

OURSPEED 斯必得®

Environmental Monitoring System SPD-T300GSM

User Manual

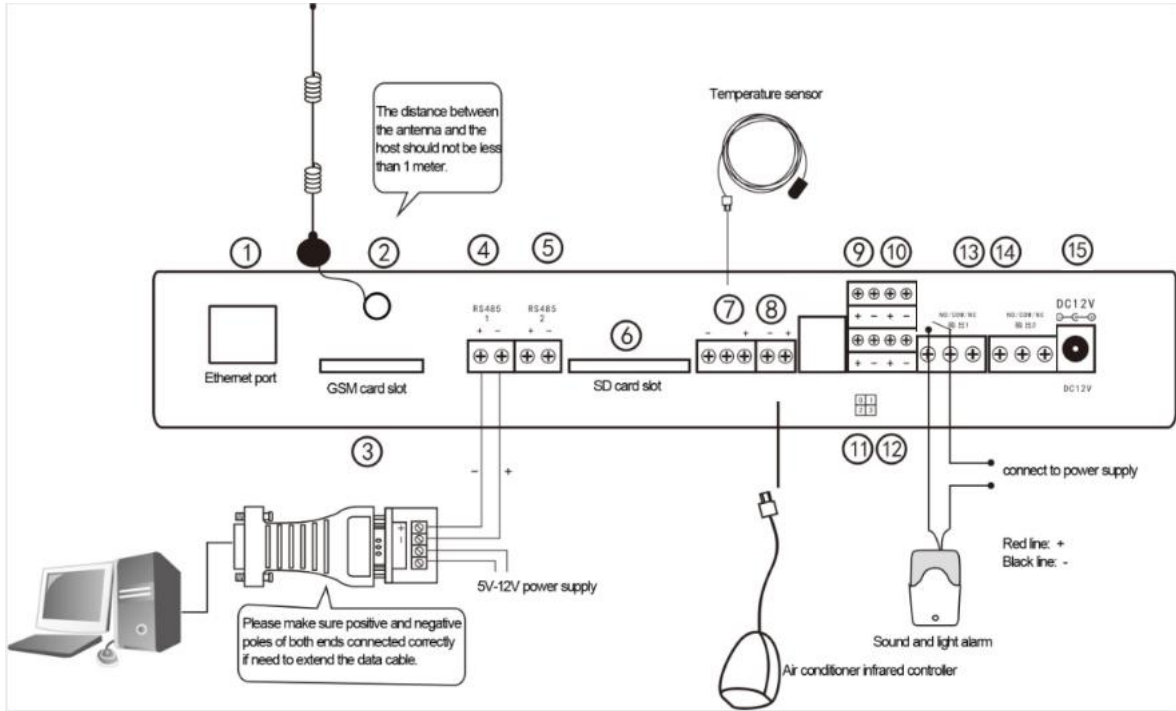


1. System review

Environment Monitoring System monitors critical factors like temperature, humidity, water leak, smoke, power and much more in real time. The monitoring device provides a 24/7 operation where once an equipment fails or a problem arise, it will instantly notify you through SMS and email. Preventing equipment failure, downtime and financial loss.

1.1 Features and interfaces

- Support C/S and B/S, built-in WEB server to achieve HTTP access;
- Support Mysql database;
- Support MODBUS_RTU, MODBUS_UDP, MODBUS_TCP, SNMP protocol;
- Support Environmental monitoring: temperature & humidity sensor, smoke / water leakage / door contact / motion sensor..... dry contact sensor;
- Support mains failure monitoring;
- Support split air conditioner monitoring;
- Support to accommodate 16 data;
- Support sound light alarm, SMS, E-mail alarm;



Monitoring host interface - SPD-T300GSM

No.	Monitoring host SPD-T300GSM Interface description
①	Ethernet port
②	Antenna: It should be far away from the host, and the distance from the host should not be less than 1 meter
③	SIM card slot
④-⑤	RS485 serial port. RS485-1 is used to connect computer when use 485 wire communication; RS485-2 is used to connect RS485 sensors.
⑥	SD card slot
⑦	Connect 1pc T/H sensor which comes with monitoring host.
⑧	Connect air conditioner infrared controller with comes with monitoring host.
⑨-⑫	DI port, connect dry contact sensor
⑬-⑭	DO port, ⑬ is default to connect sound light alarm sensor.
⑮	12V DC power port

2. Device installation

2.1. Location confirmation: generally speaking the equipment is placed as below:

- Monitoring host: placed in the rack
- Temperature and humidity sensor: on the wall or ceiling and generally evenly distributed (except there is special requirements);
- Mains power failure sensor: placed in a control box (can be installed on a DIN rail)
- Water leakage sensor: controller is placed in a control box (can be installed on a DIN rail), and water leak sensing cable lay under the raised floor around air conditioner or near the window sill where it easy has water leak.
- Surveillance camera: install it at the doorway or pedestrian passage, and pay attention to whether there is a blind spot during installation.
- Access control device: Install on the wall beside the door.
- Three-phase electricity meter, single-phase meter: generally installed on the panel on the power distribution cabinet.

If the customer has special requirements, it can be adjusted according to the on-site situation. Plan the cable according to the equipment location .

2.2. Cable working

2.2.1 Cable & accessory preparation

- Cat6 network cable (twisted pair)
- Power cable (2*10 mm²)
- Cable tube etc.....
- Multi-meter

2.2.2 Wiring method

It's mainly in 2 methods: upper wiring and lower wiring. The construction of lower wiring is convenient, saves labor and beautiful, but it is more troublesome to maintain and expand the computer room. The upper wiring requires a bridge, which is more complicated than the lower wiring. The wiring is easy to maintain and expand, but it is not easy to prevent dust and there is a lot of dust;

The direction of the cable should be routed as much as possible along the natural state of the cable. The bends should comply with the cable curvature radius requirements and be bundled at a certain distance. A moderate margin should be left at both ends of the laid cables, and obvious permanent signs should be marked to avoid any confusion.

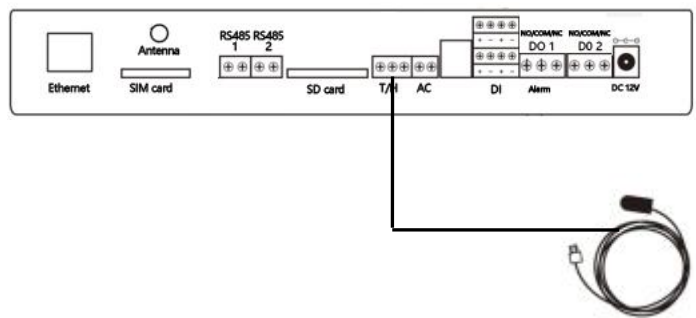
2.3 Installation steps

- a. Place the host in the rack.
- b. Connect the temperature and humidity sensor to the T/H sensor port and connect others sensor to right port.
- c. Connect DC 12V power adapter to the DC12V terminal of the host
- d. Put the SIM card into the card tray (the host needs to be powered off when the card is plugged in).
- e. Screw on the antenna and put it in a place with good signal strength 1 meter away from the host.
- f. Give network to computer by Ethernet port or connect monitoring host with computer by 485 wire by RS485-1 port ((note: 485 wire must be a twisted pair. And there is 485+ and 485-, please remember the original line sequence, If the connection is reversed, it will not be able to communicate with the computer normally.)
- g. After connection finished, you can set the software debug the system.

2.4 Sensors connection

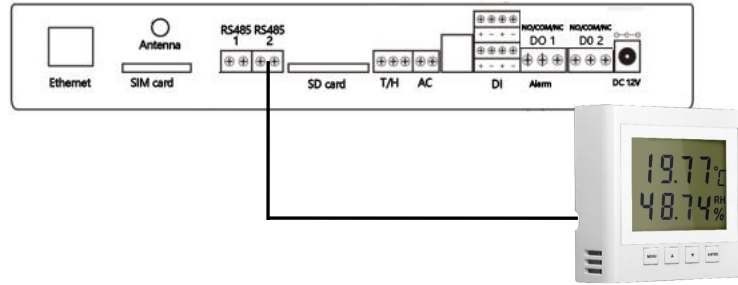
2.4.1 Temperature humidity transmitter

- a. The T/H sensor coming with monitoring host
 - 1pc T/H sensor with 3M cable come with monitoring host. It can be directly plugged into the T/H port on monitoring host back panel.



b. RS485 T/H sensor (Model# SPD-HT485-A)

- Connect RS485 T/H sensor to port “RS485-2”



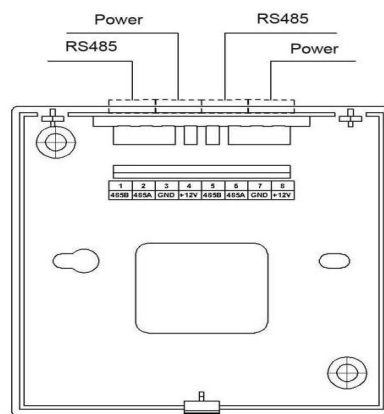
- Wiring

There are two groups terminals one the sensor board, only need one group to support the product's power supply and communication, the other group terminal for cascading other RS485 devices.

485A is positive, 485B is negative connect to monitoring host “RS485-2” + and “RS485-2” + accordingly.

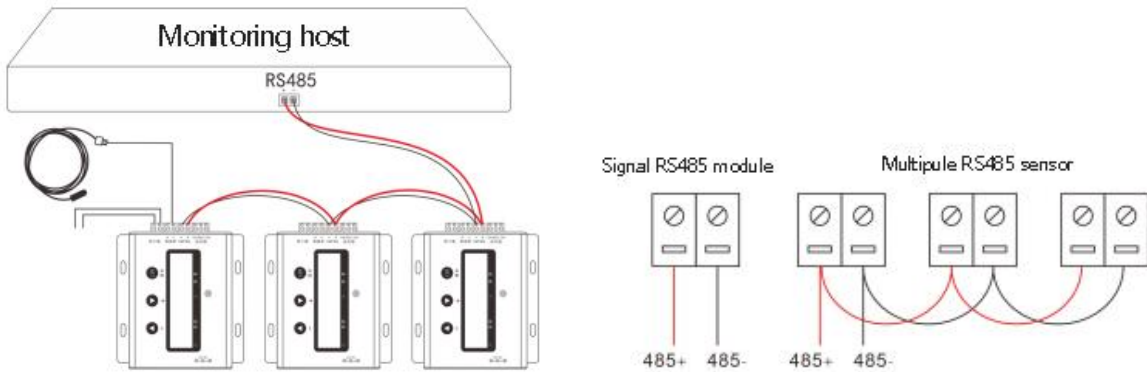
+12V connect to power positive, GND connect to power negative

1	2	3	4	5	6	7	8
485B	485A	GND	+12V	485B	485A	GND	+12V



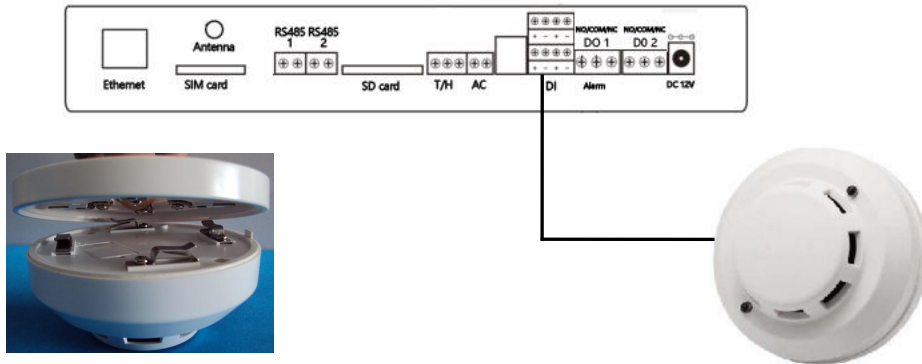
- RS485 bus wiring rule

When there are a few RS485 sensors, they can be connected in below way, then connect to “RS485-2” port.

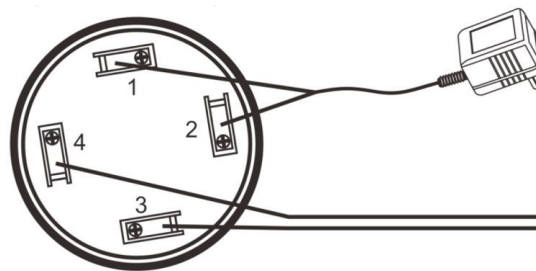


2.4.2 Smoke detector (Model#SM30)

Connect smoke detector to DI port (port 0-7), any of it is ok. One port one sensor.



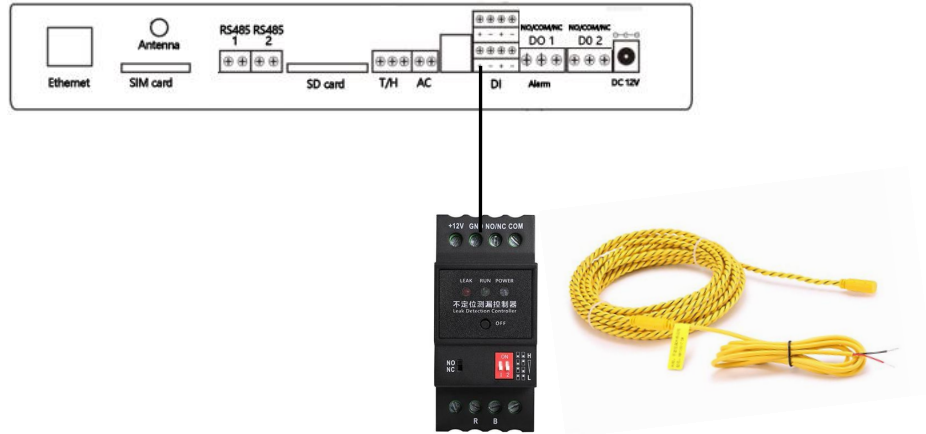
- PIN 1 & 2 connect to power 12V DC), PIN no positive and negative difference; PIN "3 & 4" connect to monitoring host DI port (NO/COM).



2.4.3 Water leak detector

- Dry contact water leak detector (Model# SPD-WL02-PRO)

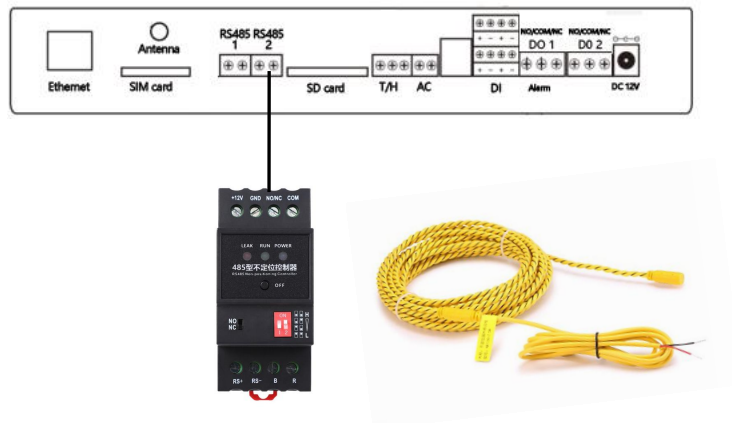
Connect it to DI port (port 0-7), any of it is ok. One port one sensor.



- Sensing cable connect to controller: There is “R” and “B” at the bottom of controller. “R” connect to cable red wire, “B” connect to cable black wire;
- On the top of controller, +12V and GND connect to DC 12 power;
- NO/NC, COM connect to monitoring host DI port accordingly.

b. RS485 water leak detector (Model# SPD-WL01-PRO)

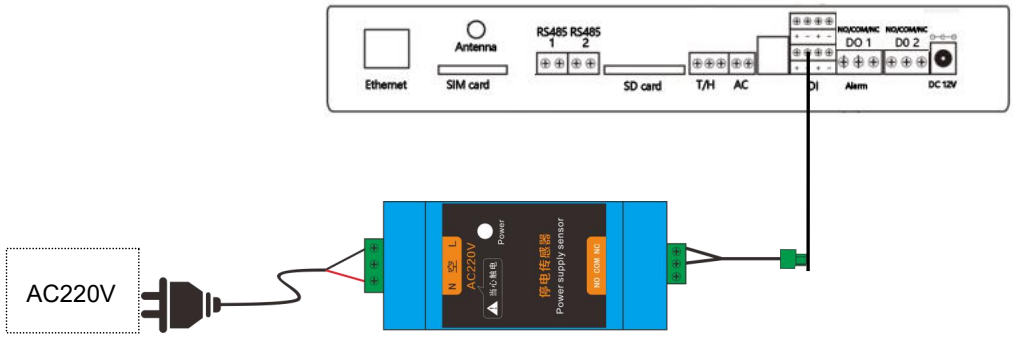
Connect it to port “RS485-2”



- Sensing cable connect to controller: There is “R” and “B” at the bottom of controller. “R” connect to cable red wire, “B” connect to cable black wire;
- Controller “+12V” and “GND” connect to DC 12 power;
- Controller “RS+” and “RS-” connect to monitoring host “RS485-2 +” and “RS485-2 -” accordingly.

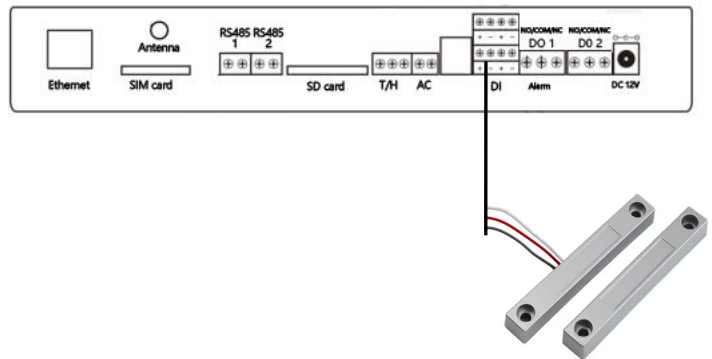
2.4.4 AC power failure detector (Model# SP220)

Connect it to DI port (port 0-7), any of it is ok. One port one sensor.



2.4.5 Door contact sensor (Model# SPD-DC)

Connect it to DI port (port 0-7), any of it is ok. One port one sensor.

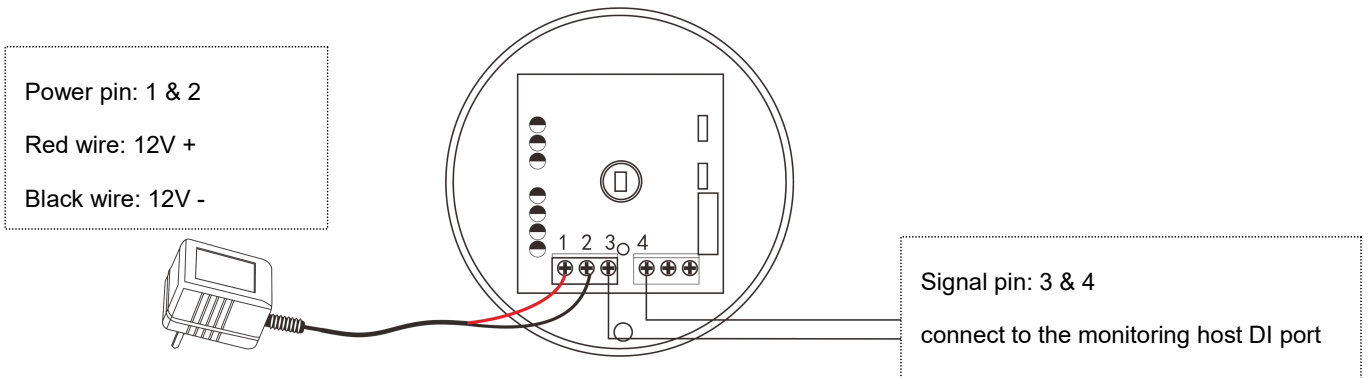


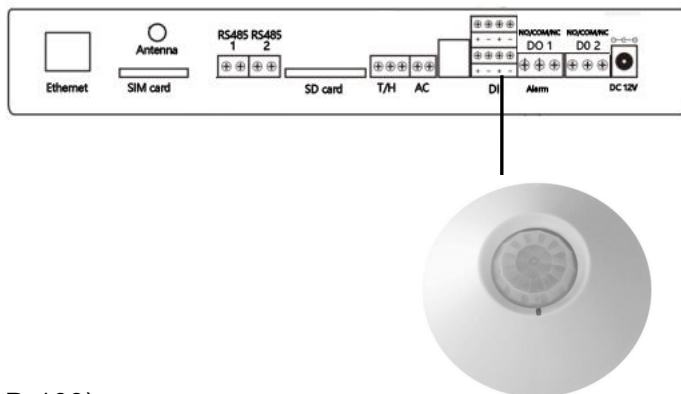
This door contact sensor is NO/NC output (grey wire:COM; red wire: NO; white wire: NC)

- Use 2 wires (NO & COM) to connect monitoring host DI port. System will alarm will door open.

2.4.6 Infrared motion sensor (Model# PA-618)

Connect it to DI port (port 0-7), any of it is ok. One port one sensor.

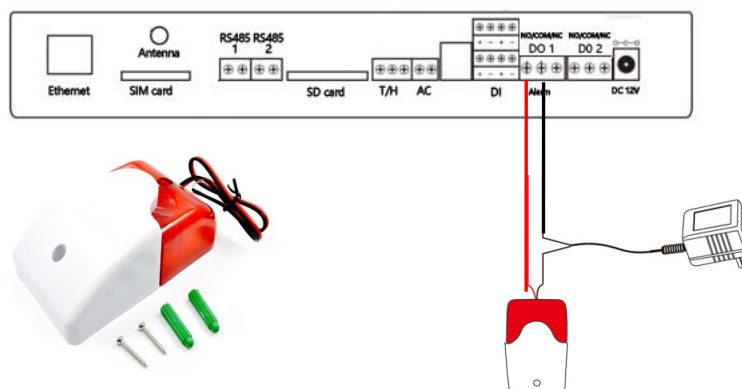




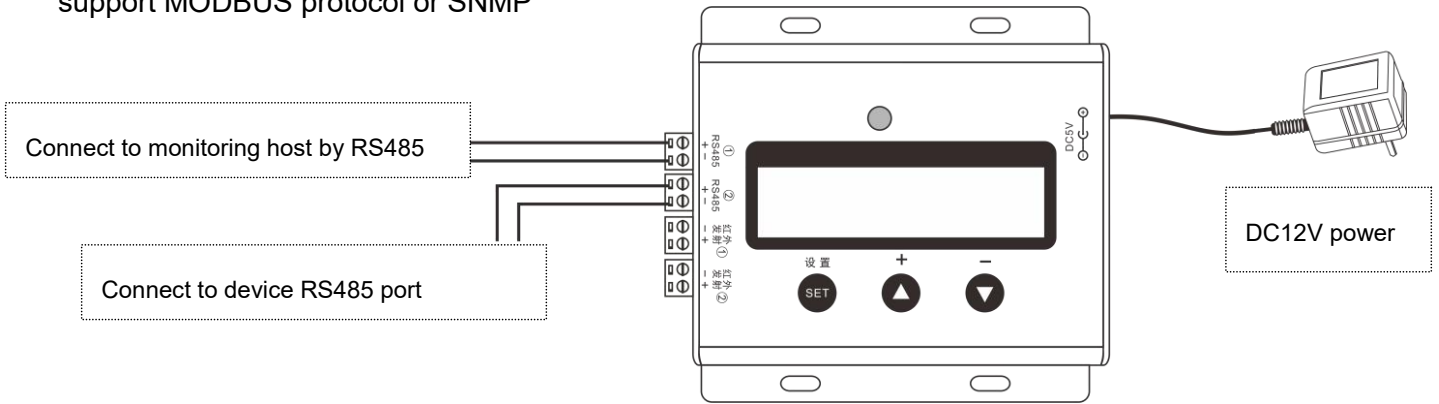
2.4.7 Siren (Model# AD-103)

The sound and light alarm has red + and black-two wires, need a 12V DC power supply .The connection method of sound and light alarm, power supply and host is as follows:

- 12V DC power adapter “+” (black/white wire) connect to Alarm port “COM” terminal;
- 12V DC power adapter “-” (black wire) connect to siren black wire;
- Sire red wire connect to Alarm port “NO” terminal

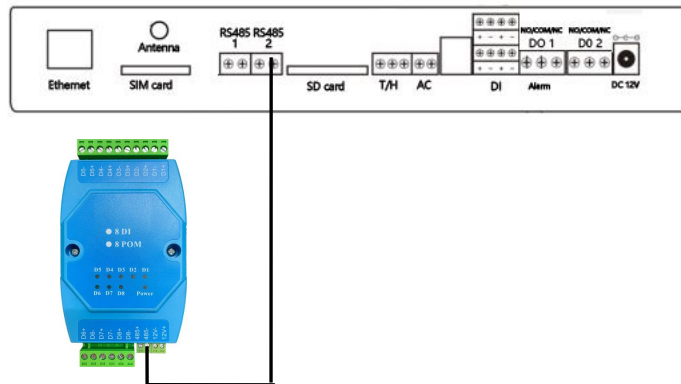


2.4.9 Protocol converter for UPS, precision air conditioner and other third party device which support MODBUS protocol or SNMP



- If the third party device support MODBUS protocol, please provide MODBUS communication protocol.they can be monitoring by SNMP protocol. And no need additional device.
- If the third party device, then provide MIBs document, they can be monitoring by SNMP protocol and no need the protocol converter

2.4.10 DI port extension module (Model#: MD8)

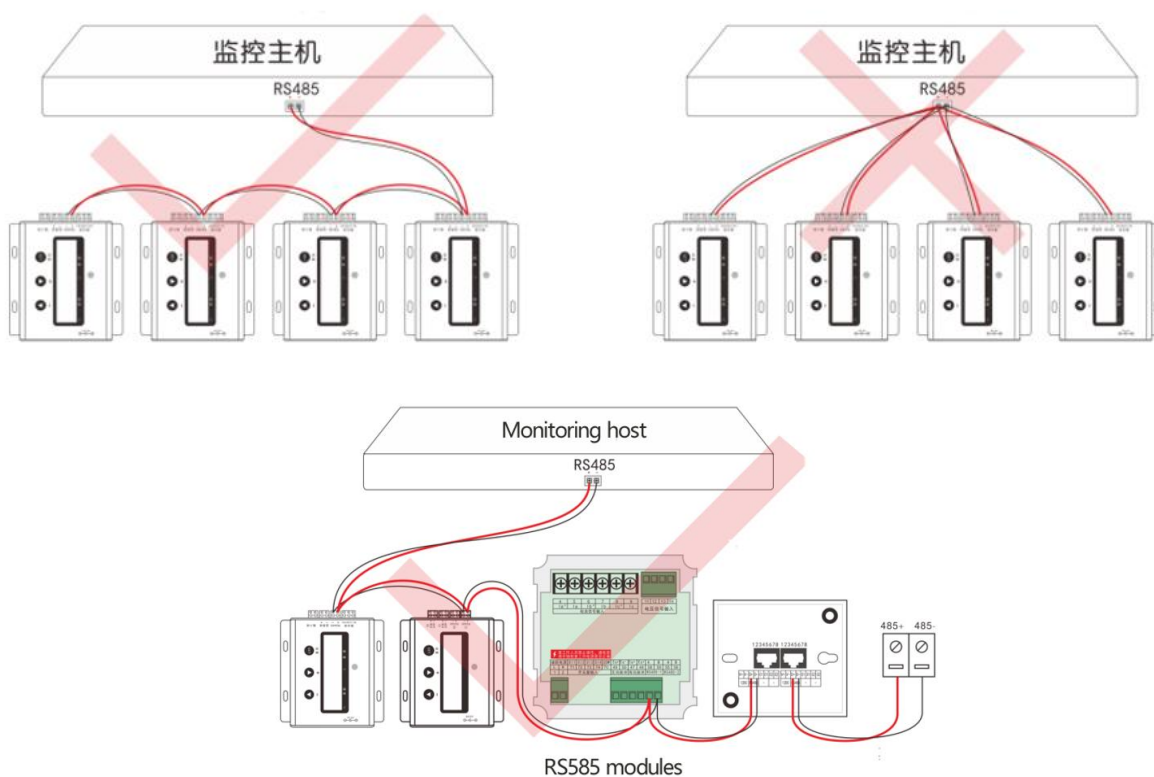


- Monitoring host has 4 DI port, when dry contact sensor more than 4pcs, need MD8 to extend DI port;
- MD8 has 8 channel, which can connect 8pcs dry contact sensors;
- RS485 output, connect it to monitoring host “RS485-2” port;
- Powered by 12V DC

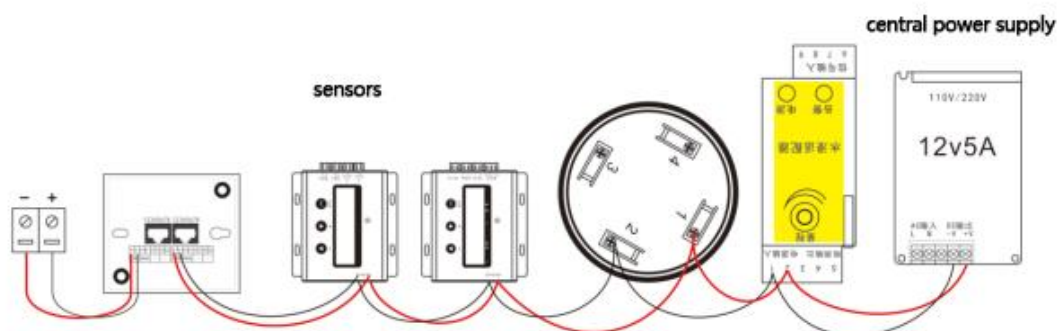
3. Wiring rule

3.1 RS485 bus

- a. RS485 bus is two wires twisted with each other
- b. The two wires of RS485 are 485+(A) and 485-(B) to distinguish between positive and negative. Do not reverse connection, otherwise communication will not be possible.
- c. RS485 adopts a hand-in-hand bus structure, that is, a 485 wire is distributed from beginning to end, and each 485 device is connected to the bus nearby.



3.2 When sensors are powered by a module, it can be in below way.



4. SPD-T300GSM specification

4.1 Dimension

240mm*145mm*35mm (L*W*H)

4.2 Specification

Power supply: DC12V

Power consumption: <3W

Relay output load capacity (resistive load): AC250V/5A

Working temperature: -20°C~+60°C

Equip temperature humidity sensor: AM2322

Measuring range: -20~70°C / 10-90%RH

Resolution: 0.1°C/1RH

Accuracy: temperature: $\pm 0.5^{\circ}\text{C}$ @-10°C to +85°C humidity $\pm 3\%$ RH

Standard attenuation value of temperature and humidity sensor : temperature : <0.1°C/year
humidity: <1%RH/year

Length of sensor cable: 3m

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