

Shanghai Liangxin Electric Co., Ltd

NDQ3-100/160

Automatic switching Electrical Appliances

Product Specifications

(IPD-ENG-DEV-T20 A2 2025-03-14)

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Revision record					
version	Reason/Content of the revision	Date of implementation	Producer	Reviewer	Approver
0	New	2025/8/20	Li Gongjiu	Zhong Yunpan	Zheng Lei

1 Scope of application and use

NDQ3-100/160 automatic transfer switching appliance (PC grade) is suitable for automatic conversion between two power supplies in emergency power supply systems with AC rated operating voltage of 415V and below, rated frequency of 50/60Hz, and rated current of 16A to 160A, so as to ensure continuous, safe and reliable operation of important loads (such as fire loads). It is widely used in hospitals, shopping malls, banks, chemical industry, high-rise buildings, military installations, fire protection and other important places where power outages are not allowed.

This product complies with GB/T 14048.11-2024 "Low Voltage Switchgear and Control Equipment - Part 6-1: Multifunctional Appliances and Switching Appliances", "Fire Protection Code for High-rise Civil Buildings", "Fire Protection Code for Building Design", "Design Guidelines for Emergency Lighting", "Electrical Design Code for Civil Buildings", etc.

2 Product pictures (for reference only, subject to the actual product)



NDQ3-100 automatic transfer switching appliance



NDQ3-160 automatic transfer switching appliance

3 Specifications and model descriptions

ND Q 3 - □ □ / □ / □ / □ / □ / □ / □ / □ / □ / □

1 2 3 4 5 6 7 8 9 10 11 12

serial number	Serial number description	
1	Enterprise code	ND: Business code
2	Product code	Q: Automatic transfer switching appliances
3	Design serial number	3: Design serial number
4	Shell Rack Current	100, 160
5	Product Type:	M-special type, non-excitation type
6	Structural form	Z: monolithic, F: split
7	Rated Operating Current (A)	16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 140, 160
8	Extreme number	2: two-pole, 3: three-pole, 4: quadrupole
9	Conversion method	R-Self-throw self-recovery (default self-throw self-recovery, mutual backup/self-thrower re-adjustable)
10	Switch structure	III.
11	Controller type	B: Type B Controller (Basic Controller) D: Type D Controller (Intelligent Controller)
12	Attachment code	See attached table, default - no attachment

Note: The controller type is type B, and the structure form is integral and split; The controller type is D-type, and the structure is only split

3P products do not need to be connected to the N phase, and 4P products need to be connected to the N phase at the inlet end

Annex table

Module type	Module type code	Type B controller	Type D controller	remark
Spaced between the boards	G	Or	Or	Matching
Fire Protection Module	X	Or	Standard	Integral type: 4 modules in total, choose up to 1 of each type, choose up to 3 types of split type: 4 modules in total, choose up to 1 of
Generator & Unload	F	Or	Standard	
Communication module	T	Or	Standard	
Remote Device	And	Or	Standard	

Module				each type, and choose up to 4 types
Contact position status module	A	Or	Or	One set is already supplied as standard, and one set is optional

-: Not optional O: Optional

4 Main technical parameters

4.1 Electrical parameters

Table 1: Main electrical parameters

Product model	NDQ3-100	NDQ3-160
Product poles	2P/3P/4P	3P/4P
Rated working voltage Ue(V).	2P: AC220/230/240 3P/4P : AC380/400/415	AC380/400/415
Rated Current In(A)	16/20/25/32/40/50/63/80/100	80/100/125/140/160
Fuse protection	100YEARS	160YEARS
Rated short-circuit connection capability Icm(kA).	7.65	17
Rated short-term withstand current Icw(kA).	5kA/100ms	10kA/100ms
Rated limiting short-circuit current Iq(kA).	120	
Rated insulation voltage Ui (V).	1000 (Switch Body), 415 (Controller)	
Rated shock withstand voltage Uimp (kV).	8 (switch body), 6 (controller).	
Number of positions	III	
Fastest Contact Conversion Time (ms)	Excitation type: ≤ 130 , motor type: ≤ 300	
Fastest conversion action time (ms)	Excitation type: ≤ 260 , motor type: ≤ 1100	
Use categories	AC-33iA/AC-33B	
Electrical life	6500 (no maintenance)	
Mechanical life	10000 (no maintenance) 15000 (maintainable)	
Working mode	Self-report and self-recovery/互为备用/自投手复	
Applicable standards	IEC60947-6-1/GB/T14048.11	
Certified	CCC/CB	

4.2 Controller function parameters

Controller function parameters

Function description:		Type B	Type D	remark
Grid detection and protection function	I. and II. power supply ABC phase voltage monitoring	√	√	3+3 sampling
	Overvoltage protection	√ 2P/4P: 264V by default 3P: 456V by default	√ 2P/4P: 264V by default 3P: 456V by default	The 2P/4P return value is 244V by default The default 3P return value is 422V

			Adjustment range: Rated voltage $\times$ 105%~130%	D-type return value: the rated voltage $\times$ 2%~10% adjustable
	Undervoltage protection	✓ 2P/4P defaults to 176V 3P defaults to 304V	✓ 2P/4P defaults to 176V 3P defaults to 304V Adjustment range: Rated voltage $\times$ 75%~95%	The return value of 2P/4P is 196V by default 3P return value defaults to 339V D-type return value: the rated voltage $\times$ 2%~10% adjustable
	Cut off the phase protection	✓	✓	
	Over frequency protection	▽ (Optional communication module settings).	☐ OFF by default Adjustment range 102%-130%	Default 5% 2%~10% adjustable
	Under-frequency protection	▽ (Optional communication module settings).	☐ OFF by default Adjustment range: 80%-98%	Default 5% 2%~10% adjustable
	Phase Sequence/Phase Protection	▽ (Optional communication module settings).	☐ OFF by default	
	Phase angle a	▽ (Optional communication module settings).	☐ OFF by default Adjustment range: 5%-20%	Default 5% 2%~10% adjustable
	imbalance	▽ (Optional communication module settings).	☐ OFF by default Adjustment range: 3%-30%	Returns 5% by default 2%~10% adjustable

	Frequent changeovers	√ (alarm only, plus communication module can be recognized)	√	The number of conversions in 1 minute ≥ 8
	Control voltage over-range alarm	√ (alarm only, plus communication module can be recognized)	√	The I. and II. power supplies $\geq 480\text{VAC}$ at the same time, and the conversion command is not executed
Measurement/display function	Voltage value	▽ (Optional communication module can be read)	√	3P products display line voltage, 4P products display phase voltage, and display overvoltage, undervoltage, and phase break alarms
	Frequency value		√	Displays frequency values and over-underfrequency alarms
	Imbalance		√	
The product is self-health tested	Mechanism failure alarm	√ (alarm only, plus communication module can be recognized)	√	
	Contact fault alarm		√	
	Microswitch fault alarm		√	
	N connection to the wrong line alarm		√	
	Memory failure alarm	-	√	
Communication function	MODBUS-RTU	▽	√	
Controller mounting structure	Detachable HMI	√	√	

node input	Fire linkage	▽ (Optional Fire Protection Module)	√	
	Auxiliary power supply (DC24V) input	-	√	
	Programmable input 1	-	√	
	Programmable input 2	-	√	
	Programmable input 3	-	√	
	Program programming terminals	√	√	
node output	Contact position state output	√	√	A set is standard
	RS485 communication interface	▽ (Optional Communication Module)	√	
	Generator start and stop	▽ (Optional generator module)	-	The D-type programmable output is configurable
	Programmable output1	-	√	
	Programmable output2	-	√	
	Programmable outputs3	-	√	
Power supply mode	Power grid - power grid	√	□	
	Power grid - generator	▽ (Optional generator module)	□	
	Generator - generator	-	□	
Control mode	Automatic conversion	Self-report and self-recovery (DIP Settings)	□	
		Self-investment without self-recovery (DIP Settings)	□	

		(Backup for each other)			
		Self-investment without self-recovery (Self-pitcher return)	☐ (DIP Settings)	☐	
		Phase conversion	-	☐	
	Non-automatic conversion	Handle operation conversion	✓	✓	
		Remote control conversion	▽	✓	
		Conversions are prohibited	▽	✓	
		Controller key casts	-	✓	
		firefighting	▽	✓	
		Test	✓	✓	
	Power first	Common use first	☐ (DIP Settings)	☐	
		Spare priority	☐ (DIP Settings)	☐	
Delay adjustment		Fault confirmation delay	☐ (DIP Settings)	✓	
		Commonly used to split the gate delay	☐ (DIP Settings)	☐	Conversion delay
		Often closed delay	▽ (Optional Communication Module)	☐	
		Backup closing delay	▽ (Optional Communication Module)	☐	
		Spare split gate delay	☐ (DIP Settings)	☐	Return time-lapse
		Engine cooling delay	▽ (Optional Communication Module)	☐	
		Generator start delay	▽ (Optional Communication Module)	☐	

	Generator inspection delay	▽ (Optional Communication Module)	☐	
	Generator inspection is stable and delayed	▽ (Optional Communication Module)	☐	
keystroke	reposition	✓	✓	Short press to take effect after release
	Test	✓	✓	Long press for 4s to take effect
	Upturn/muffled	-	✓	
	Flip down/test light	-	✓	
	Back/Home	-	✓	
	Setup/confirmation	-	✓	
	Combined with SI power supply	-	✓	
	Combined with SII power supply	-	✓	
	Double points	-	✓	
	Automatic/manual	-	✓	
Display light	S1 power state	✓	✓	
	S2 power state	✓	✓	
	S1 power supply closed	✓	✓	
	S2 power closed	✓	✓	
	run	✓	✓	
	Police/Fire Protection	✓	✓	
	Exit control	✓ (split type only)	✓	
	Hand/Automatic	-	✓	
Display or set up modules	LCD screen	-	✓	
	Dial	✓	-	
Optional modules	Fire Protection Module	▽	-	Fire protection is lifted according to the test
	Generator start-stop module/load unloading	▽	-	
	Communication module	▽	-	

	Remote switching module/prohibition conversion module	▽	-	
	Contact position state output module	▽	▽	Up to 1 co-optation
other	Frequency selection	▽ (Optional communication module)	√	
	Double enable	▽ (Optional communication module)	√	
	Timed changeovers	-	√	
	Record the number of actions	▽ (Optional communication module can be read)	√	
	Events, fault logs	▽ (Optional communication module can be read)	√	

- — not
- √ — Yes, but it cannot be adjusted on site
- — Yes and can be adjusted on site
- ▽ — Matching

Note: Only the 4P product has phase angle protection function

5 Normal working environment

5.1 The ambient temperature range used by the product

The ambient air temperature range is -25~+70° C.

5.2 altitude

The installation site should be installed at an altitude of no more than 2000 m.

Volume reduction coefficient table

Altitude (m)	2000	3000	4000	5000
Operating current correction factor	1In	0.9 In	0.8 In	0.75 In

5.3 Contamination level

Pollution Class III

5.4 Protection level

The protection level of IP30 (except for terminals) prevents solid foreign objects with a diameter

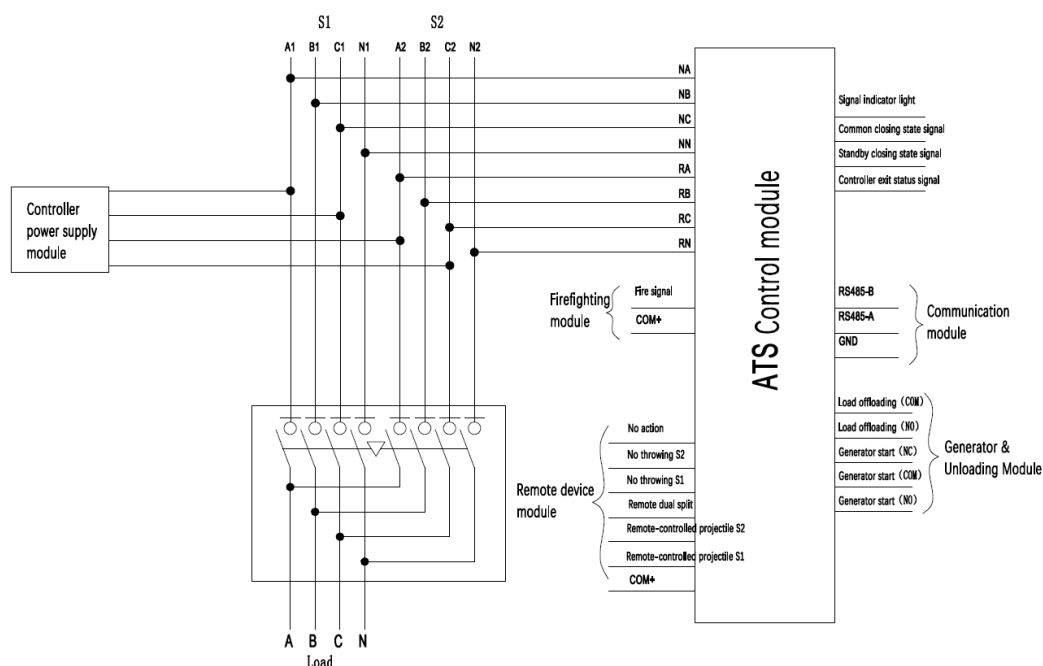
of not less than 2.5mm from entering the shell, and is not waterproof.

5.5 humidity

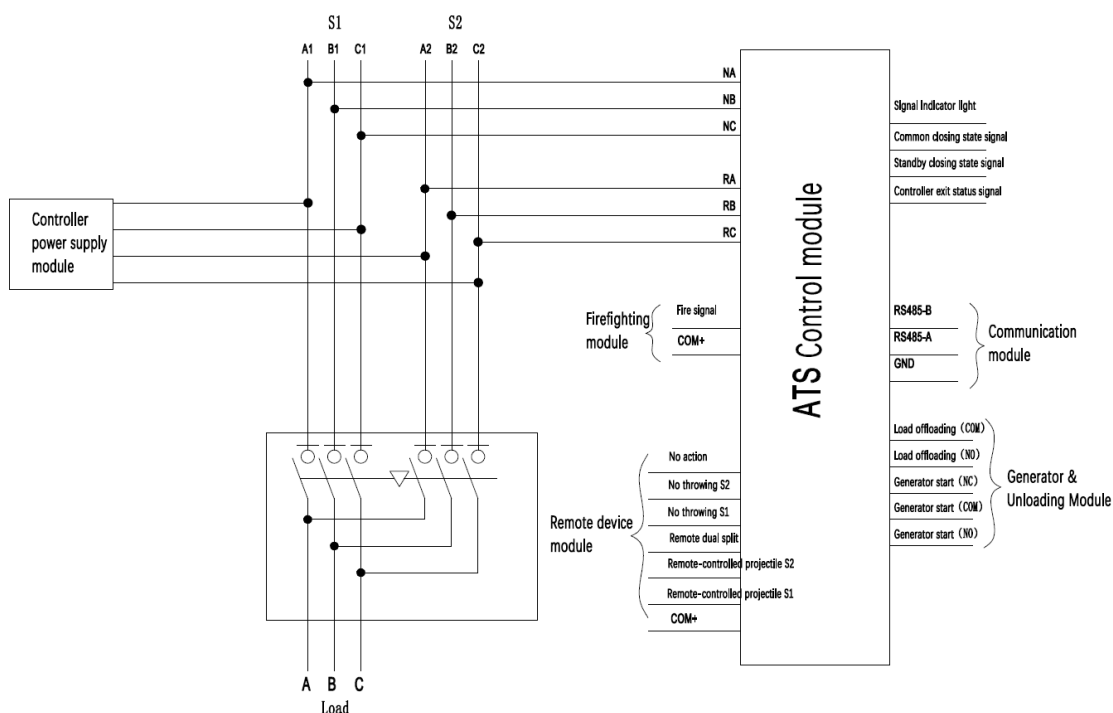
Meets the verification of alternating humidity and heat GB/T2423.4-2008, test Db, 2 cycles, +55° C, method 2.

6 Electrical schematic

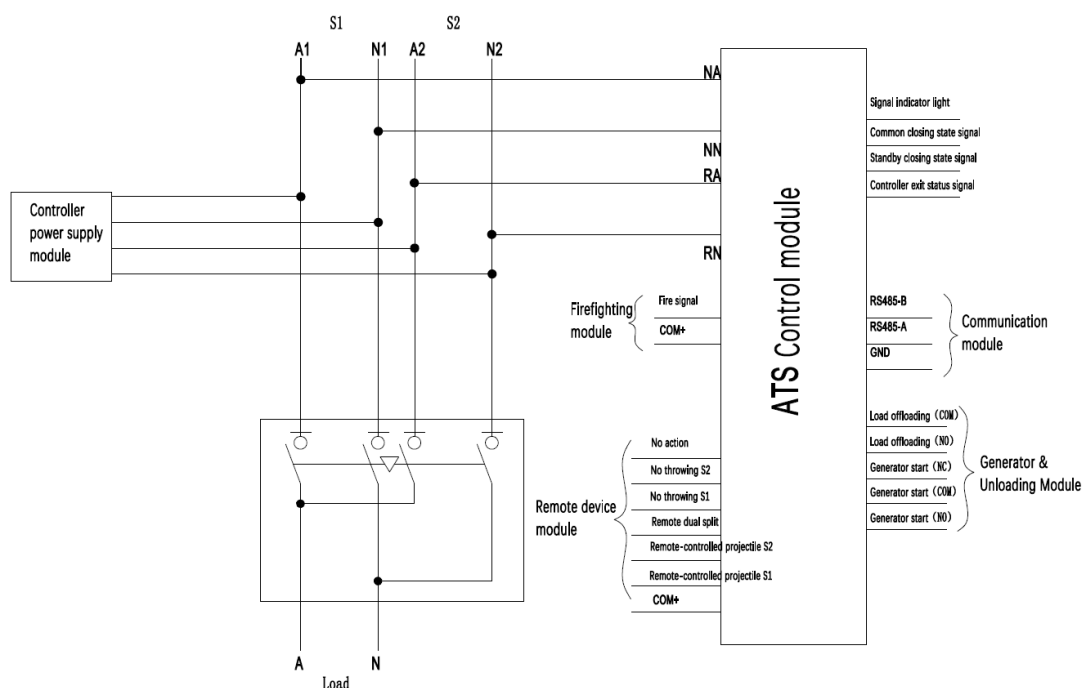
6.1 Schematic diagram of 4P Type B controller



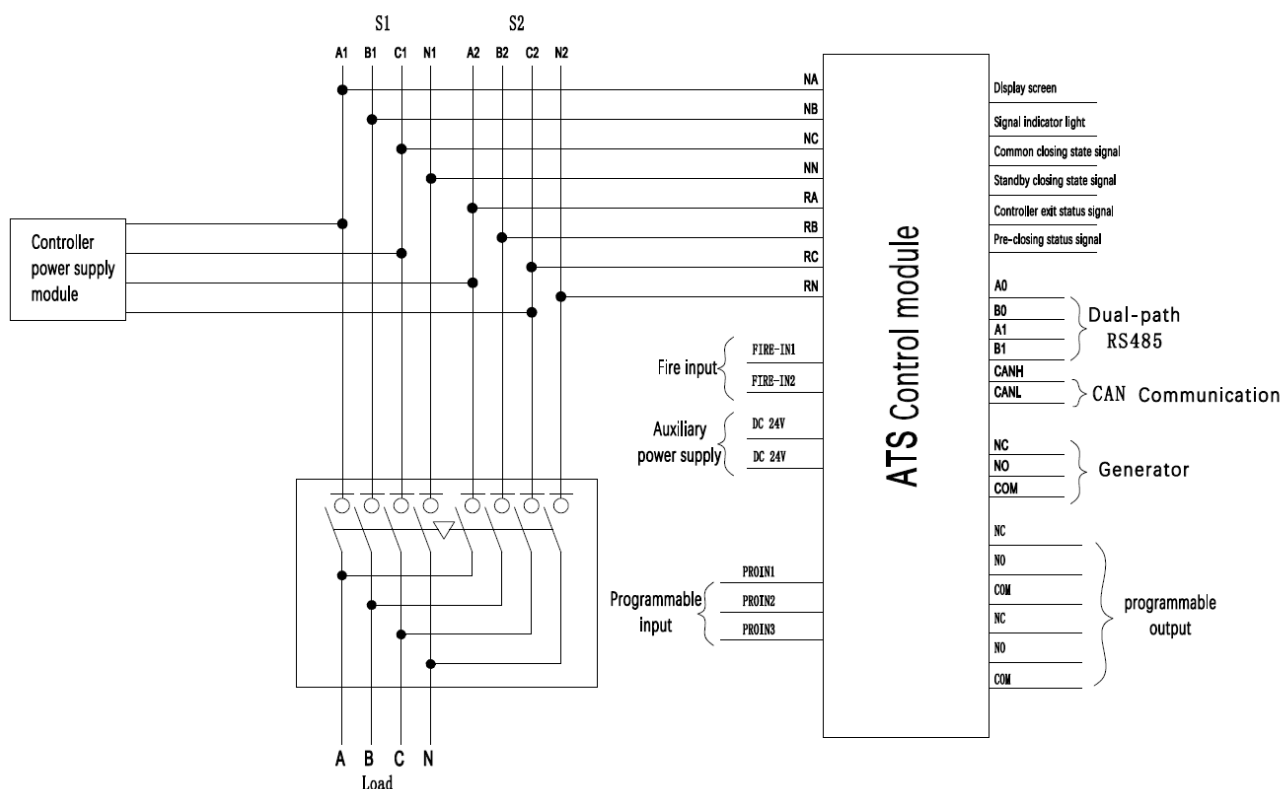
6.2 Schematic diagram of 3P Type B controller



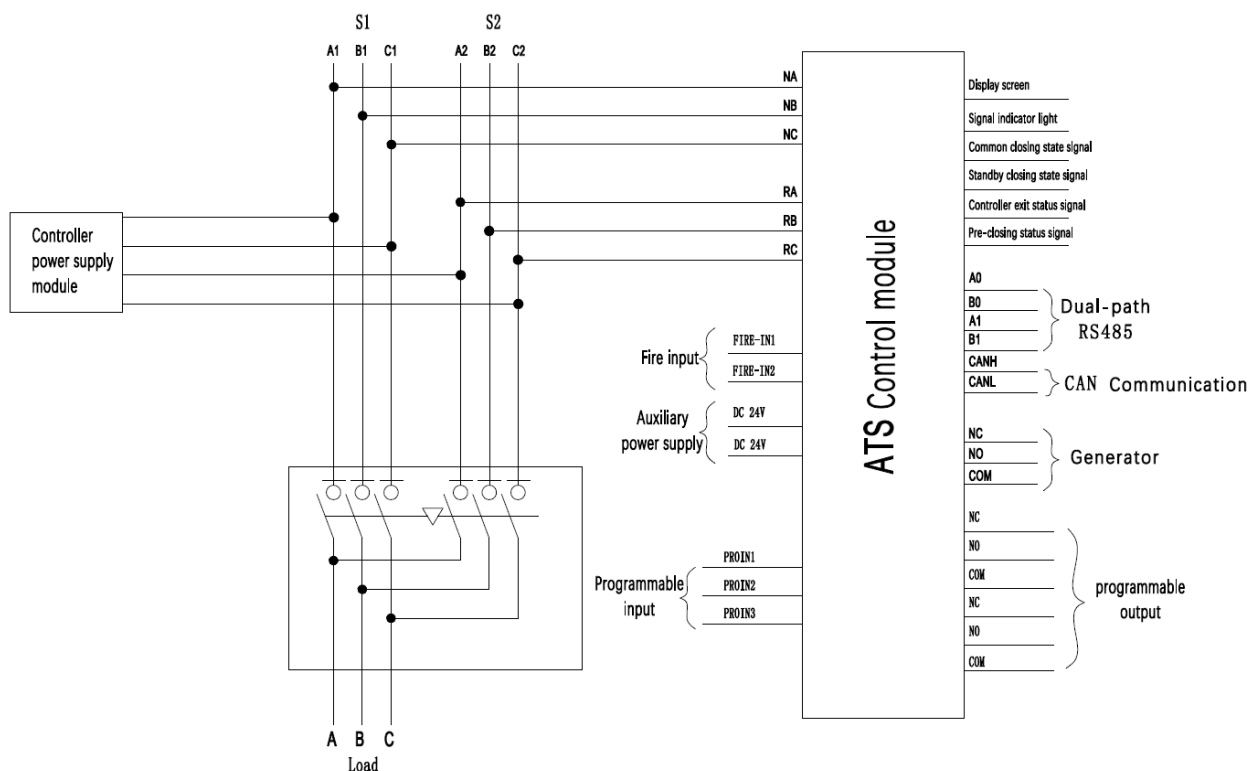
6.3 Schematic diagram of 2P Type B controller



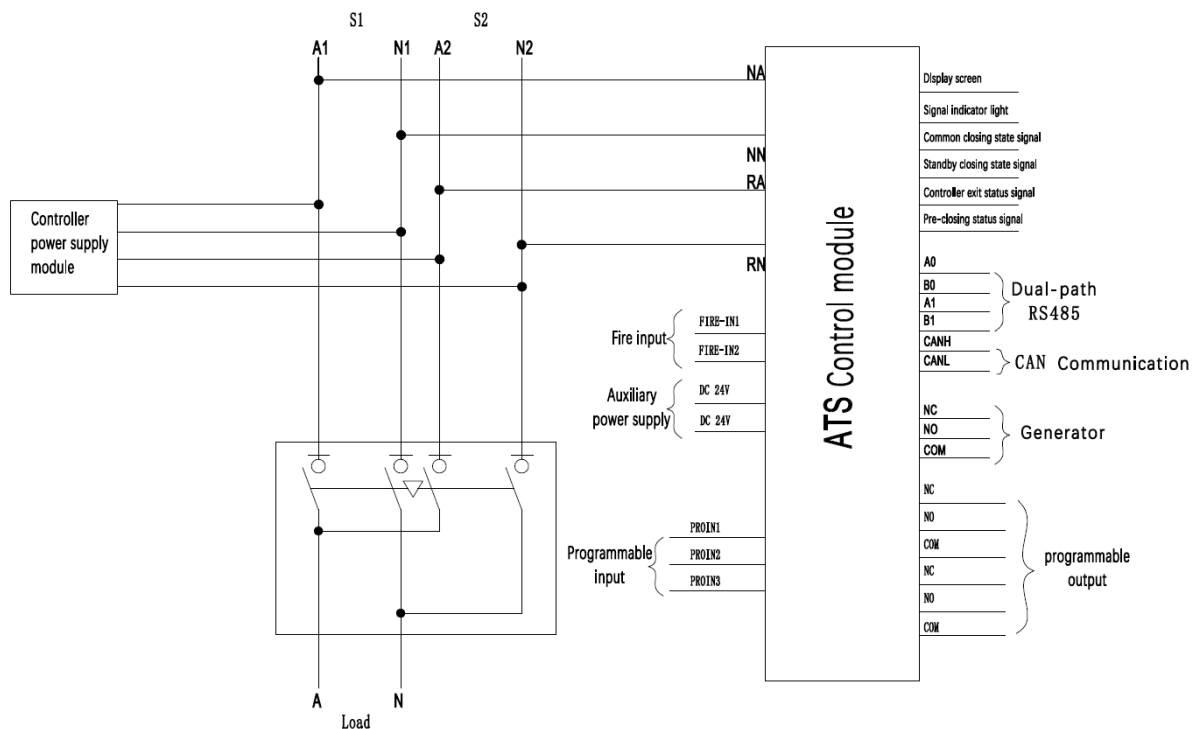
6.4 Schematic diagram of 4P D-type controller



6.5 Schematic diagram of 3P D-type controller



6.6 Schematic diagram of 2P D-type controller

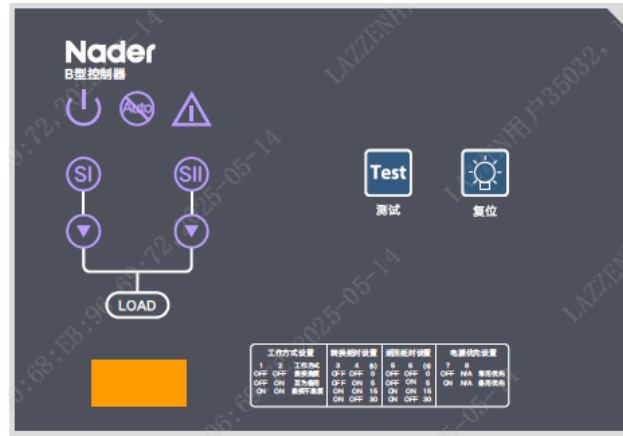


7 Controller panel/button instructions

7.1 Type B controller panel/button instructions



Type B monolithic type



Type B split

7.1.1 Indicator light description

Panel status		Always bright	flashing	Not bright
	run	abnormal	Flickering (1Hz): normal operation; Flash (5Hz): Communication	No power supply
	alarm	fault	Flash (5Hz): Fire signal	No alarms
	S1 power supply	normal	Flickering (1Hz): undervoltage/phase loss/other abnormalities; Flash (5Hz): Overvoltage	Power
	S2 power supply	normal	Flickering (1Hz): undervoltage/phase loss/other abnormalities; Flash (5Hz): Overvoltage	Power
	S1 closed	S1 closed	Flickering (1Hz): Conversion delay running	S1 gate
	S2 closed	S2 closed	Flickering (1Hz): Conversion delay running	S1 gate
	Exit control (Split only)	Exit the controller control state	/	Controller control state

7.1.2 Key instructions

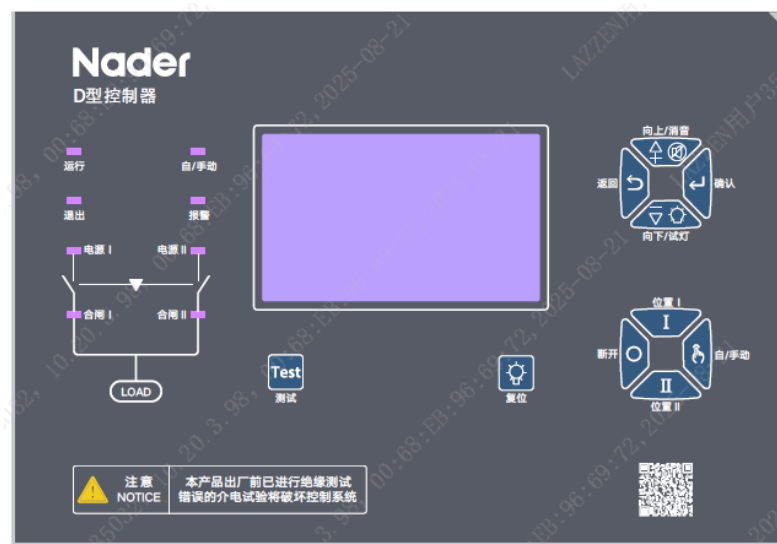
Reset R	Short press to release and reset the controller
Test T	Long press 4s to take effect, and the test starts to return to the usual closing to perform a cycle action; Exit the test state and

	return to the normal position according to the current state.
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7.1.3 DIP switch description

1st~2nd place	3rd~4th place	5th~6th place	7th place
Working style settings	Convert the delay settings	Return to the delay settings	Power priority setting
OFF-OFF: Self-throwing and self-repetition OFF-ON: Backup for each other ON-ON: Self-throwing is not self-repetitive	OFF-OFF:0s OFF-ON:5s ON-ON:15s ON-OFF:30s	OFF-OFF:0s OFF-ON:5s ON-ON:15s ON-OFF:30s	OFF: Commonly used first ON: Standby first

7.2 Type D Controller Display/Button Instructions



D-type split type

7.2.1 Indicator light description

Panel status	Always bright	flashing	Not bright
run	abnormal	Flickering (1Hz): normal operation;	No power supply
alarm	fault	Flash (5Hz): Fire signal	No alarms
S1 power supply	normal	Flickering (1Hz): undervoltage/phase loss/other abnormalities; Flash (5Hz): Overvoltage	Power

S2 power supply	normal	Flickering (1Hz): undervoltage/phase loss/other abnormalities; Flash (5Hz): Overvoltage	Power
S1 closed	S1 closed	/	S1 gate
S2 closed	S2 closed	/	S1 gate
Exit control	Exit the controller control state	/	Controller control state
Hand/Automatic	Manual control status	/	Automatic control status

7.2.2 Display description

Protection parameter settings	1 S1 protection parameter setting	
	2 S2 protection parameter setting	
	3 In-Phase Conversion Settings	
	4 Time-limited self-resetting	
	5 Appointment conversion settings	
S1 conversion parameter setting	1 S1 parameter is set with one click	1. The reference for the percentage of the over-undervoltage/over-underfrequency setting threshold is the rated voltage/rated frequency 2. S2 conversion parameter settings and basic items of the S1 interface, only the eyebrows are changed from S1 to S2, and the first item of the menu is changed to copy the S1 parameter 3. After selecting the "Copy S2 Conversion Parameters" menu, the pop-up window "Confirm/Cancel", the default point is Cancel, press the up and down buttons to point to
	2 Undervoltage start threshold	
	3 Overvoltage start threshold	
	4 Undervoltage recovery difference	
	5 Overvoltage recovery difference	
	6 Underfrequency start threshold	
	7 Over-frequency start threshold	
	8 Underfrequency recovery threshold	
	9 Overfrequency recovery threshold	
	10 Unbalanced start	

	threshold	confirm, and then press the confirmation button, and the copy will take effect
	11 Imbalance recovery threshold	
	12 phase angle initiation threshold	
	13 phase angle recovery threshold	
	14 Delay in opening the gate	
	15 Closing action delay	
	16 Phase sequence protection mode	
Phase conversion settings	1 Synchronized conversion protection is enabled	After the function is enabled, it will be judged whether the power supply on both sides meets the voltage, frequency, and phase angle tolerance, meets the permissible conversion, and does not meet the prohibited conversion
	2 In-phase conversion voltage tolerance	
	3 In-phase conversion frequency tolerance	
	4 In-phase conversion phase angle tolerance	
Set for a limited time	1 Time-limited self-recovery protection enable	After the time-limited self-recovery function is enabled, the switch is only allowed to perform self-recovery operation during a limited period of time and the power recovery time has reached the set self-recovery stable delay threshold (the backup power supply abnormality is not limited by this condition). If the start and end time settings are the same, self-recurring operations are considered to be allowed at any time
	2 Time-limited self-recovery start time	
	3 Time-limited self-recovery end time	
	4. Power supply recovery stable delay	
Appointment conversion settings	1 S1 timed conversion mode	Timed conversion mode 0: Not enabled 1: Single effect 2: Effective on a monthly cycle
	2 S1 timed conversion day setting	

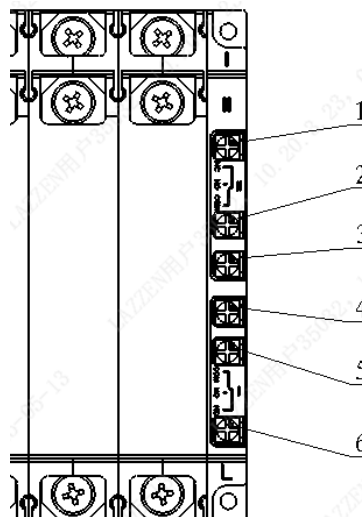
	3 S1 timing conversion time	3: Takes effect on a daily cycle (the daily setting value is invalid)
	4 S1 timing conversion point setting	
	5 S2 timing conversion mode	
	6 S2 timed conversion day setting	
	7 S2 is set during timer conversion	
	8 S2 timing conversion point setting	

7.2.3 Key instructions

Reset R	Short press to release and reset the controller
Test T	Long press 4s to take effect, and the test starts to return to the usual closing to perform a cycle action; Exit the test state and return to the normal position according to the current state.
Upturn/muffled	
Flip down/test light	
Back/Home	Press and hold for 1s to return to the main page
Setup/confirmation	On the home interface, press to enter the settings menu, and in the settings interface, click the confirmation button
S1 power supply	Switch to S1 closing position in manual mode
S2 power supply	Switch to S2 closing position in manual mode
Double points	Transition to the middle position in manual mode
Automatic/manual	Manual/automatic mode switching

8 External interface definitions

8.1 Definition of the body interface of the automatic transfer switch



Interface name	Wiring serial number		Wiring instructions
S2 power contact state output	1	Normally close contacts	S2 is disconnected from the common end when closing
	2	Normally open contacts	S2 is connected to the public end when closing
	3	Public end	
S1 power contact state output	4	Public end	
	5	Normally open contacts	S1 is connected to the public end when closing
	6	Normally close contacts	S1 is disconnected from the common end when closing

8.2 Optional module external interface definitions



Communicate module

3 2 1
RS485-B RS485-A GND

Generator & Unloading Module

6 5 3 2 1
Load offloading Load offloading Generator start Generator start(COM) Generator start(NO)
(COM) (NO) (NC)

Remote device module

7 6 5 4 3 2 1
No action No action No action Remote dual split Remote-controlled Remotecontrolled COM+
S2 S1 projectileS2 projectileS1

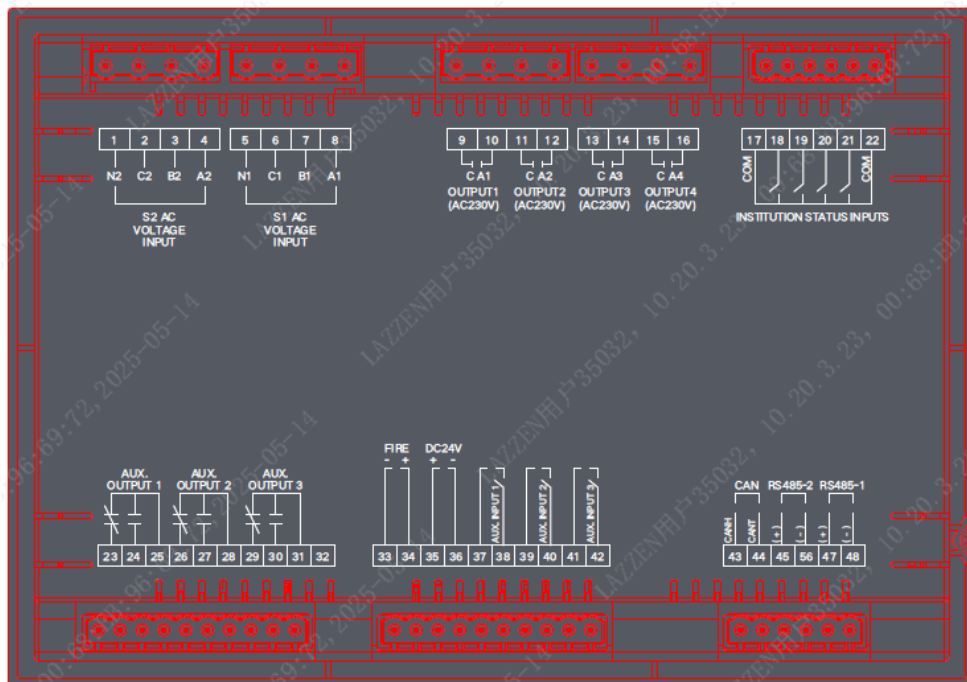
Firefighting module

2 1
Fire signal COM+

Module Name	Wiring serial number		remark
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Communication module	1	GND	
	2	RS485-A	
	3	RS485-B	
Generator and unloading module	1	Generator start (normally open node)	When the power supply II is a self-starting generator set, the user can connect with the generator controller through terminals 1-3 to complete the automatic start generator function. When the power supply I. is normal, 2-3 is in the disconnected state; When the power supply I. fails, 2-3 sends out a generator start signal from disconnection to closed.
	2	Generator start (public end)	
	3	Generator start (normally closed node)	
	5	Load offload (normally open node)	
	6	Load offload (public side)	
Remote Device Module	1	Public end+	
	2	The remote control switches to S1	
	3	The remote control switches to S2	
	4	The remote control switches to double split	
	5	Switching to S1 is prohibited	
	6	Switching to S2 is prohibited	
	7	No movements	
Fire Protection Module	1	Public end+	Passive or DC24V Press the test button to disarm the fire extinguishing
	2	Fire signal	

8.3 Type D controller external interface definition

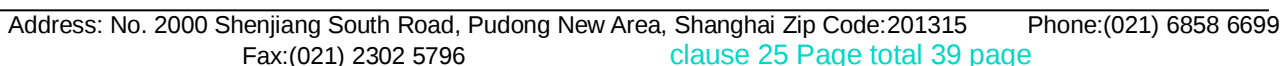


Inter face seria l num ber	nam e	Function description		Terminal capacity	illustrate
23	OU1	NC (normally closed).	Program mable output port 1	AC250V 3A	Default settings: Programmable output 1: fault alarm Programmable output 2: Commonly used closing feedback Programmable output 3: Alternate closing feedback Optional features 1. Fault alarm; 2. Power grid alarm; 3. Common power supply alarm; 4. Backup power alarm; 5. Commonly used overvoltage alarm; 6. Standby overvoltage alarm 7. Commonly used undervoltage alarm 8. Standby undervoltage
24		NO (always open).			
25		COM (public end).			
26	OU2	NC (normally closed).	Program mable output port 2		
27		NO (always open).			
28		COM (public end).			
29	OU3	NC (normally closed).	Program mable output port 3		
30		NO (always open).			
31		COM (public end).			

					alarm; 9. Commonly used phase break alarm; 10. Spare phase break alarm; 11. Commonly used over-frequency alarms; 12. Spare overfrequency alarm; 13. Commonly used underfrequency alarms; 14. Backup underfrequency alarm; 15. Commonly used phase sequence/phase alarm; 16. Spare phase sequence/phase alarm; 17. Commonly used imbalance alarms; 18. Spare imbalance alarm; 19. Commonly used zero alarm; 20. Spare zero alarm; 21. Commonly used phase angle alarm; 22. Spare phase angle alarm; 23. Commonly used closing feedback; 24. Spare closing feedback; 25. Full score feedback; 26. Fire feedback; 27. S1 generator starts; 28. S2 generator starts; 29. S1 generator failure; 30. S2 generator failure; 31. Storage failure; 32. S1 neutral wire fault; 33. S2 neutral wire fault; 34. Position switch failure; 35. Mechanism failure; 36. Contact failure; 37. Frequent conversion failures; 38. Common power freezing warning; 39. Early warning of freezing of backup power
33	FIRE	FIRE_IN1	Fire Input		Fire protection input

Note: The 43~46 interface of NDQ3-160/100 type products is invalid

9.1.1 NDQ3-100/100M integral form factor and installation size

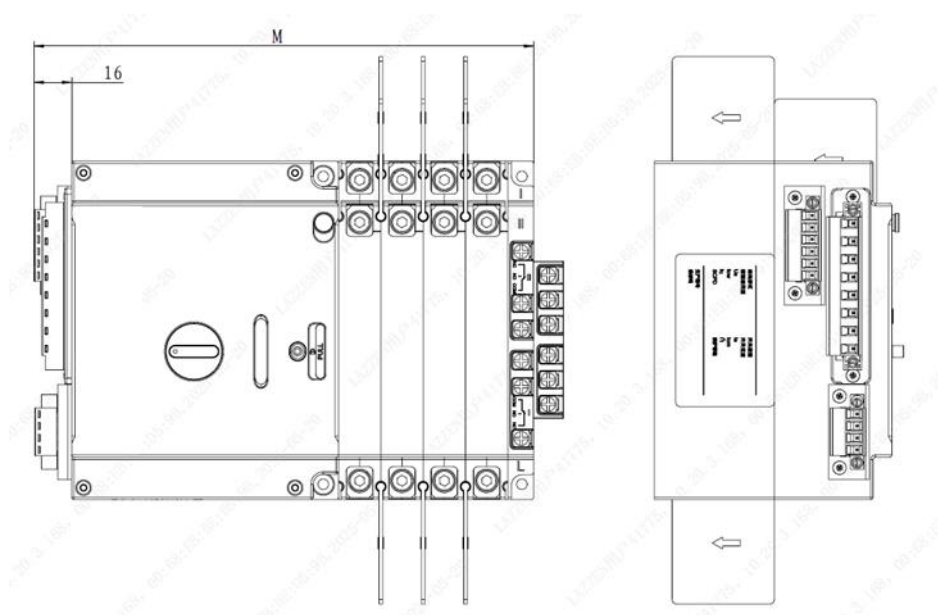


		N
4P	196.5	84.5
3P	178.5	66.5
2P	160.5	48.5

Concentrate: ③: The thickness of the additional module is 14.8mm, and the maximum number of additional modules is 3.

④: The thickness of the contact position state output module is 12.7mm, and a maximum of 1 can be added.

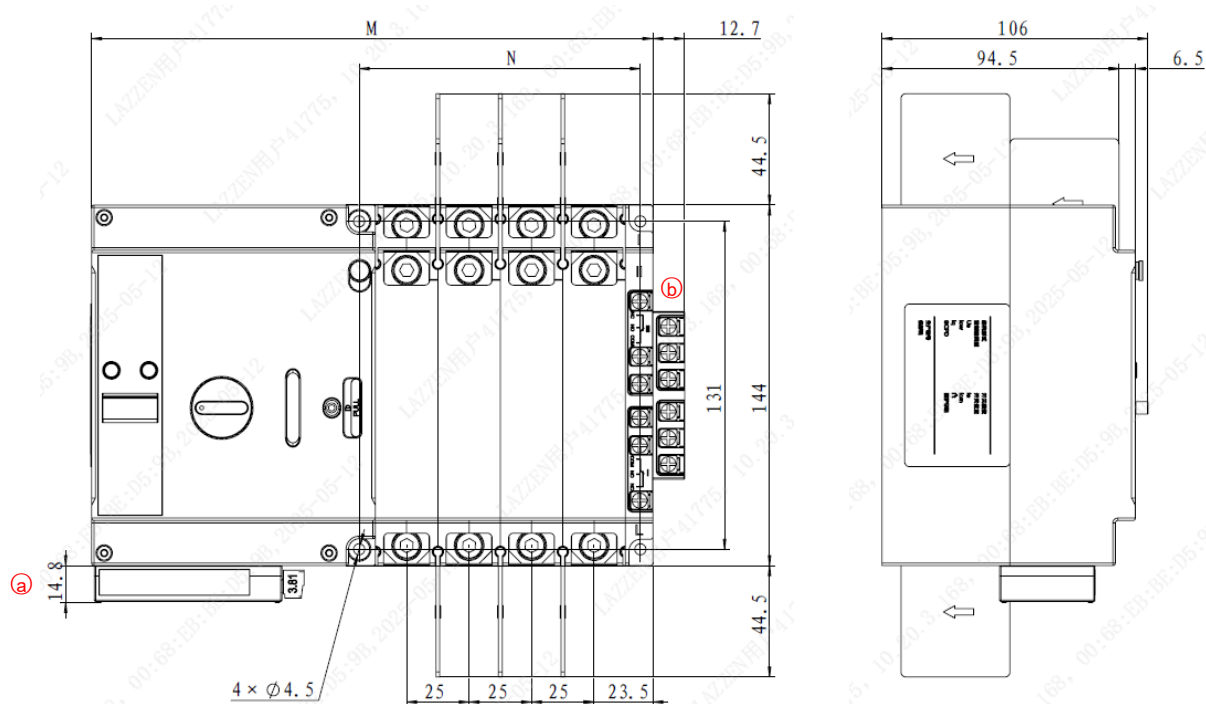
9.1.2 NDQ3-100/100M split body shape and installation size



	Dimensions M	Mounting size N
4P	212.5	84.5
3P	194.5	66.5
2P	176.5	48.5

Note: The rest of the dimensions are the same as the integral shape and installation size.

9.1.3 NDQ3-160/160M integral form factor and mounting dimensions

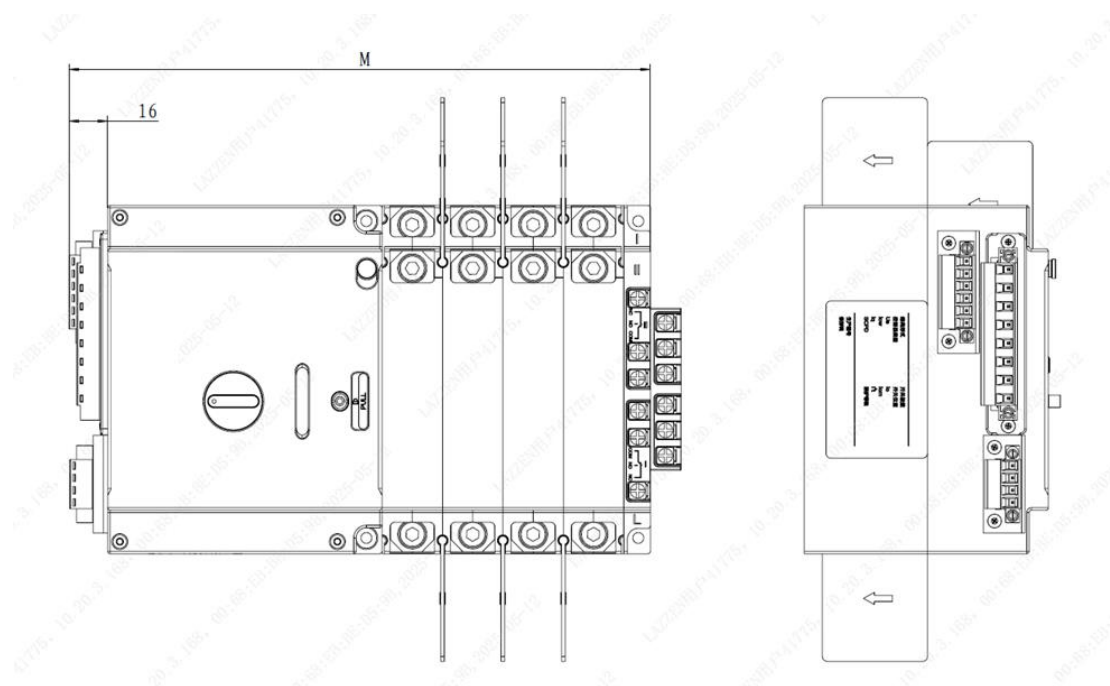


	M	N
4P	224.5	112.5
3P	199.5	87.5

Concentrate: ①: The thickness of the additional module is 14.8mm, and the maximum number of additional modules is 3.

②: The thickness of the contact position state output module is 12.7mm, and a maximum of 1 can be added.

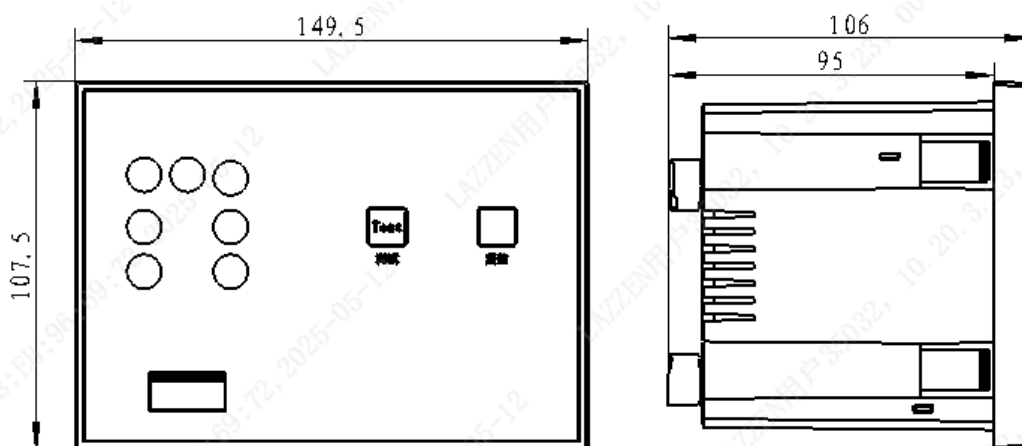
9.1.4 NDQ3-160/160M split body shape and installation size

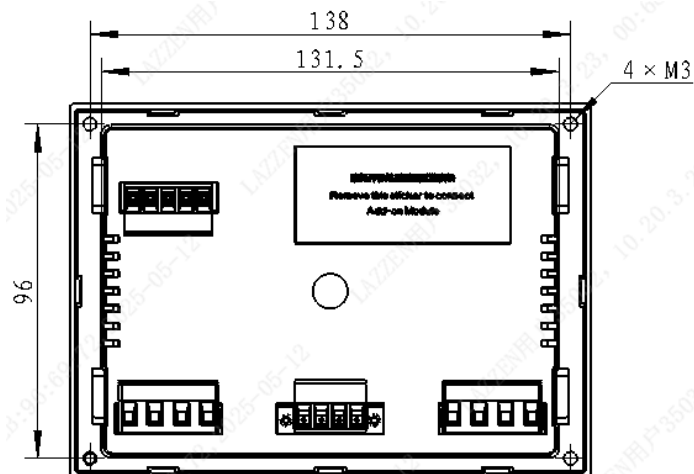


Product poles	M
4P	240.5
3P	215.5

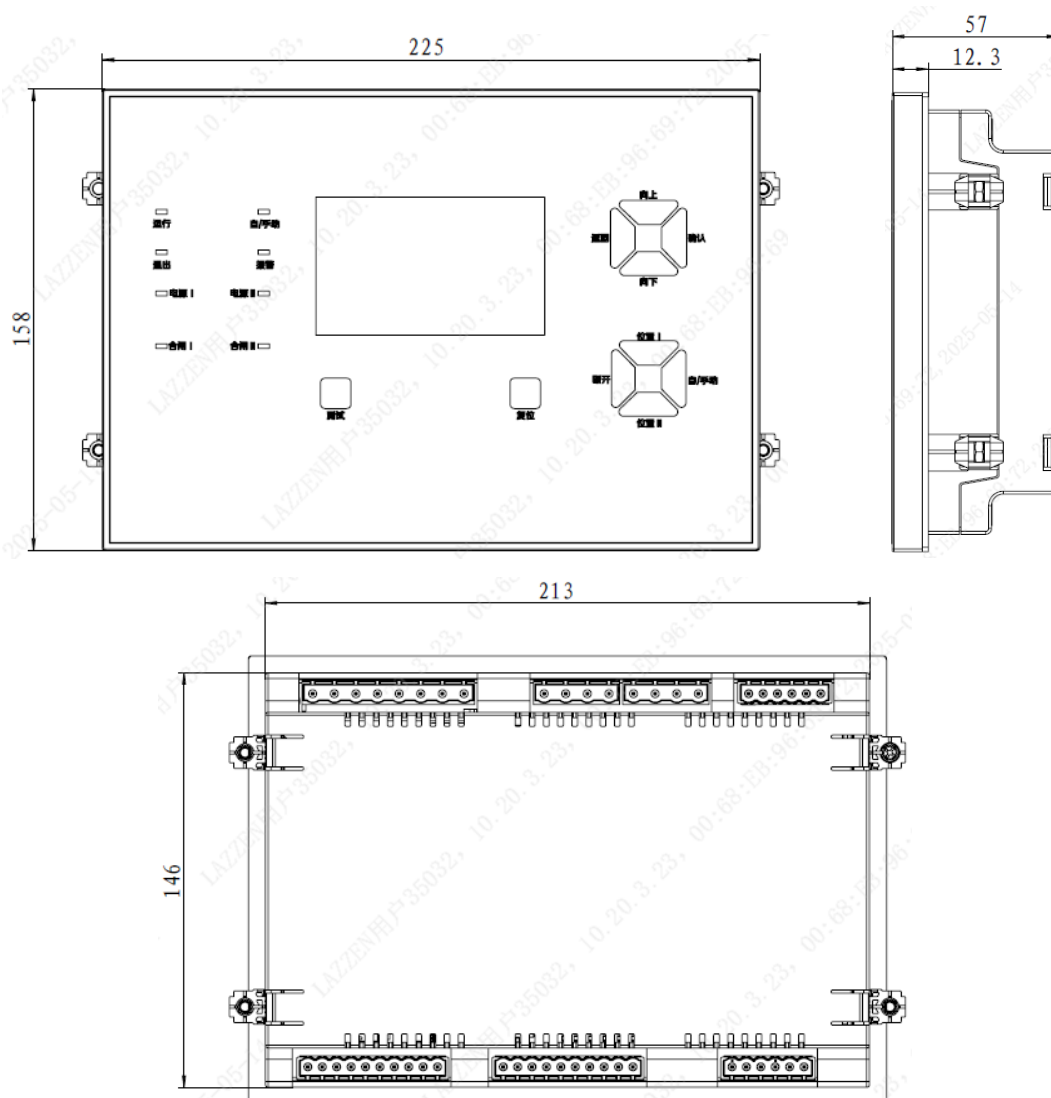
Note: The rest of the dimensions are the same as the integral shape and installation size.

9.1.5 Type B split controller shape and installation size





9.1.6 D-type split controller shape and installation size

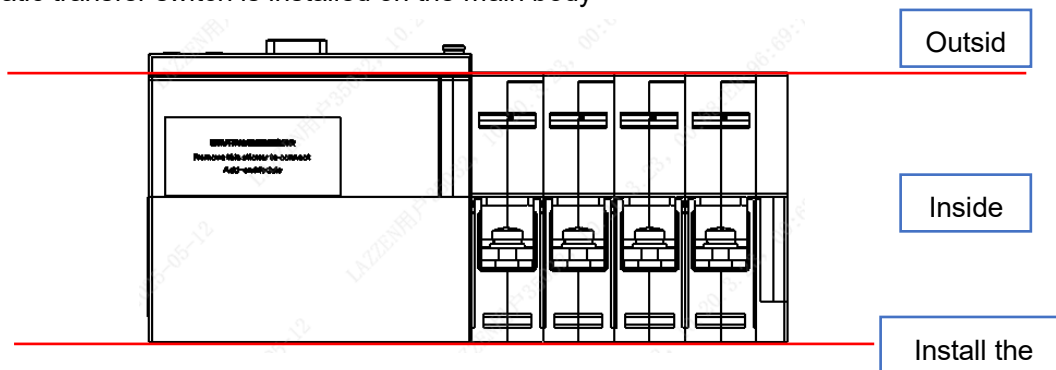


Note: The limit deviation of the unspecified tolerance dimensions of the external dimension and installation size shall be implemented in accordance with GB/T 1804-C.

9.2 Installation conditions:

- 1) It should be installed in a medium that does not pose a risk of explosion, and there is no gas or conductive dust in the medium that is sufficient to corrode the metal and destroy the insulation.
- 2) It should be installed in a place where there is no rain or snow.

9.3 The automatic transfer switch is installed on the main body

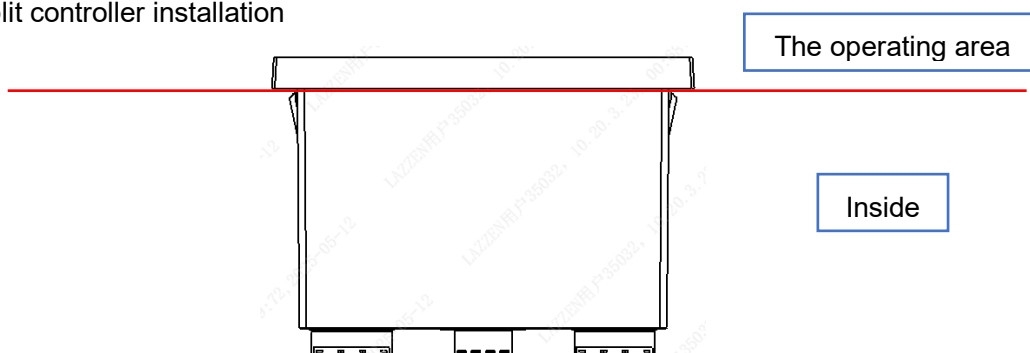


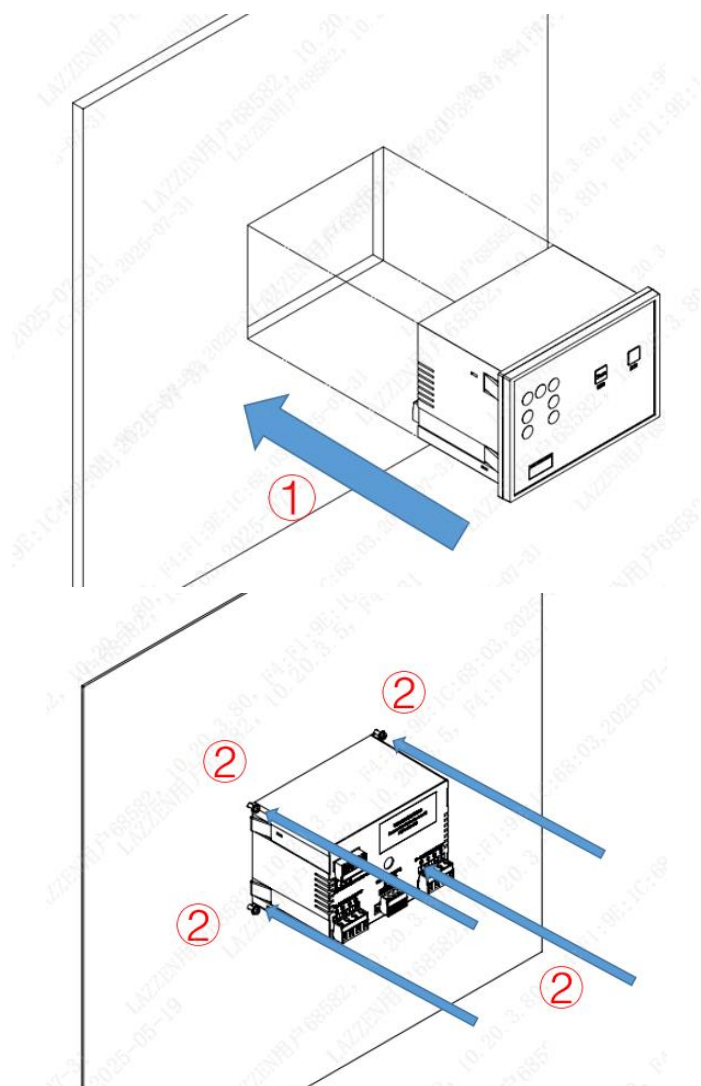
- 1) Cabinet door opening shape and size: 113.5×108mm
- 2) 4×M4×45 combination screws, 4×M4 nuts, torque 1.2N • m
- 3) Mounting screw size hole spacing:

Extreme number	NDQ3-100	NDQ3-160
4P	84.5×131mm	112.5×131mm
3P	66.5×131 mm	87.5×131 mm
2P	48.5×131 mm	/

Note: The installation size of the main body of the split product is the same as that of the monolithic product, and the limit deviation of the unmarked tolerance size of the installation size is implemented in accordance with GB/T 1804-C.

9.4 Type B split controller installation

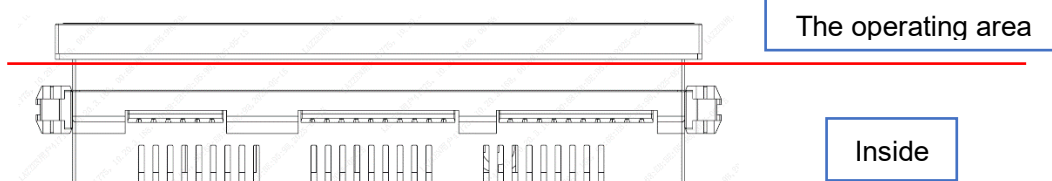


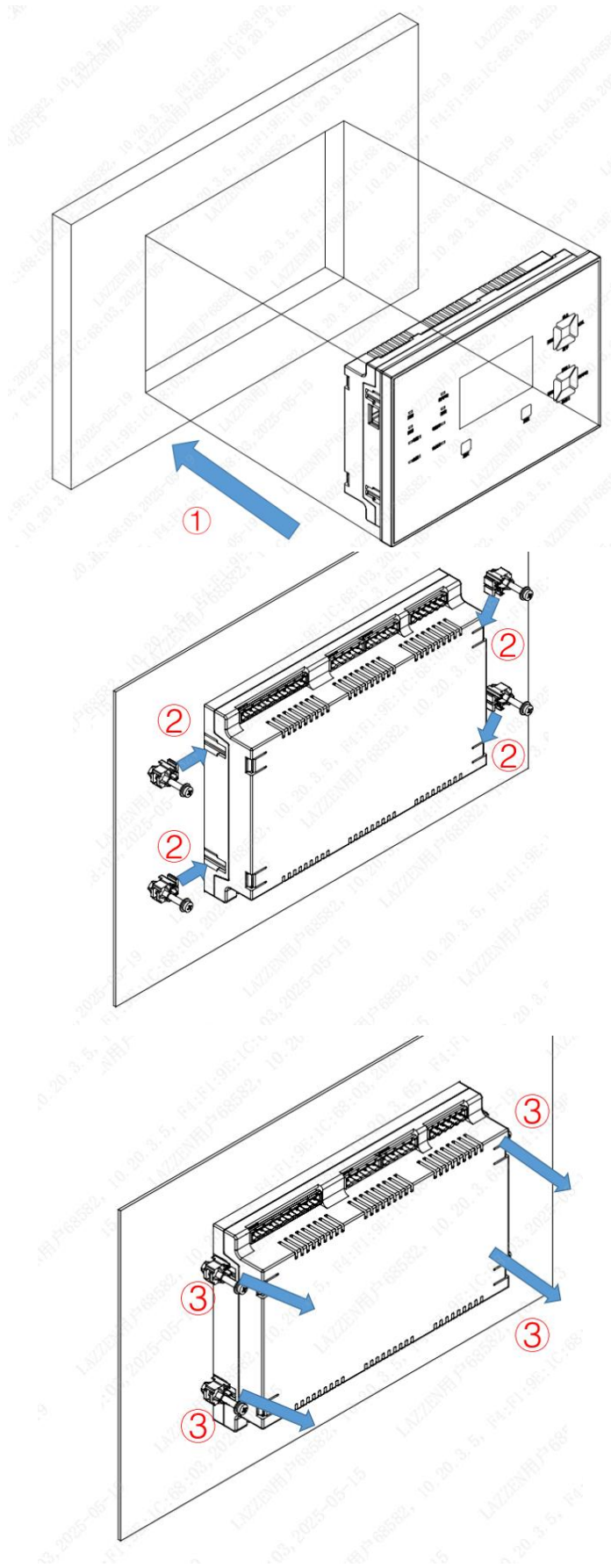


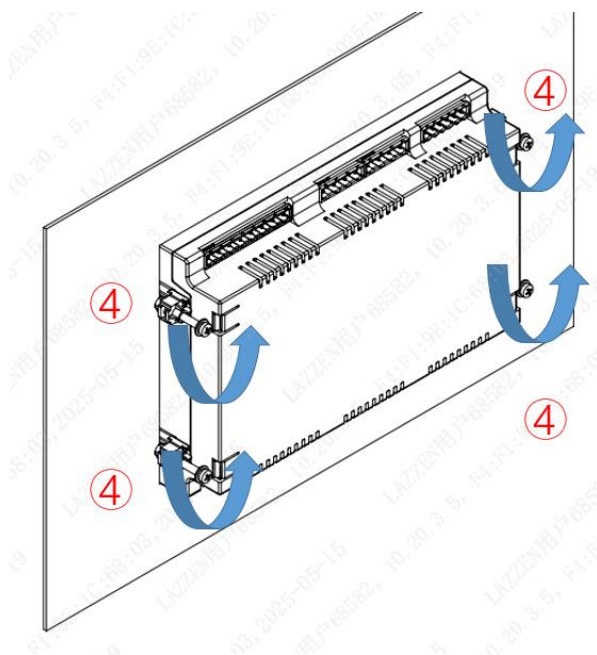
- 1) The shape and size of the cabinet door opening are $131.5 \times 96\text{mm}$
- 2) The screw via should be greater than 3mm, and the hole spacing should be $138 \times 96\text{mm}$
- 3) 4×M3 combination screw, torque $0.6\text{N}\cdot\text{m}$

Note: The limit deviation of the unspecified tolerance dimension of the mounting size is carried out in accordance with GB/T 1804-C.

9.5 D-type split controller installation







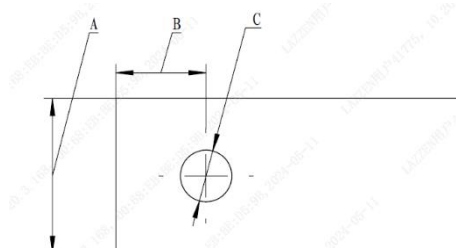
- 1) The shape and size of the cabinet door opening are $213 \times 146\text{mm}$
- 2) $4 \times \text{M4}$ screws and mounting brackets, torque $0.8\text{N}\cdot\text{m}$

Note: The limit deviation of the unspecified tolerance dimension of the mounting size is carried out in accordance with GB/T 1804-C.

9.6 Main circuit wiring installation

9.6.1 Main circuit busbar installation

The maximum shape size of the main circuit busbar



	A	B	C
NDQ3-100	$\leq 11\text{mm}$	$\leq 10\text{mm}$	$\geq 5\text{mm}$
NDQ3-160	$\leq 18\text{mm}$	$\leq 10\text{mm}$	$\geq 6\text{mm}$

160 shell frame busbar wiring screw M6, torque 6Nm; 100 shell busbar wiring screw M5, torque 5Nm

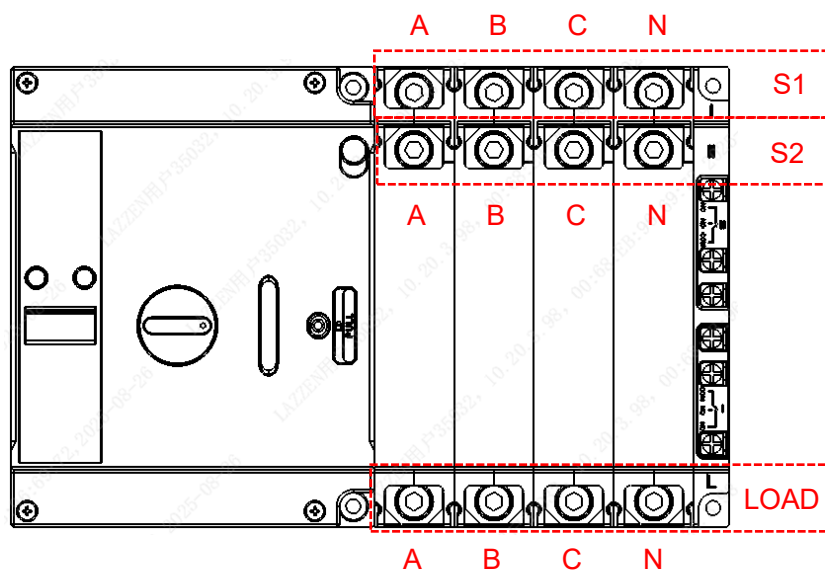
9.6.2 Cross-sectional area selection for connecting busbars or cables

Rated current (A).	$0 \leq I \leq 32$	$32 < I \leq 63$	$63 < I \leq 80$	$80 \leq I \leq 125$	$125 < I \leq 160$
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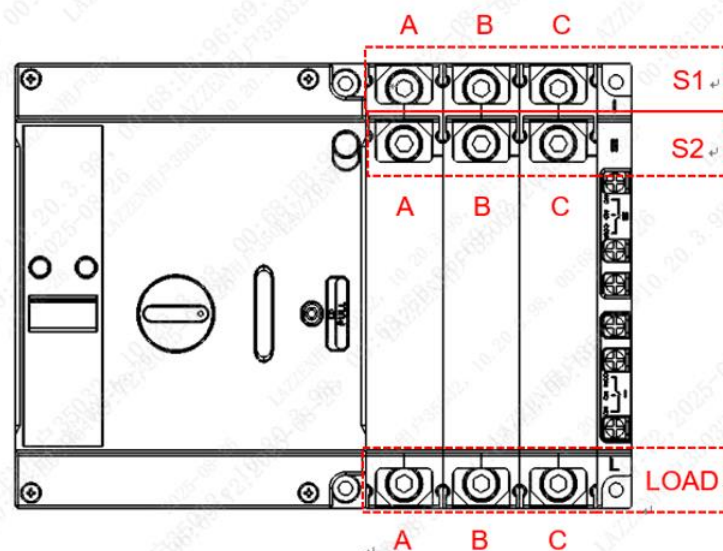
Cross-sectional area of the wire (mm ²).	6	16	25	50	70
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Note: For specific currents, please refer to Tables 9 and 10 of GB/T 14048.1.

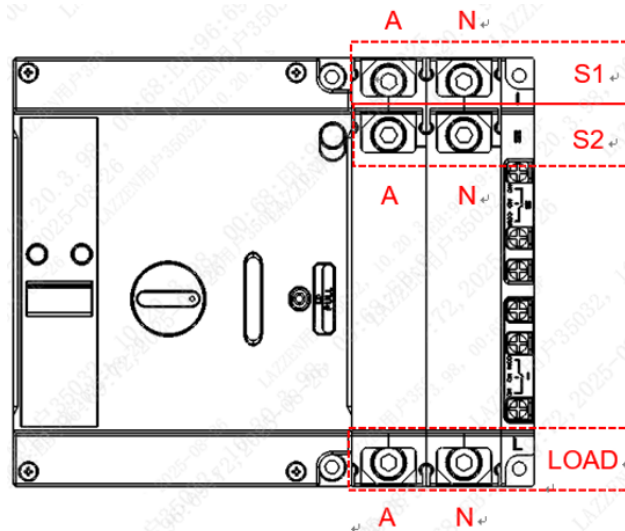
9.6.3 4P product main loop wiring position



9.6.4 3P product main loop wiring position



9.6.5 2P product main loop wiring position



10 Packaging and storage

- 1) The packaging is filled with pearl cotton and packed in a special carton.
- 2) The applicable transportation and storage temperature range of the product is $-40^{\circ}\text{C} \sim +75^{\circ}\text{C}$. During transportation, the product should pay attention to moisture prevention, should not be subjected to strong bumps, vibrations, collisions, and prevent rain and snow.

11 Environmental compliance

The product complies with RoHS2.0.

[Note: Complies with EU Directive 2011/65/EU on the restriction of the use of certain hazardous ingredients in electrical and electronic equipment and its amended Directive (EU) 2015/863]

12 annex

12.1 List of attachments

Product model	NDQ3-160/100 Type B integral controller	NDQ3-160/100 Type B split controller	NDQ3-160/100 D-type split controller
Controller wiring harness	/	1 wire harness (type B).	1 wire harness (D type).
Split controller fixings	/	4 M3×8 screw assemblies	4 fixed components
Main circuit wiring screws (Built into the transfer switch body)	M6×16 12 (160 shell rack 4P). M6×16 9 (160 shell rack 3P).		
	M5×16 12 (100 shells 4P). M5×16 9 (100 shell rack 3P). M5×16 6 (100 shell rack 2P).		
Operating handle (Built into the transfer switch body)	1		

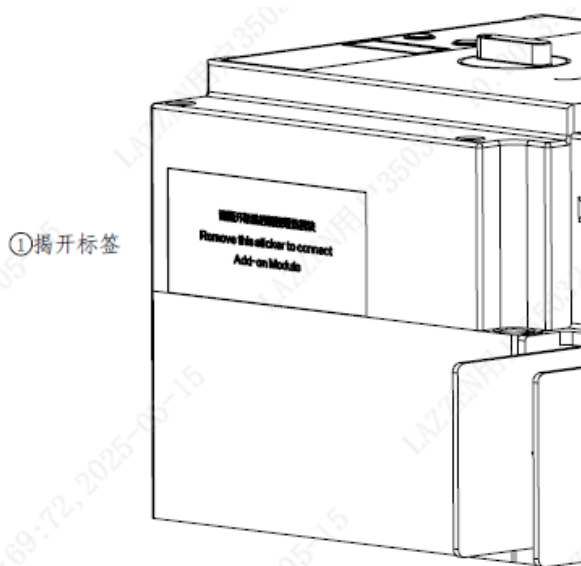
Set screws	M4×45 screw assembly 4 + M4 nut 4 pcs
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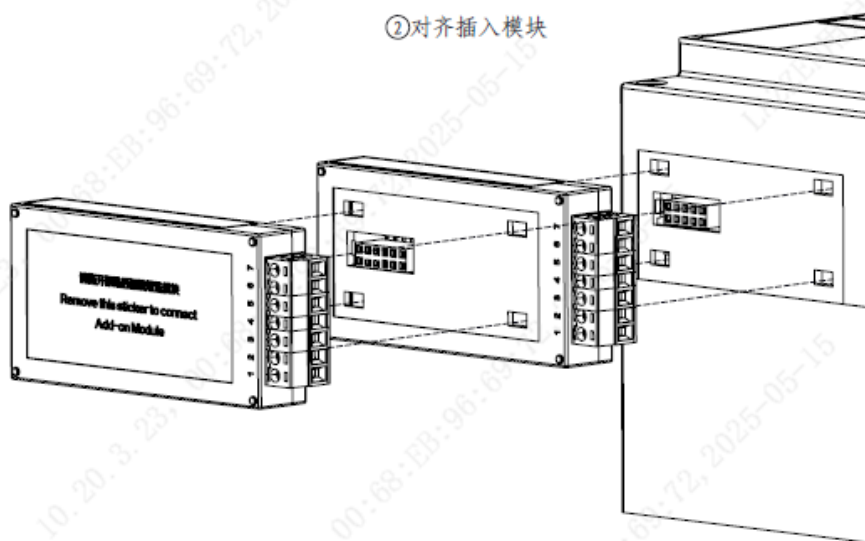
12.2 Optional accessories

Attachment type	annex code	Type B controller	Type D controller	remark
Spaced between the boards	G	Optional	Optional	Matching
Fire Protection Module	X	Optional	Standard	Integral type: 4 modules in total, choose up to 1 of each type, choose up to 3 types of split type: 4 modules in total, choose up to 1 of each type, and choose up to 4 types
Generator & Unload Module	F	Optional	Standard	
Communication module	T	Optional	Standard	
Remote Device Module	And	Optional	Standard	One set is already supplied as standard, and one set is optional
Contact position status module	A	Optional	Optional	

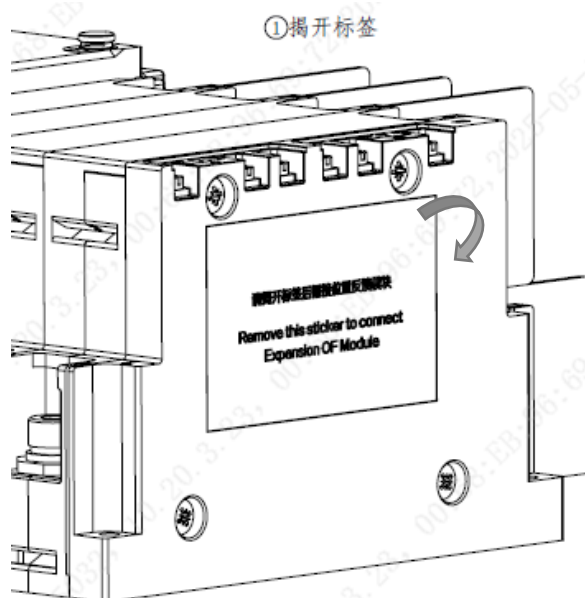
12.3 Attachment installation method

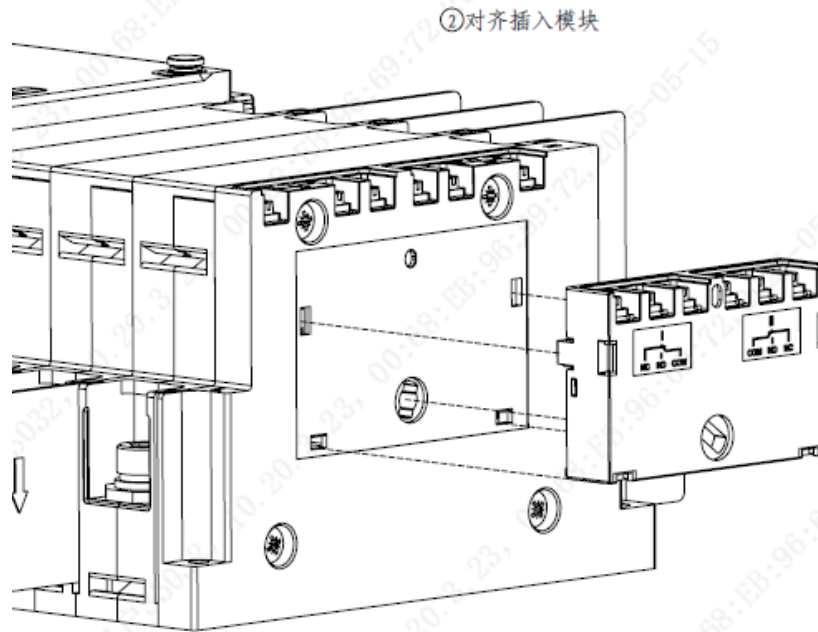
12.3.1 Optional module mounting





12.3.2 How to install the contact position status module





13 Notes:

- 1) When the product is installed and wired, it should strictly distinguish between the inlet and outlet ends and the N pole.
- 2) It is strictly forbidden to use this product outside of normal use conditions, such as continuous water vapor or condensation without corresponding precautions, combustible or corrosive dust, no SCPD or expected short-circuit current out of range, voltage is too high or too low, current exceeds the rated current, altitude is super high, etc.
- 3) When manually converting, use the special handle provided with the product.
- 4) The product should be checked regularly (such as every three months of operation) during use, and the power supply should be changed manually or automatically to check whether the product is normal.
- 5) This product has been insulated before leaving the factory, and the wrong dielectric test will destroy the control system, and it is strictly forbidden to do dielectric test with ATS.

14 Ordering specifications

(Please fill in the number on ____ and √ within the □.) Please refer to the manual for details).

User units		Number of units ordered:	Order Date:
Must be selected	Shell grade current rating (A).	☐ 100 ☐ 160	
	Rated Working Current (A).	☐ 16 ☐ 20 ☐ 25 ☐ 32 ☐ 40 ☐ 50 ☐ 63 ☐ 80 ☐ 100 ☐ 125 ☐ 140 ☐ 160	
	Extreme number	☐ 2P ☐ 3P ☐ 4P	
	Product Type:	☐ Excitation type ☐ Special type	

	Structural form	☐ Z-monolithic	☐ F-split	
	Controller type	Type B (monolithic).	☐ Type B (split)	☐ Type D (split)
	Switch position	III.-Three-stage		
Optional functional accessories	Spaced between the boards	☐		
	Communication module	☐	Integral style: There are 4 types of modules, with a maximum of 1 of each and a maximum of 3 modules	
	Fire Protection Module	☐		
	Generator & Unload	☐		
	Remote Device Module	☐	Split type: There are 4 types of modules, with a maximum of 1 of each type and a maximum of 4 modules	
	Contact position status module	☐	Up to one set of options	
Special requirements				
Note: If you have any special requirements, please indicate them in the special requirements column.				