TGQ1NPL Series Automatic Transfer Switch

1 Overview

TGQ1NPL Series Automatic Transfer Switch is suitable for AC 50Hz single-phase two-wire/three-phase four-wire dual-circuit power supply grid with rated working voltage AC230V/AC400V and rated current up to 1600A to disconnect the load circuit from one power supply and connect it to the other power supply. This transfer Switch has automatic action and optional manual operating functions. When any abnormity of prime power supply is detected, ATSE can transfer the load to the standby power supply from the prime power supply automatically. If the prime power supply recovers to the normal state, the load can be returned to the prime power supply automatically in the automatic transfer automatic recover mode.

2 Type Designation

TG Q 1N P L - □ □/□ □ □ □ □ □

- Rated current:
  - 63: 16A, 20A, 25A, 32A, 40A, 50A, 63A
  - 125: 63A, 80A, 100A, 125A
  - 250: 125A, 140A, 160A, 180A, 200A, 225A, 250A
  - 630: 250A, 315A, 350A, 400A, 500A, 630A
  - 1600: 630A, 700A, 800A, 1000A, 1250A, 1600A
- Controller working mode:
  - Default: Grid-grid
  - F: Grid-generator (this code is available for standard mode; the intelligent mode has grid-generator function as standard)
- Optional communication:
  - No code: Without communication
  - T: With communication (only for standard and intelligent modes)
- Controller model:
  - A: Economy type (only for two-segment type)
  - B: Standard type
  - C: Intelligent type (1600 frame just have C type)
- Structure type:
  - Y: Integrated type
  - No code: Split type (only for intelligent mode)
- Number of poles:
  - 2: Two-pole (only for 63~250 shell frame)
  - 3: Three-pole
  - 4: Four-pole
- Working position:
  - II: Two-segment type
  - III: Three-segment type
- Resistive current: 63/125/250/630/1600
- Drive method:
  - L: Excitation drive
- Electrical grade: P: PC class
- Design code: 1N
- Automatic transfer Switch
- Enterprise code

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3 Technical Parameters

3.1 Main parameters

Model	TGQ1NPL-63		TGQ1NPL-125		TGQ1NPL-250		TGQ1NPL-630		TGQ1NPL-1600
Rated current	16A, 20A, 25A, 32A, 40A, 50A, 63A		63A, 80A, 100A, 125A		125A, 140A, 160A, 180A, 200A, 225A, 250A		250A, 315A, 350A, 400A, 500A, 630A		630A, 700A, 800A, 1000A, 1250A, 1600A
Working position (II: Two-segment type; III: Three-segment type)	II	III	II	III	II	III	II	III	III
Rated working voltage	AC230V/AC400V /50Hz						AC400V/50Hz		AC400V/50Hz
Number of poles	2/3/4						3/4		3/4
Wiring method	Before-plate								Back horizontal wiring
Rated limit short-circuit current (Iq, kA)	120								120(≤ 1250A) 100(1600A)
Operating current A (AC230V)	3				4		6		20
Trip current A (AC230V)	-	0.7	-	0.7	-	1	-	1,2	3
Switching transfer time (ms) ≤ (not including controller delay and filter time)	75	100	75	100	75	100	120	150	100
Usage category	AC-33A				AC-33B				AC-33iA(630A,700A, 800A,1000A,1250A), AC-33B(1600A)
Electrical life (times)	10000(*)						6000(*)		6000(*)
Mechanical life (times)	30000(*)						20000(*)		10000(*)
Controller type (A: Economy type; B: Standard type; C: Intelligent type)	A/B/C	B/C	A/B/C	B/C	A/B/C	B/C	A/B/C	B/C	C
Screw tightening torque N•m	2,5		10		12		28		22
Screw failure torque N•m	3		15		18		33		26
Operating method	Manual / Auto / Remote operation (with communications)								
Delay time range (s)	Fixed (A type), 0~30 (B type), 0~240 (C type)								
Power voltage deviation range (V)	A/B (undervoltage): 165±10%; C (undervoltage): 100~200 Adjustable ±10%; C (overvoltage): 200~300 Adjustable ±10%								
Normal operating range	85%Us ~ 110%Us								
Special requirements	No (normal installation conditions)								
Isolation function	II: No; III: Yes								
Switch position	II: Prime (I), Standby (II); III: Prime (I), Power-off (0), Standby (II)								

Note: (*) maintainable

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3.2 Controller parameters

Controller		Economy type A	Standard type B	Intelligent type C
Installation method		Embedded	Embedded	Split type
Rated operating voltage		AC230	AC230	AC230
Rated operating frequency		50Hz	50Hz	50Hz
Working position	Prime power ON	■	■	■
	Standby power ON	■	■	■
	Two-way power OFF	Δ	Δ	Δ
Auto operation	Manual	■	■	■
	Via handle	■	■	■
	Via keys	–	■	■
Key operation	Pressed to Prime mode	–	■	■
	Pressed to standby mode	–	■	■
	Pressed to two-way mode	–	Δ	Δ
Monitoring	Detection phase	Common three-phase, standby single-phase	Three-phase	Three-phase
	Common undervoltage monitoring	■	■	■
	Common overvoltage monitoring	—	■	■
	Common voltage loss monitoring	■	■	■
	Common phase loss monitoring	■	■	■
	Standby undervoltage monitoring	—	■	■
	Standby overvoltage monitoring	—	■	■
	Standby voltage loss monitoring	■	■	■
	Standby phase loss monitoring	Phase A	■	■
	Unload	—	—	□
	Generator control	—	□	■
	Fire signal cut non-fire power	—	△	△
Transfer mode	Automatic transfer automatic recover	■	■	■
	Mutually reserved	—	■	■
	Automatic transfer and non-automatic recover	—	■	■
Grid connection	Grid-grid	■	■	■
	Grid-generator (with generator controller)	—	□	■
Display	Screen	LED indictor	LED indictor	LCD Chinese + LED indicator
	Prime power is normal or not	■	■	■
	Standby power is normal or not	■	■	■
	Prime power OFF/ON	■	■	■
	Standby power OFF/ON	■	■	■
	Prime power voltage	—	—	■
	Standby power voltage	—	—	■
	Manual / Auto	■	■	■
	Delay time display	—	■	■
	Fault alarm display	■	■	■
	Fire linkage state	—	■	■
	Generator start state	—	□	■
Parameter setting	Transfer delay adjustable	—	■	0 ～ 240s
	Return delay adjustable	—	■	0 ～ 240s
	Manual / Auto switchable	■	■	■
	Generator start delay adjustable	—	—	0 ～ 240s
	Generator shutdown delay adjustable	—	—	0 ～ 240s
	Undervoltage adjustable	—	—	100 ～ 200V
	Overvoltage adjustable	—	—	200 ～ 300V
Frequency settings	Common frequency setting	—	—	*
	Alternate frequency setting	—	—	*
	Abnormal frequency conversion	—	—	*
Other functions	Fire control feedback	—	□	□
	Fault alarm output	—	□	■
	Position feedback output	—	■	■
	Fault memory function	—	—	■
	Communication function	—	□	□
	Transfer failure alarm	—	—	□
	Wrong wiring alarm	—	—	□

■ – Standard; Δ - Two-segment type: No; Three-segment type: Yes □ - Optional: --- No.

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4 Operating Conditions

4.1 Ambient air temperature: The upper limit of ambient air temperature is +40℃, and the lower limit is -5℃; the mean temperature within 24h does not exceed +35℃;

4.2 The ultimate ambient temperature is ranged -25℃ to +70℃. To customized the low-temperature product, please contact the production backstage;

4.3 Altitude: The altitude at the installation site does not exceed 2,000 meters;

4.4 Atmospheric conditions: The relative humidity of atmospheric air does not exceed 50% at the highest ambient temperature +40℃, and a lower relative humidity is allowed at a lower temperature, such as up to 90% at +20℃. Special measures are taken for condensation occurred occasionally due to temperature changes;

4.5 Pollution degree: 63 shell frame current: 2; 125 and above shell frame current: 3;

4.6 Installation category: Class IV;

4.7 Installation inclination: Fixed in the cabinet, with max. inclination of ± 22.5°.

4.8 Flashover distance: The flashover distance is 30m under AC 400V, and is 60mm under AC 690V.

5 Features and Functions

5.1 TGQ1NPL series ATSE consists of the switch and the switching control. The switch is driven by the solenoid coil providing fast switching speed. AC220 of prime and standby power is used as the operating voltage of the switching controller.

5.2 The dedicated integration ATSE is realized for types A and B. It is of the compact structure with the intelligent controller installed inside the switch. The product can be activated only when the main circuit is powered on for convenient wiring by users; meanwhile, the three-segment B type has a generator start signal, fire input without power, fire feedback without power, and prime and standby power ON indication.

5.3 The type C has the external split-formed structure, and a dedicated cable is used between the controller and the switch for more convenient installation and wiring.

5.4 Integrated and split modes have overvoltage, undervoltage and phase loss detection of two-way three-phase power supply.

6 Manual Operation and Precautions

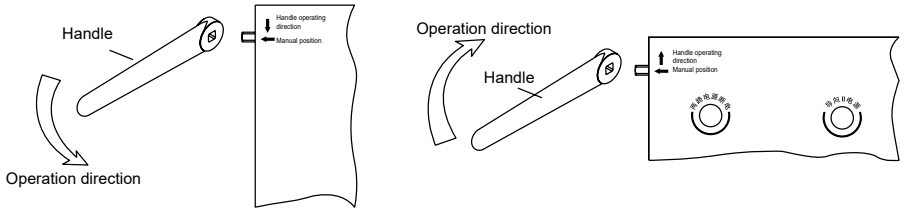
6.1 I power turn-on method: The “Two-way power OFF” key (see Figure) is pressed with a screwdriver making the power I and II both at the OFF position (this operation is not required for II type two-sgement mode); Turn the manual shaft in the arrow direction with a wrench making the power I at the ON position.

6.2 II power turn-on method: The “Two-way power OFF” key (see Figure) is pressed with a screwdriver making the power I and II both at the OFF position (this operation is not required for II type two-sgement mode); press and hold the “Guide II power” while turning the manual shaft in the arrow direction making the power II at the ON position.

6.3 Manual trip method: (Only for III type three-segment mode; switching is available rather than trip for II type two-segment mode); remove the manual operating handle, and insert the screwdriver into the left “Two-way power OFF” hole and press it inwards for trip (the ON/OFF indicator is used to indicate whether the switch trips or not).

6.4 Two-segment type operation method: As shown in figure, conduct the cyclic operation in the operation direction, and check the indicators I and II to determine the position state.

Warning: The operating handle is operated only in the manual mode, and must be removed after operation.



Two-segment type operation precaution diagram

Three-segment type operation precaution diagram

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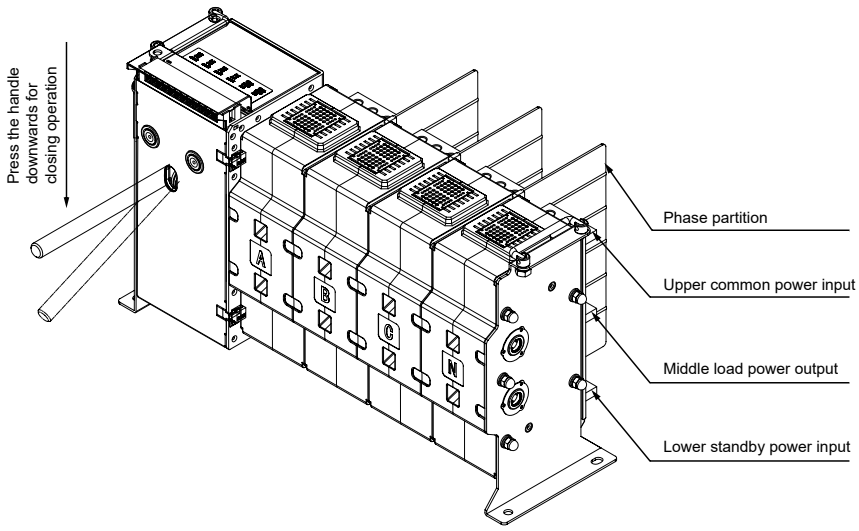
6.5 I common input method: Press the “two-way power supply off” button to make the common and standby are in the O position and to make the handle press the manual shaft in the arrow direction; at this time the switch issues an obvious closing sound, and turn the I common window to the I position, so that the closing is completed.

6.6 II standby input method: Press the “two-way power supply off” button to make the common and standby are in the O position, and press and hold the “Guide II standby” button, and press the manual shaft downwards in the arrow direction; at this time the switch issues an obvious closing sound, and turn the II standby window to the II position, so that the closing is completed.

6.7 Manual two-way power outage operation: To ensure the safety, press the “two-way power supply off” button in the power outage state to open two circuits (please confirm whether two circuits of the switch are both in the OFF “O” position through the O/I indicator window.

Warning: The operating handle is operated only in the manual model, and must be removed after the operation is completed.



TGQ1NPL–1600

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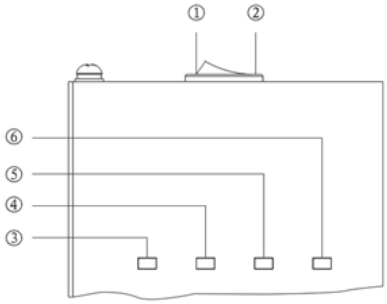
7 Controller Display and Operation Instruction

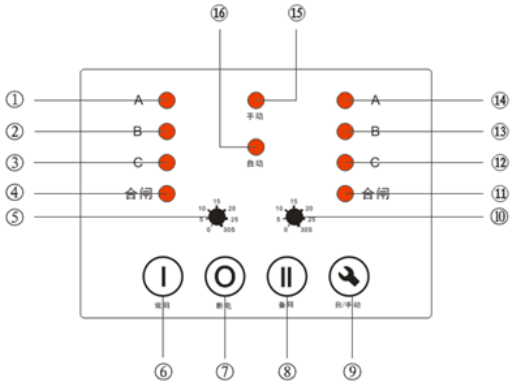
7.1 Operation instruction of A type controller (economy type)



A type controller (embedded, integrated)

1. Manual position of rocker switch;
2. Auto position of rocker switch (see Figure);
3. Prime power indication;
4. Prime ON indication;
5. Standby power indication;
6. Standby ON indication.

7.2 Operation instruction of B type controller (standard type)



B type controller (embedded, integrated)

1, 2, and 3 are Prime ABC phase indicators

4 Prime power ON indicator

5 Transfer delay adjustment;

6 Prime ON key in the manual mode;

7 OFF key in the manual mode (this key is inactivated for two-segment type product)

8 Standby ON key in the manual mode;

9 Auto/Manual switching key;

10 Return delay adjustment

11 Standby power ON indicator

12, 13, and 14 are standby ABC phase indicators;

15 Manual state indicator

16 Auto state indicator

7.2.1 Mode setting

- Press the “I prime” and “II standby” for 10s to enter the mode setting function in the Auto state; at this time, the “A” and “B” lights or the “Manual” and “Auto” lights of I power are lit.

  The “A” light is on to indicate automatic transfer automatic recover; the “Manual” light is on to indicate the Automatic transfer and non-automatic recover;

  The “B” light is on to give priority to the I prime; the “Auto” light is on to give priority to the II Standby.

- Mode switching:

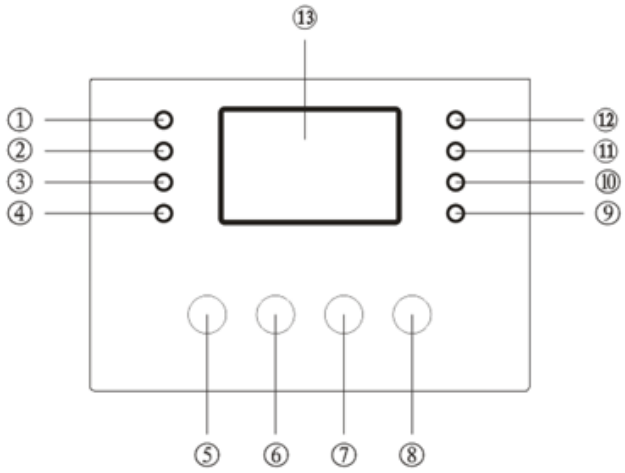
  With the “I prime” button pressed, the switching between the automatic transfer automatic recover mode and the Automatic transfer and non-automatic recover mode is available.

  With the “II standby” button pressed, the switching between the I prime priority mode and the II Standby priority mode is available.

- Exit mode:

  Press the “O OFF” button to enter the exit and save mode.

7.3 Operation instruction of C type controller (63 ~ 630 frame split type, intelligent type)



C type controller (split type)

1, 2, and 3 are Prime ABC phase indicators;

4 Prime power ON indicator

5 I circuit power-on key in the manual mode;

6 OFF key in the manual mode (this key is disable for two-segment type product);

7 Standby key in the manual mode

8 Auto / Manual switching key;

9 Standby power-on indicator;

10, 11, and 12 are standby CBA phase indicators;

13 LCD display area

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7.3.1 Operation instruction of C type controller (63~630 frame)

- Press the “Auto/Manual” button continuously for 10 times to enter the parameters setting menu to statically display the parameter codes; press the “I key” to page down the menu, and press the “II key” to page up the menu.
- Press the “Auto/Manual” button again to enter or exit the parameters modification menu making the parameter code flash; press the “I key” to increase parameter, and press the “II key” to decrease parameter.
- When the parameters setting is completed, press the “O” button when the code is still flashing for save, or press the “Auto/Manual” button 10 times to exit; exit the program if no button is pressed within 10s automatically without saving parameters.

7.3.2 Parameter code, range, and default values of C type split controller

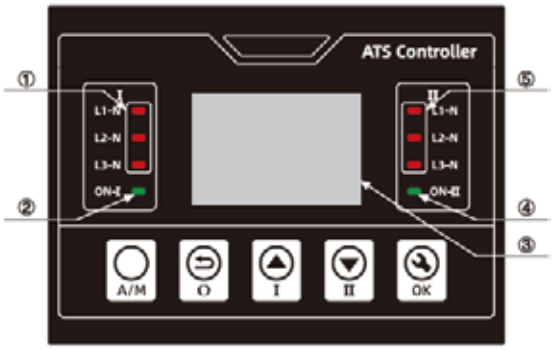
No.	Parameter code	Parameter name	Range	Factory default
1	u270	Prime overvoltage threshold	200 ～ 300	280
2	u165	Prime undervoltage threshold	100 ～ 200	165
3	n270	Standby overvoltage threshold	200 ～ 300	280
4	n165	Standby undervoltage threshold	100 ～ 200	165
5	┌	Return delay time	0 ～ 240	001
6	┐	Switching delay time	0 ～ 240	001
7	q	Generator start time	0 ～ 240	005
8	d	Generator stop time	0 ～ 240	005
9	P	Three-phase imbalance setting	0-90 range adjustable (0 indicates off)	030
10	E	ATSE working mode	0= Automatic transfer automatic recover 1= Automatic transfer and non-automatic recover 2=Standby priority	000
11	□	Programmable output (F/F1)	0 ～ 9	000
12	J	Machine address	1 ～ 32	001
13	b	Baud rate	1 ＝ 2400 2 ＝ 4800 3 ＝ 9600 4 ＝ 19200	003
14	H	Restore factory default	0 ~ 3 3= Restore factory default (note: 0~2 are reverse functions that are not set by user)	000

Note: Please note that the confirmation of factory defaults when H=003 will restore all factory data including prime and standby power voltage sampling coefficient. After recovery, the difference between the voltage data collected by the controller and the actual prime and standby input voltage may be about ±10V (if calibration is required, please contact the after-sales engineer).

7.3.3 Definition of split-type programmable output F/F1 of C type controller(63~630 frame):

Programmable output	Setting range (0~8)	Default output
F / F 1	0=Start generator normally-off output 1=Fire feedback output 2=Prime power abnormity output 3=Standby power abnormity output 4=Output at the auto state 5=Output at the manual state 6=Output when ATSE switching failure 7=Output at the prime ON state 8=Output at the standby ON state 9=Three-phase imbalance alarm output	000

7.4 C Type Controller Operation Description (1600 frame split type and intelligent type)



1 Common ABC phase power indicator

2 Common ON indicator

3 LCD display

A/M manual/auto key

O double-split /return key

5 Standby ABC phase power indicator

4 Standby ON indicator

I Common ON / data plus

II Standby ON / data minus

OK Set / Confirm key

7.4.1 C type Controller Parameters Setting Description (1600 frame)

- Enter the parameter setting menu: On the main menu, press “OK” key to enter the parameter blowse menu; the parameter code is displayed statically; press “I” to page down the menu, and press “I” again to page up the menu.
- Modify parameters: Locate the parameter to be modified, click “OK” key to enter the parameter modification mode; at this time parameter starts to flicker; press “I” to add parameter, and press “I” to minus parameter; after setting parameters, press “OK” key to save parameters.
- Exit setting: On the menu browse interface or parameter setting interface, click “O” key to exit the setting state and return main interface; any modified parameter not confirmed will not be saved.

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7.4.2 Introduction on parameter code, range, and default value of C type controller split type (1600 frame)

No.	Parameter code	Parameter name	Range	Factory default
1	U1H	Common overvoltage threshold	200 ~300	270
2	U1L	Common undervoltage threshold	100 ~200	165
3	U2H	Standby overvoltage threshold	200 ~300	270
4	H2L	Standby undervoltage threshold	100 ~200	165
5	F1H	Common frequency upper limit setting	50.0 - 75.0Hz	55
6	F1L	Common frequency lower limit setting	40.0 - 60.0Hz	45
7	F2H	Standby frequency upper limit setting	50.0 - 75.0Hz	55
8	F2L	Standby frequency lower limit setting	40.0 - 60.0Hz	45
9	C1	Switched to common delay time	0 - 240	1
10	C2	Switched to stamdby delay time	0 - 240	1
11	C3	Generator start delay time	0 - 240	5
12	C4	Generator stop delay time	0 - 240	5
13	d	Generator start model setting	0: Start generator when the priority power supply works abnormally 1: Start generator when the common type is abnormal 2: Start generator when the standby type is abnormal	0
14	Lcd	Backlight brightness adjustment	0 - 10	8
15	E	ATSE working mode	0: Auto-transfer auto-recovery 1: Auto-transfer and not auto-recovery or mutually reserved 2: Standby priority	0
16	01	Programmable relay 1	0-8 (meanings see the table below)	0
17	02	Programmable relay 2		6
18	J	Communication: Local address	1 - 32	1
19	b	Communication: Baud rate	1: 2400 2: 4800 3: 9600 4: 19200	3
20	P	Phase sequence detection	0: Function OFF 1: Function On (note: An alarm is only issued without transfer for this function, and the buzzer inside works when alarm)	0
21	F	Frequency anomaly transfer	0: OFF 1: ON	0
22	H	Restore factory setting	3: Restore factory value, other values are invalid	0

Note: Please note that all original factory data will be restored when pressing OK to restore the factory default values at H=003, including the sampling factor of the common and standby power supply voltages. After recovery, this may cause the difference between the voltage data collected by the controller and the actual common and standby power input voltages is about ± 10V (if calibration is required, please contact the after-sales engineer).

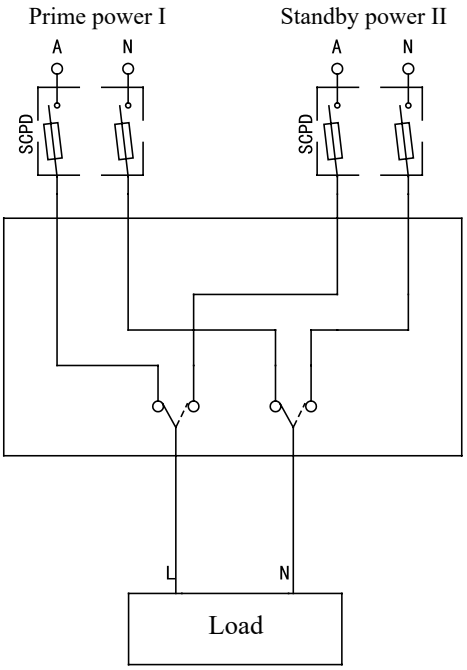
7.4.3 Definition of split type programmable relay of C type controller (1600 frame):

Programmable output port	Setting range (0~8)	Default output
Output port 1 is of the normally closed type Output port 2 is of the normally open type	0= Starting generator normally closed output 1= Fire feedback output 2= Common power supply anomaly output 3= Standby power supply anomaly output 4= Output at the Auto state 5= Output at the Manual state 6 = Output when ATSE transfer failed 7 = Common closed state output 8 = Standby closed state output	Output port 1 is 0 by default Output port 2 is 6 by default

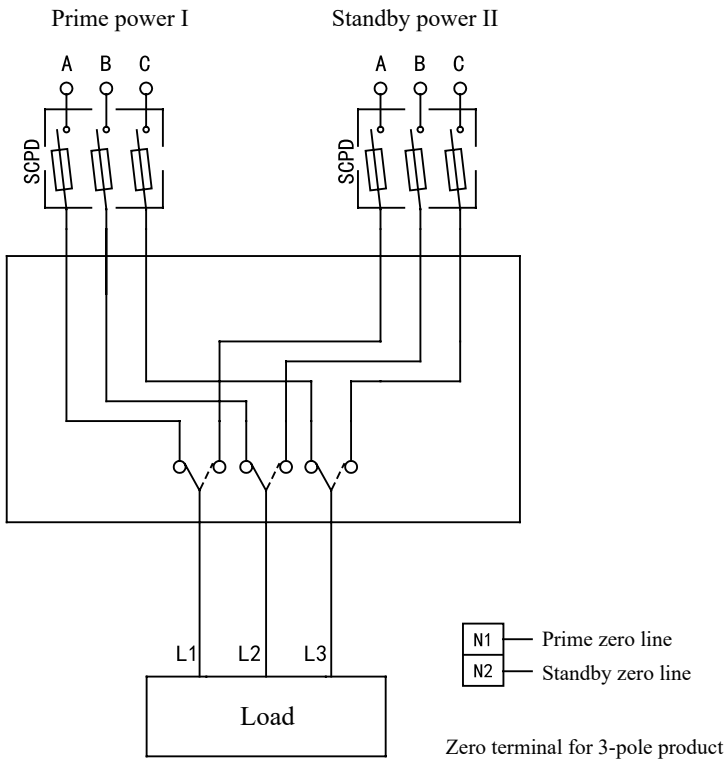
8 Installation and Operation

8.1 Main circuit wiring of two-segment type (II) product

8.1.1 Two-segment type 2-pole product wiring diagram



8.1.2 Two-segment type 3-pole product wiring diagram



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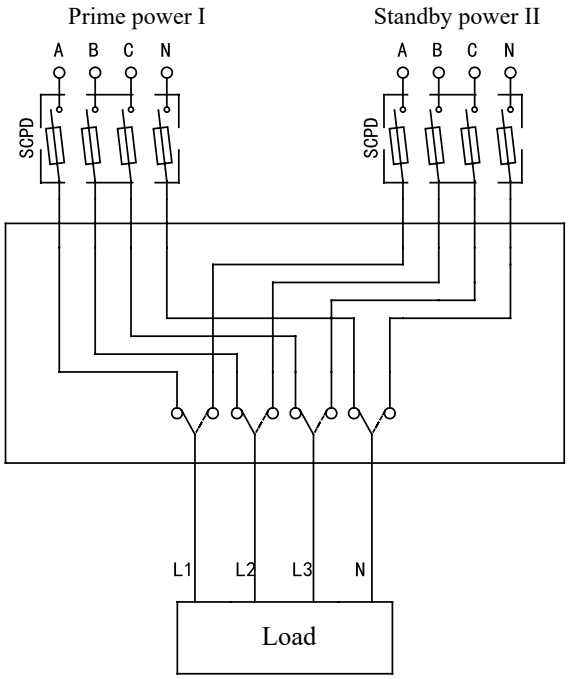
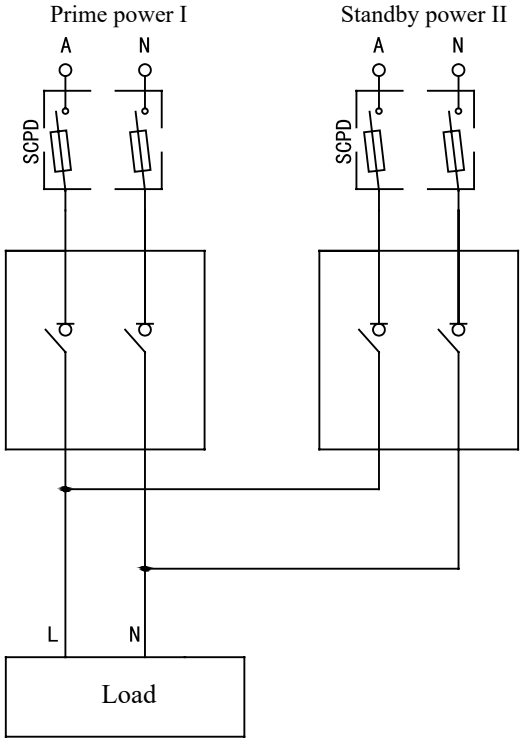
8.1.3 Two-segment type 4-pole product wiring diagram



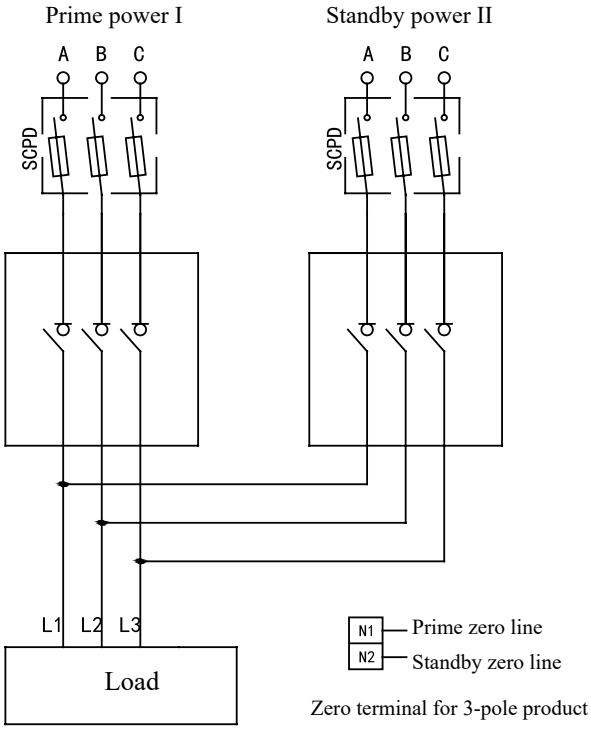
Note: The short-circuit protective device (SCPD) must be provided in the dotted box on the upper port of product when installation and operation, and the phase sequence of the prime power is consistent with that of the standby power. For 3-pole product, please connect the neutral line to the zero terminal for normal operation.

8.2 Main circuit wiring diagram of three-segment type (III) product

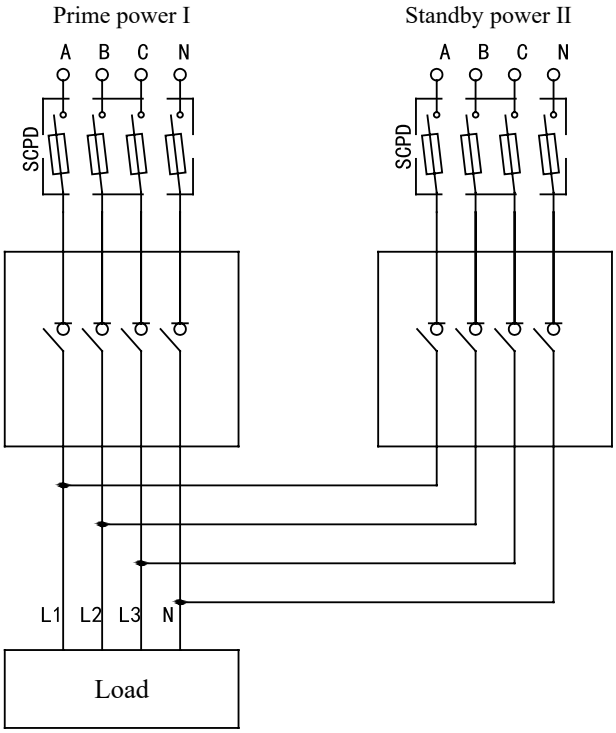
8.2.1 Three-segment type 2-pole product wiring diagram



8.2.2 Three-segment type 3-pole product wiring diagram



8.2.3 Three-segment type 4-pole product wiring diagram



Notes:

1. The short-circuit protective device (SCPD) must be provided in the dotted box on the upper port of product when installation and operation, and the phase sequence of the Prime power is consistent with that of the standby power.
2. For 3-pole product, please connect the neutral line to the zero terminal for normal operation.

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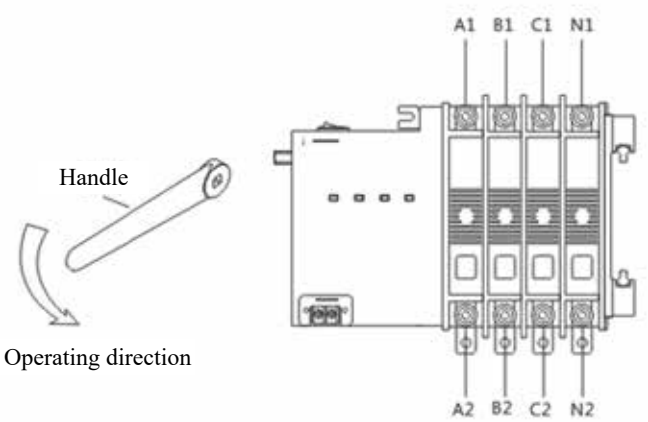
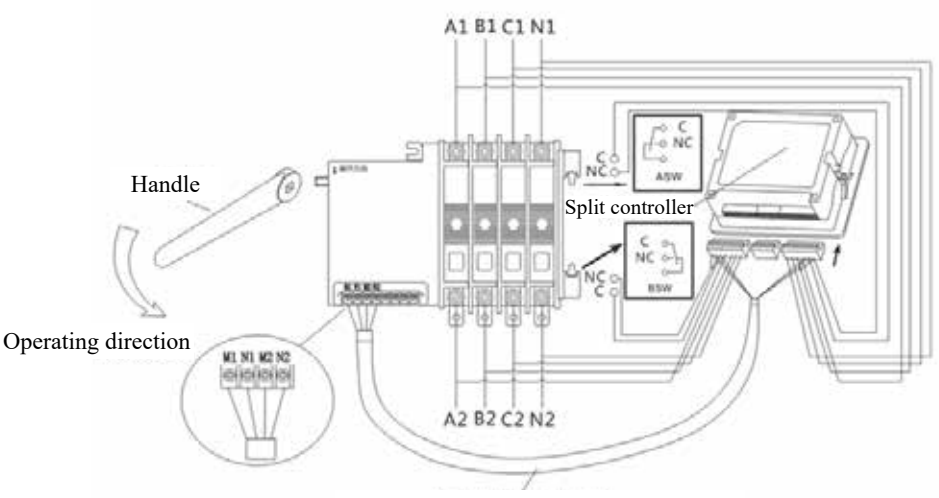
8.3 Wiring diagram

Note: For convenience, the following A1, B1, C1, and N1 indicate Prime (I) A, B, C, and N, respectively; A2, B2, C2, and N2 indicate Standby (II) A, B, C, and N, respectively.

8.3.1 Two-segment (integrated type) wiring diagram

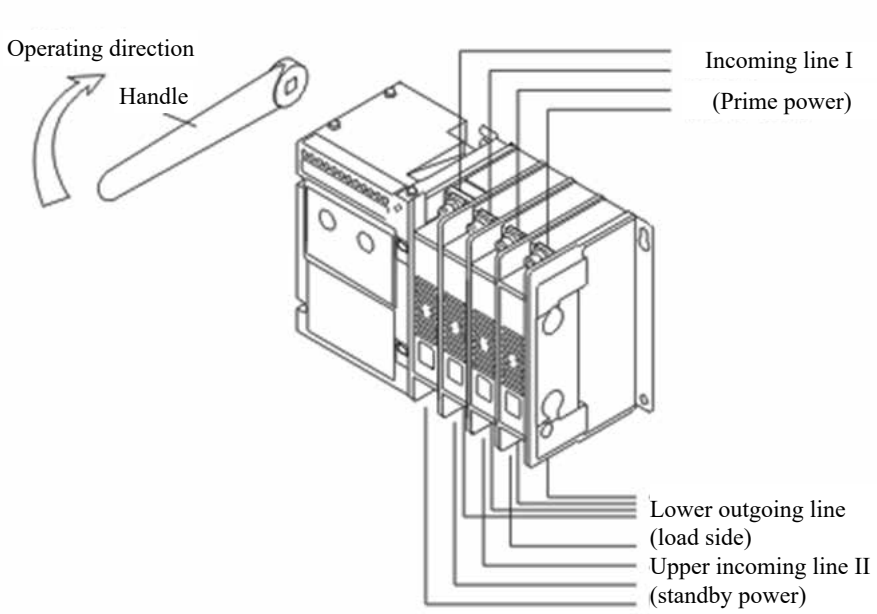


8.3.2 Two-segment (split type) wiring diagram

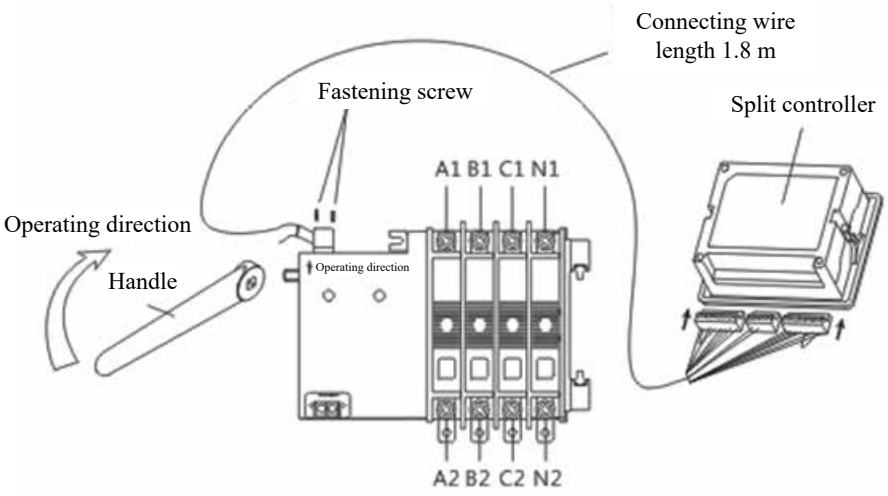


Connecting wire length 1.8 m

8.3.3 63 ~ 630 frame three-segment (integral type) wiring diagram



8.3.4 63 ~ 630 frame three-segment (split type) wiring diagram



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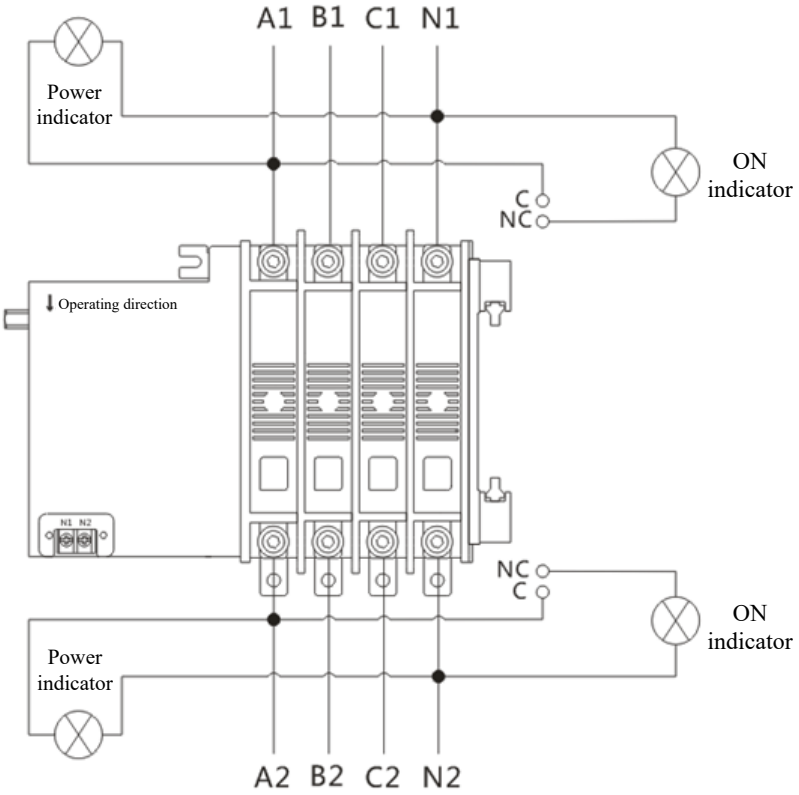
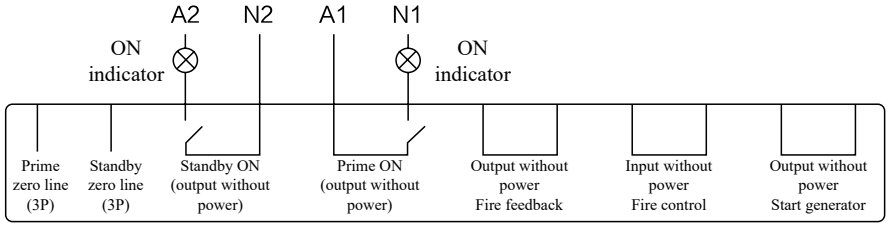
8.4 A type and C type product power indicator and closing indicator wiring diagram (63 ~ 630 frame)



8.5 B type product wiring terminal description (63 ~ 630 frame)



- Start generator: In the event of failure of prime power, this port will be powered on after delay.
- Fire control: With the fire port short-connected, the dual-split light is lit, and the dual power is off; with short connection removed, press the Auto/Manual key for reset (for three-segment type product).
- Fire feedback: When dual power is at the dual-OFF state, the fire feedback port is powered on (for three-segment type product).
- Prime ON: When dual power is at the prime ON state, one set of passive signals is output from this port (A1 is Phase A of prime power; N1 is Phase N of prime power).
- Standby ON: When dual power is at the standby ON state, one set of passive signals is output from this port (A2 is Phase A of standby power; N2 is Phase N of standby power).
- Prime zero line: When dual power is three-pole switch, the prime zero line is connected to this port.
- Standby zero line: When dual power is three-pole switch, the standby zero line is connected to this port.

Note: Prime zero line terminal and standby zero line terminal are only suitable for three-pole switch.

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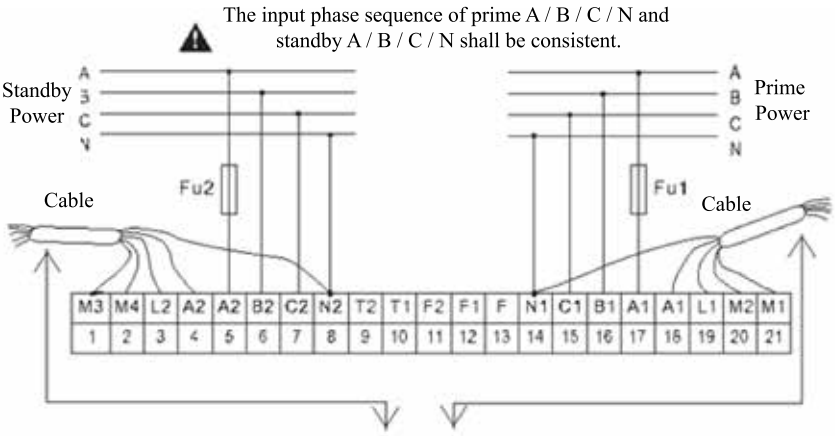
8.6 C type product wiring terminal description

- M3 M4: Standby ON auxiliary output without power.
- L2: Standby ON feedback input with power.
- A2: Standby A phase output for standby ON feedback.
- A2 B2 C2 N2: Standby power three-phase four-wire input.
- T1 T2: Dual-split signal output without power, two-segment type blank.
- F2 F1 F: F1 and F are programmable output in the controller; the output definition sees parameters setting.
- A1 B1 C1 N1: Prime power three-phase four-wire input.
- A1: Prime A phase output for prime ON feedback.
- L1: Prime ON feedback input with power.
- M2 M1: Prime ON auxiliary output without power.
- R- and R+: DC9V-36V fire input with power (for three-segment type).
- GND and R1: Short-connected, fire input without power (for three-segment type).
- 485A and 485B: RS485 communication terminal, EGND shielded earth wire.

Note: A dedicated cable is provided for product accessories, and can be plugged into the corresponding port of three-segment type; for two-segment type, No. 17-14 and 5-8 shall be wired to the corresponding port of controller from main circuit by user.

- Communication protocol parameters:
  Module address: 1 (range: 1-32, settable by user); baud rate: 9600bps. Note: Communication protocol shall be documented.

8.7 C type controller (split type) wiring diagram



- A dedicated cable is provided as accessory when delivery. The user is required to connect the corresponding wires of the body and controller.
- Dedicated interfaces are provided at the three-segment (split type) body side, and inserted into the corresponding port and locked with screws; the corresponding inserts at the controller side are plugged into those interfaces, respectively. For details, refer to (three-segment (split type) wiring diagram). Other ports see 8.7 Wiring Instruction.
- For two-segment (split type), No. 17, 16, 15, 14 and 5, 6, 7, and 8 are connected to the ABCN of prime power and standby power of main circuit for normal operation of controller.
- FU1 and FU2 are 10A fuses.

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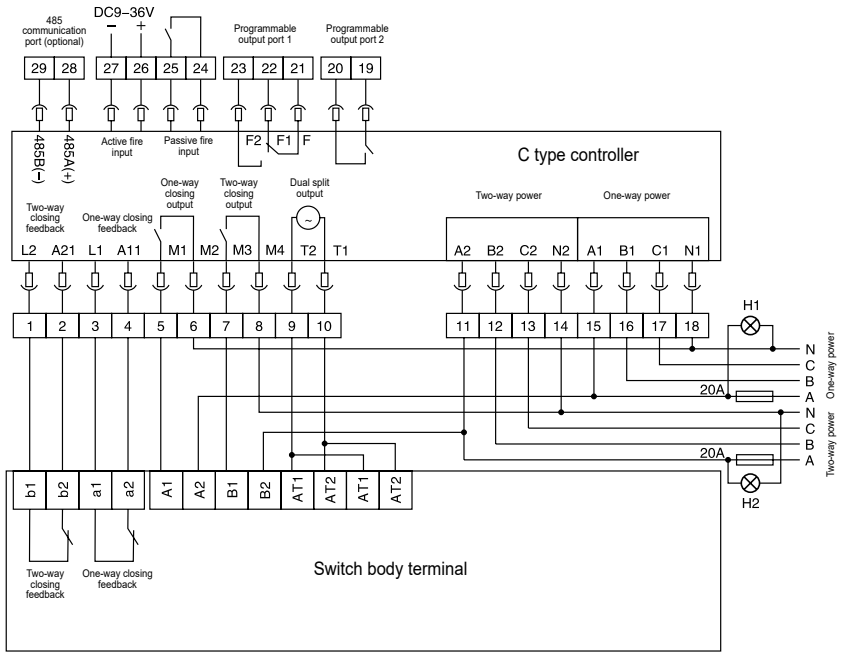
8.8 C type Controller (Split Type) Wiring Diagram (1600 Frame)



1-2 Standby closing signal feedback input

3-4 Common closing signal feedback input

5-6 Common closing output

7-8 Standby closing output

9-10 Dual split output

11-14 Standby power ABCN input

H1 Common closing indicator

15-18 Common power ABCN input

19-20 Programmable relay 2 (see programmable relay table)

21-23 Programmable relay 1 (start generator by default)

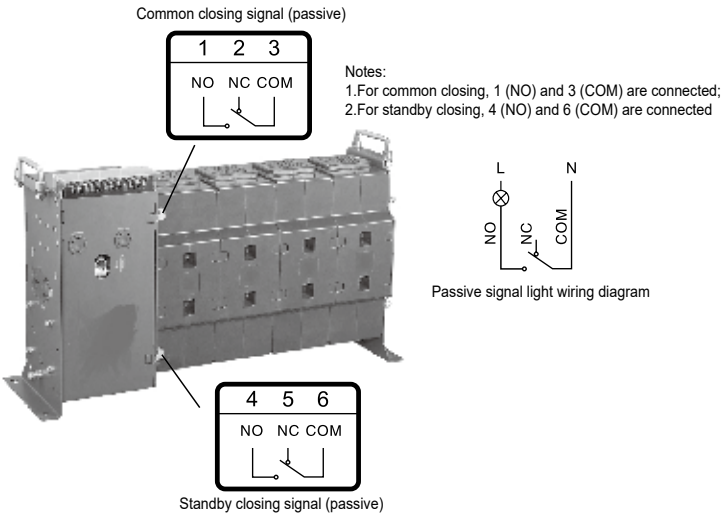
24-25 Passive fire signal input

26-27 DC9-~36V fire signal input

28-29 485 communication interface

H2 Standby closing indicator

8.9 External indicator of body (1600 frame)



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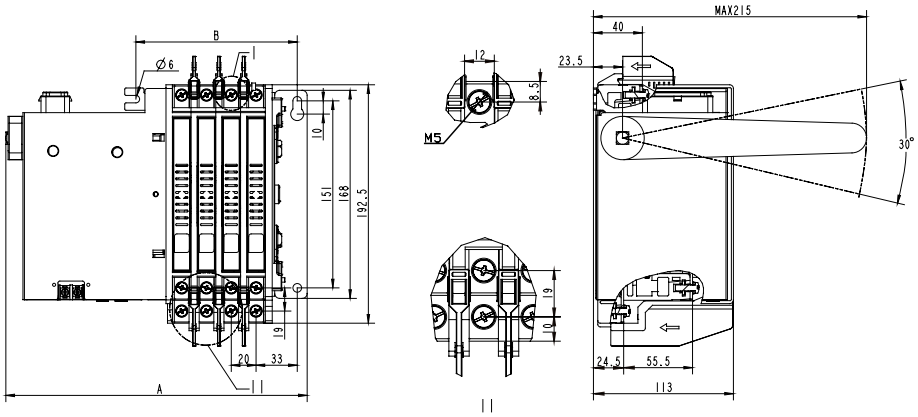
9 Outline and Installation Dimensions

9.1 63A outline and installation dimensions

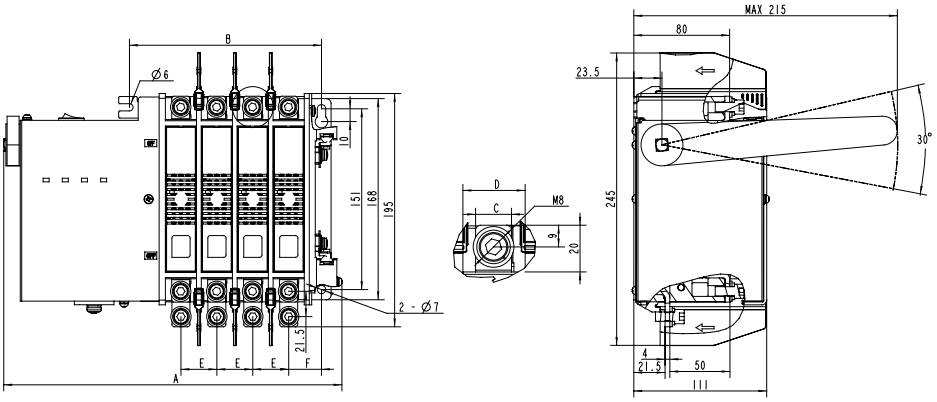


Frame current (A)	Number of poles	A	B
63	2P	204	90
	3P	224	110
	4P	244	130

Note: Unit: mm; panel safety distance: 30mm (400V), 60mm (690V).

Warning: The operating handle is available only in the manual mode, and must be removed after operation.

9.2 125A and 250A outline and installation dimensions



Frame current (A)	Number of poles	A	B	C	D	E
125	2P	222	101	15	26	30
	3P	252	131			
	4P	282	161			
250	2P	234	113	20	31	35
	3P	269	148			
	4P	304	183			

Note: Unit: mm; panel safety distance: 30mm (400V), 60mm (690V).

Warning: The operating handle is available only in the manual mode, and must be removed after operation.

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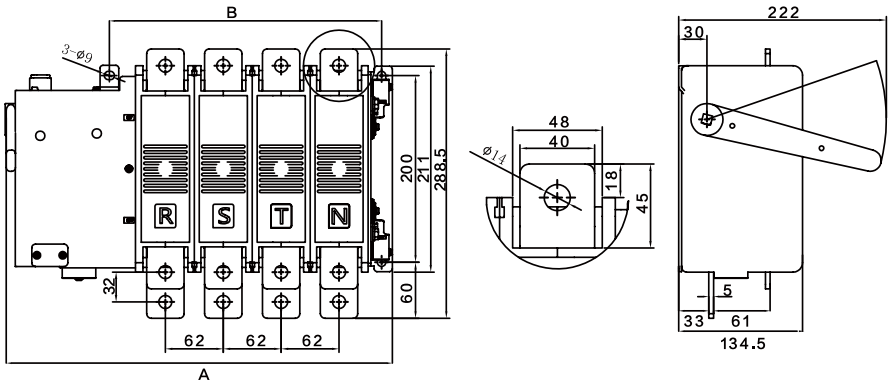
9.3 630A outline and installation dimensions

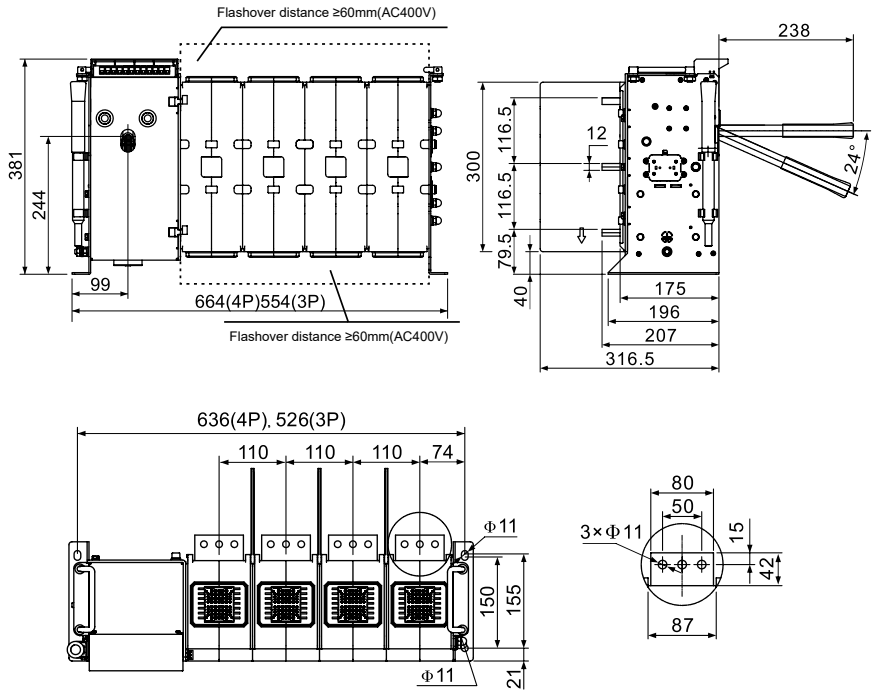


Frame current (A)	Number of poles	A	B
630	2P	294	167
	3P	356	228
	4P	417	290

Note: Unit: mm; panel safety distance: 30mm (400V), 60mm (690V).

Warning: The operating handle is available only in the manual mode, and must be removed after operation.

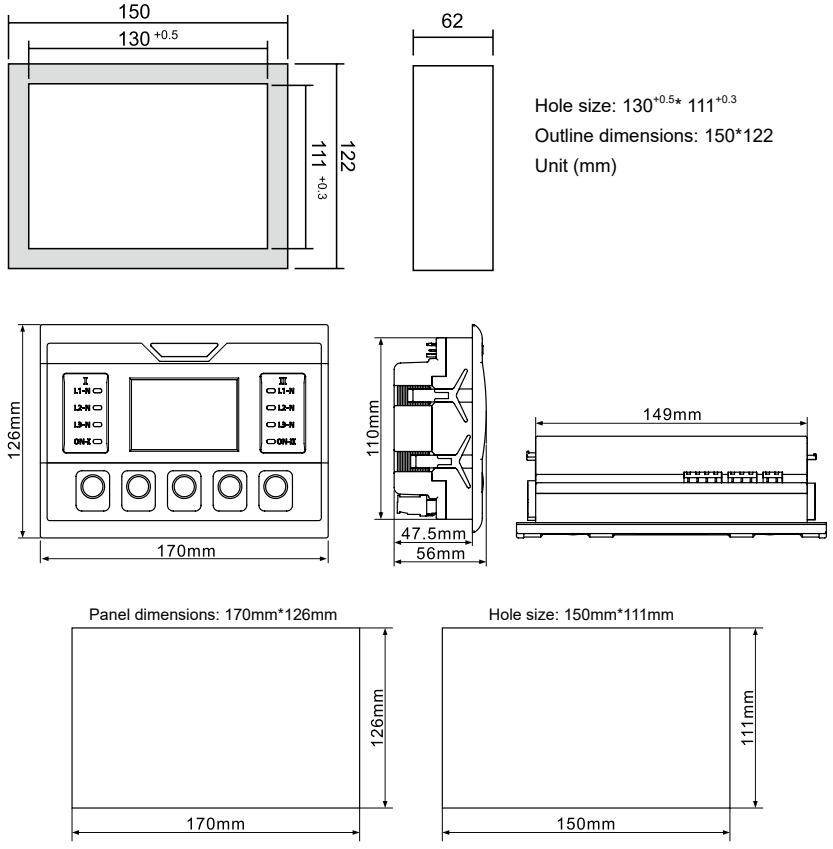
9.4 TGQ1NPL-1600 Outline and Installation Dimensions



Note: Unit: mm; panel safety distance: 60mm (400V)

Warning: The operating handle is operated only in the manual mode or in the event of power outage, and is removed after the operation is completed.

9.5 C Type Controller (Split Type) Outline Dimensions and Hole Size



TGQ1NPL–1600

10 Ordering Notice

Please specify the following items when ordering:

10.1 Please specify the product model, current specification, and number of poles when ordering.

10.2 For any special installation conditions or special working site, the corresponding technical information shall be provided by user or contact our company for this.

Example: To order automatic transfer Switch, Frame current 125A, three-segment type, 4-pole integrated type, standard controller, rated current 100A, 50 pcs.

Please specify: TGQ1NPL-125III/4YB 100A 50 pcs.