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AMC100 DC precision power distribution monitoring device

Installation instruction V1.4

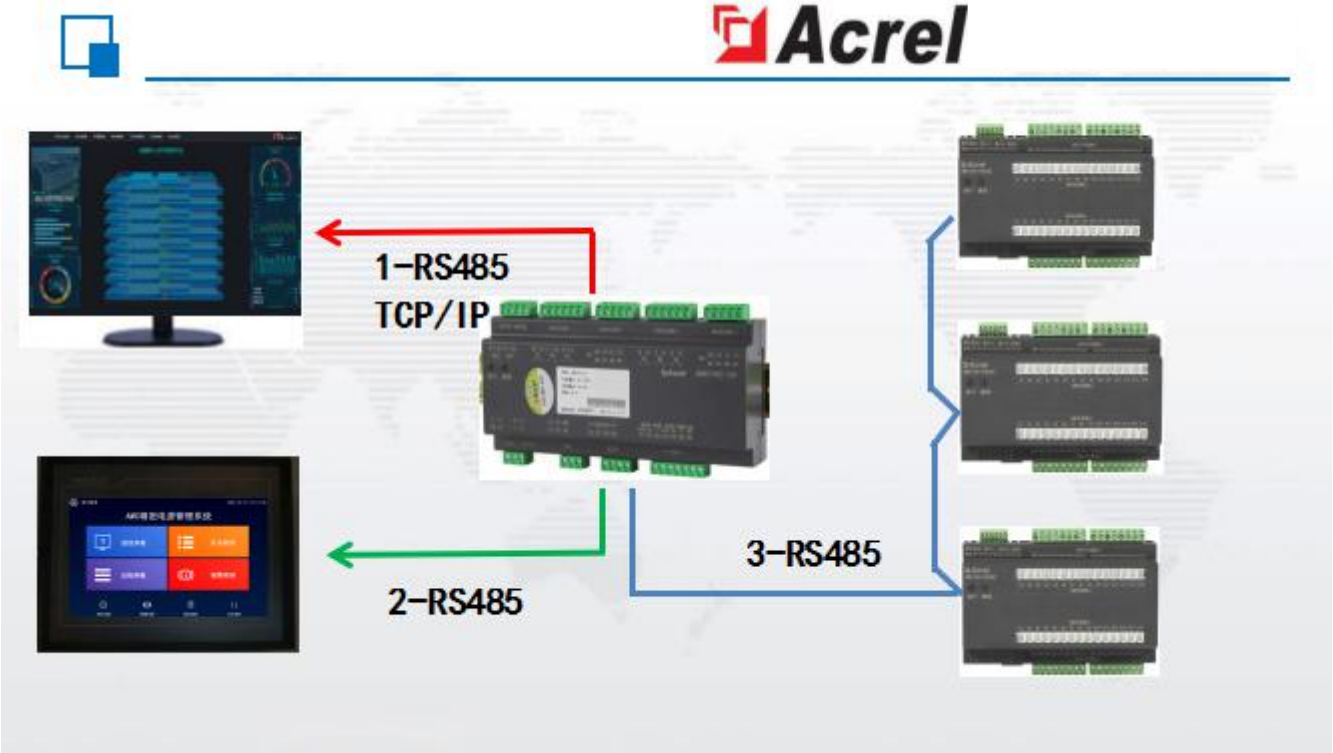
Acrel Co., Ltd.

Declaration

The company reserves the right to modify the product specifications described in this manual without prior notice. Please contact your local agent for new specifications before ordering.

Contents

1 General



With the rapid development of data centers, the energy consumption of data centers has become more and more prominent, and the energy management and power supply and distribution design of data centers have become a hot issue. Efficient and reliable power distribution system scheme of data centers is an effective way to improve the power efficiency of data centers and reduce the energy consumption of equipment. In order to realize energy saving in data center, first of all, it is necessary to monitor each power load. However, there are many load loops in data center, and traditional measuring instruments cannot meet the requirements of cost, volume, installation, construction and other aspects. Therefore, it is necessary to adopt multi-loop monitoring device suitable for centralized monitoring requirements in data center.

AMC100 series DC precision power distribution monitor is a measurement device designed specifically for power management of data center servers. The device design exquisite, can for A + B two into line and 192 road for electrical parameters, the input and output parameters of the switch state and the lightning protection device such as real-time monitoring, all alarm threshold measurement channels can be set in A separate, to qualify the limit event trigger system sound and light alarm, immediately on the volume in the traditional instrument, the height of the monitoring circuit integration.

2 Product Model

Model	Functional Description
AMC100-ZD	Monitors the voltage, current, power, and electric energy of 2 independent incoming lines A+B,8 switching input, 4 switching output , 1 temperature and humidity detection, and 3 RS485 communications
AMC100-FDK30	Monitor the full power parameters and switching status (active) of A+B dual DC outlet 30 branches ,and 1 RS485 communication
AMC100-FDK48	Monitor the full power parameters and switching status (active) of A+B dual DC outlet 48 branches, and 1 RS485 communication
AMC100-FD30	Monitor the full power parameters of A+B dual DC outgoing lines in A total of 30 branches, and 1 RS485 communication
AMC100-FD48	Monitor the full power parameters of A+B dual DC outgoing lines in A total of 48 branches, and 1 RS485 communication
AMC100-KA30	Wet contact, Monitor the switching status of 30 branches A+B, and 1 RS485 communication
AMC100-KA48	Wet contact, Monitor the switching status of 48 branches A+B, and 1 RS485 communication
AMC100-KD30	Dry contact: Monitor the switching status of 30 branches A+B, and 1 RS485 communication
AMC100-KD48	Dry contact: Monitor the switching status of 48 branches A+B, and 1 RS485 communication

AMC100-FT30	1 channel RS485 communication and 30 channels temperature measurement
AMC100-FT48	1 channel RS485 communication and 48 channels temperature measurement

3 Technical parameters

DC into line

Instrument model		AMC100-ZD
Measured parameters		Voltage, Current, Power, Electric energy, Ambient temperature and Humidity
Bus voltage	Rated	48VDC,240VDC,336VDC
	Measuring range	±20%
	Overload	Instantaneous voltage 2 times per second
Current incoming circuit	Rated	5V（Hall sensor, ±12V powered by AMC100-ZD）
	Overload	Duration is 1.2 times, instantaneous 10 times/second
Temperature and humidity	Temperature range	-40℃～+99℃
	Humidity range	20%～90%
Measuring accuracy	Coil in	Voltage/current level 0.5, power/electric energy level 1
	Temperature	±1℃
	Humidity	±5%
Auxiliary supply		AMC100-ZD：Signal power（≤15W） AMC100-ZD-P24：DC 12-24V independent power supply AMC100-ZD-P220： 1、When the constant voltage is DC 240V、DC336V,powered by AC220V、DC240V 、DC336V independent supply 2、When the constant voltage is DC 48V,powered by DC48V independent supply
Environment	Temperature	Operation：-15℃～55℃ Storage：-25℃～70℃
	Humidity	Relative humidity≤93%
	Altitude	≤2500m
Switching output		4-way 3A 250VAC /3A 30VDC
Switch input		8 dry nodes
Communication		1 channel isolated RS485/Modbus-RTU to the background system 1 RS485/Modbus-RTU to touch screen 1 RS485/Modbus-RTU connection to the downstream module 1-channel Ethernet communication function is optional
Installation		Method DIN35mm rail or bottom plate installation
Protection level		IP20
Pollution level		2
Security	Insulation	The insulation resistance between all terminals and the conductive parts on the shell must be at least 100MΩ
	Withstand voltage	Voltage and current signal of line A // Voltage and current signal of line B // Switching output // Isolated communication port // Two of other ports should meet AC2kV for 1min, switching input and other ports should meet AC0.5kV for 1min, leakage current should be less than 2mA, no breakdown or flashover phenomenon.
	Antistatic interference	Level 4

Electromagnetic compatibility	Reactance fast transient pulse	Level 3
	Surge resistance	Level 4
	Radio frequency electromagnetic radiation	Level 3

DC outlet

Instrument model		AMC100-FD30	AMC100-FD48
Measuring parameters		Voltage, Current, Power, Electric energy	
Bus voltage	Rated	48VDC,240VDC,336VDC	
	Measuring range	±20%	
	Overload	Instantaneous voltage 2 times per second	
Current incoming circuit	Rated	5V (Hall sensor, need external power supply ±12V or ±15V)	
	Range		
	Overload	Duration is 1.2 times, instantaneous 10 times/second	
Measuring accuracy	coil out	Voltage/current level 0.5, power/electric energy level 1	
Auxiliary supply		Powered by AMC100-ZD; DC 12-24V power supply when used alone	
Environment	Temperature	Operation：-15℃～55℃ Storage：-25℃～70℃	
	Humidity	Relative humidity≤93%	
	Altitude	≤2500m	
Communication		RS485/Modbus-RTU	
Installation		Method DIN35mm rail or bottom plate installation	
Protection level		IP20	
Pollution level		2	
Security	Insulation	The insulation resistance between all terminals and the conductive parts on the shell must be at least 100MΩ	
	Withstand voltage	Voltage and current signal of line A // Voltage and current signal of line B // The two of other ports meet AC2kV for 1min, the leakage current should be less than 2mA, and no breakdown or flashover phenomenon.	
Electromagnetic compatibility	Antistatic interference	Level 4	
	Radio frequency electromagnetic radiation	Level 3	

Note: The input voltage of the secondary side of the DC inlet and outlet modules is 5V, and the default value of the primary side current is 100A. If the hall sensor is different, customers can set the ratio through the touch screen according to the actual use.

Instrument model		AMC100-FDK30	AMC100-FDK48
Measuring parameters		Voltage, Current, Power, Electric energy	
Bus voltage	Rated	48VDC,240VDC,336VDC	
	Measuring range	±20%	
	Overload	Instantaneous voltage 2 times per second	
Current incoming circuit	Rated	5V (Hall sensor, need external power supply ±12V or ±15V)	
	Range		
	Overload	Duration is 1.2 times, instantaneous 10 times/second	
Measuring accuracy	coil out	Voltage/current level 0.5, power/electric energy level 1	

Auxiliary supply		Powered by AMC100-ZD; DC 12-24V power supply when used alone
Environment	Temperature	Operation：-15℃～55℃ Storage：-25℃～70℃
	Humidity	Relative humidity≤93%
	Altitude	≤2500m
Communication		RS485/Modbus-RTU
Installation		Method DIN35mm rail or bottom plate installation
Protection level		IP20
Pollution level		2
Security	Insulation	The insulation resistance between all terminals and the conductive parts on the shell must be at least 100MΩ
	Withstand voltage	Voltage and current signal of line A // Voltage and current signal of line B // The two of other ports meet AC2kV for 1min, the leakage current should be less than 2mA, and no breakdown or flashover phenomenon.
Electromagnetic compatibility	Antistatic interference	Level 4
	Radio frequency electromagnetic radiation	Level 3

Note: The input voltage of the secondary side of AMC100-FDK module is 5V, and the default value of the primary side current is 100A. If the hall sensor is different, customers can set the ratio through the touch screen according to the actual use.

Active switch module

Instrument model		AMC100-KA30	AMC100-KA48
Auxiliary supply		Powered by AMC100-ZD; DC 12-24V power supply power supply when used alone	
Environment	Temperature	Operation：-15℃～55℃ Storage：-25℃～70℃	
	Humidity	Relative humidity≤93%	
	Altitude	≤2500m	
Switch input		30 wet nodes (48VDC,240VDC,336VDC)	48 wet nodes (48VDC,240VDC,336VDC)
Communication		RS485/Modbus-RTU	
Installation		Method DIN35mm rail or bottom plate installation	
Protection level		IP20	
Pollution level		2	
Security	Insulation	The insulation resistance between all terminals and the conductive parts on the shell must be at least 100MΩ	
	Withstand voltage	Voltage and current signal of line A // Voltage and current signal of line B // The two of other ports meet AC2kV for 1min, the leakage current should be less than 2mA, and no breakdown or flashover phenomenon.	
Electromagnetic compatibility	Antistatic interference	Level 4	
	Radio frequency electromagnetic radiation	Level 3	

Passive switching module

Instrument model		AMC100-KD30	AMC100-KD48
Auxiliary supply		Powered by AMC100-ZD; DC 12-24V power supply when used alone	
Environment	Temperature	Operation：-15℃～55℃ Storage：-25℃～70℃	
	Humidity	Relative humidity≤93%	

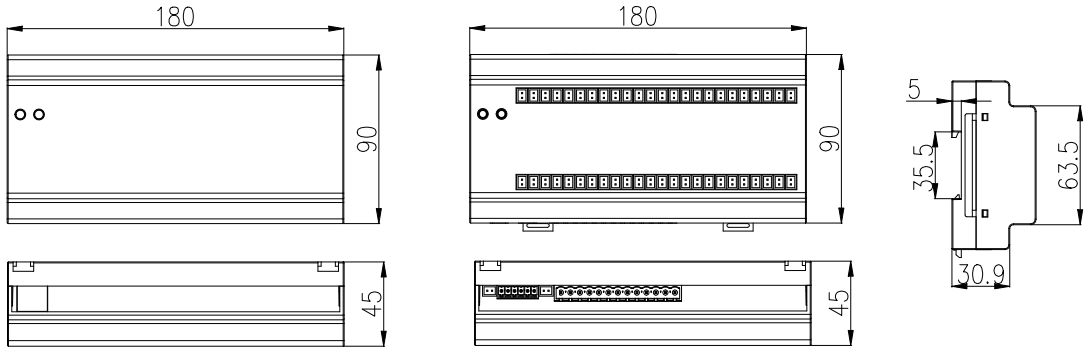
	Altitude	≤2500m	
Switch input		30 dry nodes	48 dry nodes
Communication		RS485/Modbus-RTU	
Installation		Method DIN35mm rail or bottom plate installation	
Protection level		IP20	
Pollution level		2	
Security	Insulation	The insulation resistance between all terminals and the conductive parts on the shell must be at least 100MΩ	
	Withstand voltage	Voltage and current signal of line A // Voltage and current signal of line B // The two of other ports meet AC2kV for 1min, the leakage current should be less than 2mA, and no breakdown or flashover phenomenon.	
Electromagnetic compatibility	Antistatic interference	Level 4	
	Radio frequency electromagnetic radiation	Level 3	

Temperature measurement module

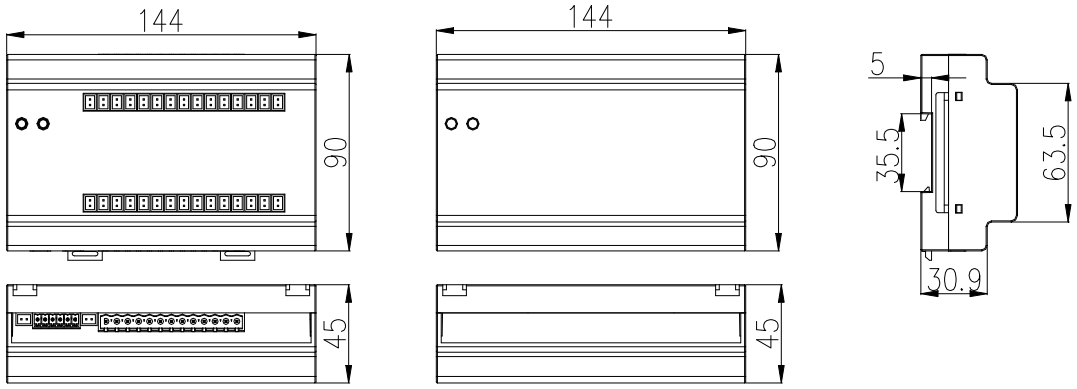
Instrument model		AMC100-FT30	AMC100-FT48
Number of measuring channels		30 channels	48 channels
Auxiliary supply		Powered by AMC100-ZD; DC 12-24V power supply when used alone	
Function	Temperature measurement range	-20℃～150℃	
	Communication	RS485/Modbus-RTU	
Installation		Method DIN35mm rail or bottom plate installation	
Protection level		IP20	
Pollution level		2	
Environment	Temperature	Operation：-20℃～60℃ Storage：-25℃～70℃	
	Humidity	Relative humidity≤93%	
	Altitude	≤2500m	
Security	Insulation	The insulation resistance between all terminals and the conductive parts on the shell must be at least 100MΩ	
	Withstand voltage	The auxiliary power supply and temperature measurement meet AC2kV for 1min, the leakage current should be less than 2mA, and no breakdown or flashover phenomenon.	
Electromagnetic compatibility	Antistatic interference	Level 4	
	Radio frequency electromagnetic radiation	Level 3	

4 Appearance structure

AMC100-ZD、AMC100-FD□48、AMC100-K□48、AMC100-FT48



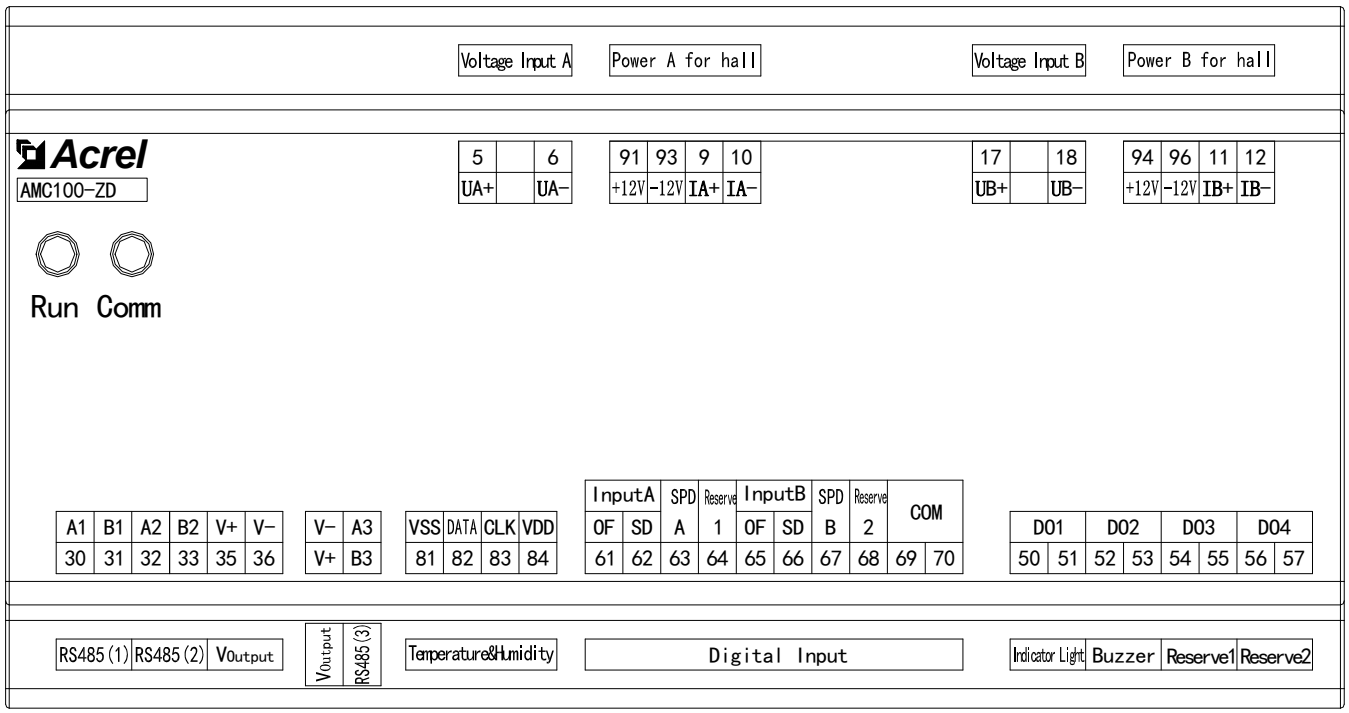
AMC100-FD□30、AMC100-K□30、AMC100-FT30



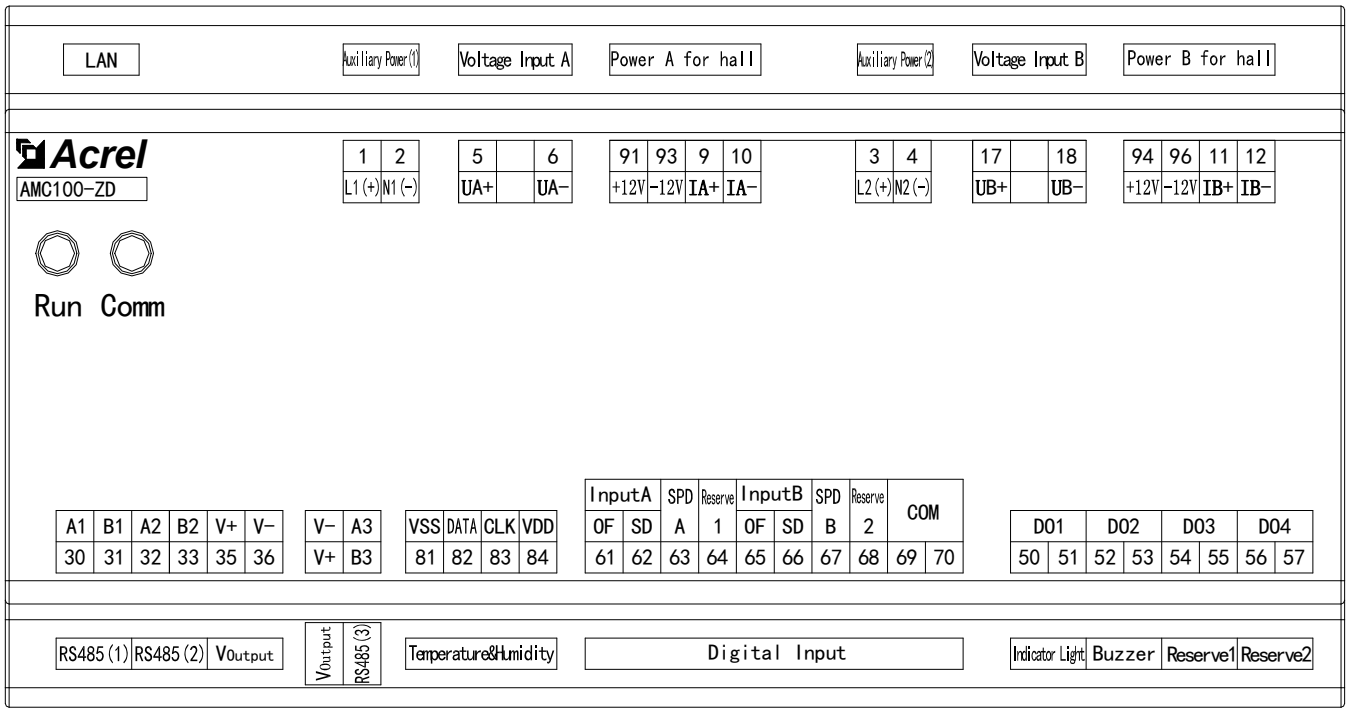
5 Wiring Terminals

5.1 AMC100 -ZD series

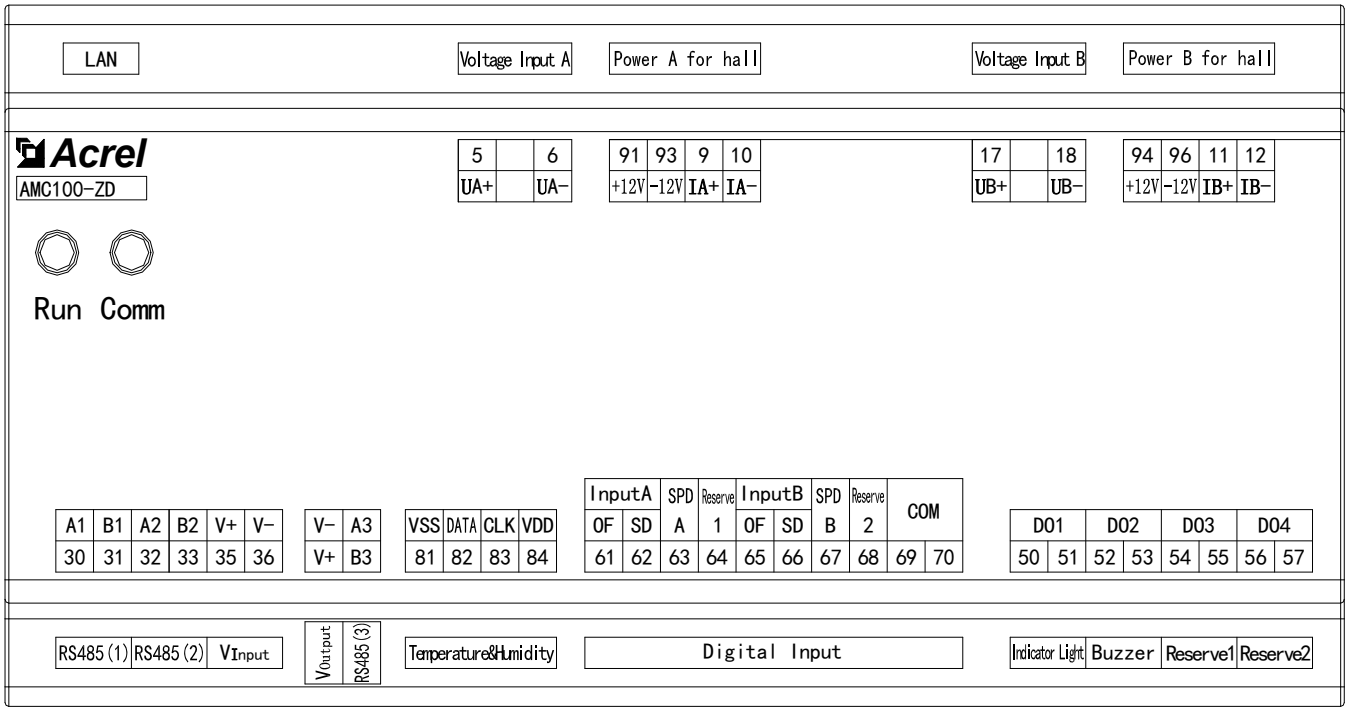
AMC100-ZD



AMC100-ZD/CE-P220



AMC100-ZD/CE-P24

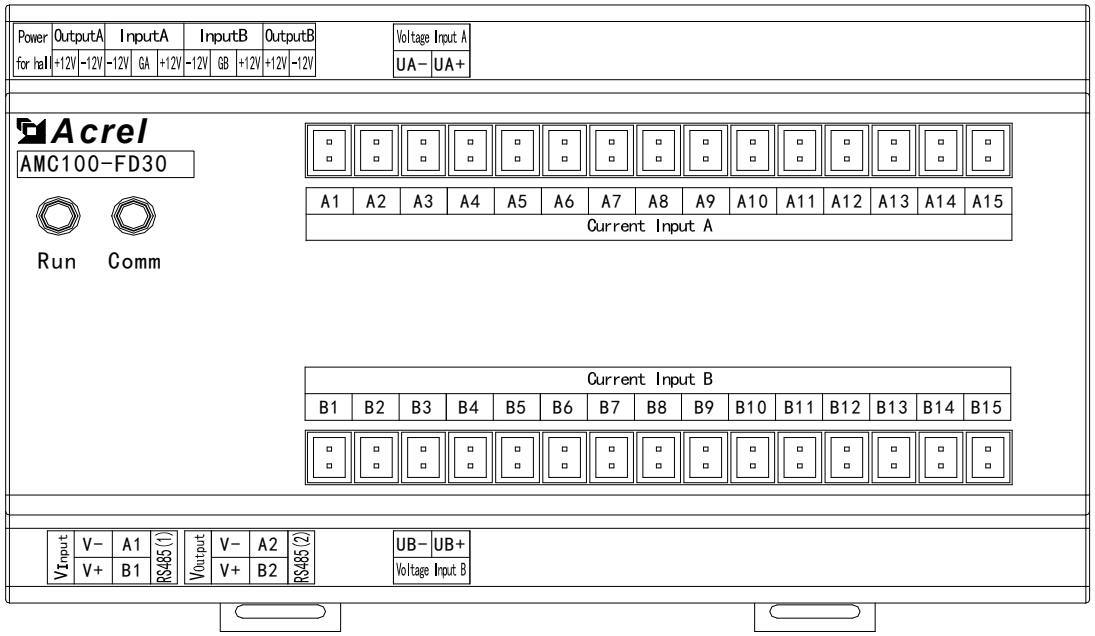


Terminal number	Definition	Description	Remark
1	L1(+)	Auxiliary supply 1	P220 used, not connected by default
2	N1(-)		
3	L2(+)	Auxiliary supply 2	P220 used, not connected by default
4	N2(-)		
5	UA+	Route A voltage input	Line A DC voltage input
6	UA-		
9	IA+	Route A current input	Line A incoming DC current (Hall sensor input)
10	IA-		

11	IB+	Route B current input	Line B incoming DC current (Hall sensor input)
12	IB-		
17	UB+	Route B voltage input	Line B incoming DC voltage input
18	UB-		
30	A1	RS485(1)	The first isolated communication interface, connected to the background system
31	B1		
32	A2	RS485(2)	The second channel is connected to the touch screen or RS485 hub
33	B2		
	A3	RS485(3)	The third way is connected to the downstream module
	B3		
	LAN	Ethernet	CE with Ethernet communication
35	V+	Power Output (auxiliary power input when use p24)	Power supply to AMC100-FD30/48, AMC100-FDK30/48, AMC100-KA30/48, AMC100-KD30/48, AMC100-FT30/FT48 and touch screen, **this power supply prohibits external external equipment (such as indicator light, buzzer)**
36	V-		
50	DO1	Switch output	Connect the buzzer
51			
52	DO2		Connection indicator
53			
54	DO3		Reserved 1
55			
56	DO4		Reserved 2
57			
61	Incoming line A	Switch input	OF
62			SD
63	Lightning protection A		Determine the SPD status of route A
64	Reserved		Reserved1
65	Incoming line B		OF+SD
66			SD
67	Lightning protection B		Determine the SPD status of route B
68	Reserved		Reserved2
69	Common port		Switch common
70			
81	VSS	Temperature and humidity	Connect WH-3 temperature and humidity sensor
82	DATA		
83	CLK		
84	VDD		
91	+12V	A way Hall power supply	Power Output
93	-12V		
94	+12V	B way Hall power supply	
96	-12V		

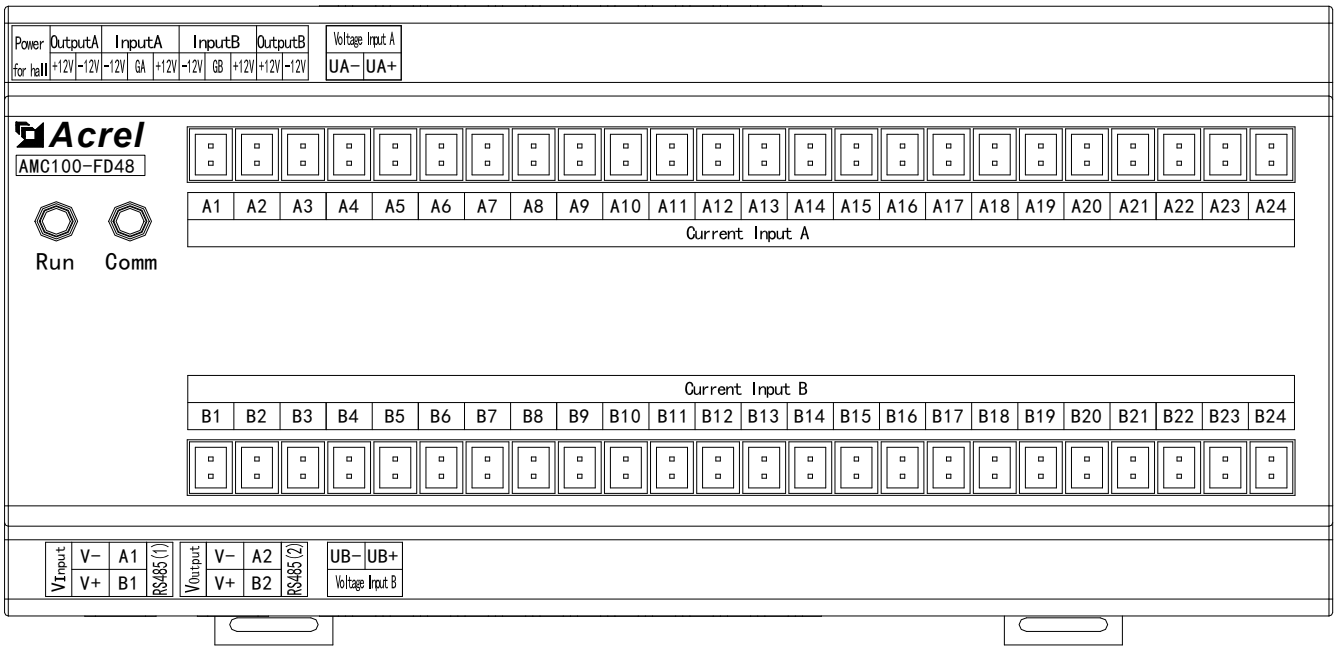
5.2 AMC100-FD30/FD48

AMC100-FD30



Definition	State	Remark
V+	Auxiliary supply	Powered by AMC100-ZD Or powered by DC12-24V power supply
V-		
A1	RS485 Communication（1）	Connect the pre-module
B1		
A2	RS485 Communication（2）	Connect the subsequent sub-module
B2		
UA+	Route A voltage input	Line A DC voltage input
UA-		
UB+	Route B voltage input	Line B DC voltage input
UB-		
Input A	A way Hall power supply input	±12V or ±15V switching power supply input
Output A	A way Hall power supply output	±12V or ±15V power output connected to Hall sensor
Input B	B way Hall power supply input	±12V or ±15V switching power supply input
Output B	B way Hall power supply output	±12V or ±15V power output connected to Hall sensor
A1-A15	A channel current input (15 channels)	A way outgoing DC current input (15 channels Hall sensor)
B1-B15	B channel current input (15 channels)	B way outgoing DC current input (15 channels Hall sensor)

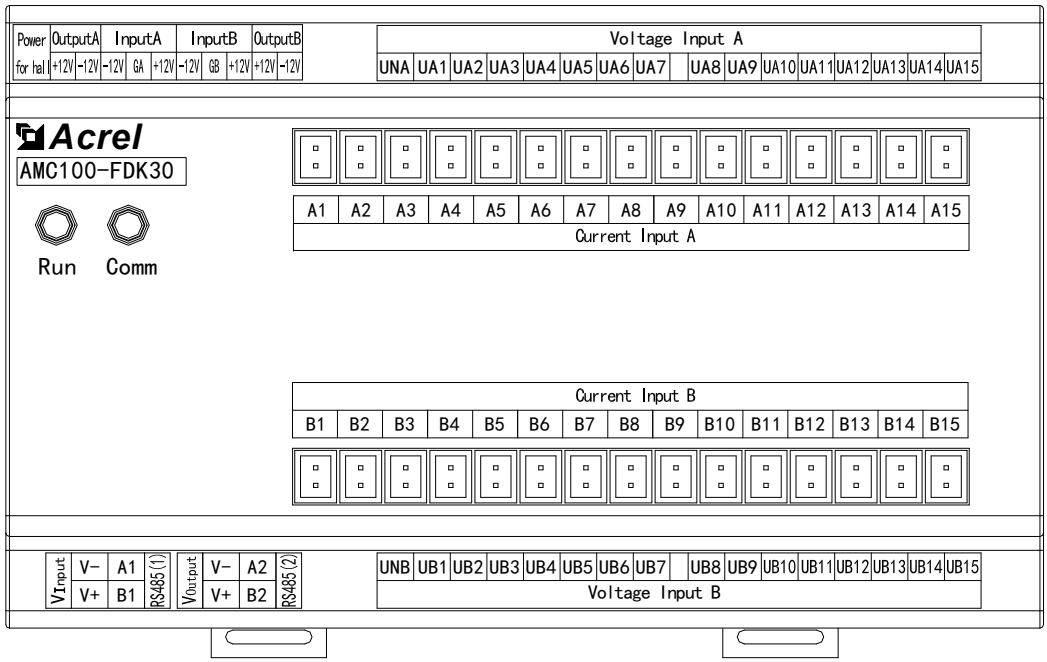
AMC100-FD48



Definition	State	Remark
V+	Auxiliary supply	Powered by AMC100-ZD Or powered by DC12-24V power supply
V-		
A1	RS485（1）	Connect the pre-module
B1		
A2	RS485（2）	Connect the subsequent sub-module
B2		
UA+	Route A voltage input	Line A DC voltage input
UA-		
UB+	Route B voltage input	Line B DC voltage input
UB-		
Input A	A way Hall power supply input	±12V or ±15V switching power supply input
Output A	A way Hall power supply output	±12V or ±15V power output connected to Hall sensor
Input B	B way Hall power supply input	±12V or ±15V switching power supply input
Output B	B way Hall power supply output	±12V or ±15V power output connected to Hall sensor
A1-A24	A channel current input (24 channels)	A way outgoing DC current input (24 channels Hall sensor)
B1-B24	B channel current input (24 channels)	B way outgoing DC current input (24 channels Hall sensor)

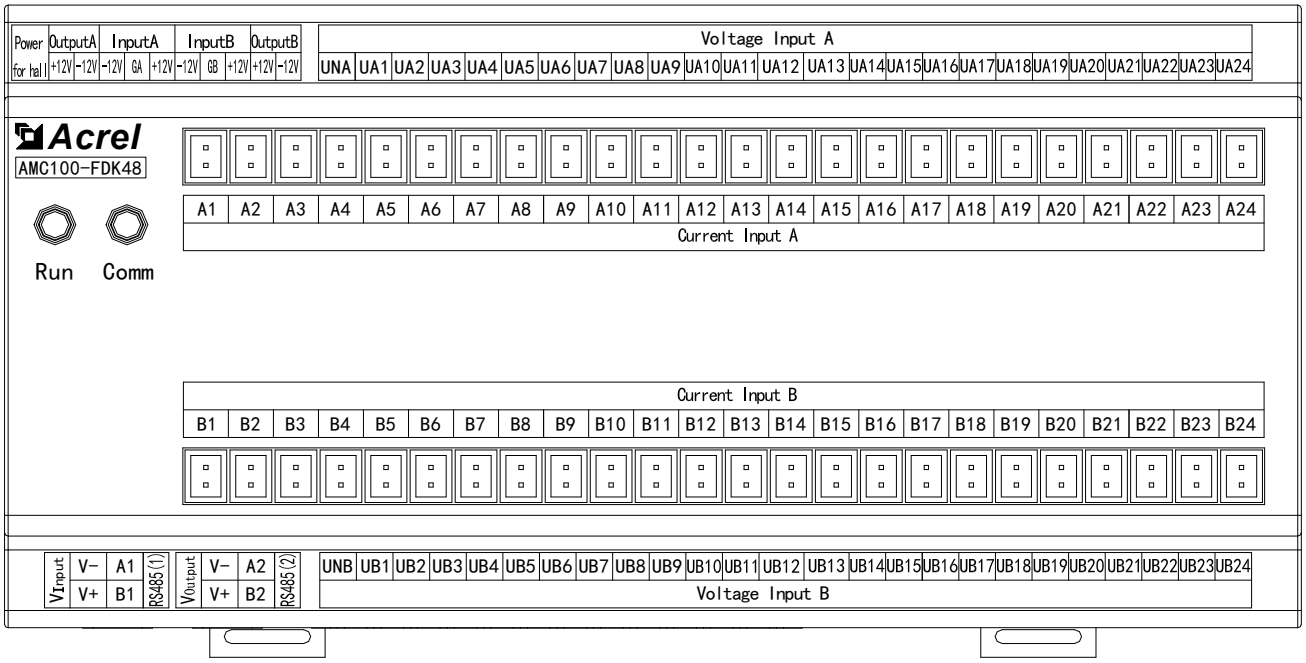
5.3 AMC100-FDK30/FDK48

AMC100-FDK30



Definition	State	Remark
V+	Auxiliary supply	Powered by AMC100-ZD Or powered by DC12-24V power supply
V-		
A1	RS485（1）	Connect the pre-module
B1		
A2	RS485（2）	Connect the subsequent sub-module
B2		
UA+	Route A voltage input	Line A DC voltage input
UA-		
UB+	Route B voltage input	Line B DC voltage input
UB-		
Input A	A way Hall power supply input	±12V or ±15V switching power supply input
Output A	A way Hall power supply output	±12V or ±15V power output connected to Hall sensor
Input B	B way Hall power supply input	±12V or ±15V switching power supply input
Output B	B way Hall power supply output	±12V or ±15V power output connected to Hall sensor
A1-A15	A channel current input (24 channels)	A way outgoing DC current input (15 channels Hall sensor)
B1-B15	B channel current input (24 channels)	B way outgoing DC current input (15 channels Hall sensor)
UA1-UA15	A channel voltage input	A channel switch input (15 channels)
UNA		
UB1-UB15	B channel voltage input	B channel switch input (15 channels)
UNB		

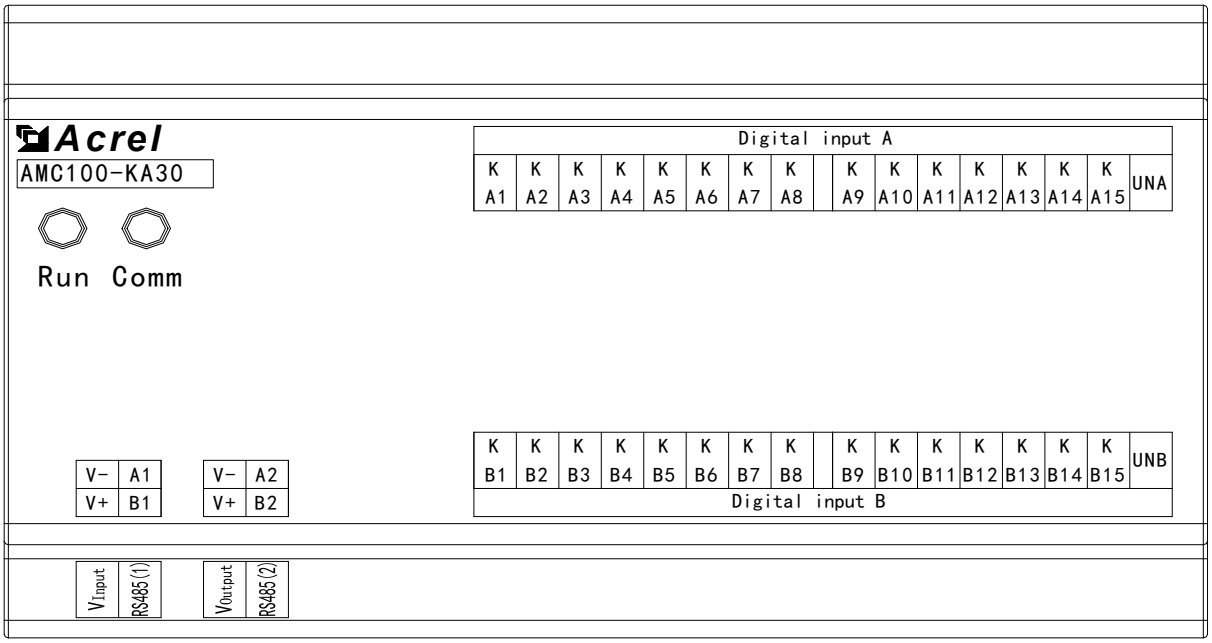
AMC100-FDK48



Definition	State	Remark
V+	辅助电源 Auxiliary supply	Powered by AMC100-ZD Or powered by DC12-24V power supply
V-		
A1	RS485（1）	Connect the pre-module
B1		
A2	RS485（2）	Connect the subsequent sub-module
B2		
UA+	Route A voltage input	Line A DC voltage input
UA-		
UB+	Route B voltage input	Line B DC voltage input
UB-		
Input A	A way Hall power supply input	±12V or ±15V switching power supply input
Output A	A way Hall power supply output	±12V or ±15V power output connected to Hall sensor
Input B	B way Hall power supply input	±12V or ±15V switching power supply input
Output B	B way Hall power supply output	±12V or ±15V power output connected to Hall sensor
A1-A24	A channel current input	A way outgoing DC current input (24 channels)
B1-B24	B channel current input	B way outgoing DC current input (24 channels)
UA1-UA24	A channel voltage input	A channel switch input (24 channels)
UNA		
UB1-UB24	B channel voltage input	B channel switch input (24 channels)
UNB		

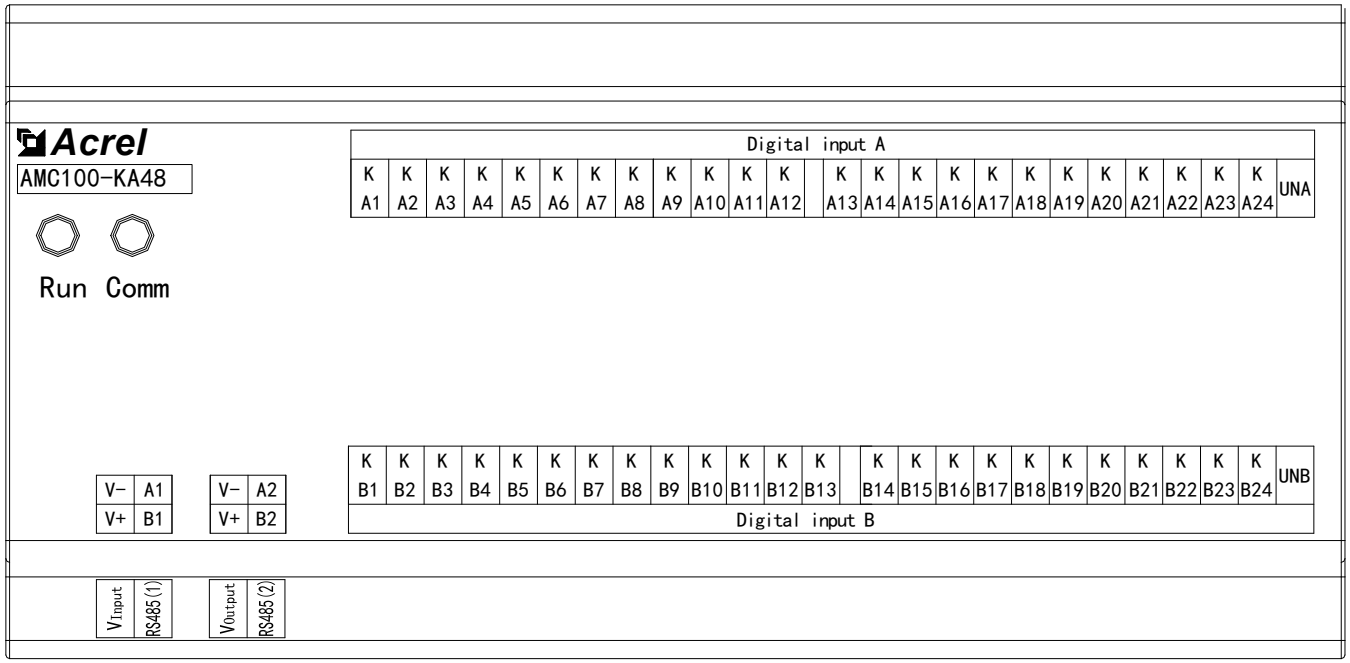
5.4 AMC100-KA30/KA48

AMC100-KA30



Definition	State	Remark
V+	Auxiliary supply	Powered by AMC100-ZD Or powered by DC12-24V power supply
V-		
A1	RS485（1）	Connect the pre-module
B1		
A2	RS485（2）	Connect the subsequent sub-module
B2		
KA1-KA15	A channel switch input	A channel active switch input (15 channels)
UNA		
KB1-KB15	B channel switch input	B channel active switch input (15 channels)
UNB		

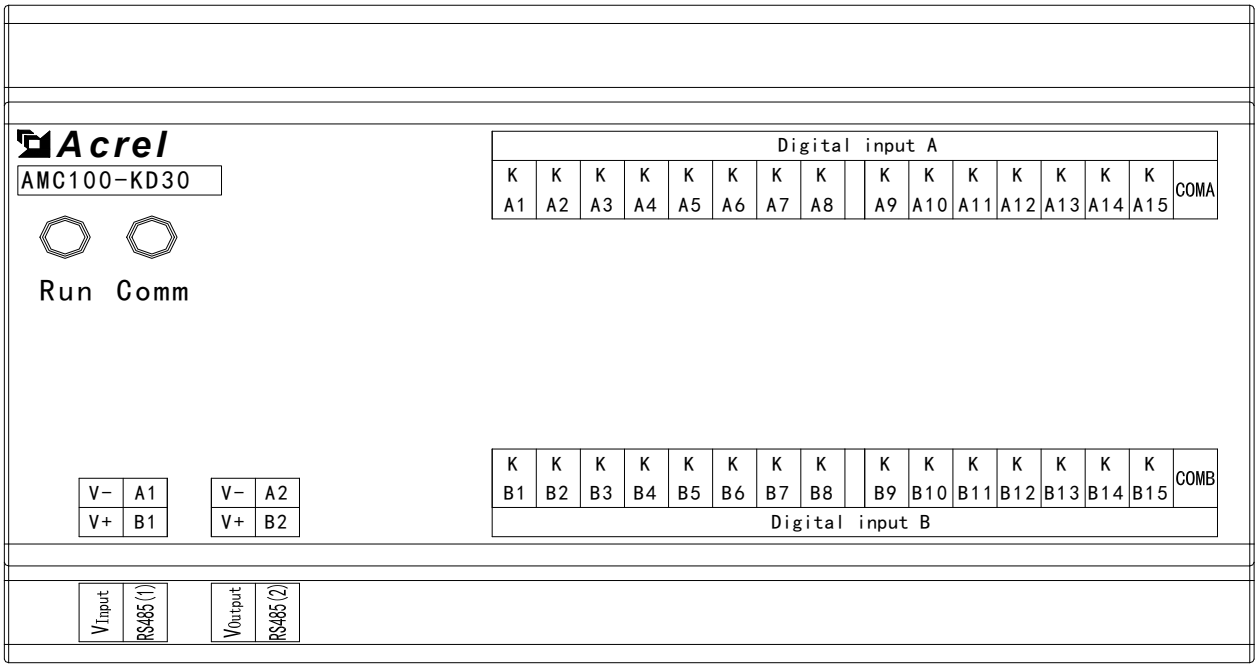
AMC100-KA48



Definition	State	Remark
V+	Auxiliary supply	Powered by AMC100-ZD Or powered by DC12-24V power supply
V-		
A1	RS485（1）	Connect the pre-module
B1		
A2	RS485（2）	Connect the subsequent sub-module
B2		
KA1-KA24	A channel switch input	A channel active switch input (24 channels)
UNA		
KB1-KB24	B channel switch input	B channel active switch input (24 channels)
UNB		

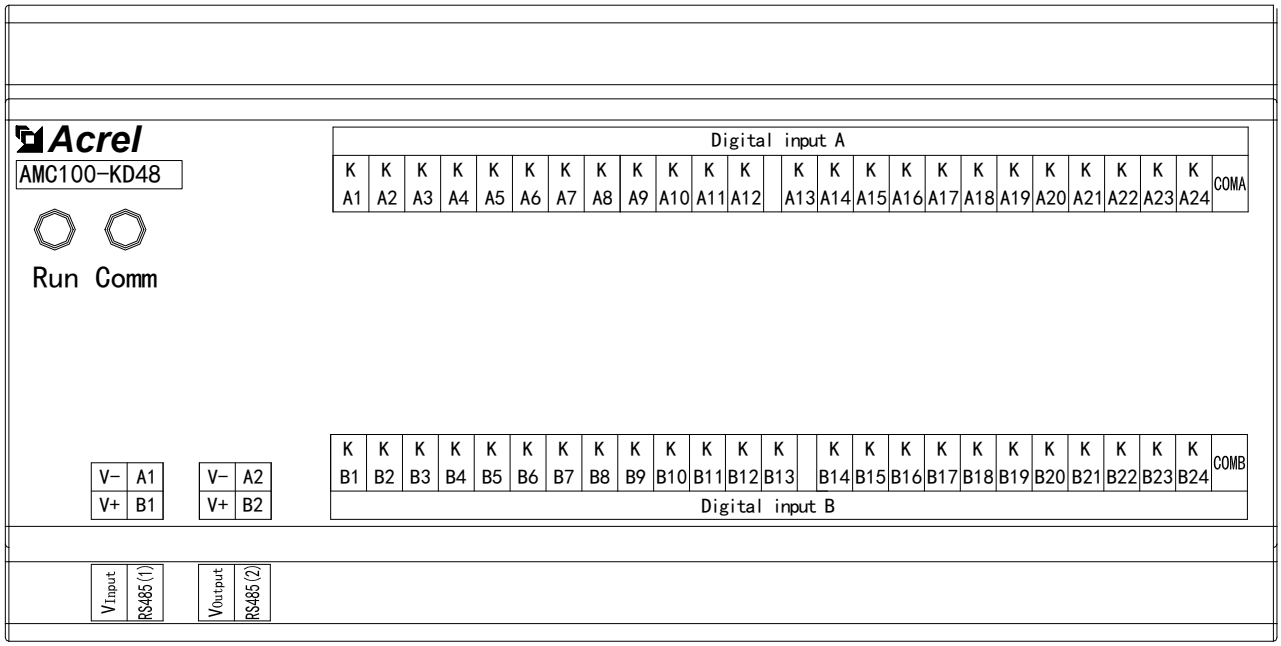
5.5 AMC100-KD30/KD48

AMC100-KD30



Definition	State	Remark
V+	Auxiliary supply	Powered by AMC100-ZD Or powered by DC12-24V power supply
V-		
A1	RS485（1）	Connect the pre-module
B1		
A2	RS485（2）	Connect the subsequent sub-module
B2		
KA1-KA15	A channel switch input	A passive switch input (15 channels)
COMA		
KB1-KB15	B channel switch input	B passive switch input (15 channels)
COMB		

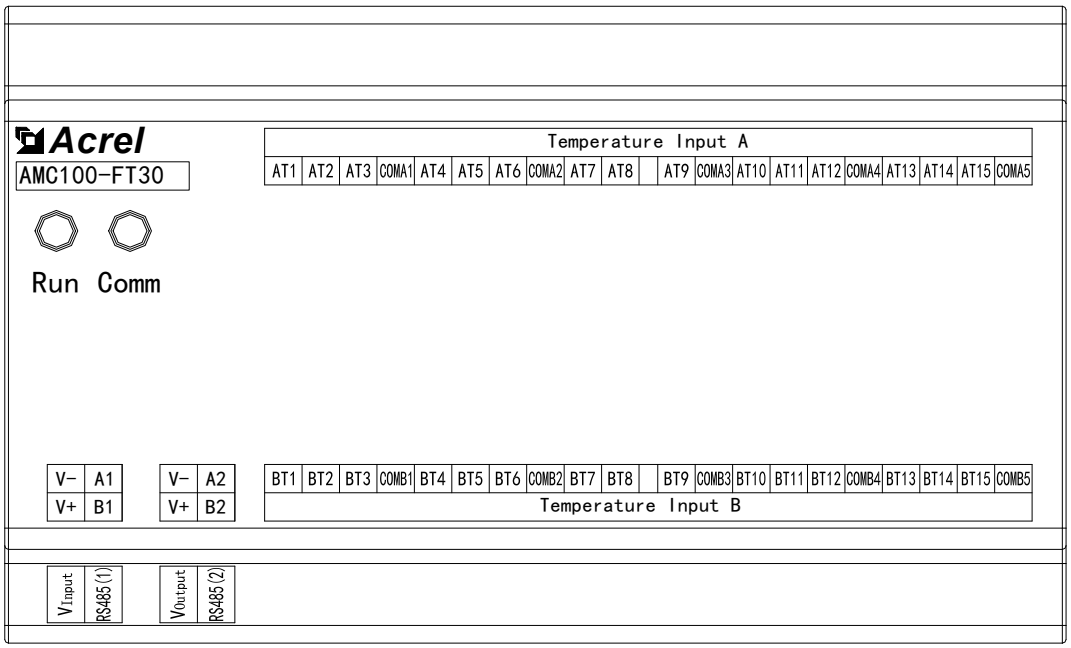
AMC100-KD48



Definition	State	Remark
V+	Auxiliary supply	Powered by AMC100-ZD Or powered by DC12-24V power supply
V-		
A1	RS485（1）	Connect the pre-module
B1		
A2	RS485（2）	Connect the subsequent sub-module
B2		
KA1-KA24	A channel switch input	A passive switch input (24 channels)
COMA		
KB1-KB24	B channel switch input	B passive switch input (24 channels)
COMB		

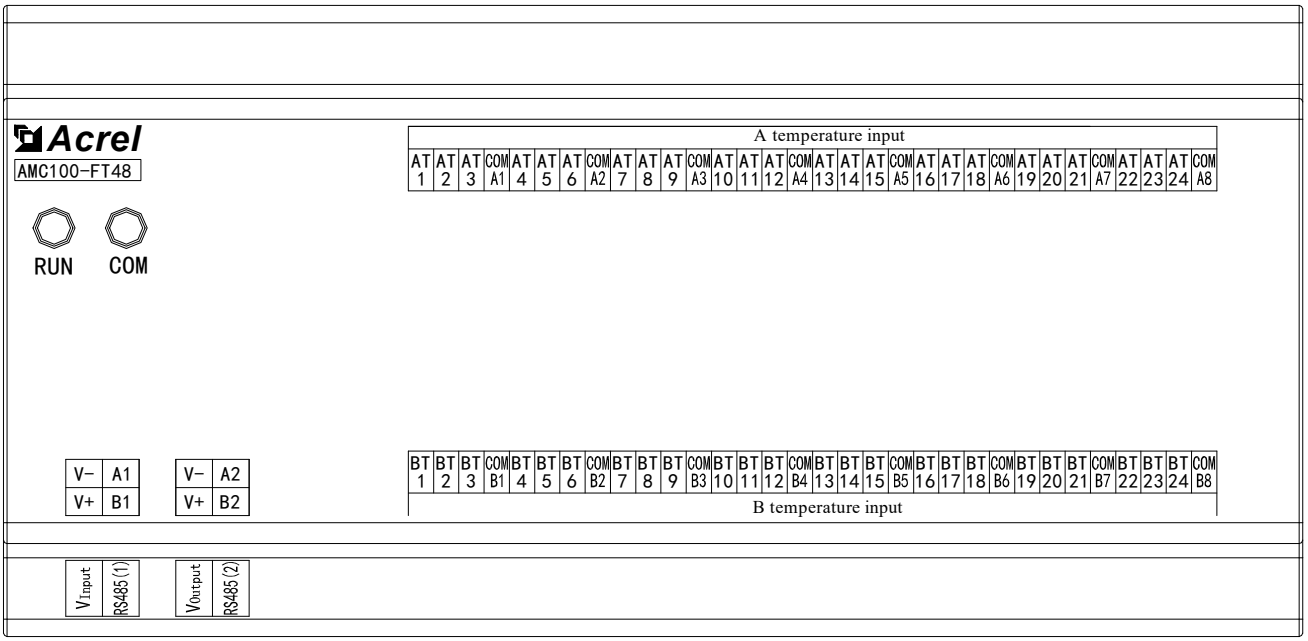
5.6 AMC100-FT30/FT48

AMC100-FT30



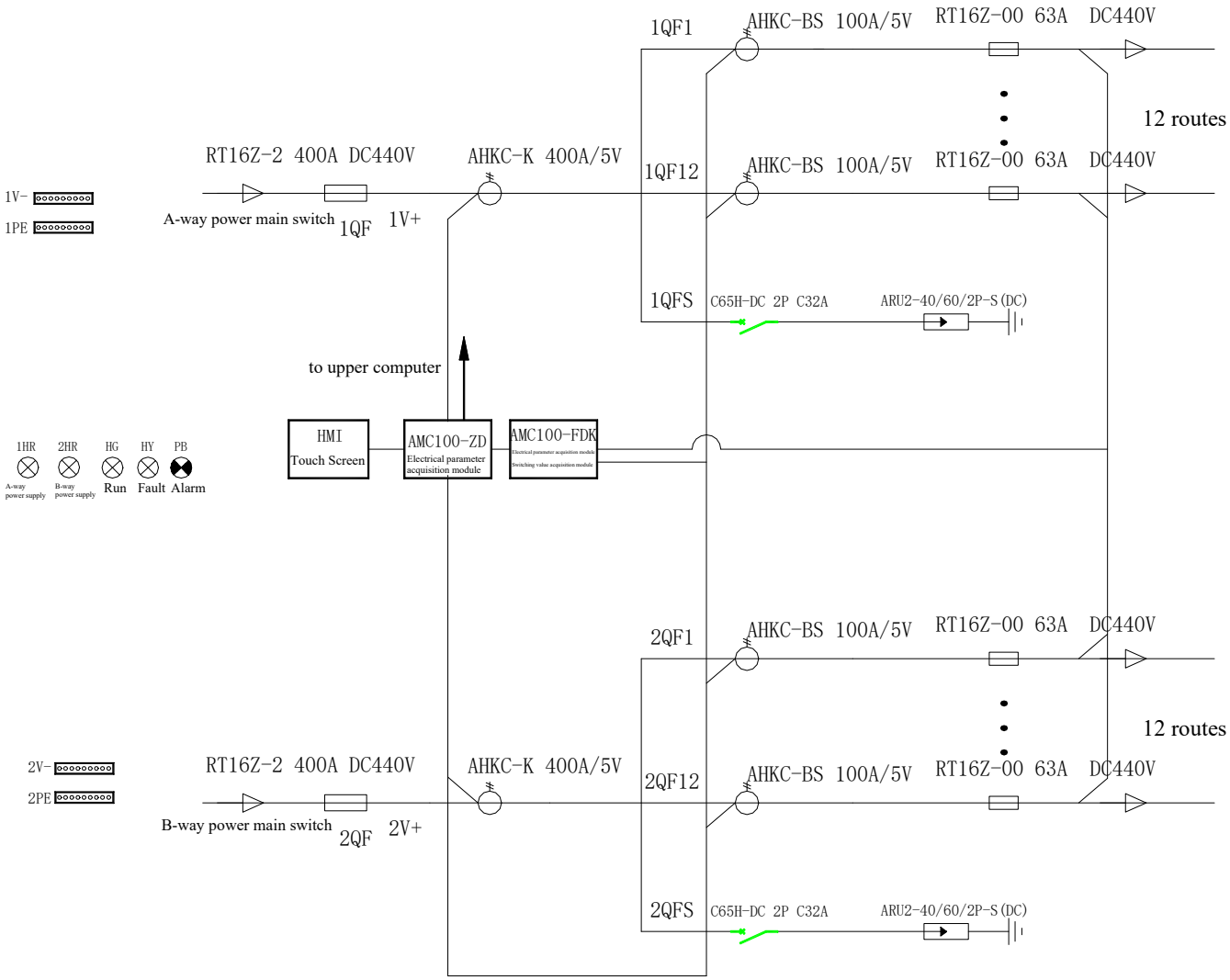
Definition	State	Remark
V+	Auxiliary supply	Powered by AMC100-ZD Or powered by DC12-24V power supply
V-		
A1	RS485（1）	Connect the pre-module
B1		
A2	RS485（2）	Connect the subsequent sub-module
B2		
AT1-AT15	A channel temperature input	A temperature input(15 channels)
BT1-BT15	B channel temperature input	A temperature input(15 channels)

AMC100-FT48

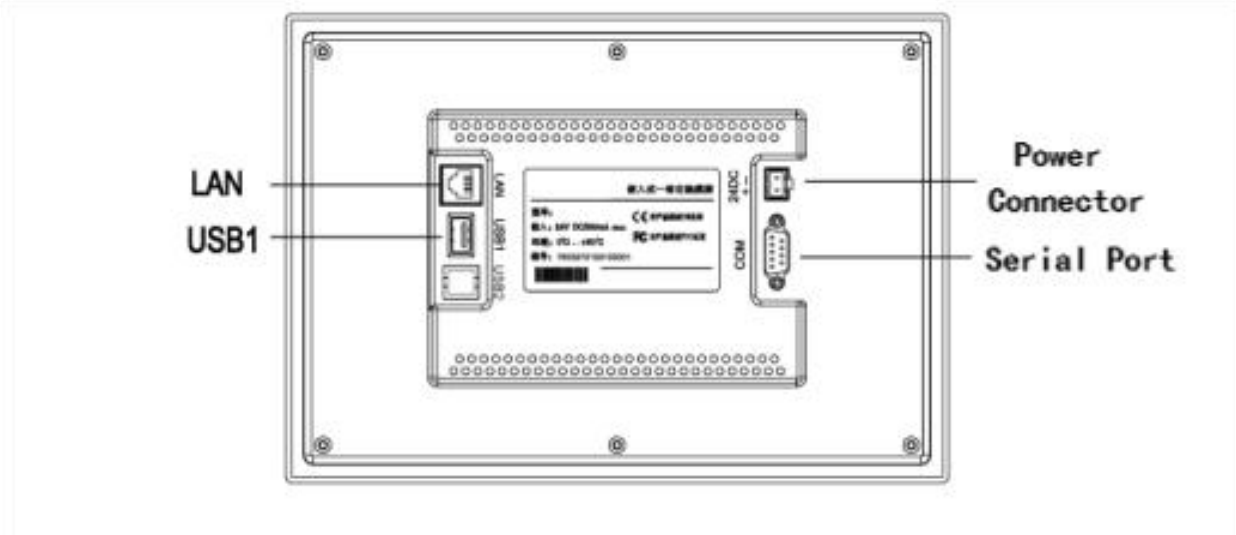


Definition	State	Remark
V+	Auxiliary supply	Powered by AMC100-ZD Or powered by DC12-24V power supply
V-		
A1	RS485（1）	Connect the pre-module
B1		
A2	RS485（2）	Connect the subsequent sub-module
B2		
AT1-AT24	A channel temperature input	A temperature input(24 channels)
BT1-BT24	B channel temperature input	A temperature input(24 channels)

5.7 Typical primary wiring diagram



6 Touch Screen



Serial Port (DB9)	2×RS485
USB1	Primary port, compatible with USB 2.0 standard
LAN (RJ45)	Ethernet interface
Power Connector	24V DC ±20%

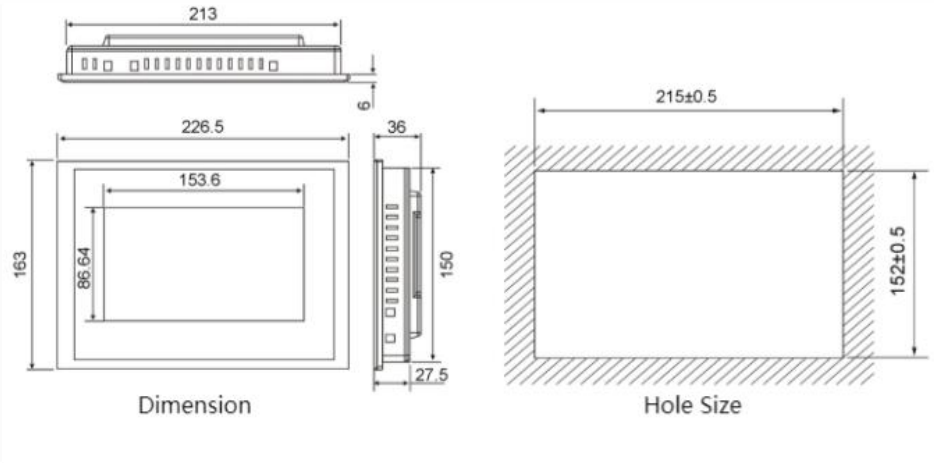
Serial Port (DB9) Pin Definitions

Serial Port Pin Definitions

PORT	PIN	Definition
COM1	2	RS232 RXD
	3	RS232 TXD
	5	GND
COM2	7	RS485 +
	8	RS485 —
COM3	4	RS485 +
	9	RS485 —

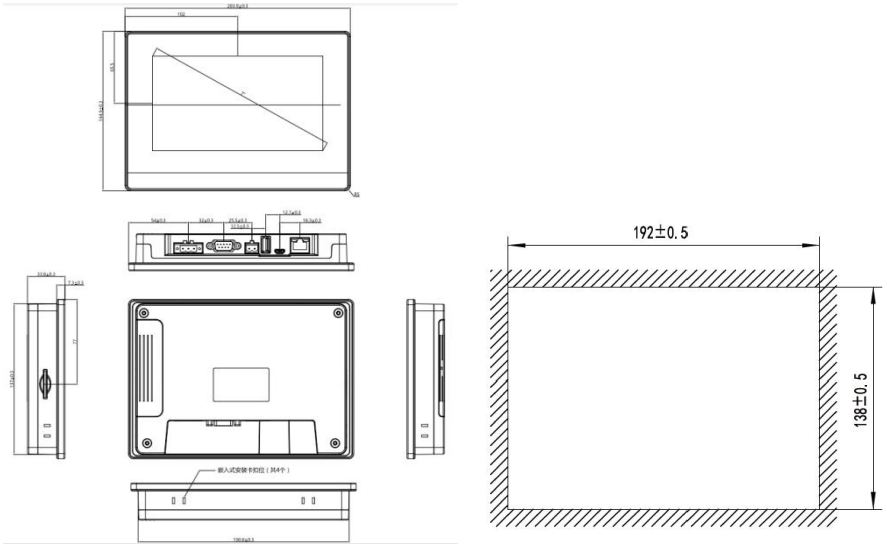
6.1 Form and mounting

7-inch touch panel form factor and mounting



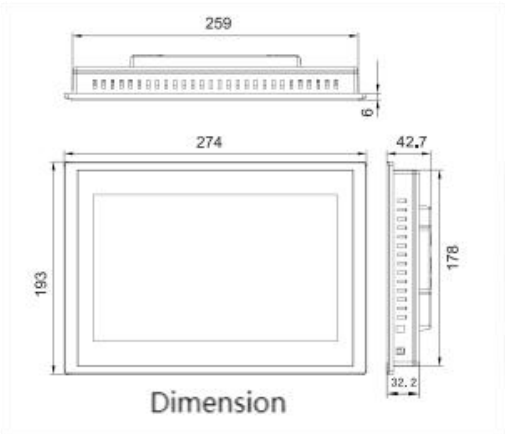
Dimension Hole Size

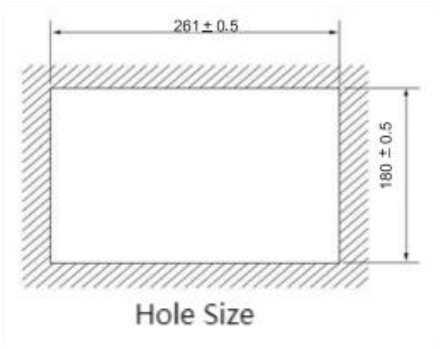
7-inch touch panel form factor and mounting

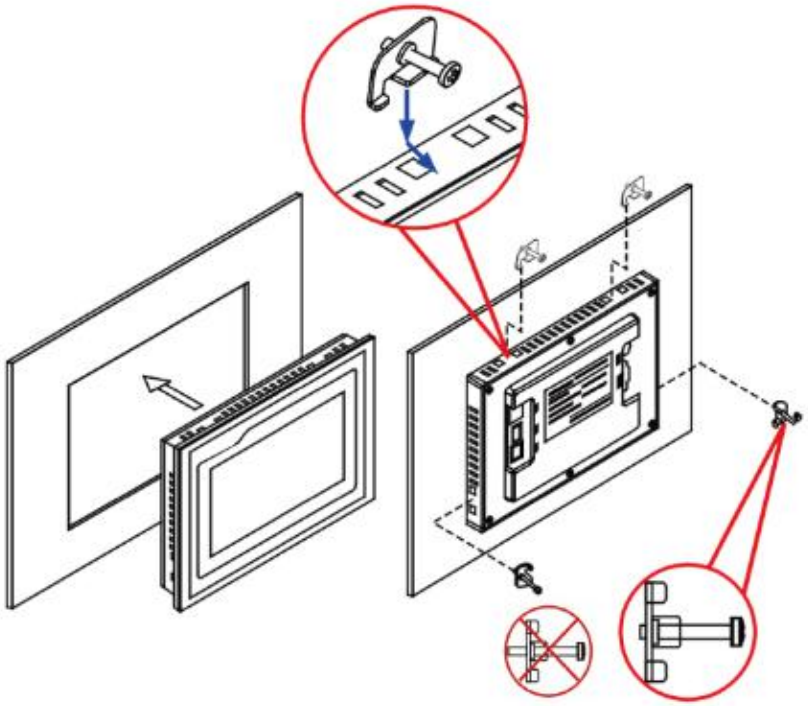


Overall Dimensions Hole Size

10-inch touch panel form factor and mounting (ATP010KT)





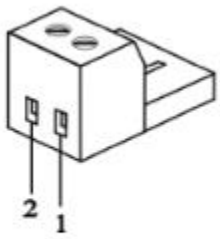


6.2 Wiring

Power wiring

Step1:Strip the 24V power cord and insert it into the wiring terminal of the power plug.
Step2:Use a flat screwdriver to lock the power plug screw tightly.
Step3:Insert the power plug into the product's power outlet.
Tip:Use a power cord with a diameter of 1.25mm^2 (AWG18).

The schematic diagram and pin definition of the power plug are as follows

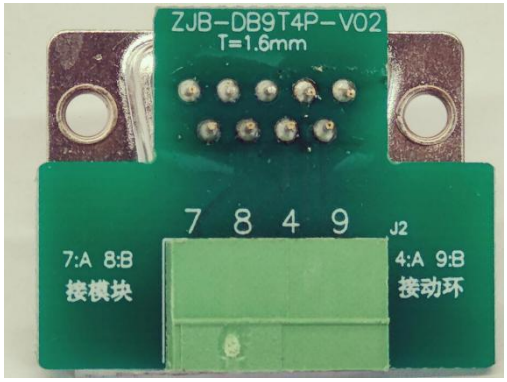


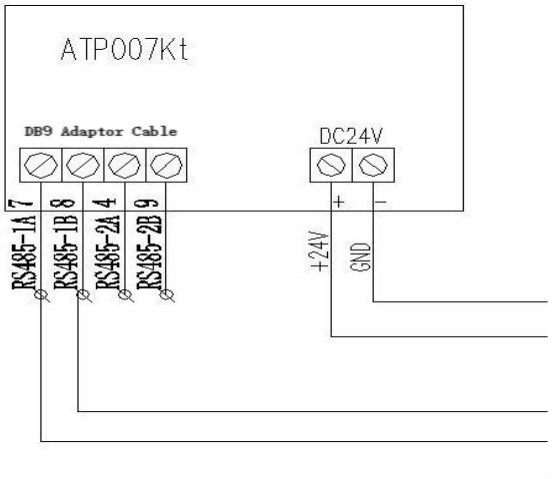
PIN	Definition
1	+
2	–

Only 24VDC,recommended for independent power supply,with an output power of 15W.

Communication line

The factory configuration has a green adapter board, which (7-8) is downstream (7 to 485A; 8 to 485B), and the module's 485 connected, green and white (4-9) upstream (4 to 485A; 9 to 485B), to rotate the ring.





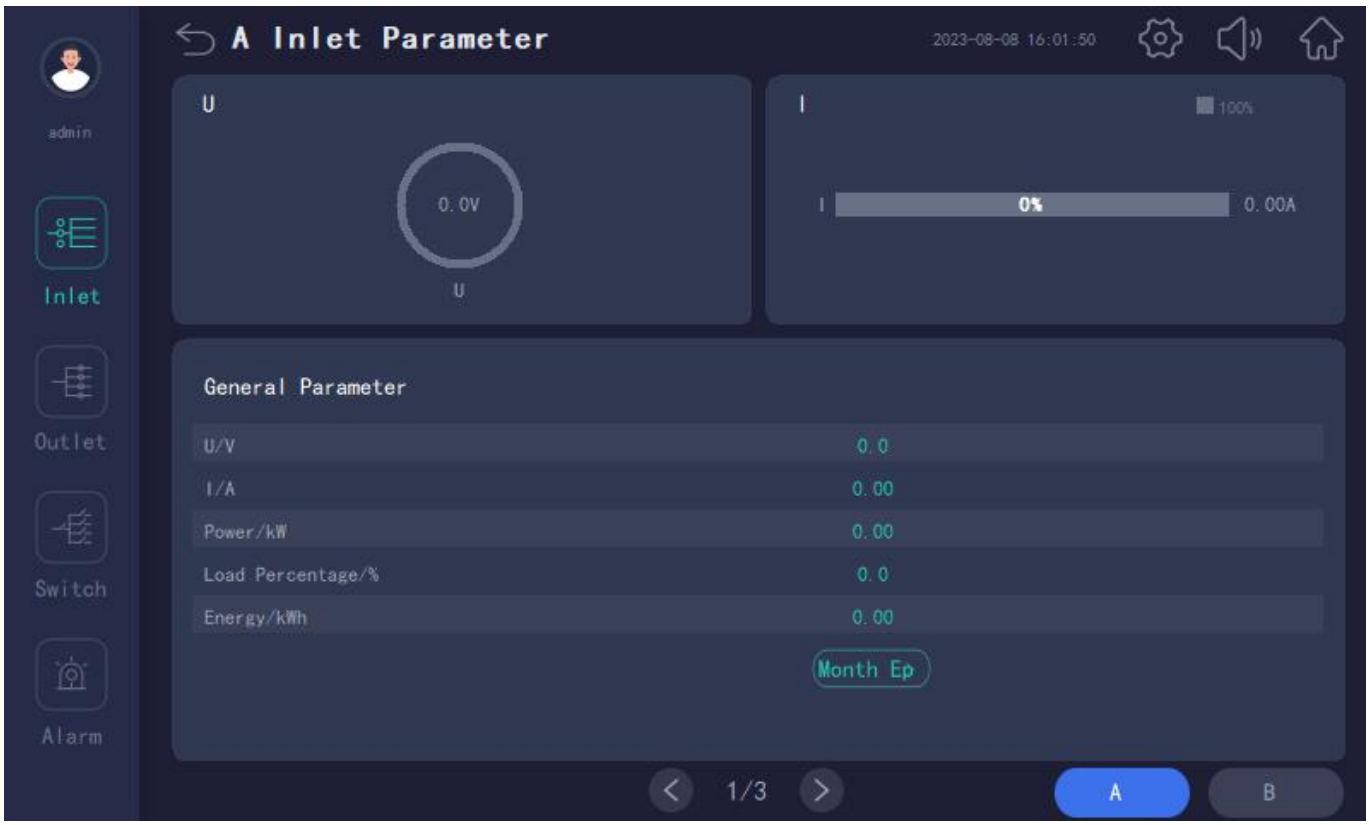
Note: The following describes System Interface 1 and Interface 2, which is an upgraded version of Interface 1, effective September 2022.

7 Details of parameters,functions,and operations

As shown in the picture, the first interface after the touch screen turned on is the home page,the home page is unique.And all functions can be accessed by finding the corresponding buttons on the home page.The parameters in the homepage are taken from the first incoming line.

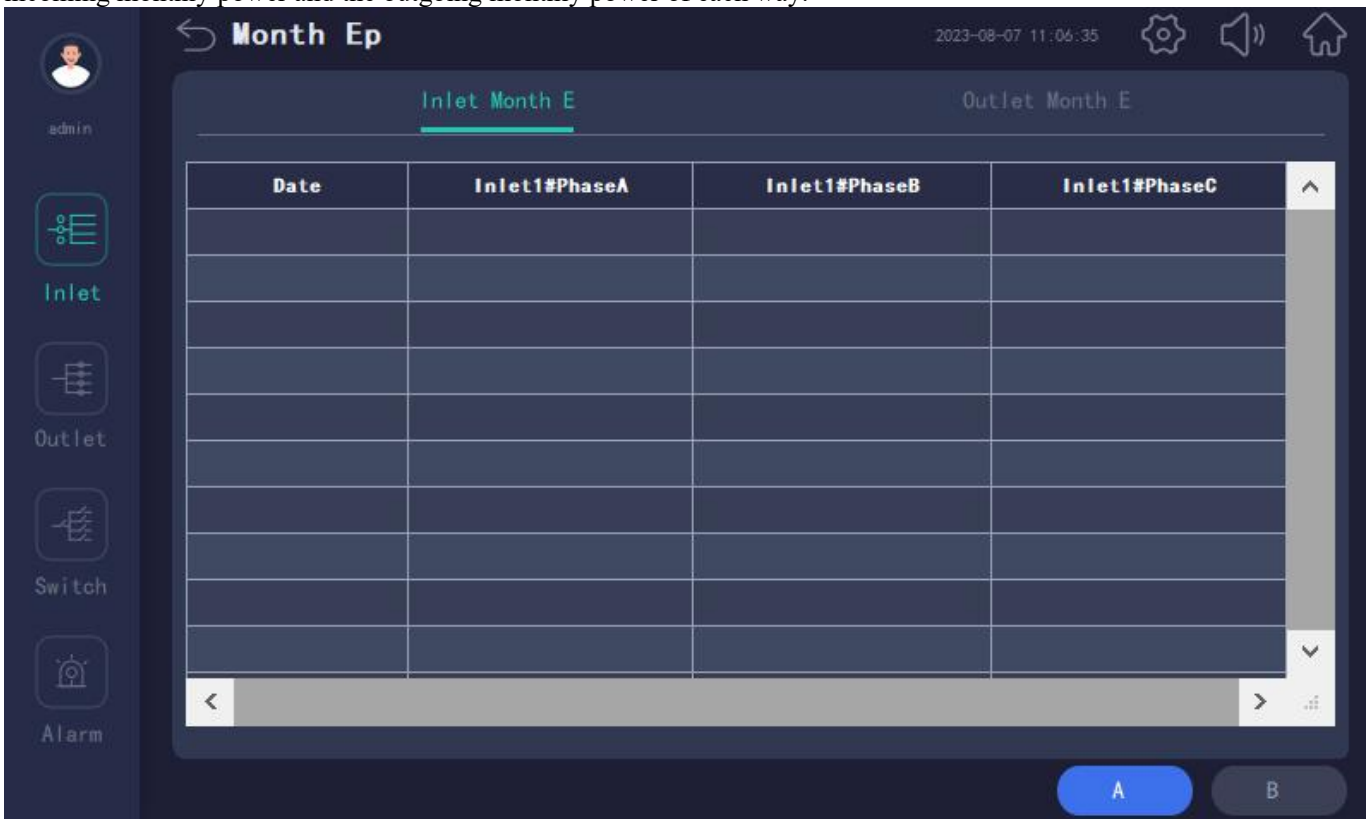
7.1 Feeder parameters

Click on "Feeder Parameters" on the homepage to view the feeder/main circuit parameters. The main parameters are shown below:

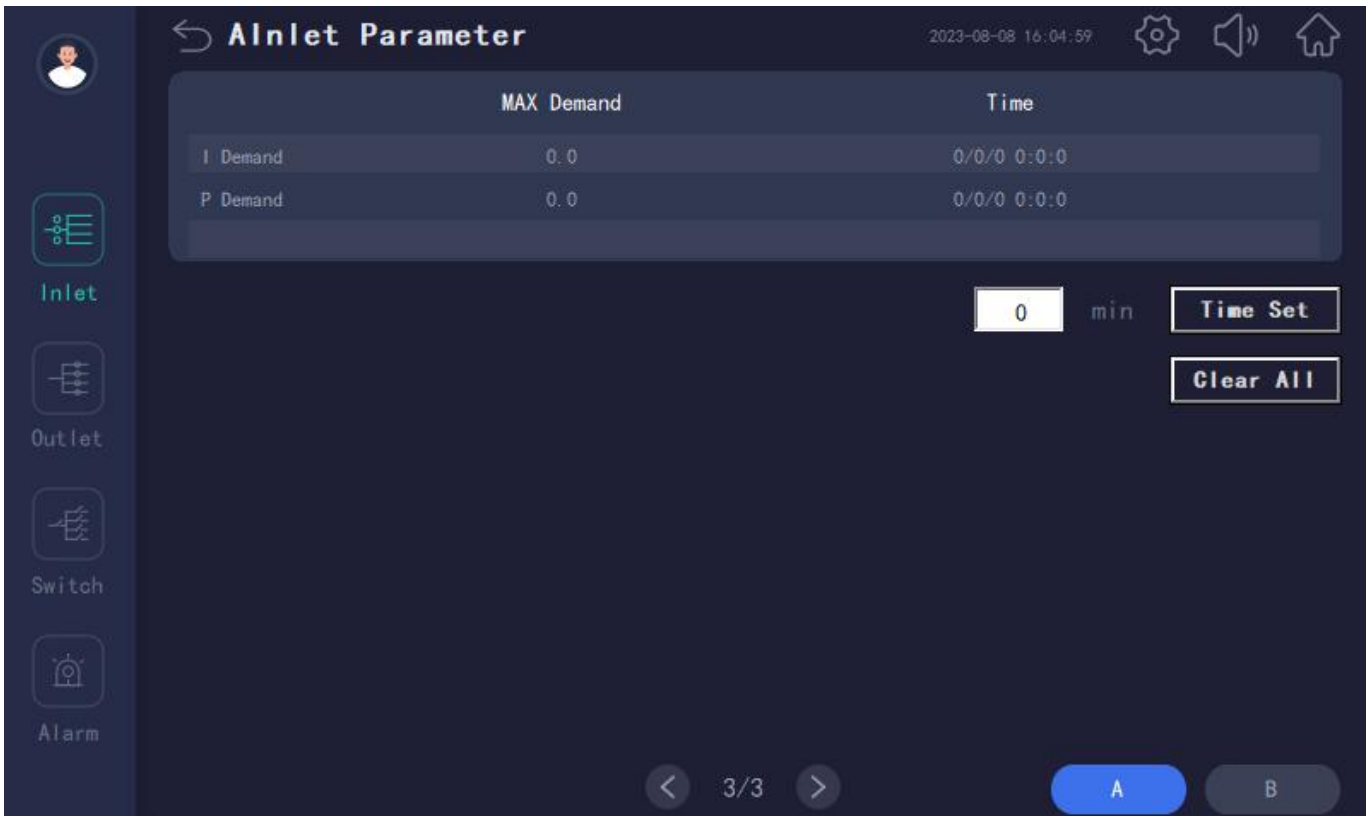


The main parameters are voltage, current, power, electrical energy, and load percentage.

Monthly power is the accumulated power consumption of each month, and the monthly power data is recorded once at the beginning of each month and displayed in the table. Click the switching button below to switch to view the incoming monthly power and the outgoing monthly power of each way.



Click on the upper left corner to return to the Feed Line Parameters screen.
You can click the page button below to view more parameters.
The parameters on the second page include cabinet temperature and cabinet humidity

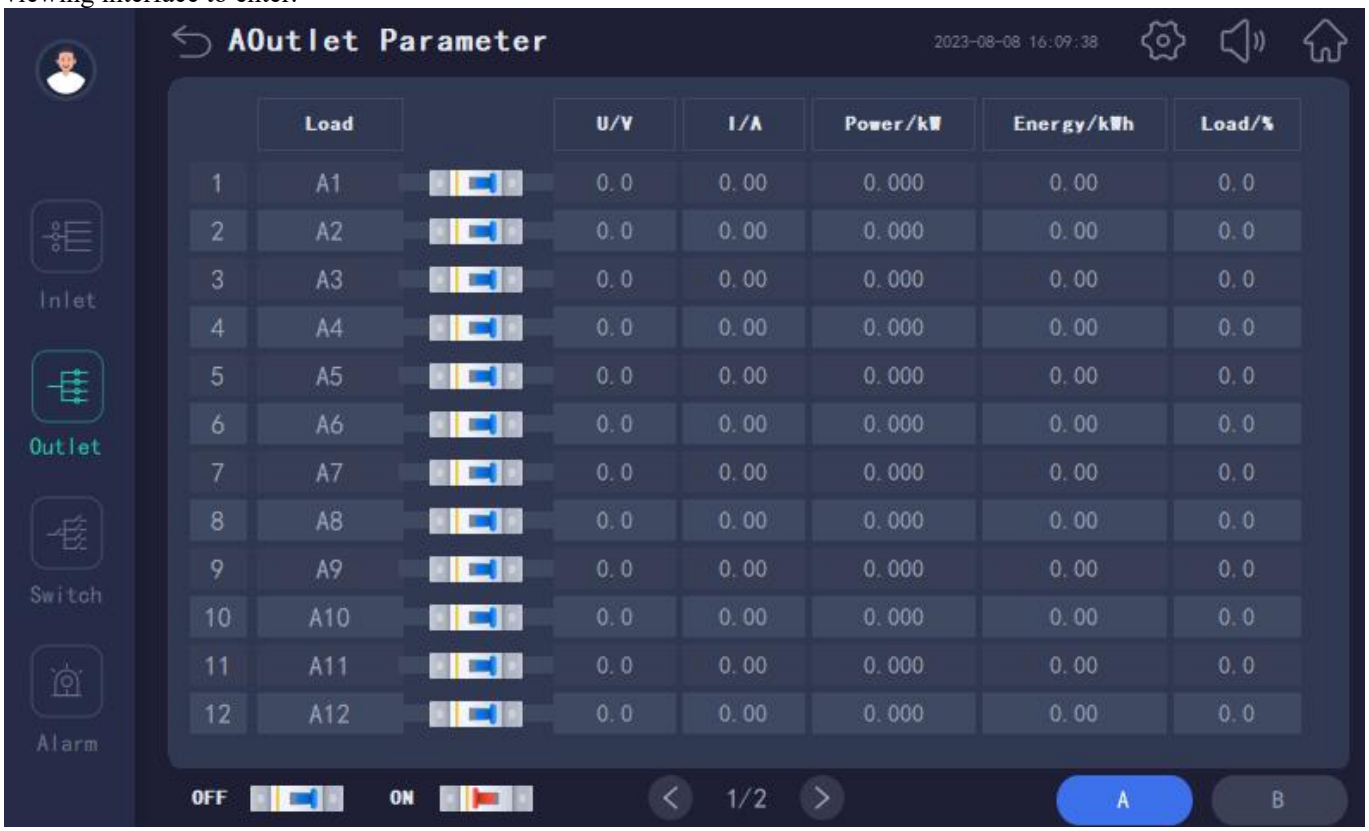


Page 3 shows the maximum demand for incoming current and power. The maximum demand is the maximum value of the average value produced by the history of the current and power of the incoming line over the set time.

Click the back button in the upper left corner to return to the home page.

7.2 Outgoing parameters

On the home page, click "Outgoing Parameters" to enter or click on the Outgoing Parameter icon in any parameter viewing interface to enter.



The main outgoing parameters are voltage, current, power, electrical energy, and load factor.

Loop names can be modified, see Modifying Loop Names below.

7.3 Switching state

Click "Switch Status" on the home page to enter or click on the Switch Status icon in any parameter viewing interface to enter.

7.3.1 Main switch state

7.3.1.1 The leftmost column defaults to the main road switch status, main road trip SD status, main road lightning protection switch status, and main road lightning protection fault point status. The default is passive detection point. Open is red and closed is green.

7.3.1.2 The switch state of the main circuit can be set and modified to active detection mode.

7.3.1.3 The name can be modified for detection of other switching points.

7.3.1.4 You can set normally open and normally closed to modify the alarm logic.

7.3.1.5 If there is no such detection requirement, it can be set to hide.

Refer to the following "Alarm Settings" for the above setting methods.

If the user finds that the switch state is inconsistent with the actual situation during actual use, it is necessary to check the active and passive selection and normally open and normally closed selection in the "alarm settings".

It should be noted that if the number of circuits exceeds 2,the default wiring method is to connect incoming wires 1 and 2 to the first AMC100-ZD,and incoming wires 3 and 4 to the second AMC100-ZD.The default display method is that incoming lines 1 and 3 are on the same interface,sharing one outgoing line,while incoming lines 2and 4 are on the same interface,sharing one outgoing line.

7.3.2 Branch circuit switching status

All to the right of the main circuit switch status are branch circuit switch statuses, with the default being active detection points. The breakout is red and the close is green.

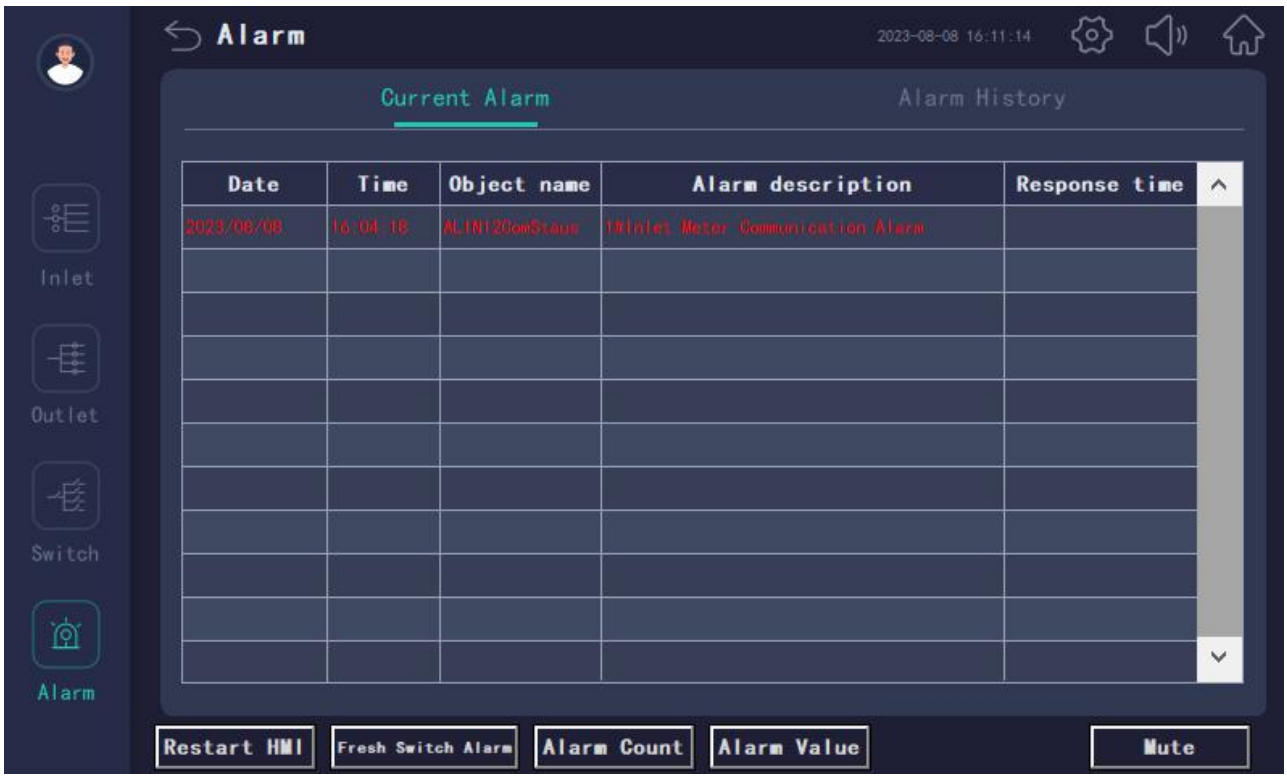
The switch name can be modified, see Modifying the circuit name below.

The passive detection method can be modified(passive detection module required). For settings, refer to "Alarm Settings" below.

7.4 Alarm queries

7.4.1 Current alarms

Click "Alarm Query" on the home page or click on the Alarm Query icon in any parameter viewing interface to enter.to view the current alarm.



When an alarm is generated, the buzzer and indicator relay outputs will be activated and the screen will beep itself. Clicking the Acknowledge Alarm button removes the beeping sound and the buzzer relay output.

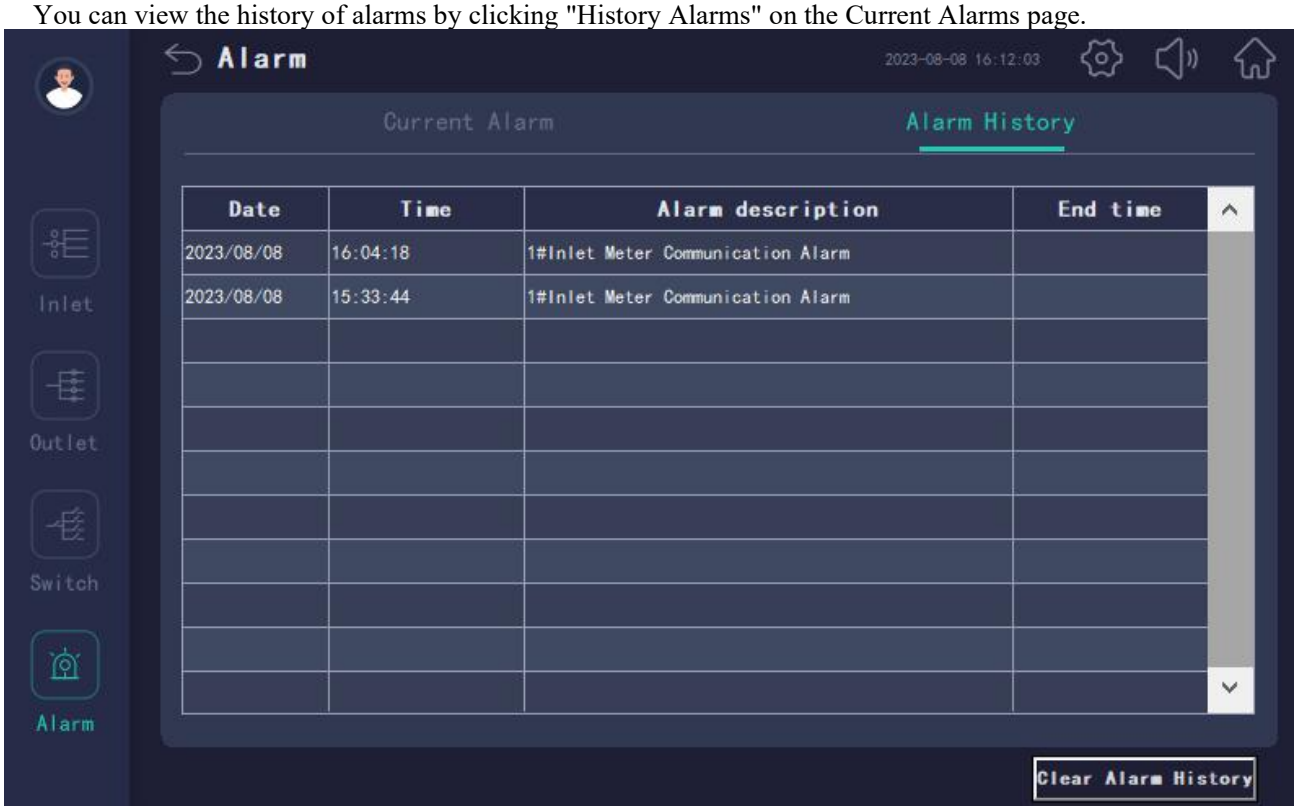
To solve the current alarm, you need to clarify the current alarm content, based on the description of the alarm, when there is a communication failure, the priority is to solve the communication failure, and then find the corresponding problem according to the description of the alarm.

When all current alarms are restored, the relay outputs of buzzer and indicator will be restored automatically.

If the current generated switch alarm cannot be restored through normal closing and needs to be eliminated in the alarm interface,you can click the refresh switch alarm button or restart the touch screen to eliminate all current switch alarms.

7.4.2 Historical alarms

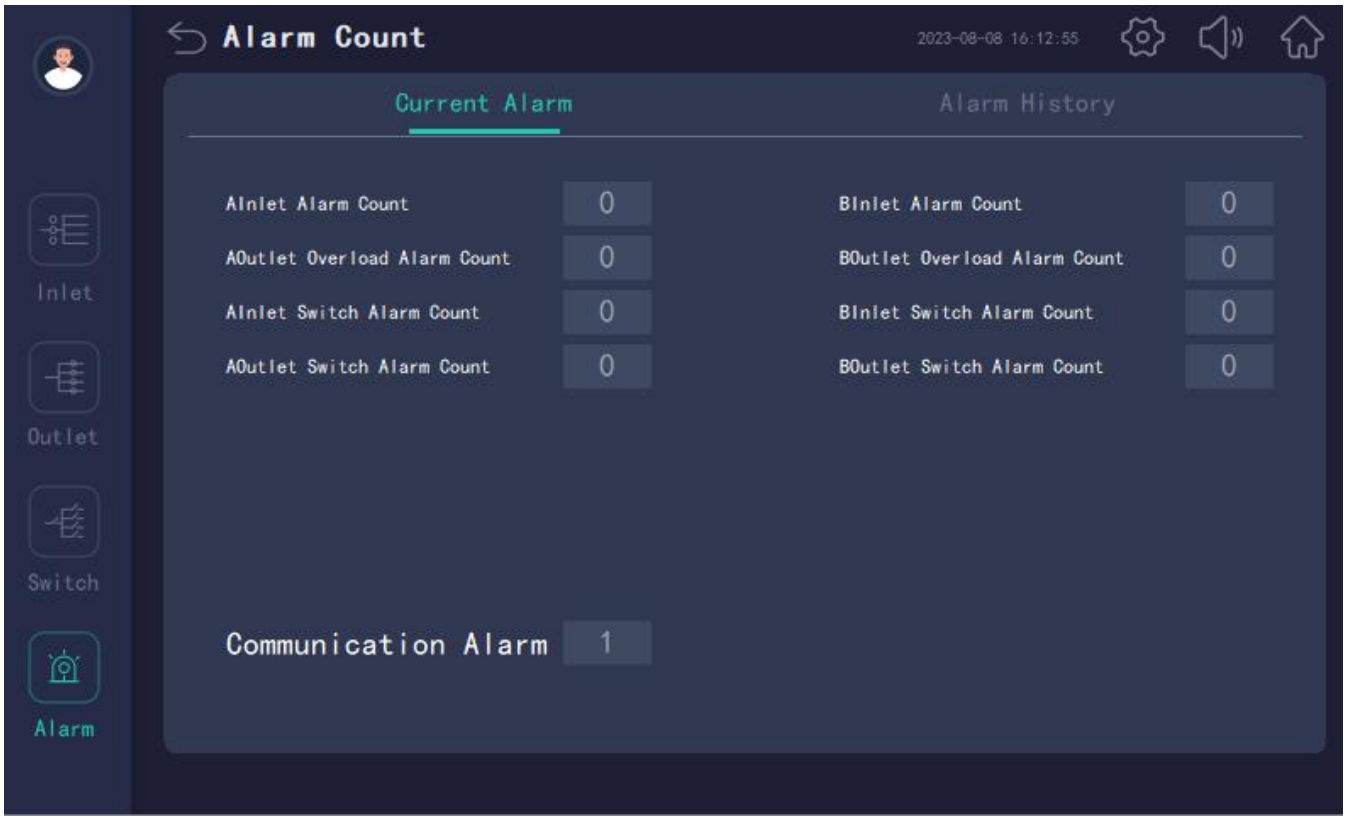
You can view the history of alarms by clicking "History Alarms" on the Current Alarms page.



The Historical Alarms screen records historical alarms, and recovered alarms are also recorded in historical alarms. Click "Clear History Alarms" to clear the history alarms, click cautiously.

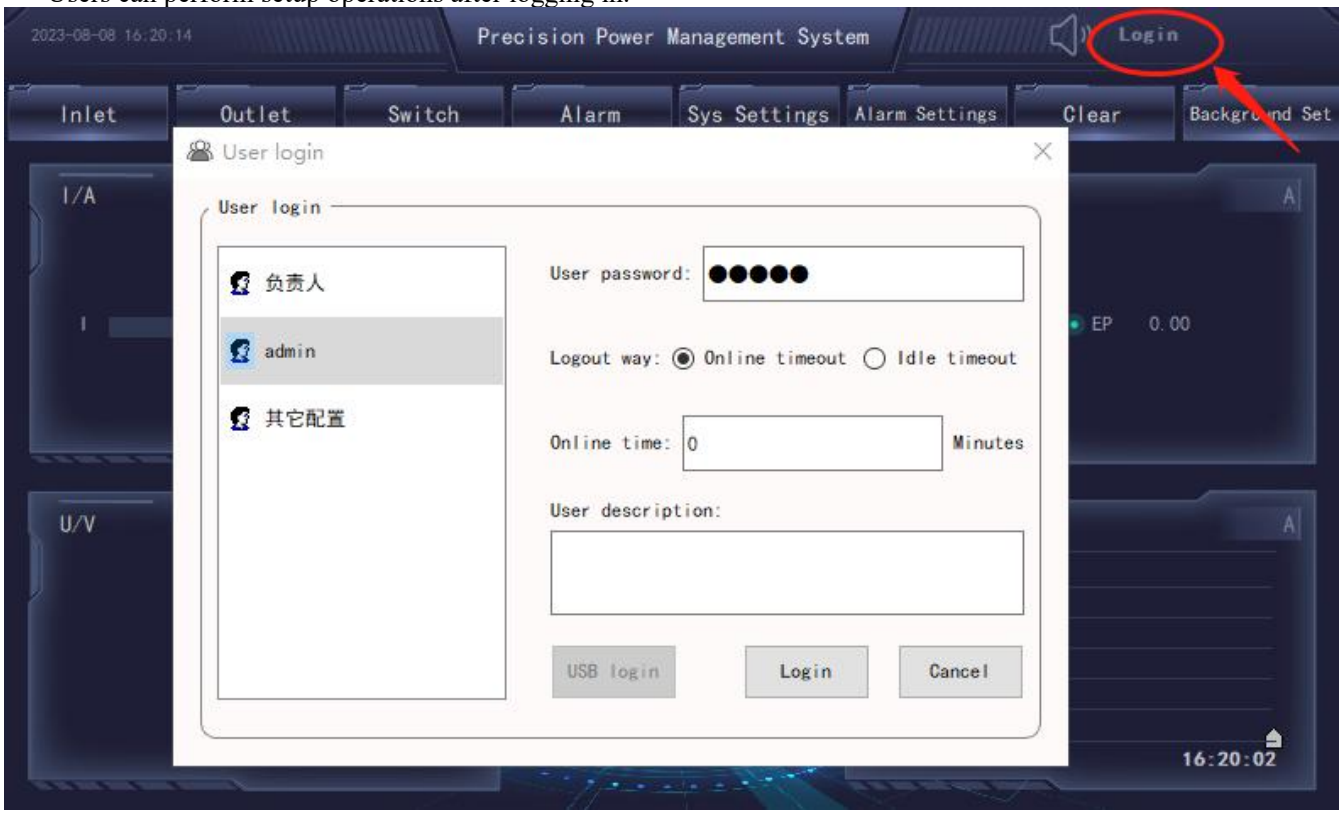
7.4.3 Alarm Count

If there is a need for alarm counting,you can click on the alarm counting button in the current alarm interface to view it.



7.5 User Login

Users can perform setup operations after logging in.

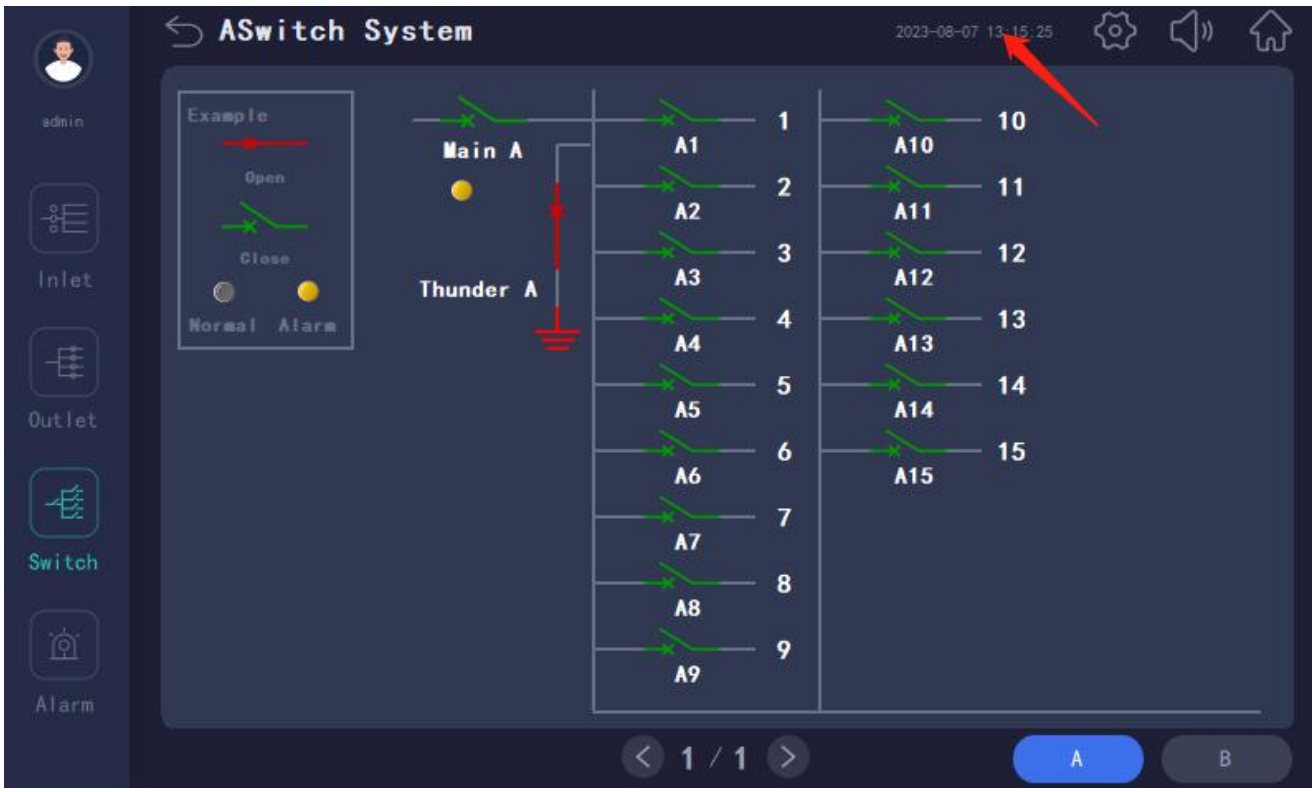


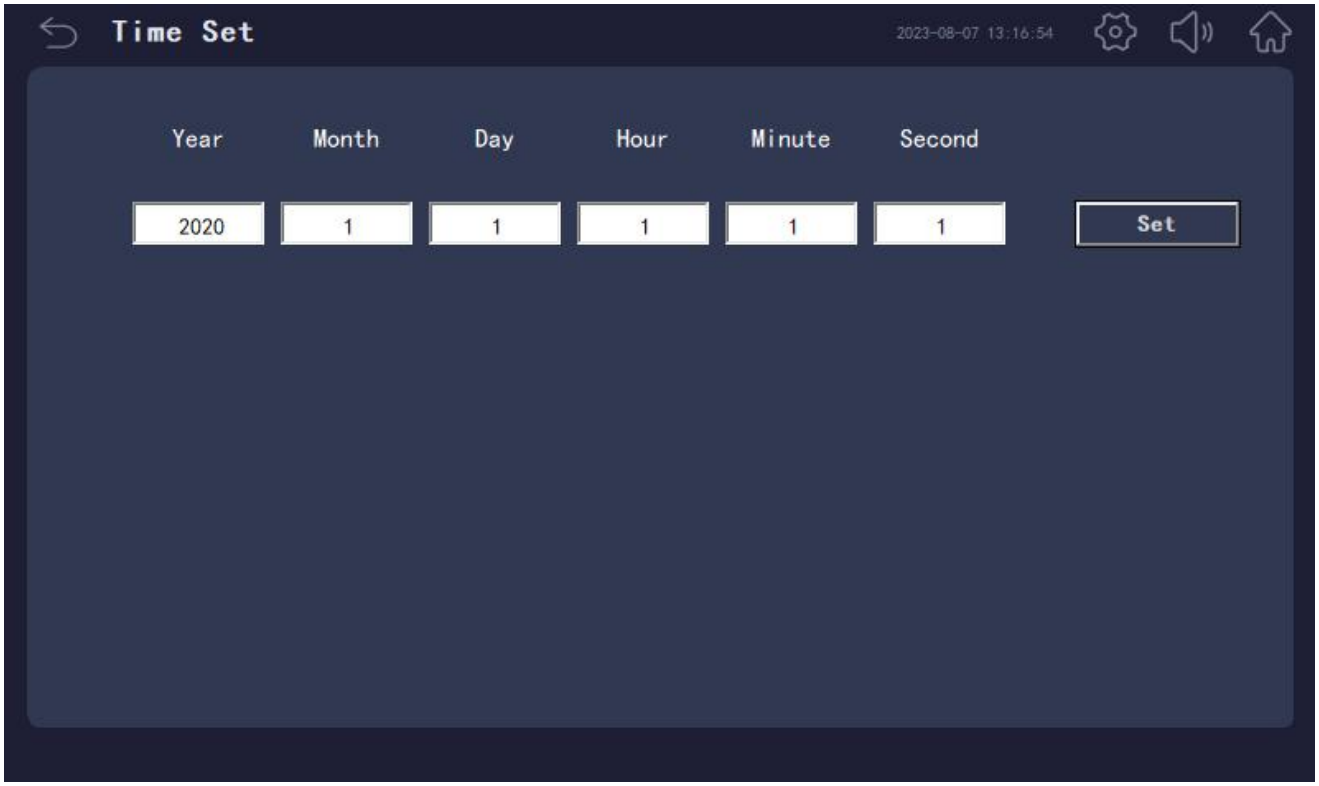
The password of the person in charge is 123

Admin password is 10000

7.6 Time settings

This refers to the time setting of the touch screen. Click on the time of any interface after logging in as a user to access the time change screen.





7.7 System Setup

Click "System Settings" on the homepage to enter the settings.

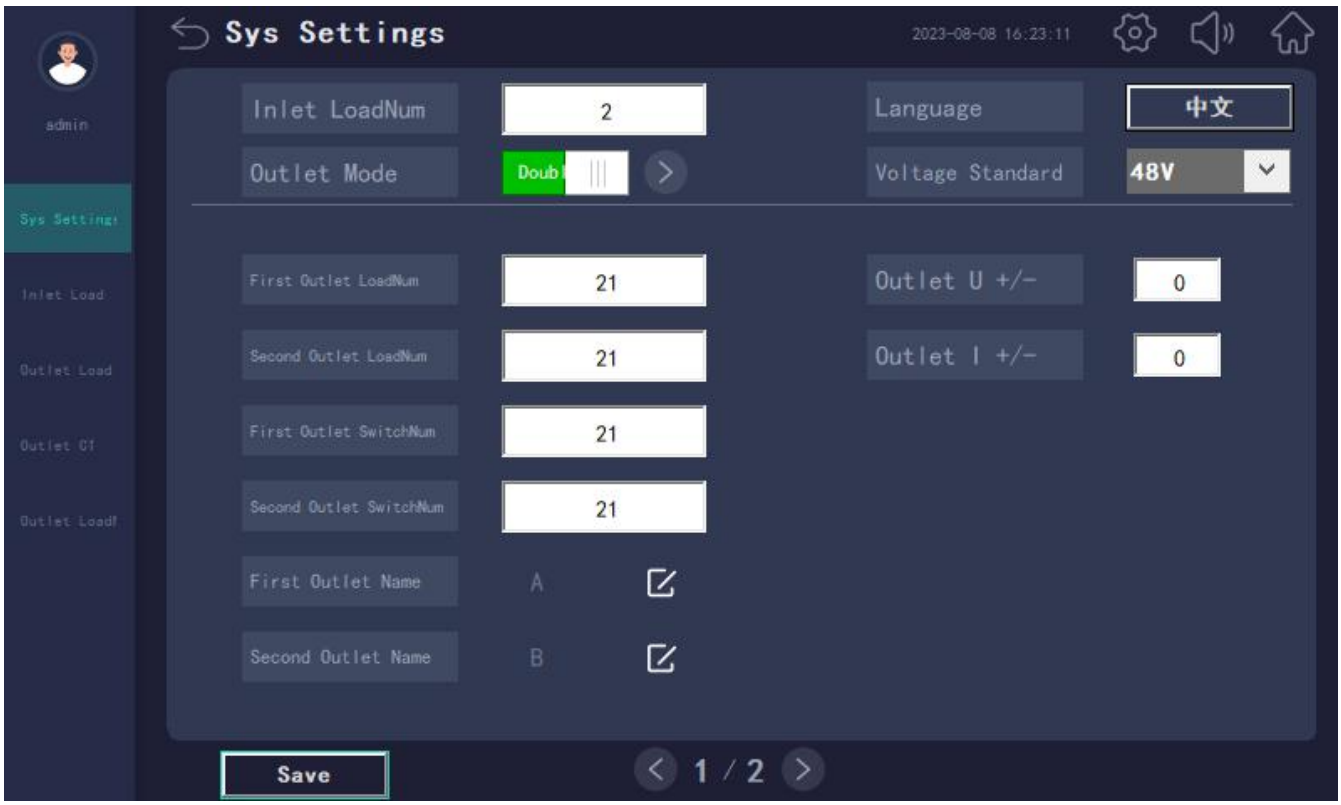
System settings are personalized for each system, i.e., they are set to match the current system depending on the number of circuits, parameters, etc. for each application scenario.

System settings include, outgoing mode, number of circuits, number of switching circuits, incoming switching load rating, incoming CT ratio, outgoing switching load rating, outgoing CT ratio, and outgoing circuit per circuit name settings.

Any changes to this section must be made by clicking the "Save Settings" button.

7.7.1 Circuit number setting

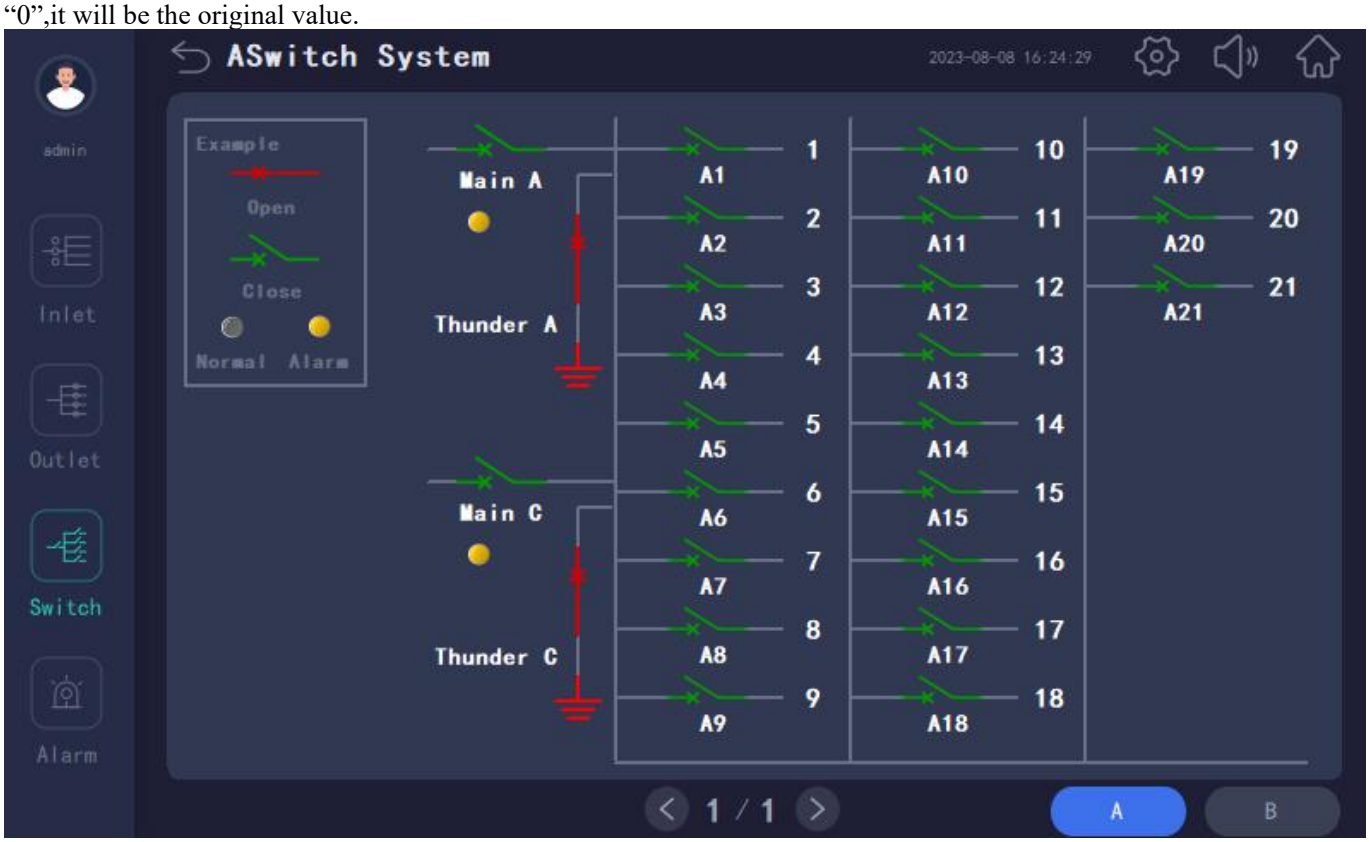
After clicking "System Settings", the first interface sets the type of inlet and outlet lines and the number of circuits.



Determine haw many incoming and outgoing lines there are based on the system drawings.It should be noted that if the system is not a one in one out or two in two out system,refer to the display pattern described in the parameter display section and switch status interface above.

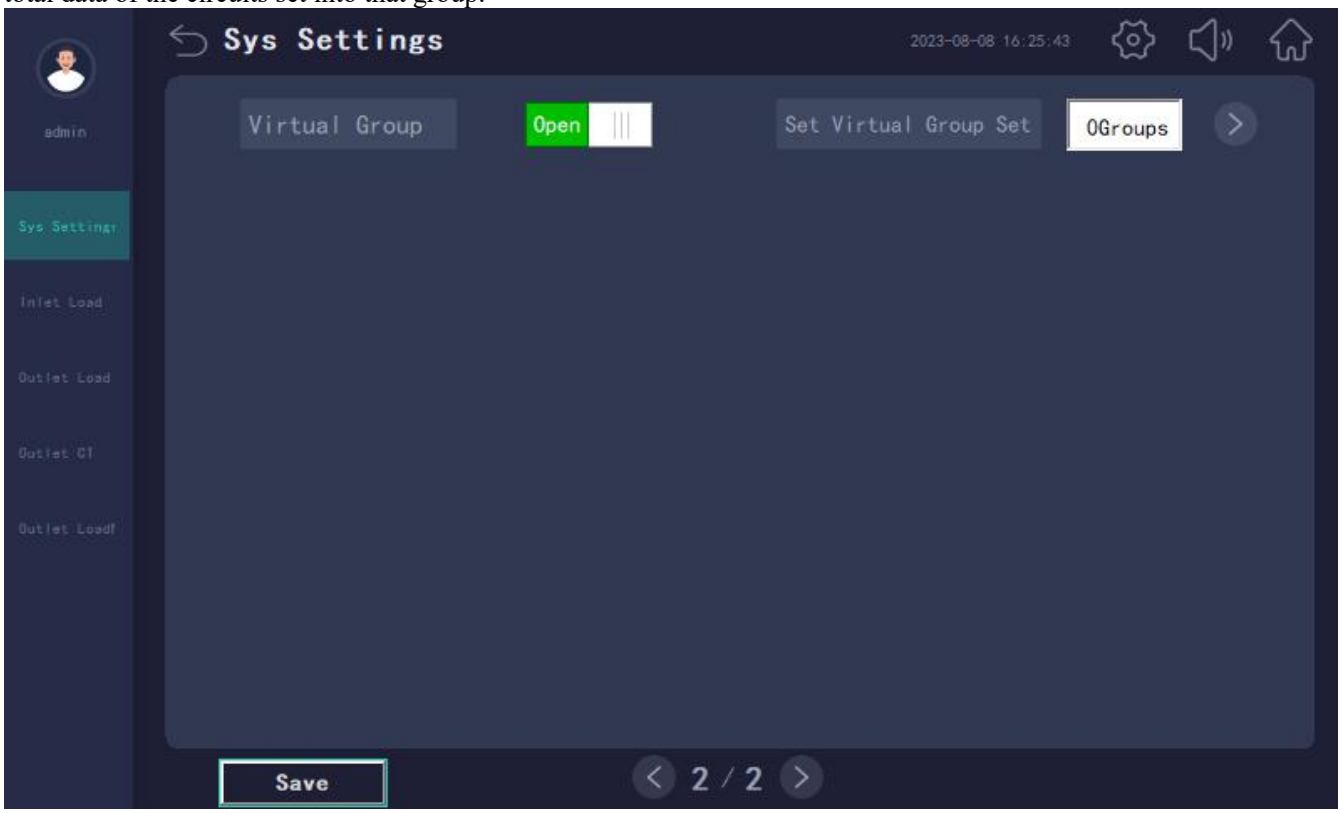
The detailed configuration of the outgoing mode requires entering a password and is not open.When the wiring is special,please contact our company to change the settings here.

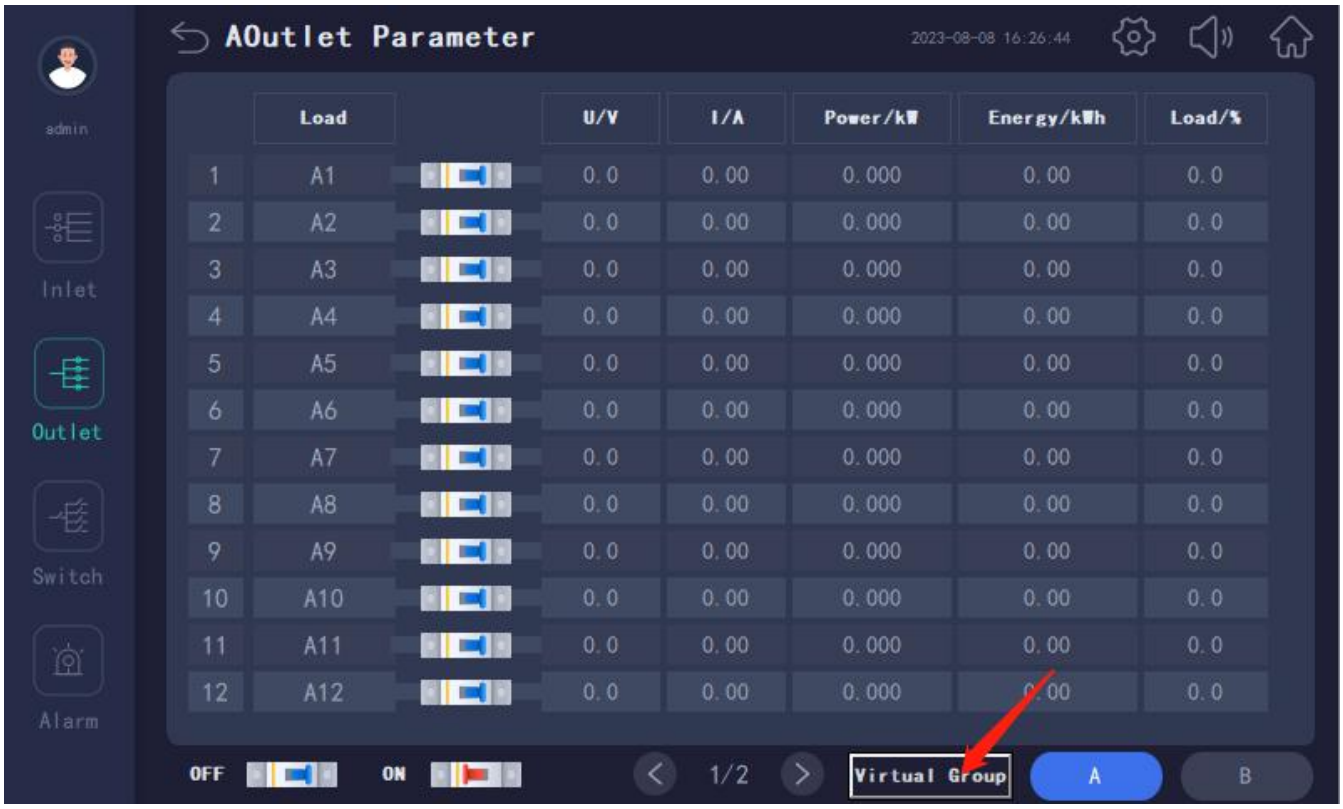
The DC system has a -48B system,an the current and voltage may be negative.You can choose to display positive or negative according to the actual application needs.Fill in the input boxes for “positive or negative outlet voltage”and “positive or negative outlet current”,and fill in “1”to display the opposite value from the original value.That is,if the original value is negative,it will display positive,and if the original value is positive,it will display negative.If you fill in “0”,it will be the original value.



Modify the number of circuits and the number of switching circuits according to the drawing and actual application. The number of outlet 1 circuits ranges from 0 to 192, the number of outlet 2 circuits ranges from 0 to 100, the number of outlet 1 switching circuits ranges from 0 to 192, and the number of outlet 2 switching circuits ranges from 0 to 100.

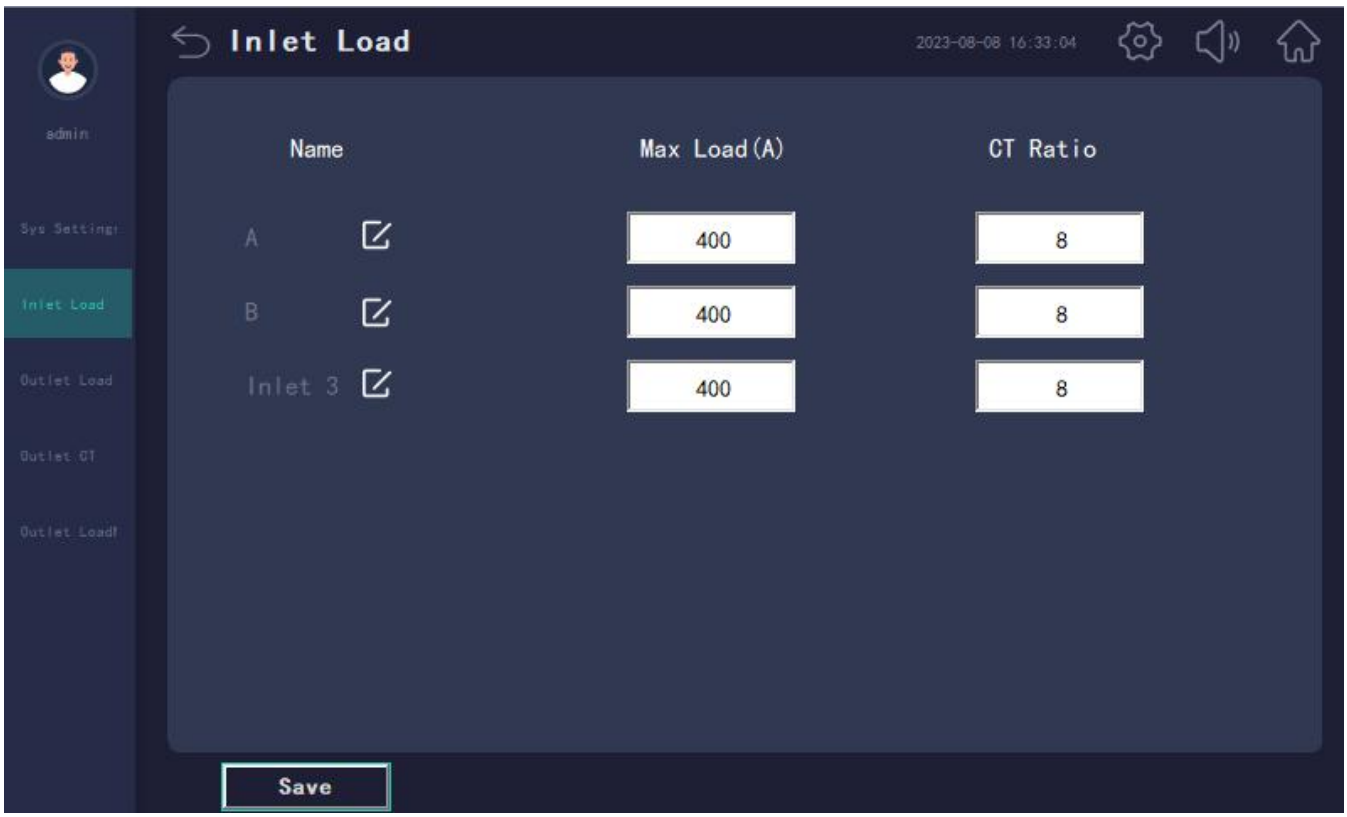
Virtual summary function:This function can be enabled on page 2 of the system circuit settings.If necessary,after opening it,you can enter the configuration interface to select and group each circuit.Click on the “Virtual Summary Table” in the outlet parameter interface to view the current,power,and energy data of each group.The data of each group i the total data of the circuits set into that group.





7.7.2 Incoming Load Correlation

By clicking on the left toggle button "Inlet load-related", the load rating of the inlet switch and the inlet CT ratio can be modified.

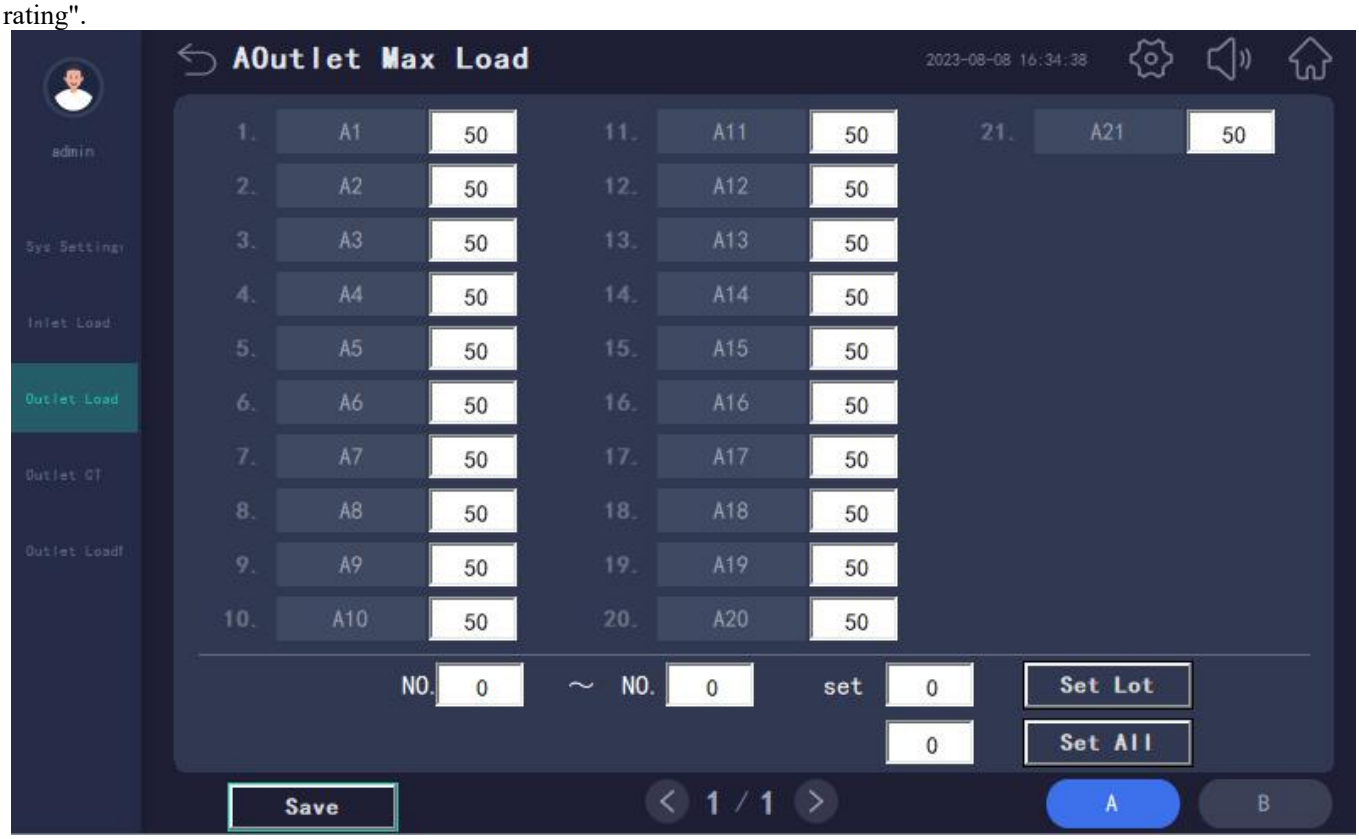


The incoming switch load rating is the amount of labeled load current of the switch actually in use. Set to automatically calculate the incoming load overload threshold.Please refer to the alarm settings below to modify the load rating here.The default overload limit for the first section is 60% of the rated value here,and for the second section,it is 80%.

The incoming CT ratio is derived from the incoming Hall sensor used and is the ratio of the Hall sensor value, e.g., if the Hall model is 100A/5V, the CT is set to 20.

7.7.3 Outlet switch ratings

The load rating of the outgoing switch can be changed by clicking on the left toggle button "Outgoing switch rating".



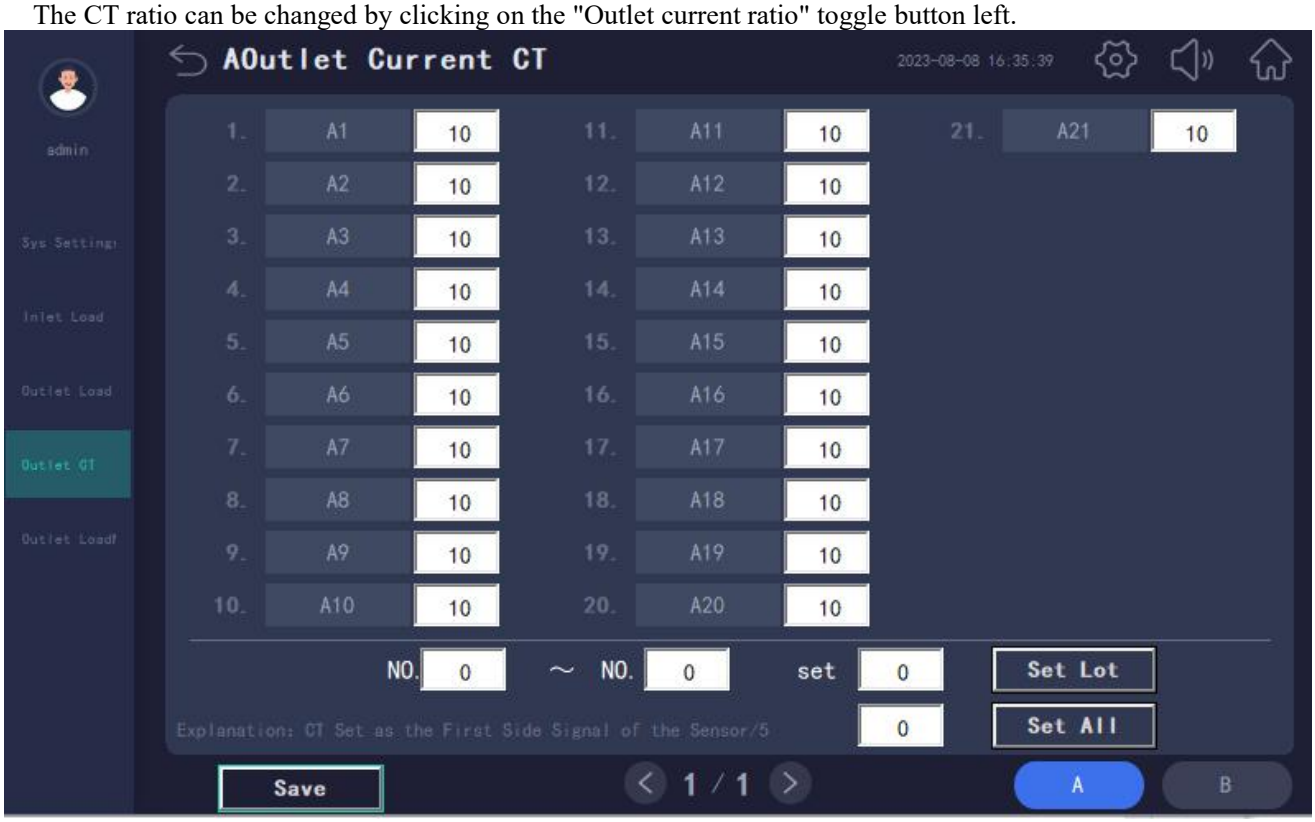
The outgoing switch load rating is the amount of load current indicated for the actual switch in use.

The setting is used to automatically calculate the outgoing load overload threshold value. For details,please refer to the overload percentage and calculation formula set in the alarm settings below.

It can be set for a single circuit, a section of the circuit number, or all of the circuits can be set to a specified value with a single keystroke.

7.7.4 Outlet current ratio

The CT ratio can be changed by clicking on the "Outlet current ratio" toggle button left.

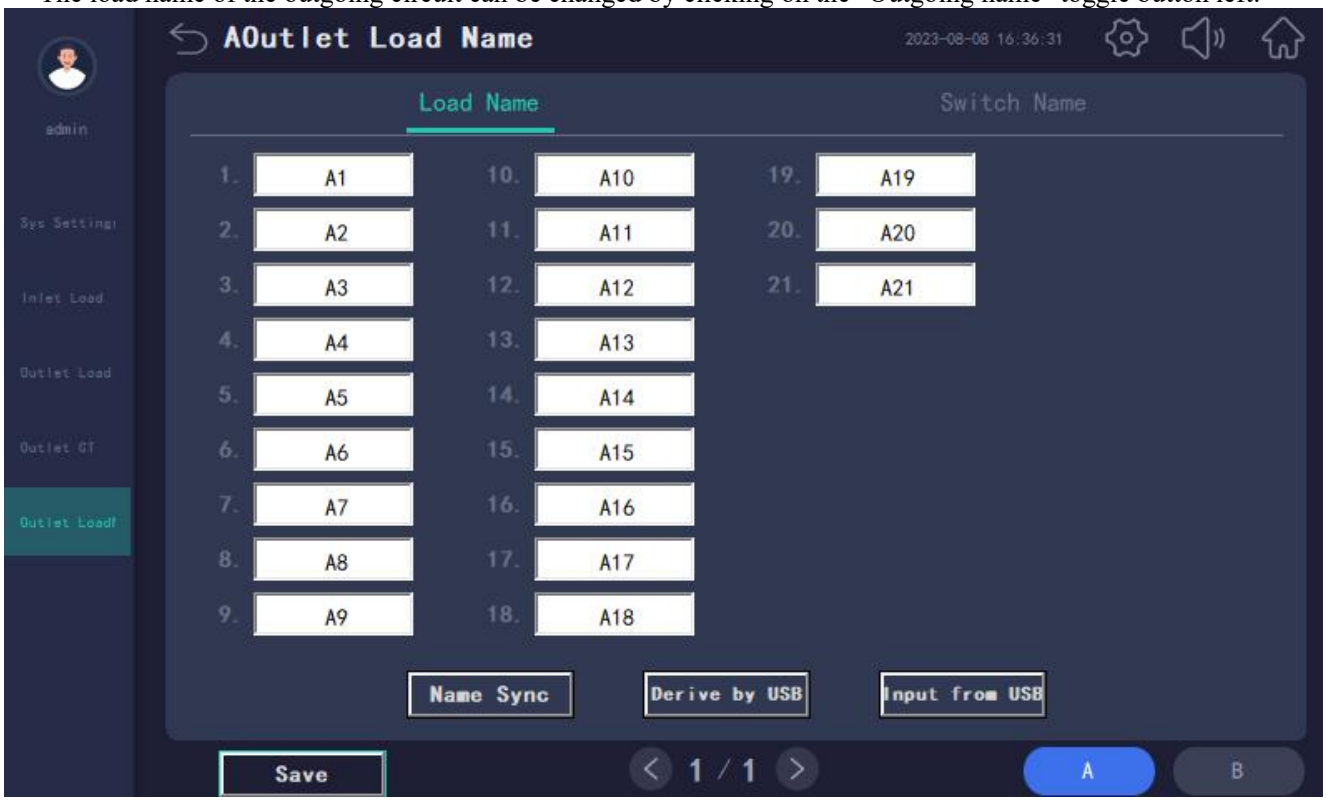


The outgoing switch load rating is derived from the outgoing transformer used and is a ratio of Hall values, e.g., if the Hall model is 50A/5V, the CT is set to 10, i.e., 50/5.

7.7.5 Outgoing line name

Loop names can be personalized to meet the needs of various application scenarios.

The load name of the outgoing circuit can be changed by clicking on the "Outgoing name" toggle button left.



You can change the circuit name by clicking directly on the circuit box. Click on "Name Synchronization" to synchronize the switch name to the load name.

The switch name and load name are set independently. Click "Switch Name" on the current interface to enter and modify the switch name.

You can modify the switch name by clicking directly on the circuit box. Click "Name Synchronization" to synchronize the load name to the switch name.

After inserting the USB flash disk behind the touch screen, click "Export Name" in the interface of modifying the name, it will generate an EXCEL table in the USB flash disk, you can edit the name of each circuit with the computer, after modifying the name, insert the USB flash disk behind the touch screen, click "Import Name". Modification is completed. If you have more than one touch screen and use the same kind of system, if you want to configure the same circuit name, you can use the same EXCEL file to import more than one touch screen.

Modifying the load name will display the modified name for each circuit in the Outgoing Parameters screen. When an alarm is generated, the alarm message is also displayed with the modified name.

Modifying the switch name allows you to display the modified name for each switch circuit in the switch status screen. In addition, when an alarm is generated, the alarm message is also displayed with the modified name.

7.8 Alarm settings

Click "Alarm Settings" on the homepage or click on the setting symbol in the upper right corner of any interface to enter the settings

This screen allows you to modify all alarm-related settings.

Any changes to this section must be made by clicking the "Save Settings" button.

7.8.1 Incoming alarm setting

The "Alarm Switch" column is used to set whether the alarm is operational or not, and can turn off unnecessary or unused alarms to prevent false alarms.

Click the page button to view other incoming alarm settings.

7.8.1.1 Undervoltage alarm: When the incoming voltage is lower than the set alarm value and higher than the alarm value set for the phase loss alarm, an undervoltage alarm will be generated.

7.8.1.2 Overvoltage alarm: When the incoming voltage is higher than the set alarm value, an overvoltage alarm will be generated.

7.8.1.3 One section undercurrent alarm: When the incoming current falls below the set alarm value, a one section undercurrent alarm is generated.

7.8.1.4 Two-stage undercurrent alarm: When the incoming current falls below the set alarm value, a two-stage undercurrent alarm is generated.

7.8.1.5 One section overcurrent alarm: When the incoming current is higher than the set alarm value, a one section overcurrent alarm is generated.

7.8.1.6 Two-stage overcurrent alarm: When the incoming current is higher than the set alarm value, a two-stage overcurrent alarm will be generated.

7.8.1.7 Power overrun alarm: When the incoming power is higher than the set alarm value, a power overrun alarm will be generated.

7.8.1.8 Cabinet Temperature Alarm: When the cabinet temperature is higher than the set alarm value, an over-temperature alarm is generated.

7.8.1.9 Cabinet Humidity Alarm: When the cabinet humidity is higher than the set alarm value, a humidity alarm is generated.

7.1.8.10 Incoming line passive switch alarm:

The alarm of the passive switch can customize the name, purpose, alarm logic, and whether it is put into use. The following is the initial default usage.

Main circuit switch status: If you select "Passive" in the "Collection Mode" column, you can directly collect the auxiliary contact switch signal,DI points taken from the AMC100-ZA module, and if you choose "Active", you can directly collect the voltage to judge. If you select "Normally Open" in the "Wiring Type" column, the AMC acquisition module terminal detection status is green when it is closed, and red when it is disconnected, and the main circuit switch alarm will be generated from closed to open. If you select "Normally Closed", the terminal detection status of the module is closed. It is red, and it is green when it is disconnected, and the main circuit switch alarm will be generated from disconnection to closure. If this function is not used, you can select "Hide" in the "Display" column to cancel the display of the switch on the switch status interface. If you only need to display no alarm, you can select "Close" in the "Alarm Switch", and the main switch will only display no alarm.

Main circuit trip status: If “Normal Closed” is selected in the “Connection Type” column, the terminal detection status of the AMC acquisition module will generate main circuit trip alarm from close to open.If “Normally Open” is selected, the module terminal detection status will generate a main circuit trip alarm from open to close.If this function is not used,you can select “Hide”in the “Display”column to cancel the display of the switch in the switch status interface.If you only need to display and do not need an alarm,you can select “off”in the “alarm switch”to display only the main circuit trip without an alarm.

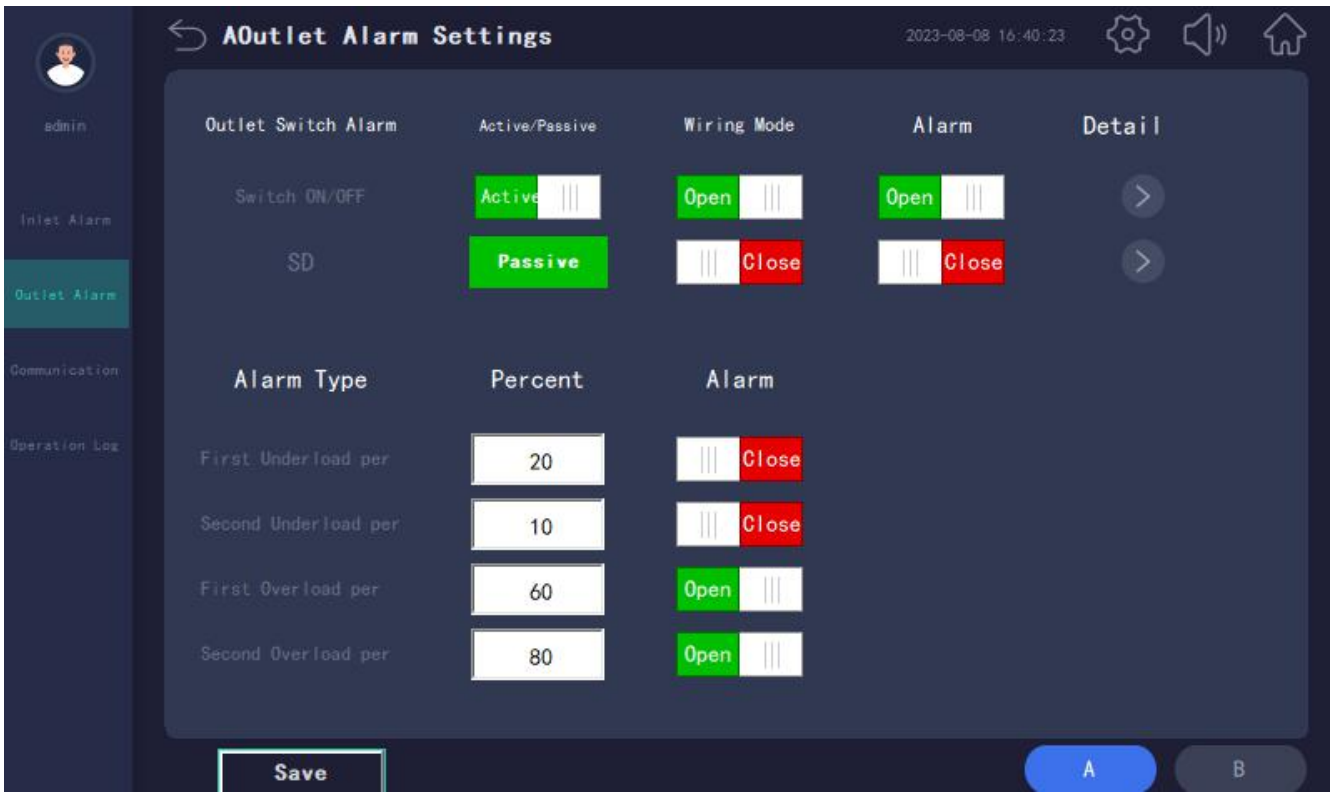
Main road lightning protection switch: select “Normally Closed” in the “Connection Type” column, the AMC acquisition module terminal detection status will be green when it is closed, and red when it is disconnected, and the main road lightning protection alarm will be generated from closed to disconnection. Then the module terminal detection status is red when it is closed, and green when it is disconnected, and the main road lightning protection alarm will be generated from disconnection to closure. If this function is not used, you can select "Hide" in the "Display" column to cancel the display of the switch on the switch status interface. If you only need to display and do not need to alarm, you can select "Close" in the "Alarm Switch", and the main road lightning protection will only display and not alarm.

Reserved switch acquisition:If “Normally Closed” is selected in the “Wiring Type”column,the AMC acquisition module terminal detection status wil be closed in green and open in red,and an alarm will be closed in green and open in red,and an alarm will be generated from close to open.If “Normally Open”is selected,the module terminal detection status will be closed in red and open in green,and an alarm will be generated from open to close.

It should be noted that all four switch legends are fixed.In the theory,one AMC100-ZA has a total of 8 DI input points that can measure any switch input,not limited to the main circuit switch status,tripping,and lighting protection.The name can be modified to match the actual tested switch value,but the display style of the switch is fixed.If the tripping point type and lighting protection grounding style do not match the current detected switch,the reserved switch can be opened,the style is consistent with the main circuit switch,and the detection position on the module is at the 4th DI point.

7.8.2 Outgoing alarm setting

You can set up alarms related to the outgoing line by clicking the "Outgoing line alarm setting" button below.



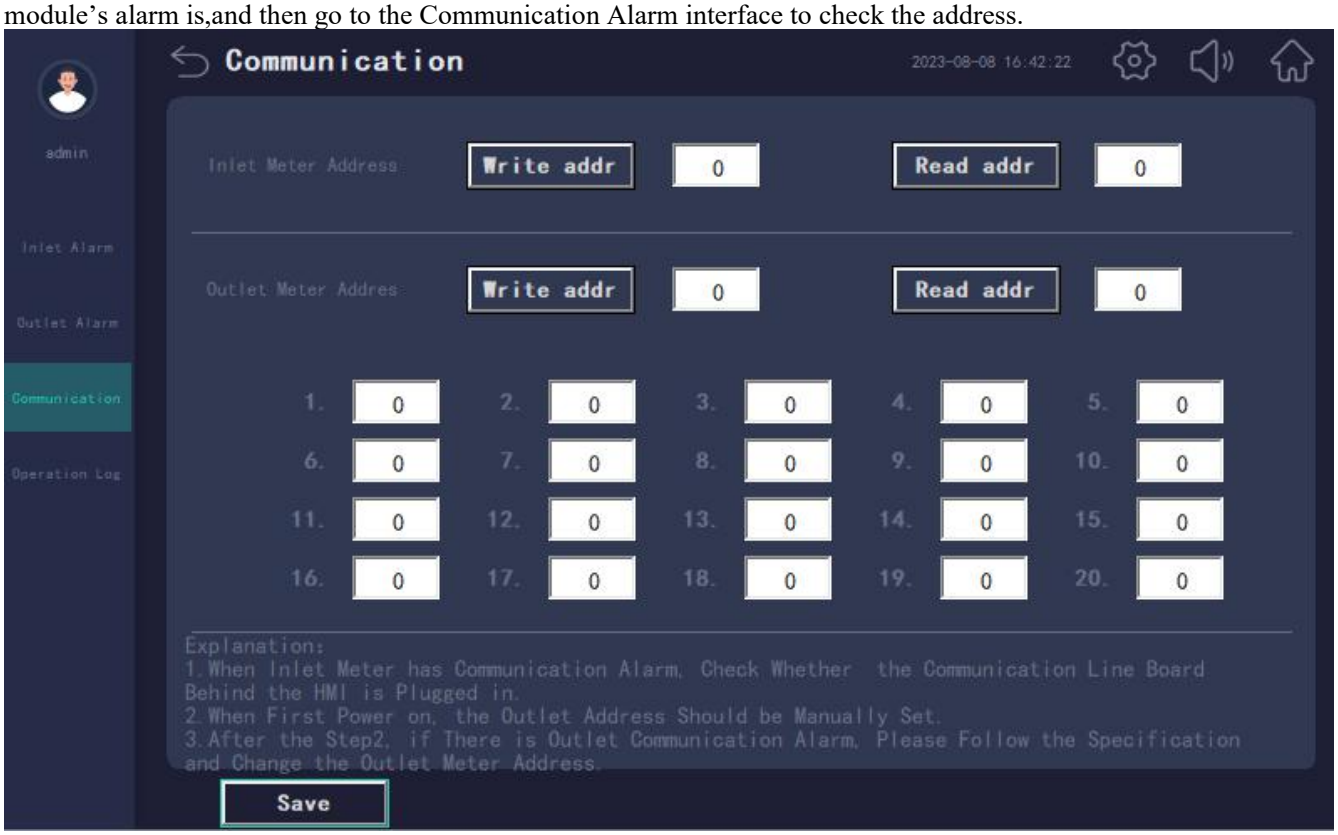
7.8.2.1 Outgoing switch alarm:

Alarm of switch breaking: If you choose "Active" in the "Acquisition Method" column, you can judge by directly acquiring voltage; if you choose "Passive", you can use KD module to acquire passive switch signal. Select "normally open" in the "wiring type" column, then the module terminals detect the switch state of the closing gate is green, the splitting gate is red, and from the closing gate to the splitting gate is generated switch splitting alarm, select "normally closed", then the module terminals detect the switch state of the closing gate is green, the splitting gate is red, and from the closing gate to the splitting gate is generated switch splitting alarm,select "normally closed Select "Normally Closed", the module terminal detects the state of closed as red, disconnected as green, and from disconnected to closed, then generate the switching alarm. If you don't need alarm, you can select "Off" in the "Alarm Switch" column. You can click the arrow in the "Individual Settings" column to set whether the alarm is enabled or not for each way, the default switch alarm start and stop is based on the number of switching circuits set at present, the switch alarms within the range of the number of circuits are all turned on, and the alarms for the switches beyond the number of circuits are all turned off.

7.8.2.2 Switch Failure Alarm: If the system requires an SD alarm, turn the alarm on in the "Alarm Switch" column. If "Normally closed" is selected in the "Wiring type" column, the KD module terminal detection status will be green for closure and red for disconnection, and the alarm will be generated by main circuit tripping from closure to disconnection; if "Normally open" is selected, the KD module terminal detection status will be red for closure and green for disconnection. If "Normally open" is selected, the detection status of KD module terminal is red for closure and green for disconnection, and the switch trip alarm is generated from disconnection to closure.
7.8.2.3 Outgoing Section Undercurrent Alarm: A section undercurrent alarm is generated for a circuit when the current value of that circuit is less than the product of the switch rating for that circuit and the value set for the section undercurrent percentage.
7.8.2.4 Outgoing two-section undercurrent alarm: When the current value of a circuit falls below the product of the switch rating for that circuit and the value set for the two-section undercurrent percentage, a two-section undercurrent alarm is generated for that circuit.
7.8.2.5 Outgoing section overcurrent alarm: A section overcurrent alarm is generated for a circuit when the current value of that circuit is higher than the product of the switch rating for that circuit and the value set for the section overcurrent percentage.
7.8.2.6 Outgoing two-section overcurrent alarm: When the current value of a circuit is higher than the product of the switch rating for that circuit and the value set for the two-section overcurrent percentage, a two-section overcurrent alarm is generated for that circuit.

7.8.3 Communication alarms
After the module and touch screen wiring are completed,the initial debugging needs to enter this interface.fill in the actual slave module address from small to large,usually the address label affixed to the module.The default regulations are as follows:
AMC100-FAK48 10~19
AMC100-FAK30 20~29
AMC100-FDK48 10~19
AMC100-FDK30 20~29
AMC100-FT48 30~39
AMC100-FT30 40~49
AMC100-KD48 50~59
AMC100-KD30 60~69
AMC100-KA48 70~79
AMC100-KA30 80~89

Example:If one AMC100-FAK48 and one AMC100-FAK30 slave modules are used,then slave address 1 is set to 10 and slave address 2 is set to 20.
After completing the above equipment,click Return.If a module communication alarm is generated,first observe what module's alarm is,and then go to the Communication Alarm interface to check the address.



If the alarm message is "communication failure of incoming line module", check the address of the main module on this interface. The address of the main module should be 1. It is necessary to check whether the address of the main module actually used is 1. If it does not match, it needs to be changed to 1.

Click the "Read Address" button on the right side of the word "Main Module Address", and observe whether the address read in the display box is 1. If it is 0 and there is no change, you need to check the wiring. If it is not 1, you need to write the address. Enter 1 on the right side of the button and click "Write Address", then click "Read Address" to check whether the address is successfully changed to 1.

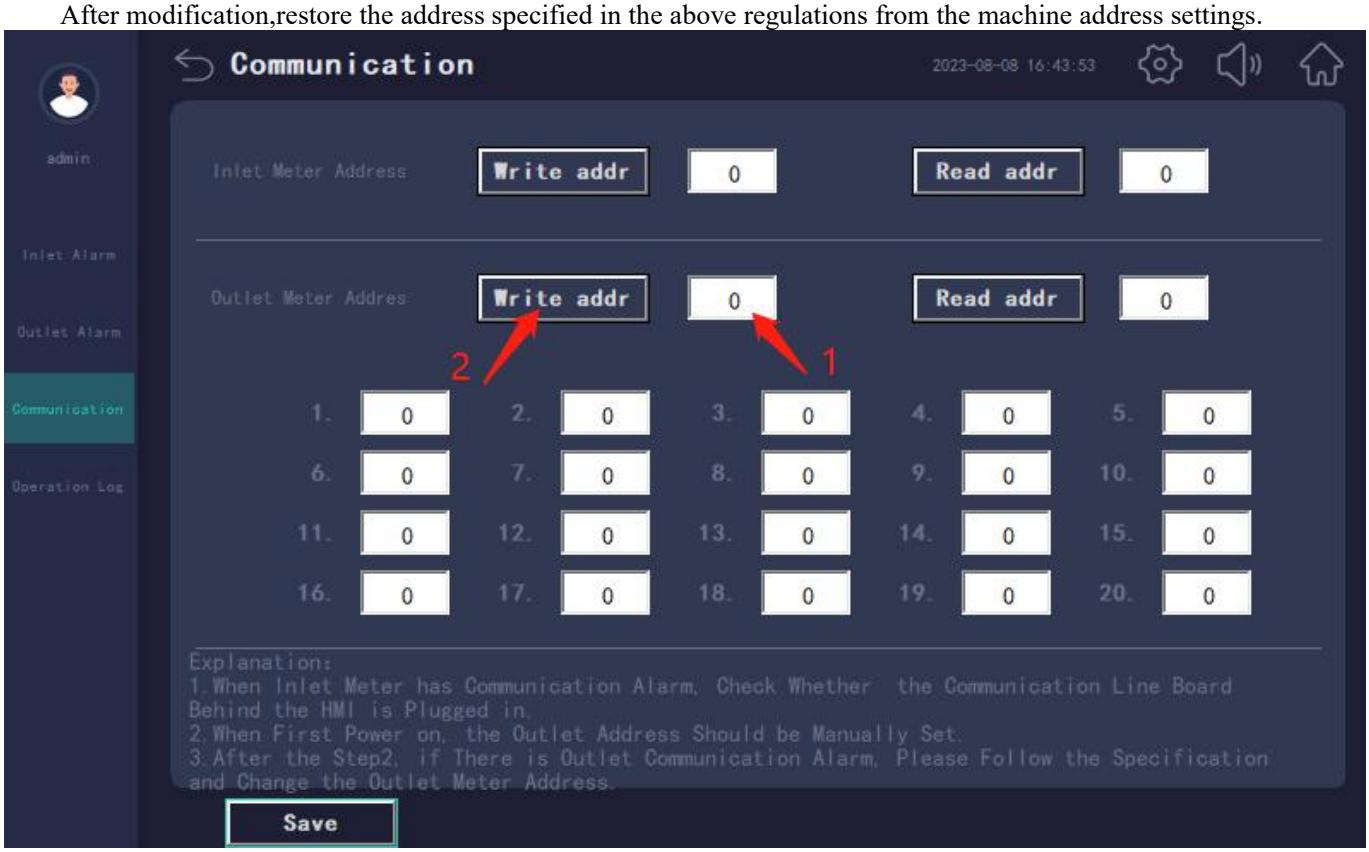
If there are words such as slave communication failure in the alarm message,it is necessary to modify the address of the slave module.If there are multiple slave communication faults,each slave module needs to modify its address separately.For example,if the slave machine uses one AMC100-FDK48,and according to the address regulations,the address of this AMC100-FDK48 should be 10(which should be 10 instead of the actual module address being 10,that is the actual module address needs to be changed to 10),then ensure that target slave module is separately connected to the main module.If there are other slave modules,they must be disconnected and unplugged from the communication cable.

Change the position with the serial number 1 below the slave address to 0.

Write 10 in the input box to the right of the Write Address button in the slave address area,and then click Write Address.

Click the read address button in the slave address area,and the box on the right displays 10,indicating successful modification.

After modification,restore the address specified in the above regulations from the machine address settings.



7.9 Data Clearing

Clears electrical energy data generated at the time of use or during commissioning.Clear the current zero drift of the Hall sensor.

Click "Data Erase" on the homepage to delete the corresponding power data.

If you want to clear the data of a certain circuit, fill in the corresponding circuit serial number in the box and then click the Clear button on the right.

All reset operations require a second password to prevent malicious modification.

7.10 Background Communication

If the actual application scenario requires the background dynamic loop, etc., click on the “background communication” button on the homepage to enter.This interface allows you to forward address and baud rates for communication with the background system.

First input in the input box,then click the button in front of the input box to completed the modification.

Manual Revision Record

Date	Old version	New version	Revision
		V1.0	1.First writing
2022.6.24	V1.0	V1.1	1.Add the overall dimension diagram of the touch screen
2022.10.20	V1.1	V1.2	1.Correcting text errors in the text
2023.8.11	V1.2	V1.3	1.Modify the image and language description of the touch screen interface section
2023.8.29	V1.3	V1.4	1.Modify the FDK laser printing diagram and change the switch input to voltage input

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