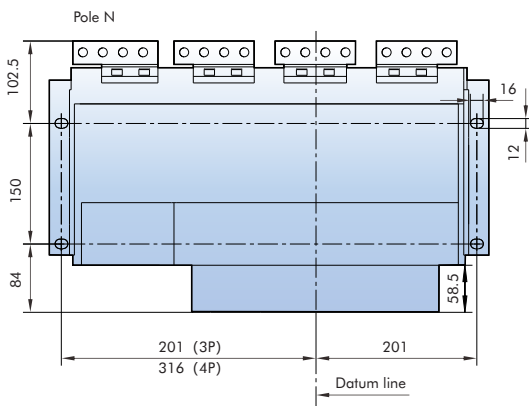


Side view

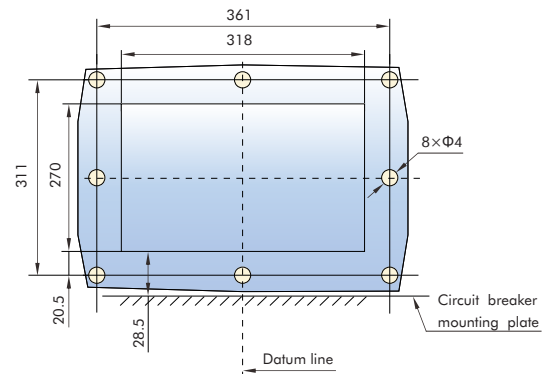


Hole size

Hole size of the base

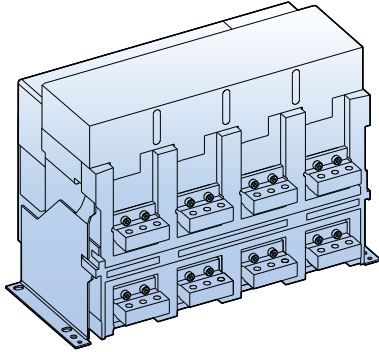


Hole size of the panel

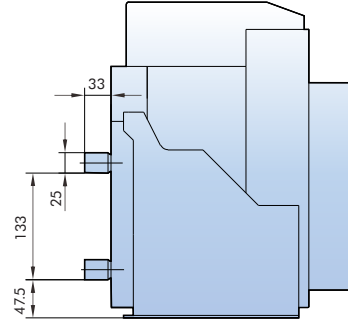


Horizontal connection (In=1600A~2500A)

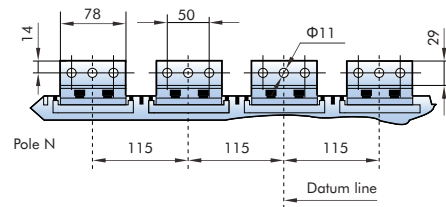
Side view



Busbar mounting dimensions

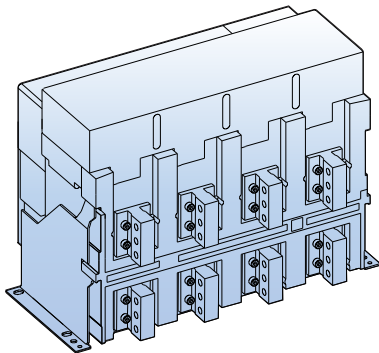


Note: If the user intends to change horizontal connection into vertical connection at site, it only needs to rotate the busbar by 90°.

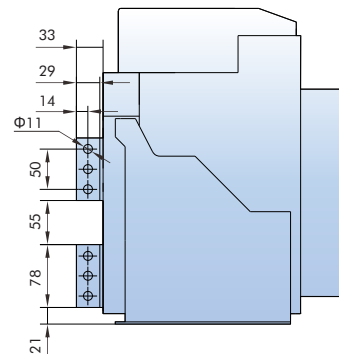


Vertical connection (In=1600A~2500A)

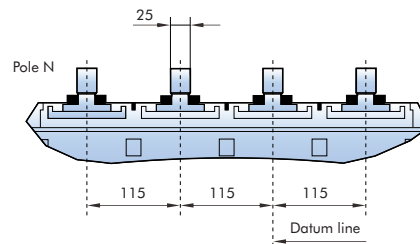
Side view



Busbar mounting dimensions

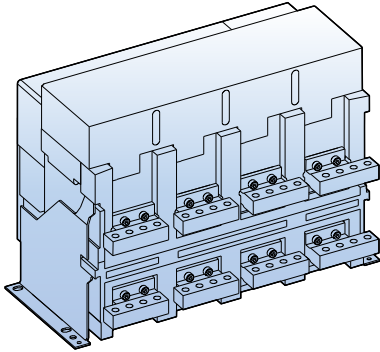


Note: If the user intends to change vertical connection into horizontal connection at site, it only needs to rotate the busbar by 90°.

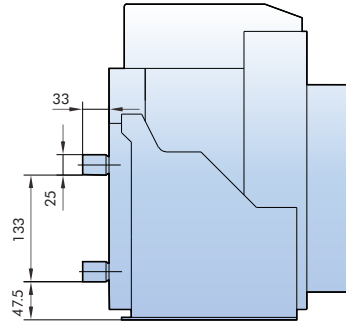


Horizontal connection ($I_n=3200A \sim 4000A$)

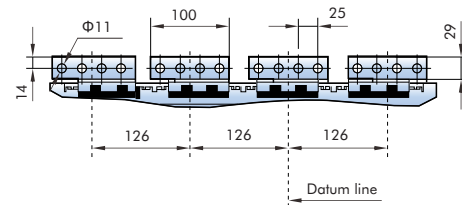
Side view



Busbar mounting dimensions

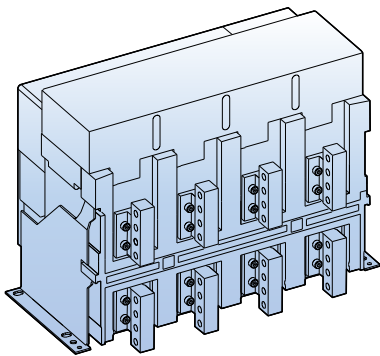


Note: If the user intends to change horizontal connection into vertical connection at site, it needs to change the upper and lower busbars of phases N and B into the same busbars of phases A and C.

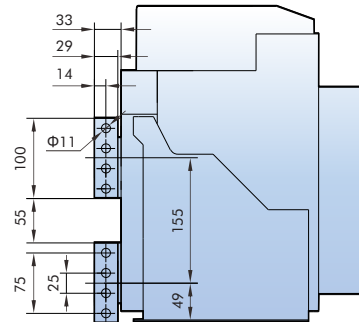


Vertical connection ($I_n=3200A \sim 4000A$)

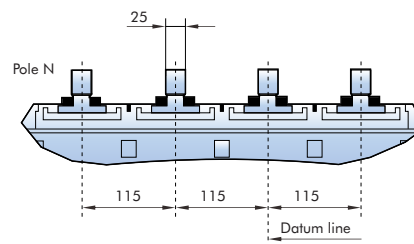
Side view



Busbar mounting dimensions

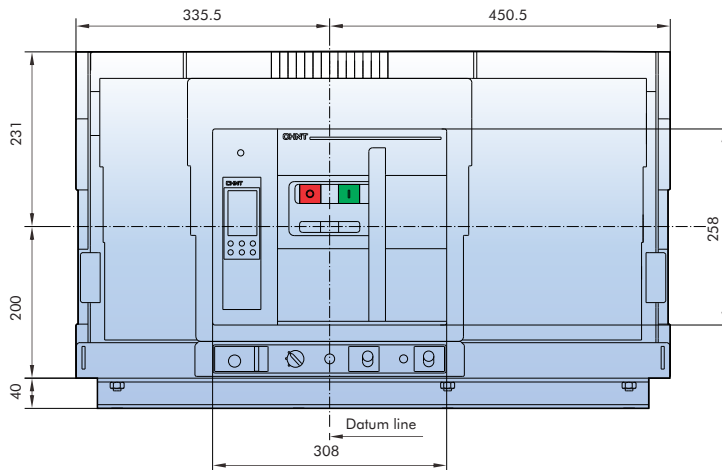


Note: If the user intends to change vertical connection into horizontal connection at site, it needs to change the upper and lower busbars of phases N and B into the same busbars of phases A and C.

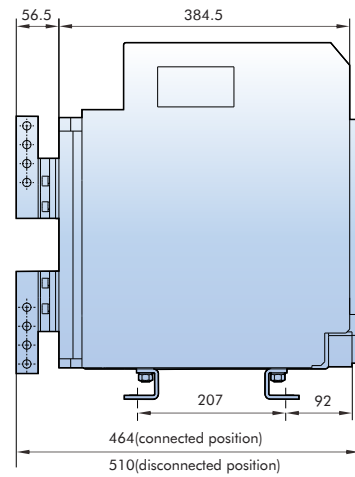


NA8-7500 (In=4000A~ 6300A) three-pole draw-out type

Front view

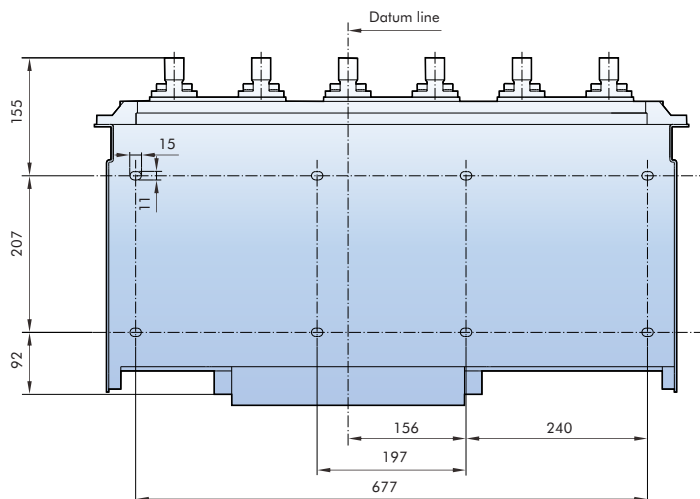


Side view

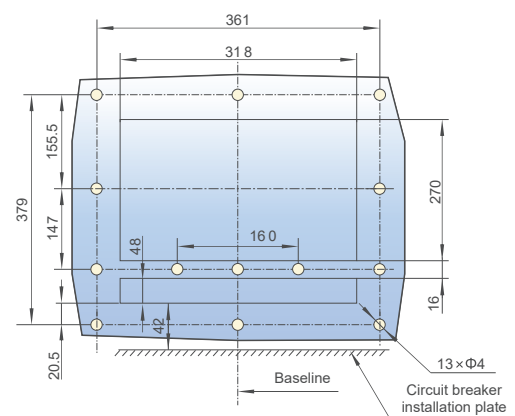


Hole size

Hole size of the base

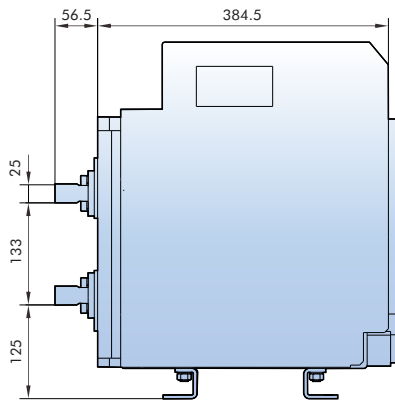


Hole size of the panel

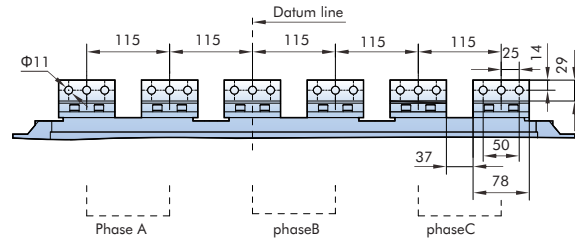


Horizontal connection (In=4000A~ 5000A/ three poles)

Side view



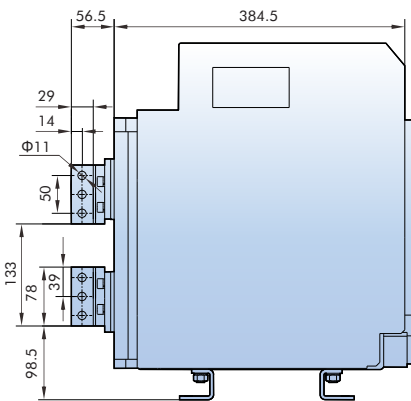
Busbar mounting dimensions



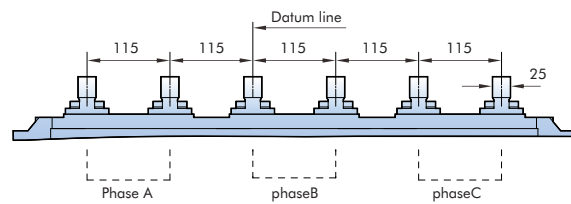
Note: If the user intends to change horizontal connection into vertical connection at site, it only needs to rotate the busbar by 90°.

Vertical connection (In=4000A~ 5000A/ three poles)

Side view



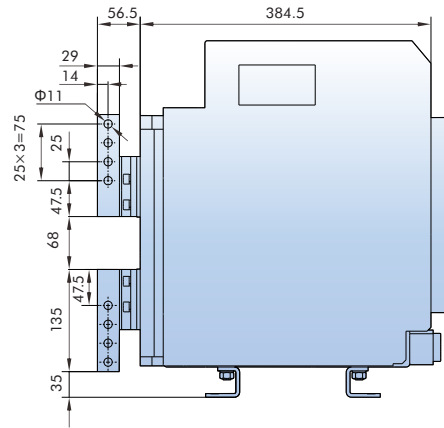
Busbar mounting dimensions



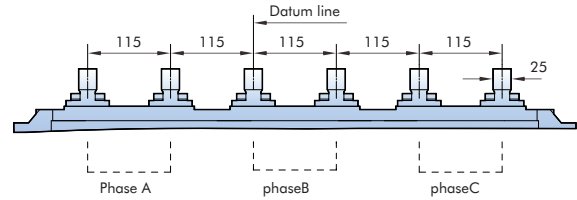
Note: If the user intends to change vertical connection into horizontal connection at site, it only needs to rotate the busbar by 90°.

Vertical connection (In=6300A/ three poles)

Side view



Busbar mounting dimensions

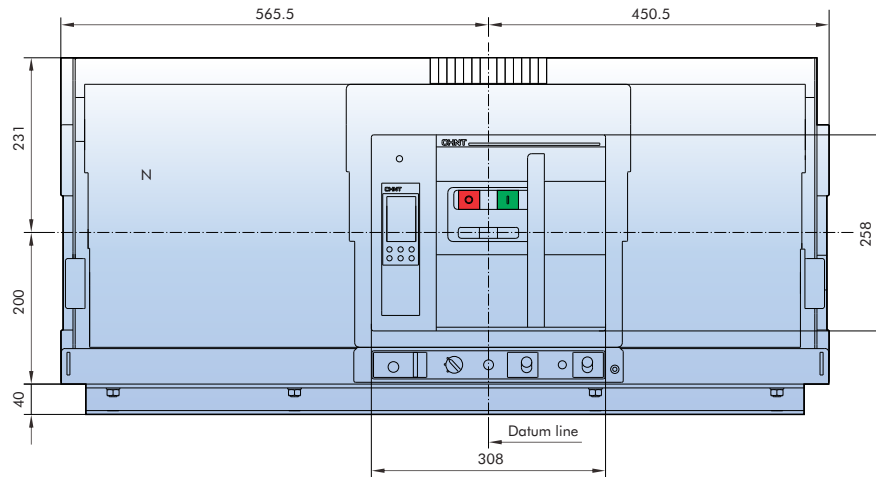


Note: In=6300A only has vertical connection and has no horizontal connection.

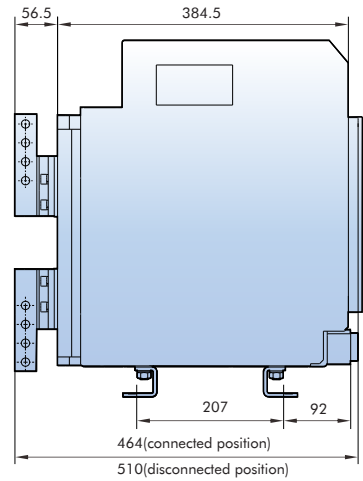


NA8-7500 draw-out type ($I_n=4000A\sim 6300A$) four poles/ ($I_n=7500A$) three & four poles

Front view

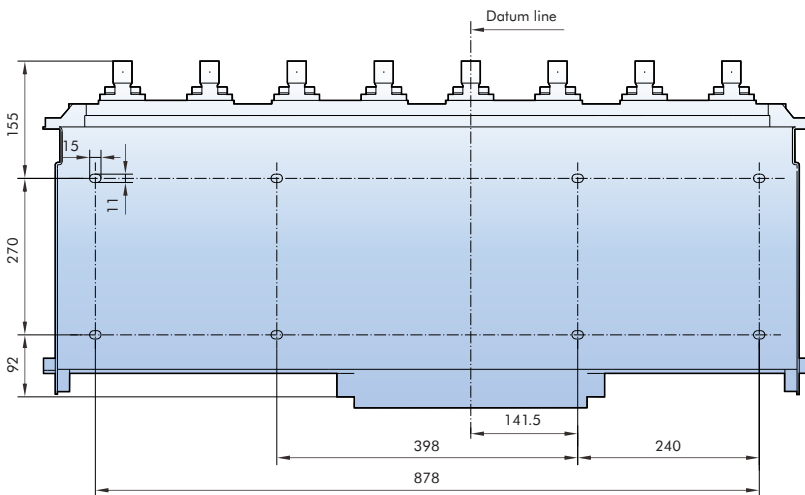


Side view

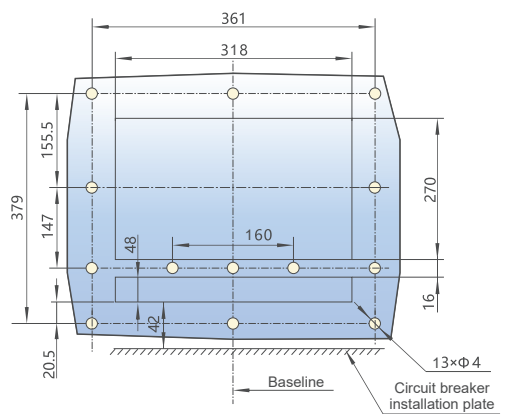


Hole size

Hole size of the base

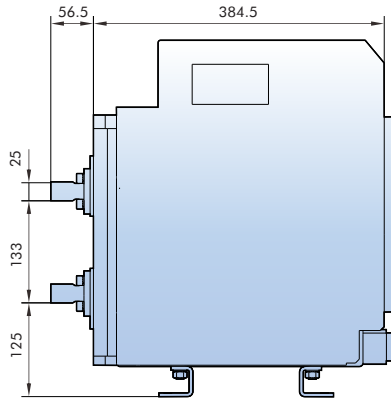


Hole size of the panel

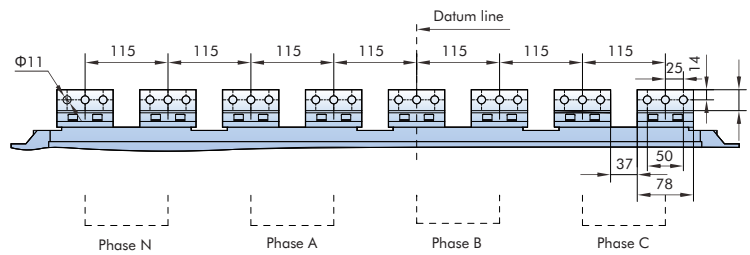


Horizontal connection ($I_n=4000A \sim 5000A$ / four poles)

Side view



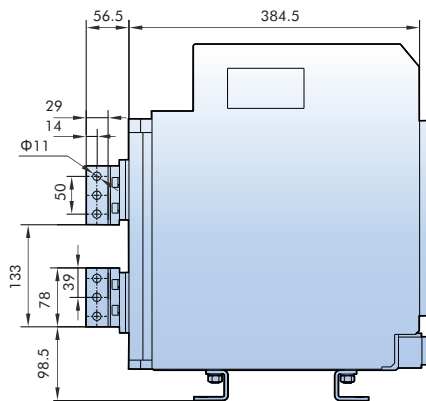
Busbar mounting dimensions



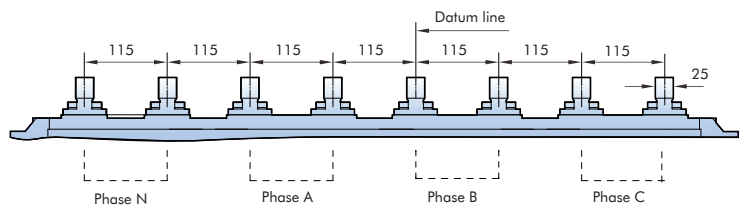
Note: If the user intends to change horizontal connection into vertical connection at site, it only needs to rotate the busbar by 90°.

Vertical connection ($I_n=4000A \sim 5000A$ / four poles)

Side view



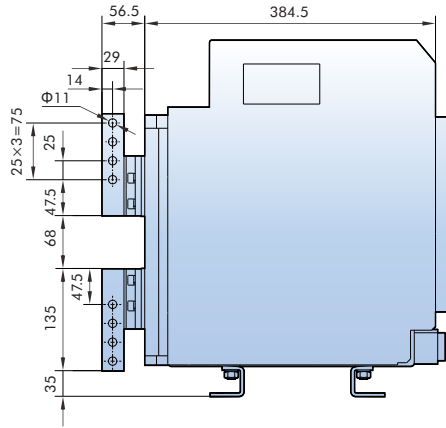
Busbar mounting dimensions



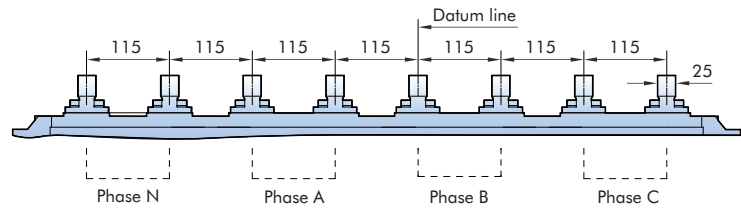
Note: If the user intends to change vertical connection into horizontal connection at site, it only needs to rotate the busbar by 90°.

Vertical connection (In=6300A/ four poles)

Side view



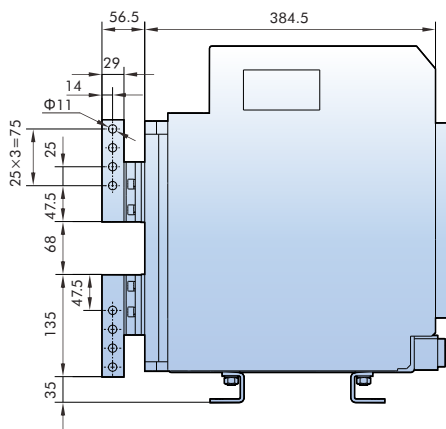
Busbar mounting dimensions



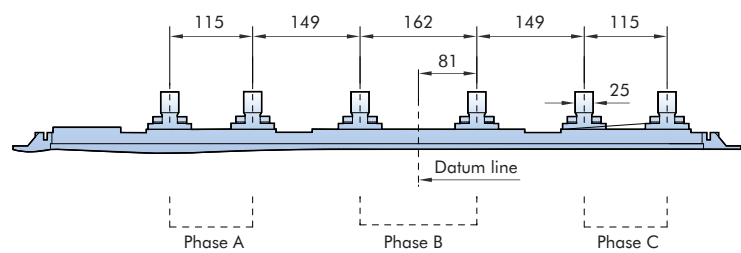
Note: In=6300A only has vertical connection and has no horizontal connection.

Vertical connection ($I_n=7500A$ / three poles)

Side view



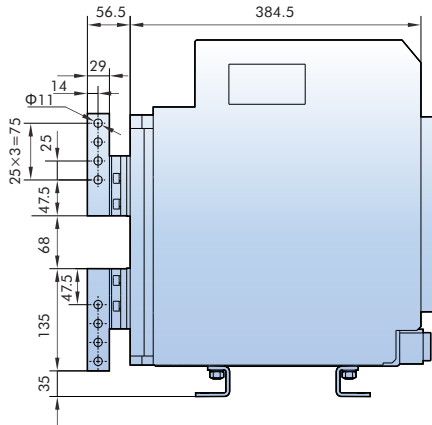
Busbar mounting dimensions



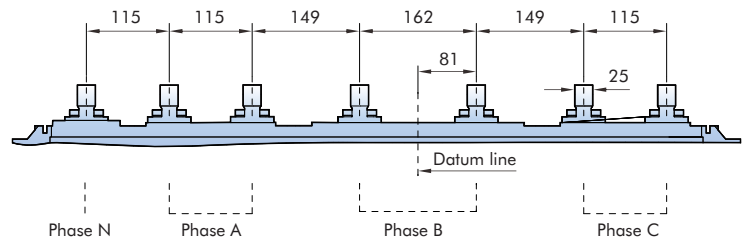
Note: In=7500A only has vertical connection and has no horizontal connection.

Vertical connection (In=7500A/ four poles)

Side view

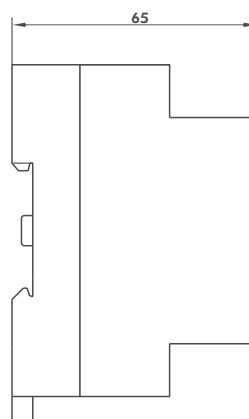
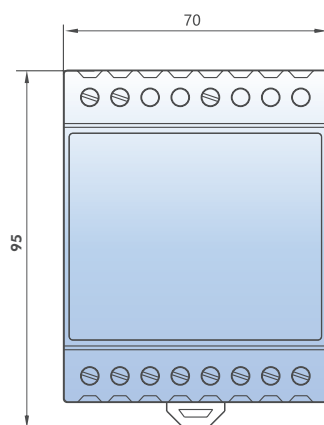


Busbar mounting dimensions



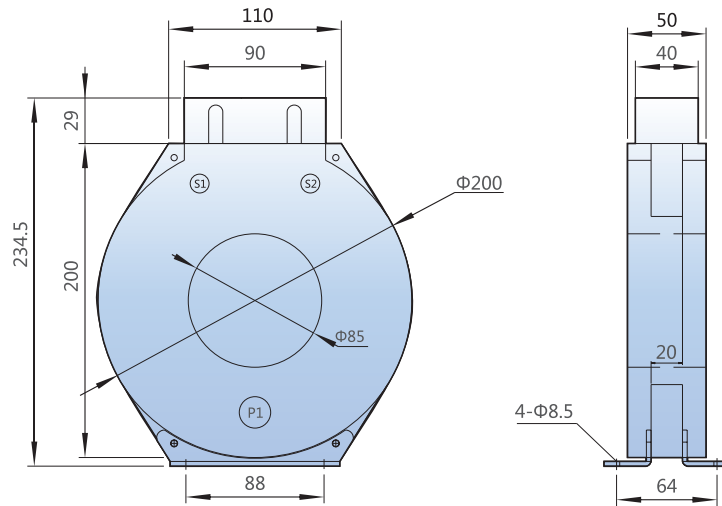
Note: In=7500A only has vertical connection and has no horizontal connection.

Dimensions of undervoltage time delay control module,
power module, RU-1 relay signal module

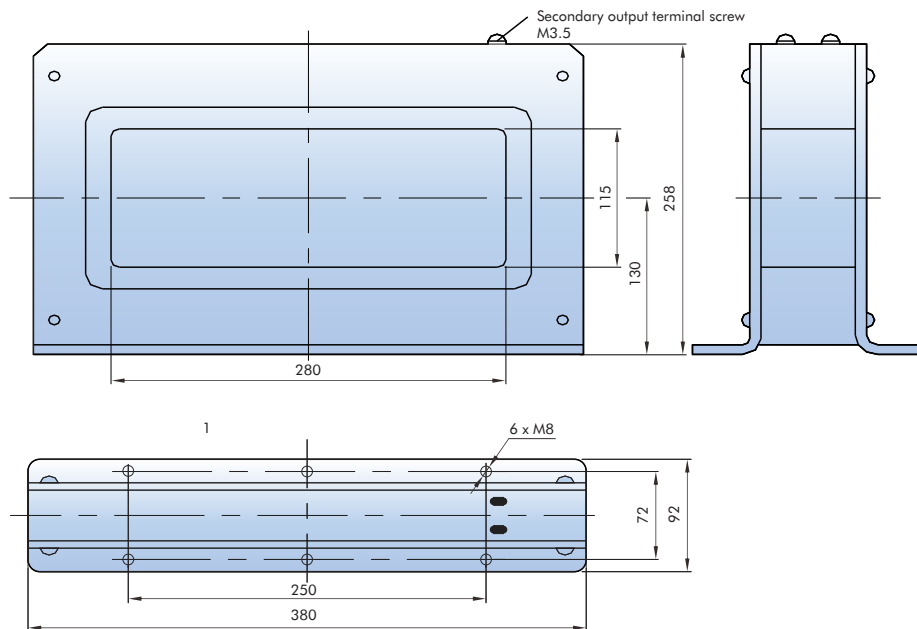


Note: Undervoltage time delay control module, power module, RU-1 relay signal module have consistent overall dimensions, and can be installed using the 35mm standard DIN rail mounting.

Dimensions of ground current transformer

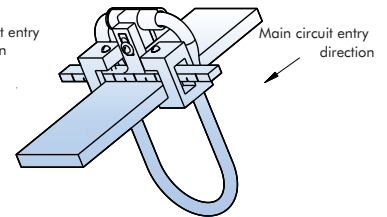
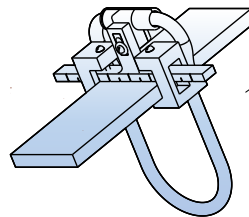
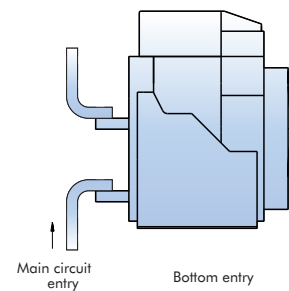
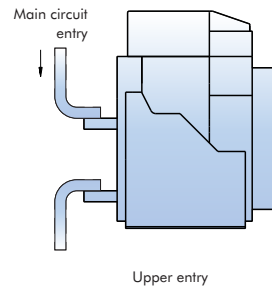
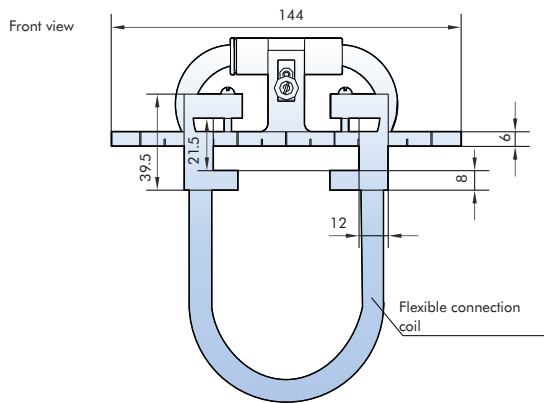


Dimensions of leakage protection transformer



Note: The circuit breaker selected with the leakage transformer should use the vertical busbar connection mode.

Dimensions of neutral pole current transformer



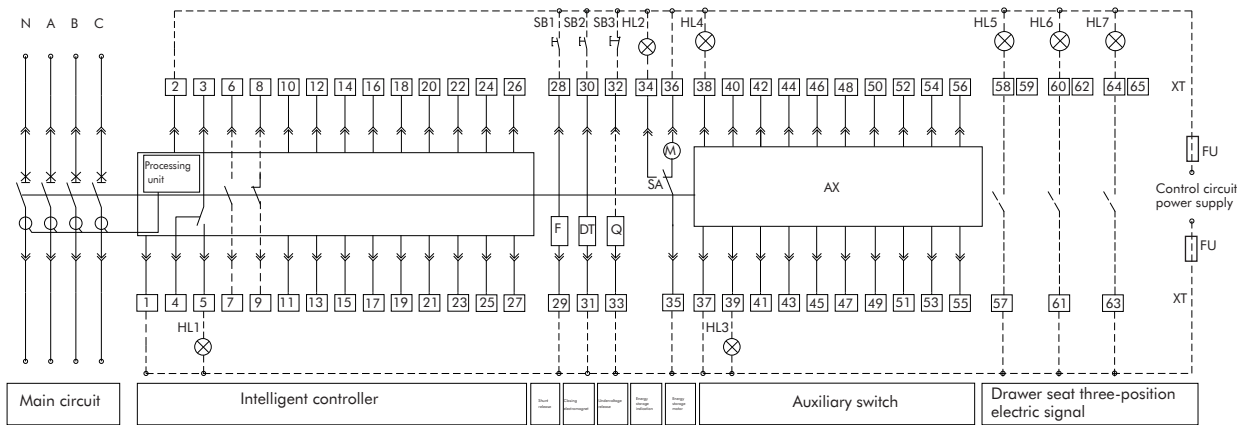
Note: 1. Upon fixing the neutral transformer, it needs to install it at the entry end of circuit breaker, and one side of its flexible cable should face the entry direction of main circuit.

2. When the rated current is 200A-630A, the transformer needs to be wrapped around the busbar twice to be used normally.

Secondary Circuit Wiring

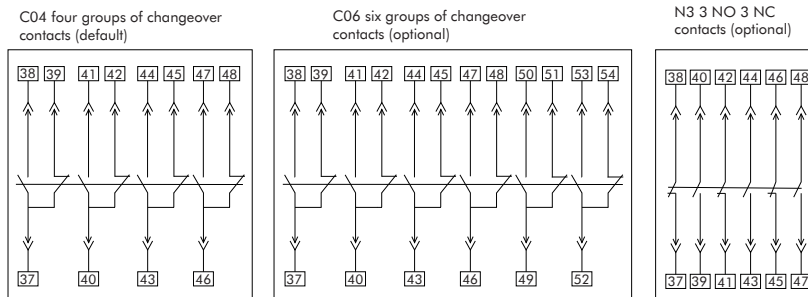
NA8-1600

M Type controller



Type of AX auxiliary contact

Used by the user



F—Shunt release DT—Closing electromagnet

Q—Undervoltage release

M—Motor-driven mechanism

SA—Travel switch XT—Connection terminal

AX—Auxiliary contact SB1—Breaking button

SB2—Making button SB3—Emergency stop button

HL1—Fault indicator light HL2—Energy storage indicator light

HL3—Breaking indicator light

HL4—Making indicator light

HL5 ~7 —Position indicator light

FU—Fuse (6A)

1#, 2#: Intelligent controller power supply: voltage AC220/380V can be directly connected to 1#, 2#; If voltage is DC220/110V, it needs to through the power module, and the power module outputs 24V which can be connected to 1#, 2#.

3#~5#: Tripping alarm contact (3 is the common point.)

6#~ 9#: Auxiliary contact (1 NO and 1 NC), optional.

10#, 11#: Empty

12#~ 19#: Empty

20#: Empty

21#~23#: Empty

24#, 25#: The contacts for external phase N transformer input signal; for conventional product, they are empty, and should be ordered by the user specifically. Where external transformer is required, they are the external transformer signal input contacts.

27#: Protective grounding, is connected to the outer board of the circuit breaker;

28#, 29#: Shunt release;

30#, 31#: Closing electromagnet;

32#, 33#: Undervoltage release.

34#~36#: Motor-driven mechanism.

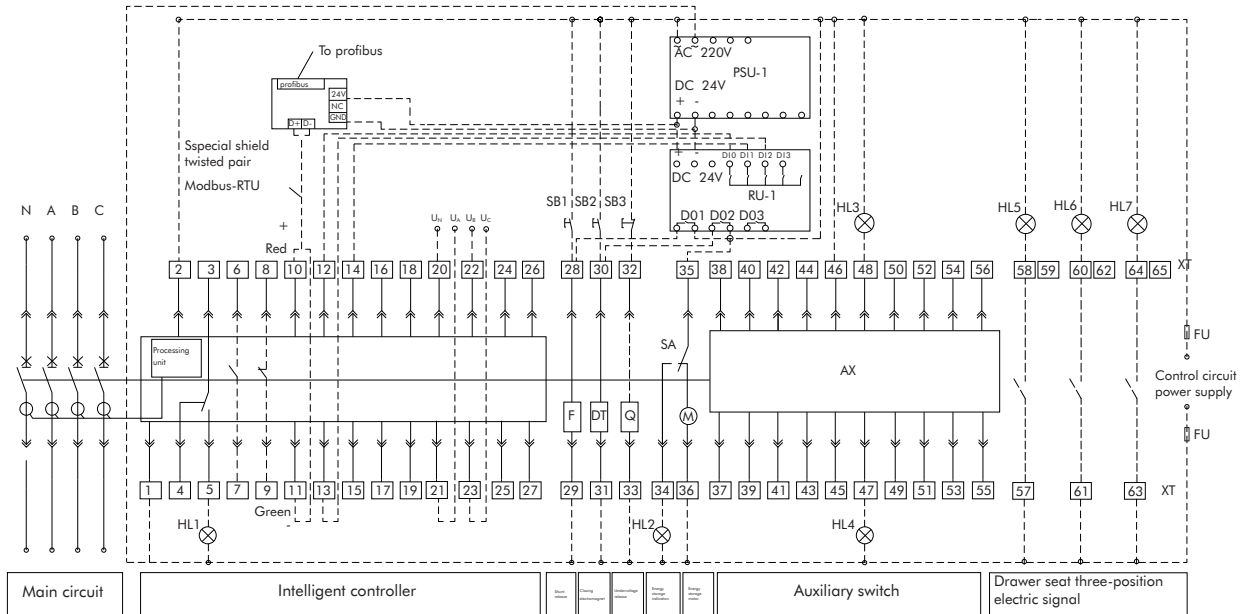
37#~56#: Auxiliary contact. The conventional product has 4 groups of changeover auxiliary contacts; in case of special order from the user, 6 groups of changeover contacts can be provided, 3 NO 3C contacts. 6 groups of changeover contacts are used for AC only.

57#~65#: Draw-out type circuit breaker three-position signal indication; the conventional supply has no wire connection, is only for the draw-out type circuit breaker with the secondary functions selected.

Note: The part in solid line has been connected by the factory, and the part in dashed line shall be connected by the customer.

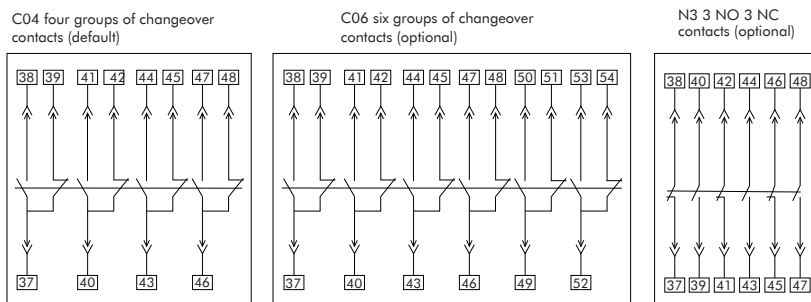
NA8-1600

H Type controller



Type of AX auxiliary contact

Used by the user



F —Shunt release DT —Closing electromagnet

Q —Undervoltage release

M —Motor-driven mechanism

SA —Travel switch XT —Connection terminal

AX —Auxiliary contact SB1 —Breaking button

SB2 —Making button SB3 —Emergency stop button

HL1 —Fault indicator light

HL2 —Energy storage indicator light

HL3 —Breaking indicator light

HL4 —Making indicator light

HL5 ~ 7 —Position indicator light

FU —Fuse (6A)

1#, 2#: Intelligent controller power supply: voltage AC220/380V can be directly connected to 1#, 2#; If voltage is DC220/110V, it needs to through the power module, and the power module outputs 24V which can be connected to 1#, 2#.

3#~5#: Tripping alarm contact (3 is the common point)

6#~9#: Auxiliary contact (1 NO and 1 NC), optional.

10#, 11#: Type H intelligent controller default communication output contact.

12#~15#: 3 groups of programmable output signal, which must be connected with external RU-1 relay module. When type H intelligent controller has programmable output signal, default output: 12 #, 13#: Closing signal output, 12#, 14 #: Openingsignal output, 12 #, 15 #: Fault tripping. The conventional product has no such connection.

19#: H type intelligent controller communication shielding ground wire

20#~23#: Voltage display input signal contact, 20#: Phase N voltage signal, 21#: Phase A voltage signal, 22#: Phase B voltage signal, 23# : Phase C voltage signal. The conventional product has no such connection.

24#, 25#: External Phase N transformer or external earth

currenttransformer input signal contact; for conventional product, they are empty, and should be ordered by the user specifically. Where external transformer is required, they are the external transformer signal input contacts.

27#: Protective grounding, is connected to the outer board of the circuit breaker;

28#, 29#: Shunt release;

30#, 31#: Closing electromagnet;

32#, 33#: Undervoltage release.

34 #~ 36 #: Motor-driven mechanism.

37 #~ 56 #: Auxiliary contact. 6 groups of changeover contacts are used for AC only. The conventional product has 4 groups of changeover auxiliary contacts; in case of special order from the user, 6 groups of changeover contacts, 3 NO 3C contacts can be provided.

57#~ 65#: Draw-out type circuit breaker three-position signal indication; the conventional supply has not wire connection, is only for the draw-out type circuit breaker with the secondary functions selected.

ST-DP: DP protocol module; when the upper computer communication protocol is Modbus-RTU, ST-DP protocol module is not required; when the upper computer communication protocol is Profibus-DP, ST-DP protocol module is required to change the Modbus-RTU protocol into Profibus-DP protocol with the cost separately charged.

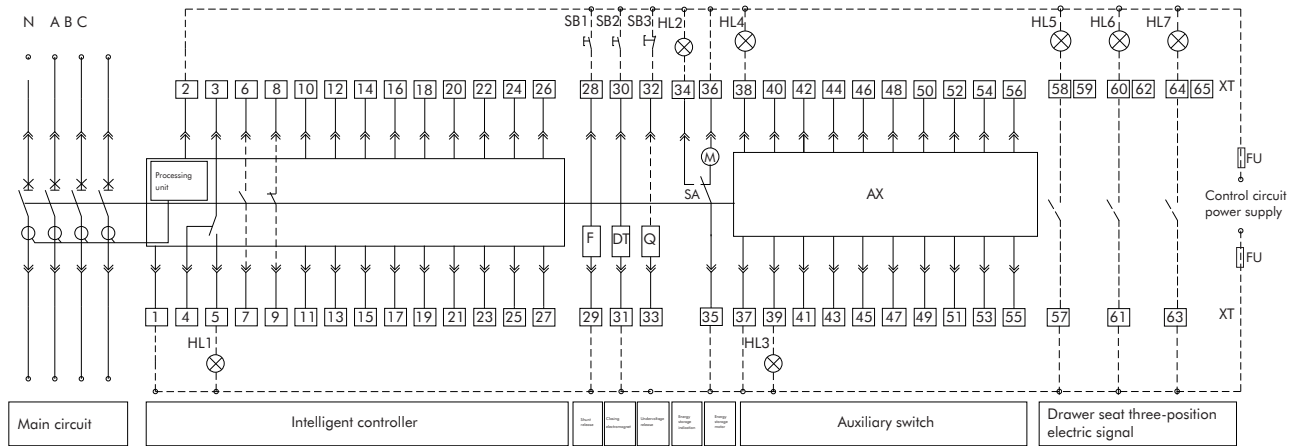
RU-1: Relay module. The upper computer remotely controls it to open or close the circuit breaker, and it is used for amplifying the opening and closing signal energy with the cost separately charged.

Note: The part in solid line has been connected by the factory, and the part in dashed line shall be connected by the customer.

Secondary Circuit Wiring

NA8-2500/4000/7500

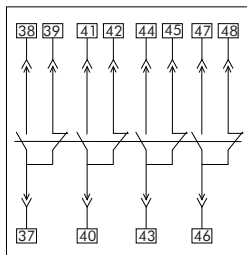
M Type controller



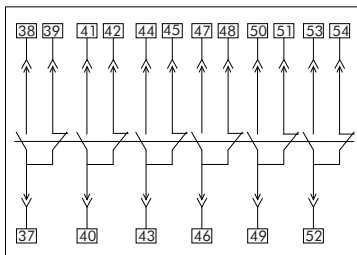
Type of AX auxiliary contact

Used by the user

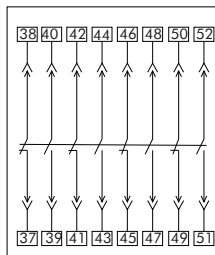
C04 four groups of changeover contacts (default)



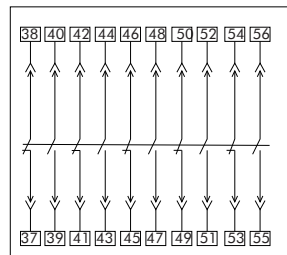
C06 six groups of changeover contacts (optional)



N4 4NO&4NC contacts (optional)



N5 5NO&5NC contacts (optional)



F—Shunt release DT —Closing electromagnet

Q —Undervoltage release

M—Motor-driven mechanism

SA—Travel switch XT—Connection terminal

AX—Auxiliary contact SB1—Breaking button

SB2—Making button SB3—Emergency stop button

HL1—Fault indicator light HL2—Energy storage indicator light

HL3—Breaking indicator light HL4—Making indicator light

HL5 ~ 7—Position indicator light

FU—Fuse (6A)

1#, 2#: Intelligent controller power supply: voltage AC220/380V can be directly connected to 1#, 2#; If voltage is DC220/110V, it needs to through the power module, and the power module outputs 24V which can be connected to 1#, 2#.

3#~ 5#: Tripping alarm contact (3 is the common point)

6#~ 9#: Auxiliary contact (1 NO and 1 NC), optional

10#, 11#: Empty

12#~ 19#: Empty

20#: Empty

21#~ 24#: Empty

24#, 25#: The contacts for external Phase N transformer input signal; for conventional product, they are empty, and should be ordered by the user specifically. Where external transformer is required, they are the external transformer signal input contacts.

27#: Protective grounding, is connected to the outer board of the circuit breaker;

28 #, 29 #: Shunt release;

30#, 31#: closing electromagnet;

32 #, 33 #: Undervoltage release.

34 #~36 #: Motor-driven mechanism.

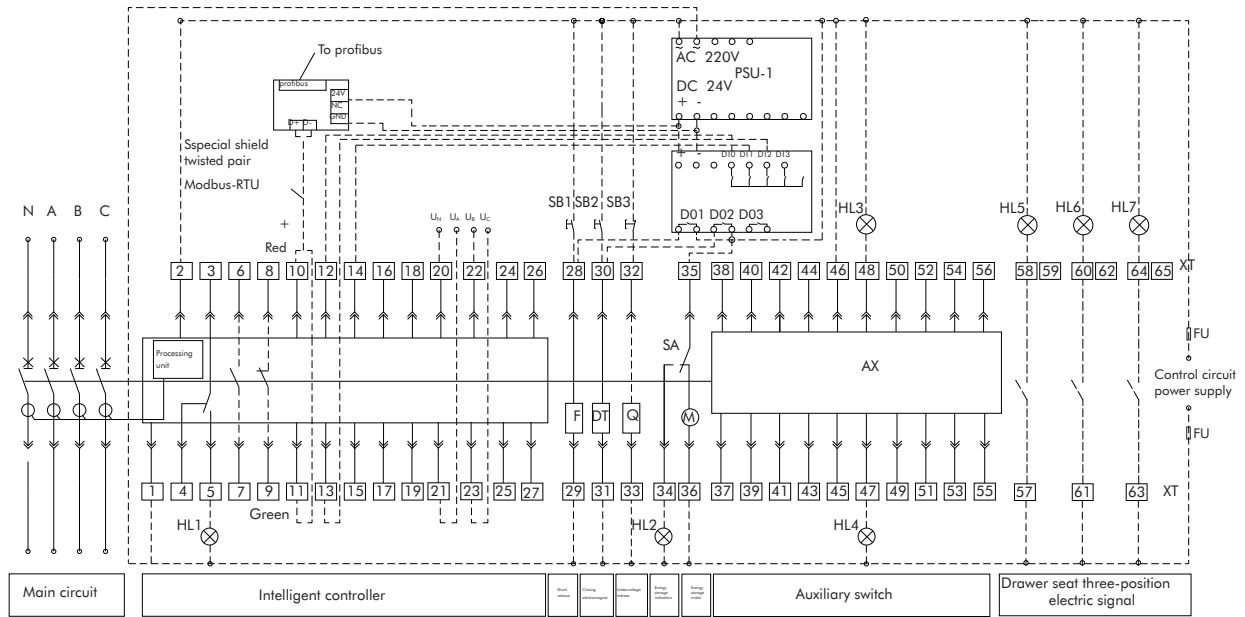
37#~56#: Auxiliary contact. 6 groups of changeover contacts are used for AC only. The conventional product has 4 groups of changeover auxiliary contacts; in case of special order from the user, 6 groups of changeover contacts, 4 NO 4 NC contacts and 5 NO 5 NC contacts can be provided.

57#~ 65#: Draw-out type circuit breaker three-position signal indication, the conventional supply has not wire connection, is only for the draw-out type circuit breaker with the secondary functions selected.

Note: The part in solid line has been connected by the factory, and the part in dashed line shall be connected by the customer.

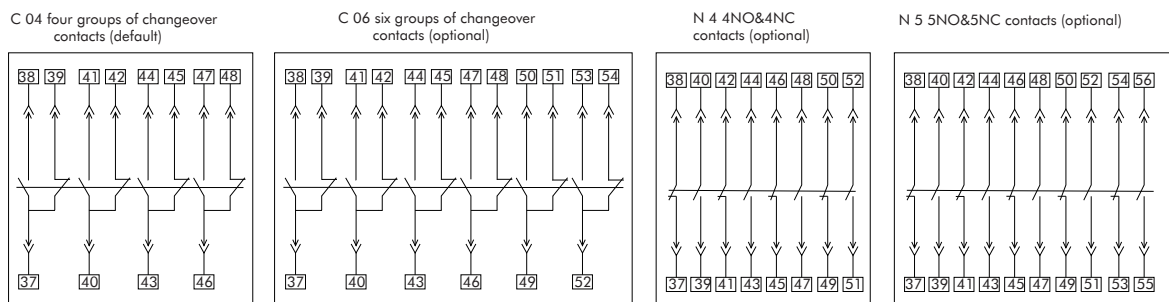
NA8-2500/4000/7500

H Type controller



Type of AX auxiliary contact

Used by the user



F —Shunt release DT —Closing electromagnet

Q —Undervoltage release

M —Motor-driven mechanism

SA —Travel switch XT —Connection terminal

AX —Auxiliary contact SB1 —Breaking button

SB2 —Making button SB3 —Emergency stop button

HL1 —Fault indicator light HL2 —Energy storage indicator light

HL3 —Breaking indicator light HL4 —Making indicator light

HL5~7 —Position indicator light

FU —Fuse (6A)

1 #, 2 #: Intelligent controller power supply: voltage AC220/380V can be directly connected to 1 #, 2 #; If voltage is DC220/110V, it needs to through the power module, and the power module outputs 24V which can be connected to 1 #, 2 #.

3 #~5 #: Tripping alarm contact (3 is the common point)

6 #~9 #: Auxiliary contact (NO contact), optional.

10 #, 11 #: Type H intelligent controller default communication output contact.

12 #~15 #: 3 groups of programmable output signal, which must be connected with external RU-1 relay module. When type H intelligent controller has programmable output signal, default output: 12 #, 13 #: Closing signal output, 12 #, 14 #: Opening signal output, 12 #, 15 #: Fault tripping. The conventional product has no such connection.

19 #: H type intelligent controller communication shielding ground wire

20 #~23 #: Voltage display input signal contact, 20 #: Phase N voltage signal, 21 #: Phase A voltage signal, 22 #: Phase B voltage signal, 23 #: Phase C voltage signal. The conventional product has no such connection.

24 #, 25 #: External Phase N transformer or external earth current transformer input signal contact; for conventional product, they are empty, and should be ordered by the user specifically, where external transformer is required, they are the external transformer signal input contacts.

27 #: Protective grounding, is connected to the outer board of the circuit breaker;

28 #, 29 #: Shunt release;

30 #, 31 #: Closing electromagnet;

32 #, 33 #: Undervoltage release.

34 #~36 #: Motor-driven mechanism.

37 #~56 #: Auxiliary contact. 6 groups of changeover contacts are used for AC only. The conventional product has 4 groups of changeover auxiliary contacts; in case of special order from the user, 6 groups of changeover contacts, 4 NO 4 NC contacts or 5 NO 5 NC can be provided.

57 #~65 #: Draw-out type circuit breaker three-position signal indication, the conventional supply has no wire connection, is only for the draw-out type circuit breaker with the secondary functions selected.

ST-DP: DP protocol module, when the upper computer communication protocol is Modbus-RTU, ST-DP protocol module is not required; when the upper computer communication protocol is Profibus-DP, ST-DP protocol module is required to change the Modbus-RTU protocol into Profibus-DP protocol with the cost separately charged.

RU-1: Relay module. The upper computer remotely controls it to open or close the circuit breaker, and it is used for amplifying the opening and closing signal energy with the cost separately charged.

Note: The part in solid line has been connected by the factory, and the part in dashed line shall be connected by the customer.

Circuit Breaker Configuration

Standard component	NA8-1600		NA8-2500		NA8-3200		NA8-4000		NA8-7500
	Fixed type	Draw-out type	Fixed type	Draw-out type	Fixed type	Draw-out type	Fixed type	Draw-out type	Draw-out type
Circuit breaker body	■	■	■	■	■	■	■	■	■
Drawer seat		■		■		■		■	■
Intelligent controller	■	■	■	■	■	■	■	■	■
Upper and lower horizontal connection	■	■	■	■	■	■	■	■	■
Auxiliary contact 4CO	■	■	■	■	■	■	■	■	■
Fault tripping indication contact	■	■	■	■	■	■	■	■	■
Motor-driven operating mechanism	■	■	■	■	■	■	■	■	■
Closed electromagnet	■	■	■	■	■	■	■	■	■
Shunt release	■	■	■	■	■	■	■	■	■
Door frame	■	■	■	■	■	■	■	■	■

Note: The table above is the standard configuration of motor-driven type

Optional accessory	NA8-1600		NA8-2500		NA8-3200		NA8-4000		NA8-7500
	Fixed type	Draw-out type	Fixed type	Draw-out type	Fixed type	Draw-out type	Fixed type	Draw-out type	Draw-out type
Undervoltage time delay release	■	■	■	■	■	■	■	■	■
Undervoltage instantaneous release	■	■	■	■	■	■	■	■	■
Opening/closing button lock	■	■	■	■	■	■	■	■	■
Drawer position padlock		■		■		■		■	■
Drawer safety barrier padlock		■		■		■		■	■
Body key lock	■	■	■	■	■	■	■	■	■
Position door interlock		■		■		■		■	■
Condition door interlock		■		■		■		■	■
Auxiliary contact 6CO	■	■	■	■	■	■	■	■	■
Auxiliary contact 3NO + 3NC	■	■							
Auxiliary contact 4NO + 4NC			■	■	■	■	■	■	■
Auxiliary contact 5NO + 5NC			■	■	■	■	■	■	■
Drawer position indication contact		■		■		■		■	■
Mechanical interlock (two)	■	■	■	■	■	■	■	■	■
External neutral line transformer	■	■	■	■	■	■	■	■	■
Ground current transformer and accessories	■	■	■	■	■	■	■	■	■
Interphase insulating barrier	■	■	■	■	■	■	■	■	■
Mechanical interlock (three)			■	■	■	■	■	■	■

Circuit Breaker Type Selection Table

Frame current	NA8-1600	NA8-2500	NA8-3200	NA8-4000		NA8-7500	
Circuit breaker	N <input type="checkbox"/>	N <input type="checkbox"/> H <input type="checkbox"/>		N <input type="checkbox"/>	H <input type="checkbox"/>	N <input type="checkbox"/>	H <input type="checkbox"/>
Rated current	200A <input type="checkbox"/>	630A <input type="checkbox"/>	1600A <input type="checkbox"/>	1600A <input type="checkbox"/>	1600A <input type="checkbox"/>	4000A <input type="checkbox"/>	4000A <input type="checkbox"/>
	400A <input type="checkbox"/>	800A <input type="checkbox"/>	2000A <input type="checkbox"/>	2000A <input type="checkbox"/>	2000A <input type="checkbox"/>	5000A <input type="checkbox"/>	5000A <input type="checkbox"/>
	630A <input type="checkbox"/>	1000A <input type="checkbox"/>	2500A <input type="checkbox"/>	2500A <input type="checkbox"/>	2500A <input type="checkbox"/>	6300A <input type="checkbox"/>	6300A <input type="checkbox"/>
	800A <input type="checkbox"/>	1250A <input type="checkbox"/>	3200 A <input type="checkbox"/>	3200 A <input type="checkbox"/>	3200 A <input type="checkbox"/>	7500A <input type="checkbox"/>	7500A <input type="checkbox"/>
	1000A <input type="checkbox"/>	1600A <input type="checkbox"/>		4000 A <input type="checkbox"/>	4000 A <input type="checkbox"/>		
	1250A <input type="checkbox"/>	2000A <input type="checkbox"/>					
	1600A <input type="checkbox"/>	2500A <input type="checkbox"/>					
Number of poles	3 poles <input type="checkbox"/>		4 poles <input type="checkbox"/>				
Mounting mode	Draw-out type <input type="checkbox"/>		Fixed type <input type="checkbox"/> (NA8-7500 has no fixed type)				
Busbar connection mode	Horizontal connection <input type="checkbox"/>		Vertical connection <input type="checkbox"/>		Mixed connection <input type="checkbox"/> (indicating the connection mode)		
Intelligent controller	M type <input type="checkbox"/> (basic type)		H type <input type="checkbox"/> (communication type)				
Shunt, closing, motor	Closing electromagnet <input type="checkbox"/>		Shunt release <input type="checkbox"/>		Energy storage motor <input type="checkbox"/>		
	AC220/230V		AC380/400 V <input type="checkbox"/>		DC220V <input type="checkbox"/>		DC110V <input type="checkbox"/>
Undervoltage release	UVT <input type="checkbox"/>		UVTZ-1 <input type="checkbox"/>		UVTZ-1 <input type="checkbox"/> (only for NA8-1600)		
	AC220/230V		AC380/400 V <input type="checkbox"/>				
Auxiliary contact	NA8-1600 C04 (standard)		C 06 <input type="checkbox"/> (only for AC)		N3 <input type="checkbox"/> (only for AC)		
	NA8-2500~7500 C04 (standard)		C 06 <input type="checkbox"/> N4 <input type="checkbox"/> N5 <input type="checkbox"/>				
Auxiliary contact indication (optional)	Drawer seat three-position signal device <input type="checkbox"/>						
Connecting accessory (optional)	Interphase insulating barrier <input type="checkbox"/>		NA8-1600 extension busbar <input type="checkbox"/>				
Controller function and accessories (optional)	External transformer: Phase N external transformer <input type="checkbox"/> External LEC leakage transformer <input type="checkbox"/> Ground current protection transformer <input type="checkbox"/>						
	Controller functions: 3P + N protection function <input type="checkbox"/> Leakage protection function <input type="checkbox"/> Ground current protection function <input type="checkbox"/>						
	Voltage measurement and protection function <input type="checkbox"/> Electric energy measurement and protection function <input type="checkbox"/>						
	Signal contact output function <input type="checkbox"/>						
	ZSI zone interlock protection function <input type="checkbox"/> Load monitoring function <input type="checkbox"/>						
	Notes: 1) For 3P + N protection function, the phase N external transformer must be selected at the same time; 2) Leakage protection requires external LEC leakage transformer,and rated current of ACB with leakage transformer should <= 3200A; 3) For the ground current protection function, the ground current protection transformer must be selected at the same time.						
Lock mechanism (optional)	Breaking/Making button lock <input type="checkbox"/>		One lock one key <input type="checkbox"/>		Two locks one key <input type="checkbox"/>		Three locks two keys <input type="checkbox"/>
Mechanical interlock (optional)	Wire rope interlock (two interlock) <input type="checkbox"/>		Wire rope interlock (MIT-3) <input type="checkbox"/>		Wire rope interlock (MIT- 4) <input type="checkbox"/>		
Module (optional)	PSU-1 <input type="checkbox"/>	RU-1 <input type="checkbox"/>	ST-DP protocol conversion module <input type="checkbox"/>				

Remark: Upon placing an order, the frame current, rated current and auxiliary control voltage must be indicated!

Notes: 1) Please check the ☐ corresponding to required option with "√" or "-", and fill the figure; if there is no marking, we will provide the goods according to the conventional factory setting.

2) If the additional functions and special requirement are selected, additional expense will incur separately. TEL: 0577-62877777 – 706213.
FAX: 0577 - 62877777-706288.

Configuration explanations

I. NA8-1600~2500、NA8-4000 ~7500 conventional configuration explanations Shunt release, closing electromagnet, 4 groups changeover contacts, motor, M type intelligent controller, main circuit horizontal connection, door frame, main circuit mounting bolts, circuit breaker operation manual, packing case, drawer seat (draw-out type circuit breaker)

II. Optional configuration (with additional expense)

NA8-1600 optional configuration explanations: undervoltage instantaneous release, undervoltage time delay release, wire rope interlock, key lock, external transformer earth protection function, 6 groups of changeover contacts, 3NO 3NC contacts, H type intelligent controller, optional type H function, interphase insulating barrier, position signal.

NA8-2500、NA8-4000~7500 optional configuration explanations: undervoltage time delay release (1s~5s adjustable), wire rope interlock, button lock, key lock, door interlock, external transformer ground protection function, vertical connection, 6 groups of changeover contacts, 4NO 4NC contacts, 5NO 5NC contacts, type H intelligent controller, optional H type function, position signal.

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