

Y-703 Series Ats Controller Operation Manual

Read the operation instruction carefully before installation



C O N T E N T

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1.Summary

Y-703 controller is a split type ATS controller. It detects abnormal conditions of grid parameters (overvoltage, Under voltage, lost phase, over frequency, under frequency, misphase sequence, etc.) and then automatically control the transfer switch (TSE) transfer according to a predetermined mode of operation to the appropriate power supply, to ensure that the load side of the continuous supply.

Features:

1. The measurement and control system is built with microcontroller as the core, and the basic parameters of power grid are calculated with true RMS;
2. The transfer delay and operation mode can be adjusted to meet different application scenarios;
3. The interface uses the combination of segment code LCD display and Led lamp to provide clear and accurate information;
4. Equipped with programmable relay output contact, active and passive fire signal interface, optional communication interface;
5. Can check the transfer times and fault records.

2. Application environment:

- 2.1 Ambient air temperature should be not higher than +60°C and not lower than -10°C.
- 2.2 Installation location: The altitude should be not higher than 2000m.
- 2.3 Pollution level: Level 3, there is no explosion risk in the surrounding air, and there is no corrosive metal components and no gas, liquid and electricity that damage insulation dust.
- 2.4 Atmospheric conditions: The relative humidity of air shall not exceed 50% when the maximum is +40°C, and the relative humidity shall not be higher at lower temperatures
Humidity: The average temperature of the wettest month is not more than +25°C, and the average maximum relative humidity of the month is not more than 90%.
- 2.5 Protection level: IP50.
- 2.6 If the above conditions cannot be met, the customer and the manufacturer shall negotiate to solve the problem.

3.The controller specification

table 1

Working power supply	One-line / two-line A-phase power supply, voltage range AC80~320V,50/60Hz
Operation mode of TSE	Self-input and self-recover (I circuit priority or II circuit priority can be selected)# Note 1, and mutual standby (self-input without self-recover)# note 2
Real-time display of powergrid parameters	Display the voltage and frequency of I circuit and II circuit cyclically.
Voltage measurement method	3 phase 4 line, neutral voltage measurement
Range and accuracy of voltage measurement	60~350V, accuracy $\pm 1\%+1$ display word
Frequency measurement range	40Hz~75Hz
Voltage detection function	Lost phase detection, three-phase voltage over and under voltage detection
Phase sequence detection function	The default value is off. The buzzer alarms when the function is turned on
Frequency detection function	By default, transfer is not cast. If you need to transfer, you can enable it in the Settings
Passive fire input	Connect passive switch or contact outside
Active fire input	Connect DC9-36V active signal outside
Transfer time delay is adjustable	0-240s
Overvoltage and under-voltage is adjustable	Under-voltage 100 to 200V; Overvoltage: 200 to 300V
Start generator function	Relay contact output (programmable relay)
Generator start and stop time	Generator start and stop time: 0-240s
Programmable relay	Passive contact output, 3A/250V resistance, start generator is defaulted
Communication function (optional)	RS485 isolation interface over MODBUS
Recording function	It can record the failure transfer times, the voltage of each phase when they are failed and other parameters

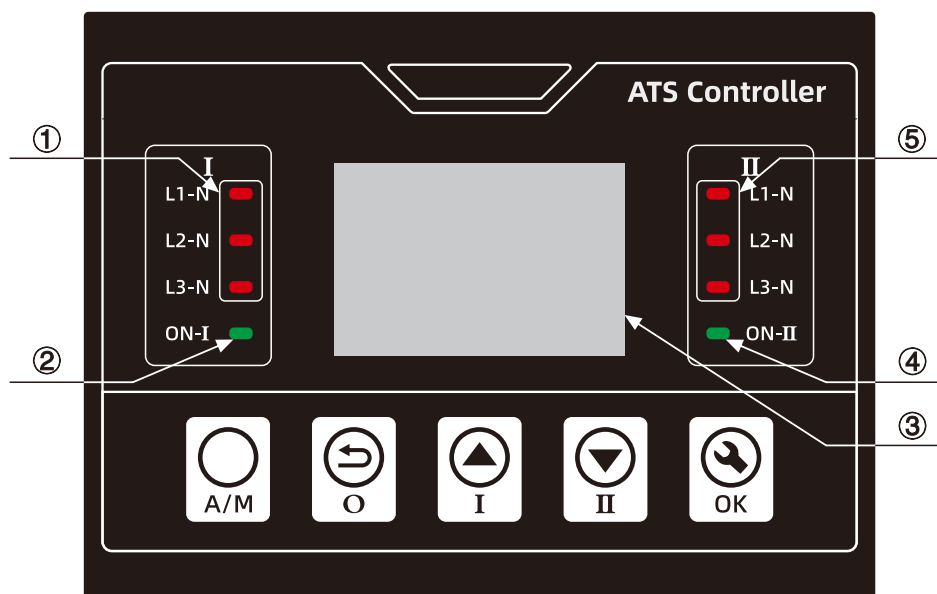
Note1: Self-input and Self-recover (I line priority): When normal power is failed (lost phase, overvoltage, under-voltage), TSE will transfer to standby power automatically, when the main power restored, it will transfer back to normal power.

Note 2: Self-input without self-recover (two-line priority) : When the normal power is failed (lost phase, over-voltage, under-voltage), the TSE will transfer to standby power automatically, when the main power restored, it will not transfer back to normal power only when the standby power is failed, it will transfer back to normal power.

Note 3: ATS transfer failure status indicator: if the switch cannot complete the transfer within the specified time, at this time, the controller will stop transfer, and make the controller 8 indicator light flashing at the same time, press the "automatic/manual" button to cancel the transfer failed to change the indicator,8 indicators return to normal state.

4.Controller interface

4.1 Panel layout



4.2 Panel indicator

table 2

Serial	Name	instruction
①	Main power status indicator.	L1-N, L2-N, and L3-N indicate whether the A/B/C phase voltage of main power is normal. If the voltage is normal, it is on, and if it is abnormal, it is off.
②	Main power closing indicator.	When the main power closing signal is detected, the light will be on, and then transfer to main power delay the light flashing.
③	LCD display.	3Display measurement value and set parameters and other information
④	Standby power closing indicator.	3When the standby power closing signal is detected,the light will be on, and then transfer to standby power delay the light flashing..
⑤	Standby power status indicator.	L1-N, L2-N, and L3-N indicate whether the A/B/C phase voltage of standby power is normal. If the voltage is normal, it is on, and if it is abnormal, it is off.




4.3 Button function

table 3





	Manual /Auto	Press this button to transfer between manual and automatic working mode (only valid in the main interface,invalid in parameter setting state).
	Double Off /return	In manual mode it is double off. In parameter setting state, it is return. Press this button to exit parameter setting.
	Main power closing/data plus	In manual mode, it is main power closing key, in the menu browsing interface, it is the menu flip key, and in the parameter setting state, it is data plus key.
	Standby power closing/data minus key	In manual mode, it is the standby power closing key, in the menu browsing interface, it is the menu down scroll key, and in the parameter setting state, it is data minus key.
	Set/confirm	Press this key on the home screen to enter the menu browsing screen. Press this key on the menu browsing screen to set or confirm parameters key.

5. Controller setting process


5.1 Enter into the parameter setting Menu

In the main interface, press “” key to enter the parameter browsing menu, parameter Code static display, click “” scroll down the menu, click “” turn up the menu.

5.2 Modifying Parameters

Find out the parameter you want to modify, click “” enter the parameter modification mode. At this time, the parameter starts to blink. Click “” the value increases, , click “” the value decreases , After setting the parameters, click “” to save the parameters.

5.3 Exit Settings:

No matter in the menu browsing interface or parameter setting interface, click “” to exit the setting state and return to the main interface, not confirmed modification parameters are not saved.

5.4 Y-703 Parameter codes, ranges, and default values

table 4

Serial number	Code	Parameter Name	Set range	Factory Default
1	U1H	Main power over voltage threshold	200-300V	270
2	U1L	Main power under voltage threshold	100-200V	165
3	U2H	Standby power over voltage threshold	200-300V	270
4	U2L	Standby power under voltage threshold	100-200V	165
5	F1H	Main power frequency upper limit setting	50.0-75.0Hz	55.0
6	F1L	Main power frequency lower limit setting	40.0-60.0Hz	45.0
7	F2H	Standby power frequency upper limit setting	50.0-75.0Hz	55.0
8	F2L	Standby power frequency lower limit setting	40.0-60.0Hz	45.0
9	C1	The delay time of transferring to the main power	0-240s	1
10	C2	The delay time of transferring to the standby power	0-240s	1
11	C3	Start generator time delay	0-240s	5
12	C4	Stop generator time delay	0-240s	5
13	d	Start generator mode setting	0: Start the generator when priority power is abnormal 1: Start the generator when main power is abnormal 2: Start the generator when the standby power is abnormal	0
14	Lcd	Backlight brightness adjustment	0-10	8
15	E	Operation mode of TSE	0: self-input and self-recover (main power priority) 1: self-input without self-recover 2: self-input and self-recover (standby power priority)	0
16	O1	Programmable relay1	0-8(The details to see Table 5)	0
17	O2	Programmable relay2		6
18	J	Communication: local address	1-32	1

19	b	Communication: the baud rate	1: 2400 2: 4800 3: 9600 4: 19200	3
20	P	Phase sequence detection	0:Function off 1:Function on note: this function alarms only and does not convert alarms when the internal buzzer rings	0
21	F	Abnormal frequency transfer	0:off 1:on	0
22	H	Factory data reset	3:Restore factory defaults, others invalid	0

Note: Please note that all Table 4 data will be restored to default values when H=003 is pressed to restore factory defaults




5.5 The definition of programmable relay:

table 5

programmable relay	Setting range (0 to 8)	The default output
Output 1 is normally closed type Output port 2 is normally open type	0 = start generator output 1=fire output feedback 2=main power abnormal output 3=standby power abnormal output 4= automatic state output 5 = manual state output 6 = TSE transfer failure output 7 =main power closing state output 8=standby power closing state output	output 1, the default value is 0 output 2, the default value is 6

6. Check the running time and transfer times

6.1 View menu



under the main interface, press and hold “” button more than 3 seconds, enter the query interface, parameter code static display, click “” scroll down the code, click “” scroll up the code.

Code C01: total run time, the unit for hours.


Code C02t: total transfer times, every conversion count value plus 1 (including manual /automatic transformation, fault transformation, the return of self-input and self-recover).

Code C03: accumulative failure transformation times, due to main power failure transfer to standby power, or because of standby power failure transfer back to main power, every conversion count value plus one.

6.2 Check the parameters




Find the code you want to fix and check, click on the “” button, enter the view mode, In this case, the 6 digits are displayed as parameter values. Click again “” button to exit the view mode, return back to code display.

6.3 Exit:

Click on the “” button, you can exit the query condition, back to the main interface.

7. Check the failure record

7.1 Enter into view menu




Under the main interface, press “” more than 3 seconds, enter the query interface, parameter code static display, click “” scroll down the code, click “” scroll up the code.


Code E01: The latest fault record

Code E02: The latest secondary fault record

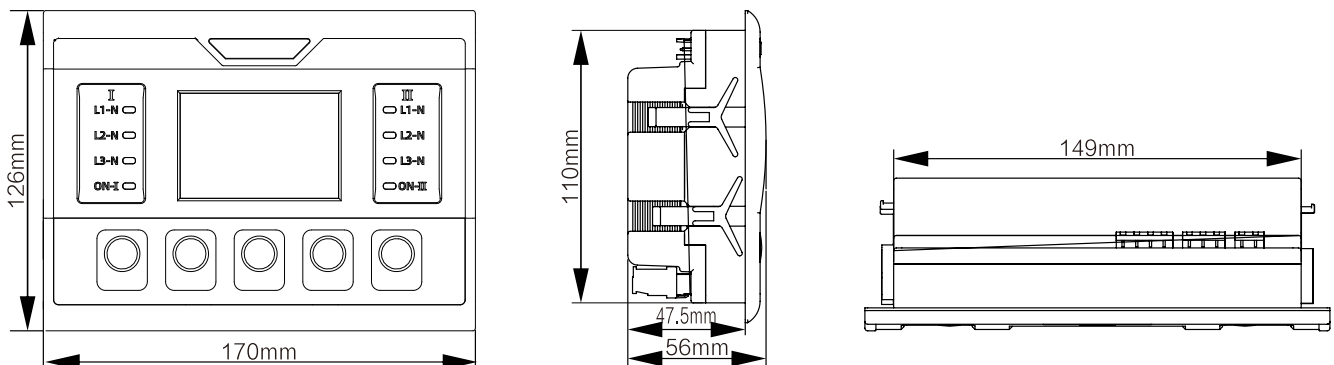
Code E10: tenth fault record

7.2 check the record specific parameters

Find the record code you need, click on the “” button, enter the view mode, this mode to view the fault activity, normal power and standby power, ABC three line voltage and the action of power  frequency, the query data available plus/minus key to browse each phase voltage. Click “” button to return to the interface of code.

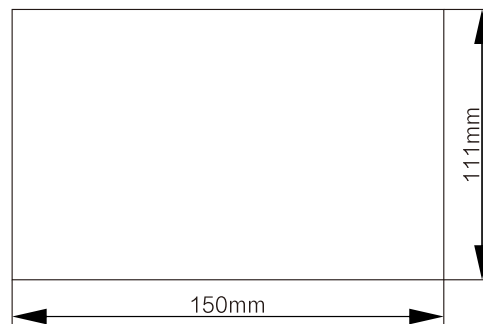
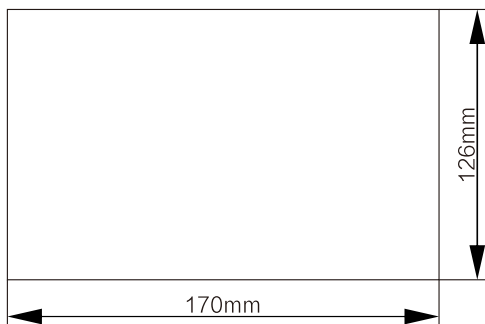
7.3 Exit: 

8. Outline and installation dimension

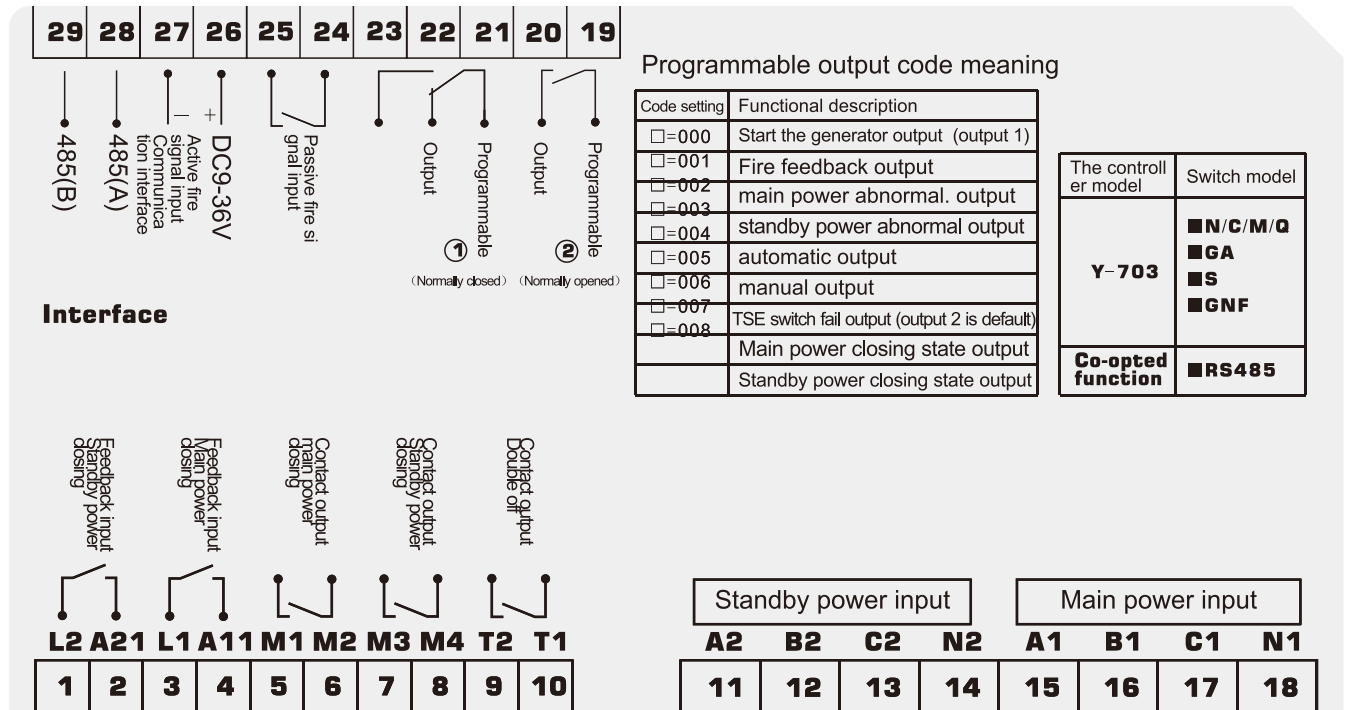


Panel size: 170mm*126mm

Hole size: 150mm*111mm



9.The function of controller terminal



Terminal function description

table 6

Terminals no.	Function definition	Functional description
1-2	Standby power closing signal feedback input	Valid for external short-circuiting. A2 is internally connected with the standby power A In international use, the A2 connection can also be omitted, and an external switch will be used connect with A/B/C phase of the power to L2 (see circuit diagram 1)
3-4	Main power closing signal feedback input	Valid for external short-circuiting. A1 is internally connected with the main power A In international use, the A1 connection can also be omitted, and an external switch will be used connect with A/B/C phase of the power to L1 (see circuit diagram 1)
5-6	Main power closing output	Inside is the relay switch contact, contact capacity 16A/250VAC
7-8	Standby power closing output	Inside is the relay switch contact, contact capacity 16A/250VAC
9-10	Double off output (3position only)	Inside is the relay switch contact, contact capacity 5A/250VAC
11-14	Standby power input	Three phase four line standby power input
15-18	Commonly used power input	Three phase four line main power input
19-20	Programmable relay 2	The default for TSE fail output switch, contact capacity 3A/250VAC
21-23	Programmable relay 1	21/22is normally closed point, default to start generator,21/23 for normally open point. Contact capacity of3A/250V
24-25	Passive fire protection signal input	Valid for external short-circuiting.
26-27	Active fire signal input	External DC9V - 36V power available
28-29	485 communication interface	Detailed communication protocol please see the communication manual

10. Controller diagram

Diagram 1

Y - 703 connect with Q type ATS wiring diagram

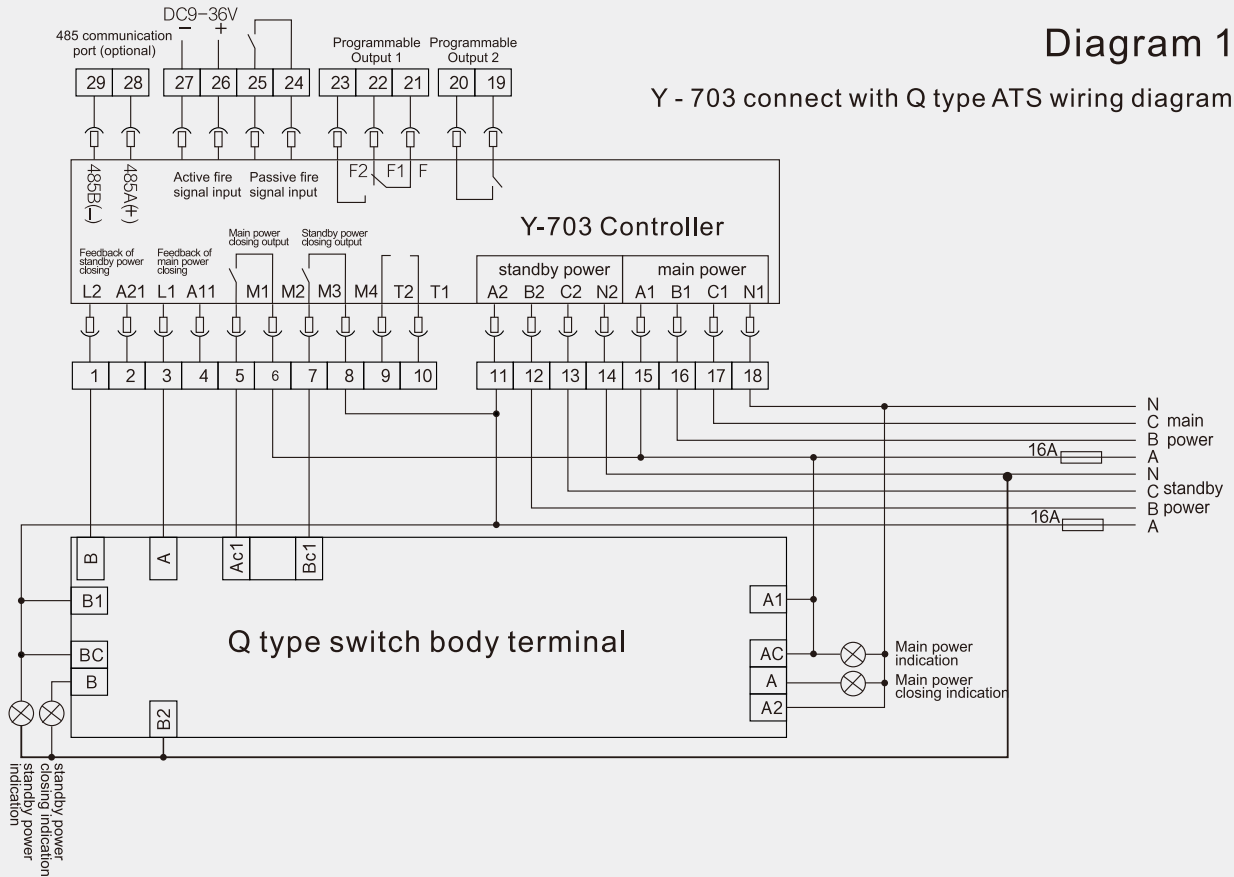


Diagram 2

Y - 703 connect with N type ATS wiring diagram

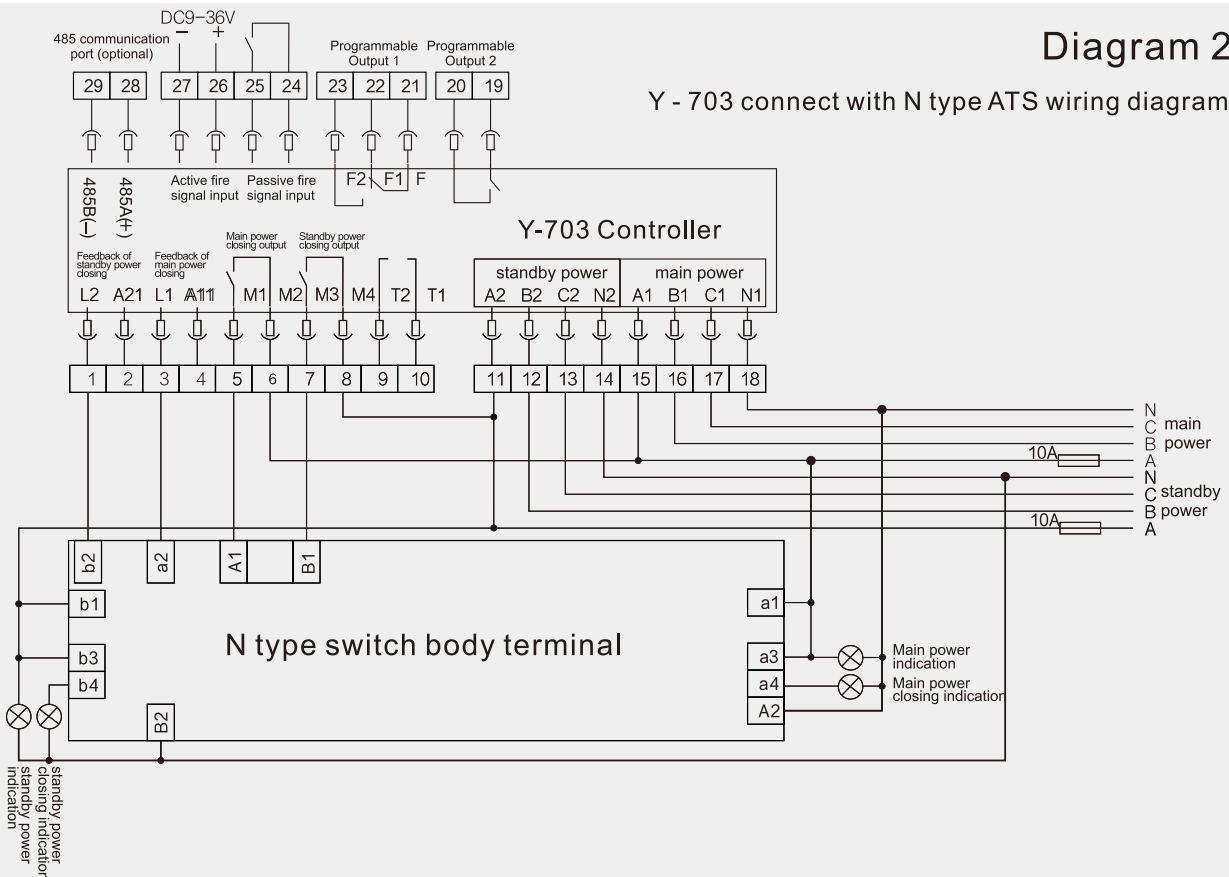


Diagram 3

Y - 703 connect with M type ATS wiring diagram

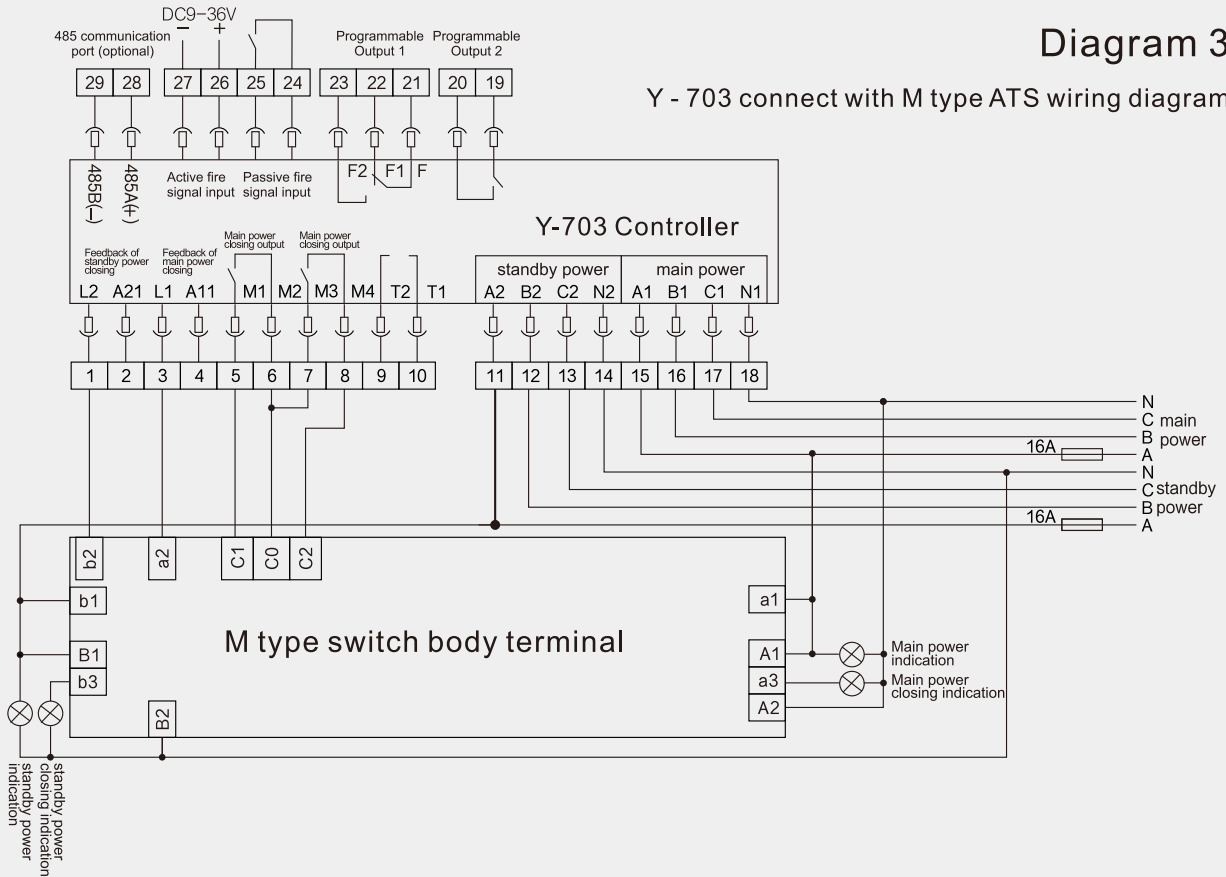


Diagram 4

Y - 703 connect with L type ATS wiring diagram

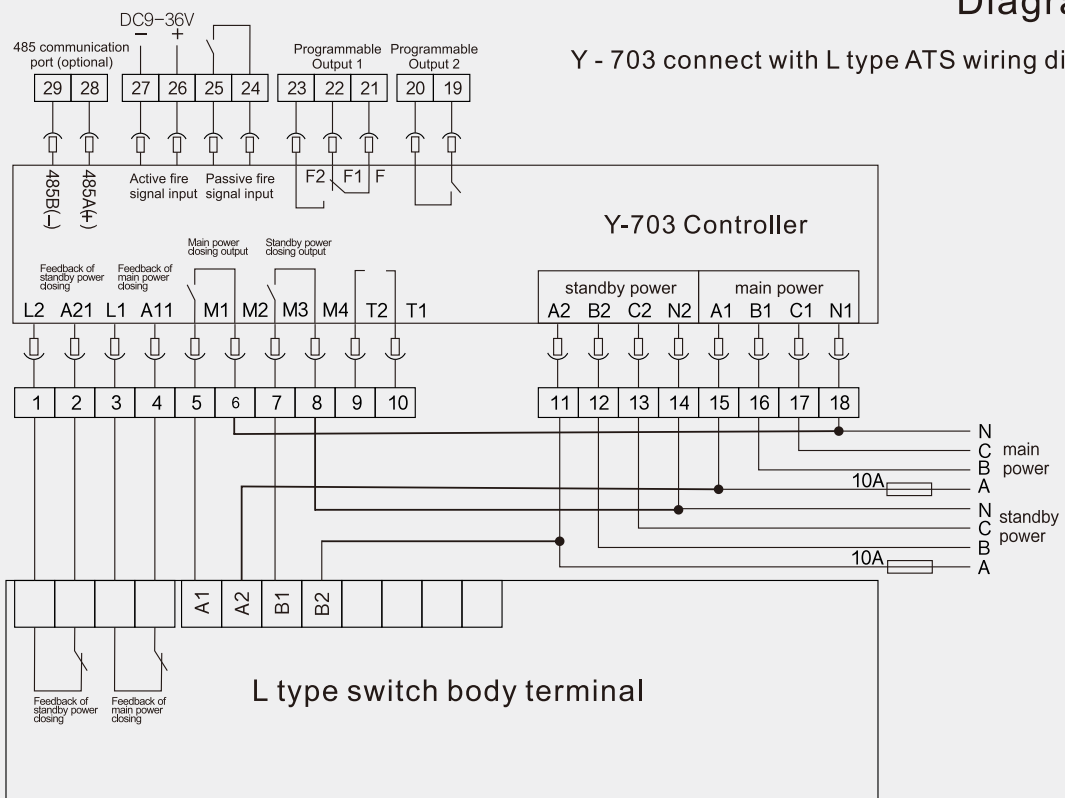


Diagram 5

Y - 703 connect with S type ATS wiring diagram

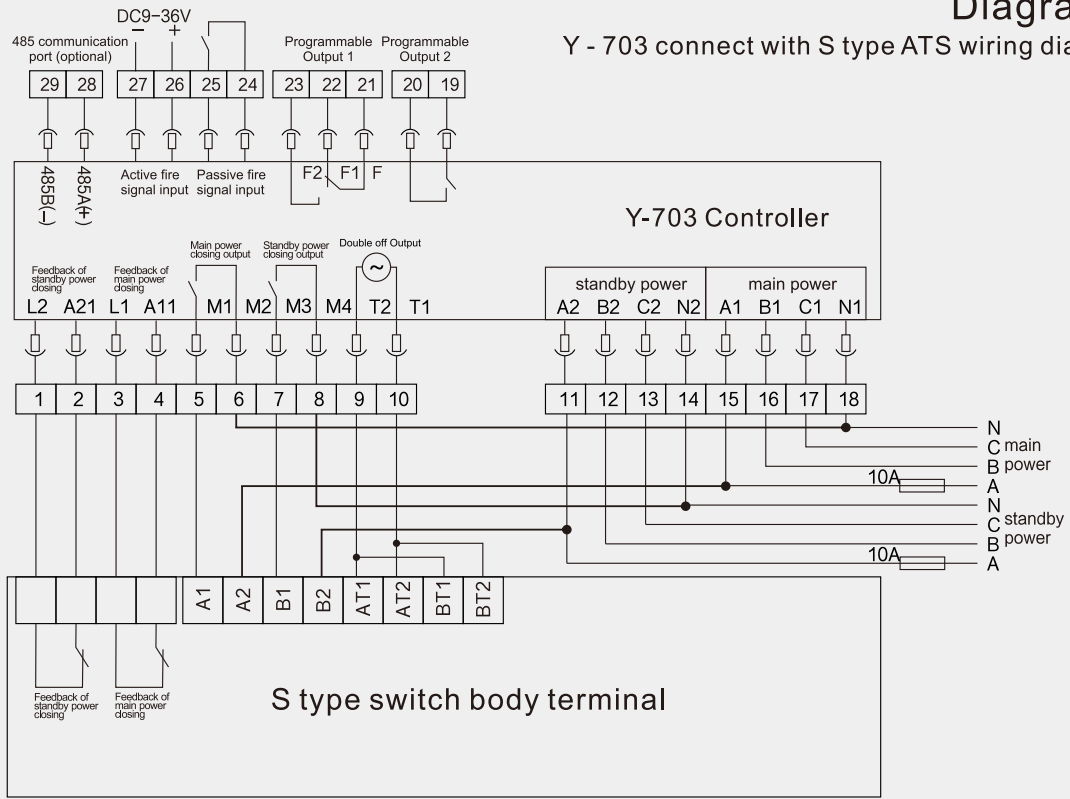
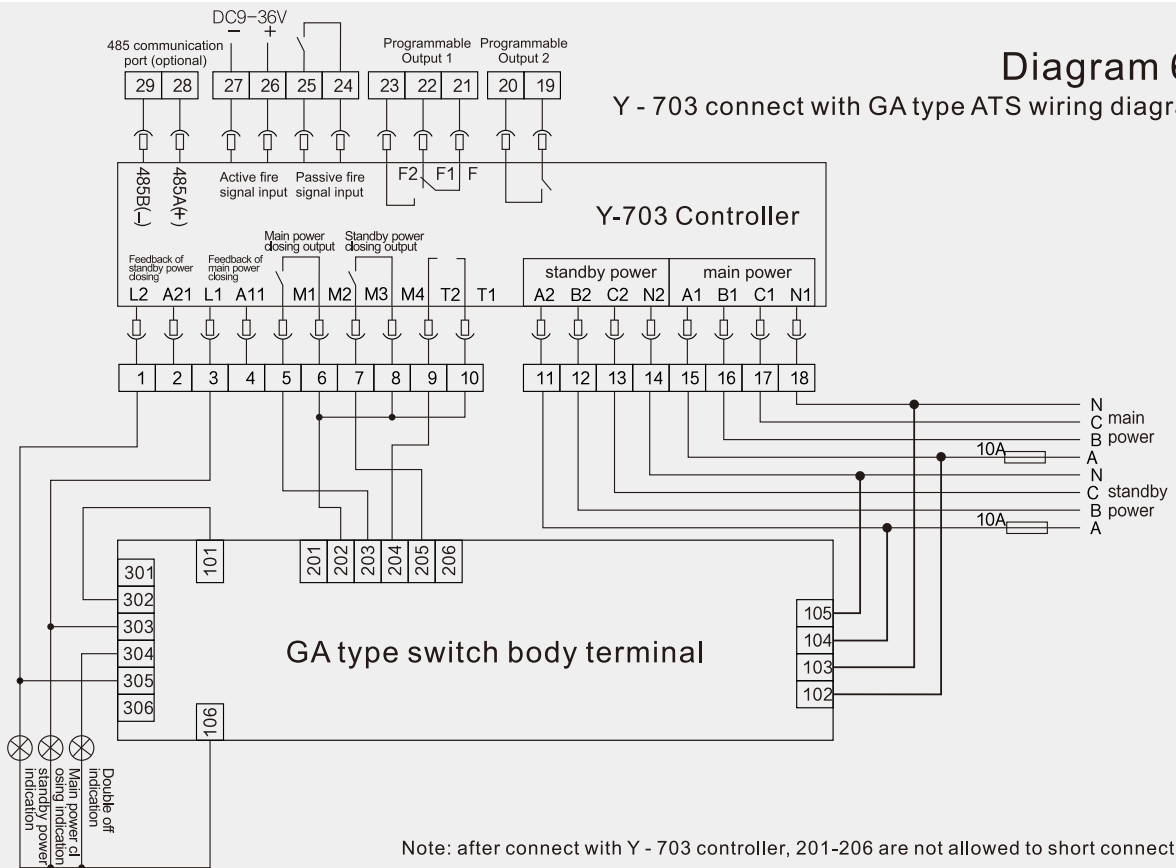


Diagram 6

Y - 703 connect with GA type ATS wiring diagram



Note: after connect with Y - 703 controller, 201-206 are not allowed to short connection.

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Suggest sending the manual to the final user!