

# **IOTZONE<sup>®</sup>**

Smart lighting and energy-  
saving management

## **10-Channel web Relay Controller User Manual**

### **ZMRN1016-S3**



# Smart lighting and energy-saving management <<<<<<

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## Product Introduction

### 1. Function Introduction

#### 1.1 Manual control

You can use the original switch to manually switch and control household appliances.

#### 1.2 Remote control

Control your device anytime, anywhere, and at will, even if you are far away from home.

#### 1.3 Accurate feedback of control status

Whether you are a local area network or remote, whether you are network control or local switch, no matter who is operating, you can accurately see the status after execution.

#### 1.4 Custom Device Name

Allow you to customize the device name and output channel name, making your operations more intuitive, and support software and webpage customization name synchronization.

#### 1.5 Support for external sensors

Three sets of sensors supporting Zhenming Electronics can be displayed in real time, and threshold triggering can be set to achieve linkage control between sensors and relays.

#### 1.6 Secure System Architecture

LAN control adopts device hardware password verification, remote control adopts account and password verification, and the password can be customized by the user.

#### 1.7 Simpler to use

You don't have to worry about not being able to use it, nor do you have to worry about configuration errors that may cause the controller to malfunction. The controller supports hardware one click restore.

#### 1.8 Support for multiple platforms

(1) The web method supports IOS, Android, Windows, Linux, Mac OS, any mobile phone with a browser, and cloud TV.

(2) Support the multi-channel centralized management platform software provided by Zhenming Electronics on the PC side.

(3) Support Android and Apple iOS mobile app control.

#### 1.9 Rich language versions

The web version currently supports Simplified Chinese, Traditional Chinese, and English. As long as you contact our business, no matter how much quantity you have, we can customize the language version for free.

#### 1.10 Real time display

Networking can automatically synchronize network time, keeping it synchronized with the national time service center, and not losing power outage time.

#### 1.11 Offline timing function

Up to 16 independent offline timer switch operations are supported, and the timer can be set according to the week. The operation is completely similar to the iPhone alarm clock, and the relay status can be set arbitrarily, greatly saving timer resources.

#### 1.12 Perfect Cloud Platform Support

The device is directly connected to Zhenming Electronics' own cloud server, without the need for peanut shells and unlimited broadband, greatly increasing stability and controllability. If customers need to access their own cloud platform, please contact us for business.

#### 1.13 Customer Customization

We can customize hardware, software, and system solutions according to the actual needs of customers.

#### 1.14 Secondary Development



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For enterprises, research institutions, and hardware enthusiasts, we provide publicly available TCP sockets and UDP communication protocols, making it easier for users to develop and more flexible.

## 2. Technical parameters

- 2.1 Power supply voltage: 9~24V, recommended 12V/1A power supply;
- 2.2 Output ports: 10 independent passive outputs;
- 2.3 Input ports: 10 independent active inputs;
- 2.4 Sensor interface: can be equipped with 3 sets of Zhenming electronic sensor series;
- 2.5 Standby power consumption: 0.8W, maximum power consumption: 5W;
- 2.6 Maximum allowable voltage/current of output port: AC 250V/16A, over 100000 times;
- 2.7 RTC battery model: CR1220;
- 2.8 Timing parameters: 16 sets of timers, 10 channels of free allocation timing, supporting offline;
- 2.9 Housing size: 158 × eighty-eight × 59mm
- 2.10 Working temperature: -25~80 degrees Celsius;
- 2.11 Storage temperature: -40~85 degrees Celsius;
- 2.12 Storage humidity: 5% -95% RH;

## 3. System parameters

The default parameters of the controller system are shown in the following table:

Parameter	Default Parameter Values	ParameterSupport modification or not
HTTP PORT	80	√
TCP PORT	1234	√
DHCP	prohibit	√
Host name	iotzone	√
Subnet Mask	255.255.255.0	√
MAC Address	Random	√
Preferred DNS Server	114.114.114.114	√
Alternate DNS server	8.8.8.8	√
user name	admin	×
Password	12345678	√
Http Maximum Users	6	×

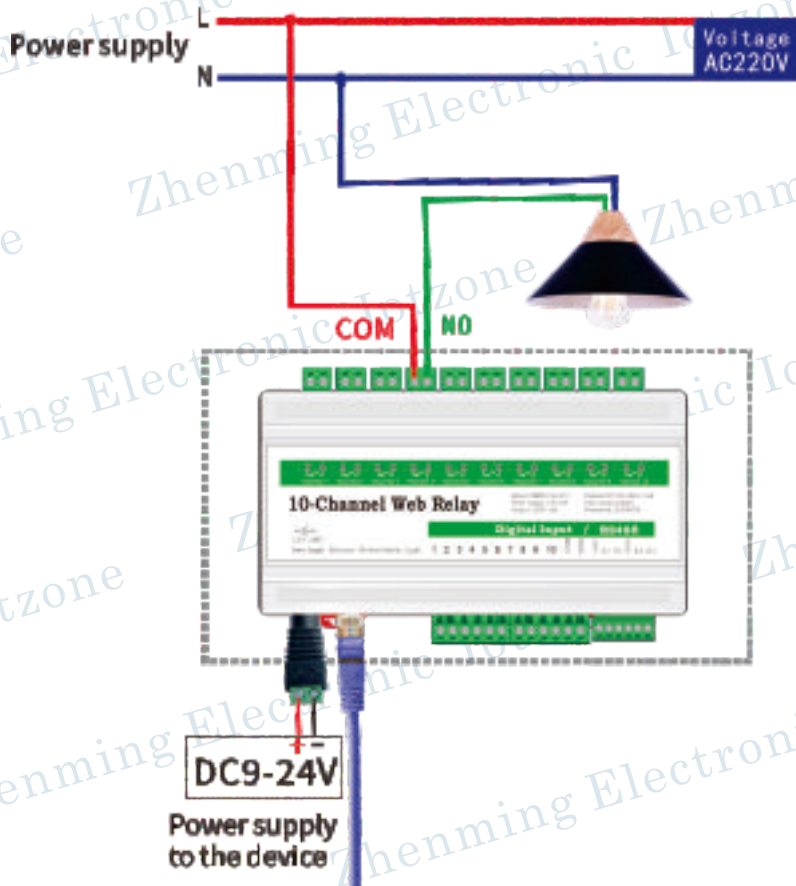
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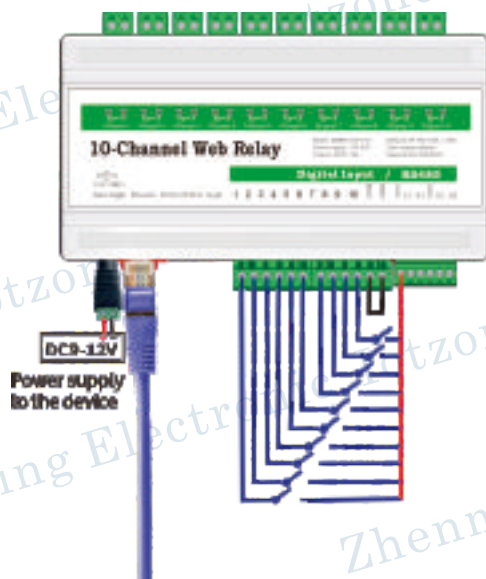
## Hardware connection

1.The basic hardware connection is as follows:

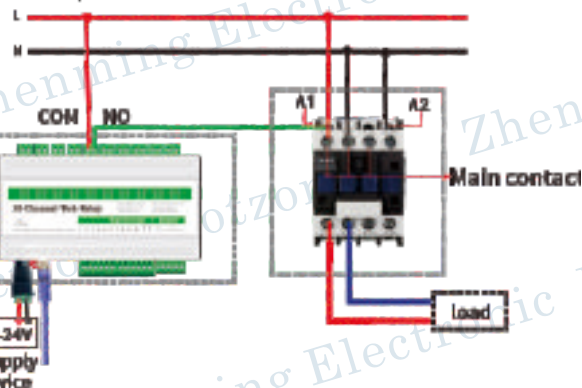
### AC 220V equipment wiring method



### With neutral line AC 220V to connect motor, pump and other equipment wiring



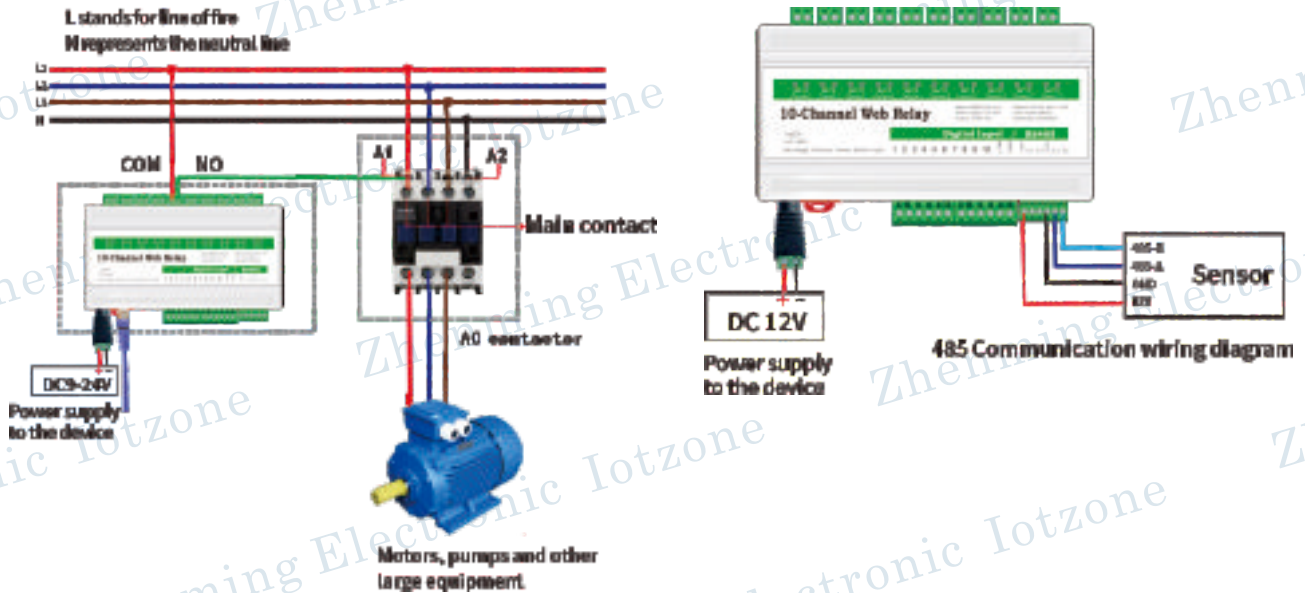
L stands for line of fire  
N represents the neutral line



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**With neutral line AC 380V to connect motor, pump and other equipment wiring**



## 2. Interface Introduction

Including 2 above the entire board  $\times$  10 wiring terminals, each representing 10 sets of relay outputs. When the relay is closed, both wiring terminals are disconnected; In the open state of the relay, both wiring terminals are conducting. A relay is similar to a switch.

Below the PCB board, from left to right, there are external power inputs, network cable interfaces, initialization buttons, and 10 input terminals. There are 2 sets of 485 terminals, and A2 and B2 are sensor interfaces.

The standard power supply is 12V/2A, and this product supports wide voltage input. The input range is normal from 9V to 24V.

The initialization button is used to initialize network parameters. Connect the network port to a router or computer for communication.

10 input nodes 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. Digital to VDD, COM to GND, never connect VDD and GND together.



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## Network Configuration

### 1. Connect to computer (DHCP prohibited)

Just ensure that the computer and controller are on the same network segment and do not used automatically obtain IP, as shown in the right figure.

### 2. Connect the router

#### 2.1 Non DHCP Access

You need to configure the IP of the controller to be in the same network segment as the router Incoming device IP.

Connect the controller to the network cable and plug it into the LAN port of the router, computer. Connect to the same router and enter in the browser <http://iotzone/>.



### 3. Controller configuration

The default parameters of the controller are as follows, which you can modify based on your local area network.

After modifying the HTTP port and MAC address, power on 2 minutes after powering off. If you have multiple controllers connected to the local area network unable to access in the network, please check for IP conflicts or MAC conflicts.

Users can choose whether the relay needs to be saved after power failure based on their own functions, and can also choose whether the input and output need to be associated (association means that the input changes, and the relay output also changes).

The default communication input is enabled and it is not recommended for customers to modify it themselves, as this feature is hardware related.

If you need to customize the static IP settings, please turn off the DHCP function and modify parameters such as IP, gateway, DNS, and then restart the device. At this time, you can access the controller using the set IP address.

Reboot the device to achieve software restart function, which is consistent with the effect of power outage restart.

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## Operation and usage

### 1. Installation instructions

- (1). Proper wiring is described by interface;
- (2). Power the controller 12/1A, plug in the network cable; Please wait 5 minutes after power-up;

### 2. Reset button use (one-click factory reset)

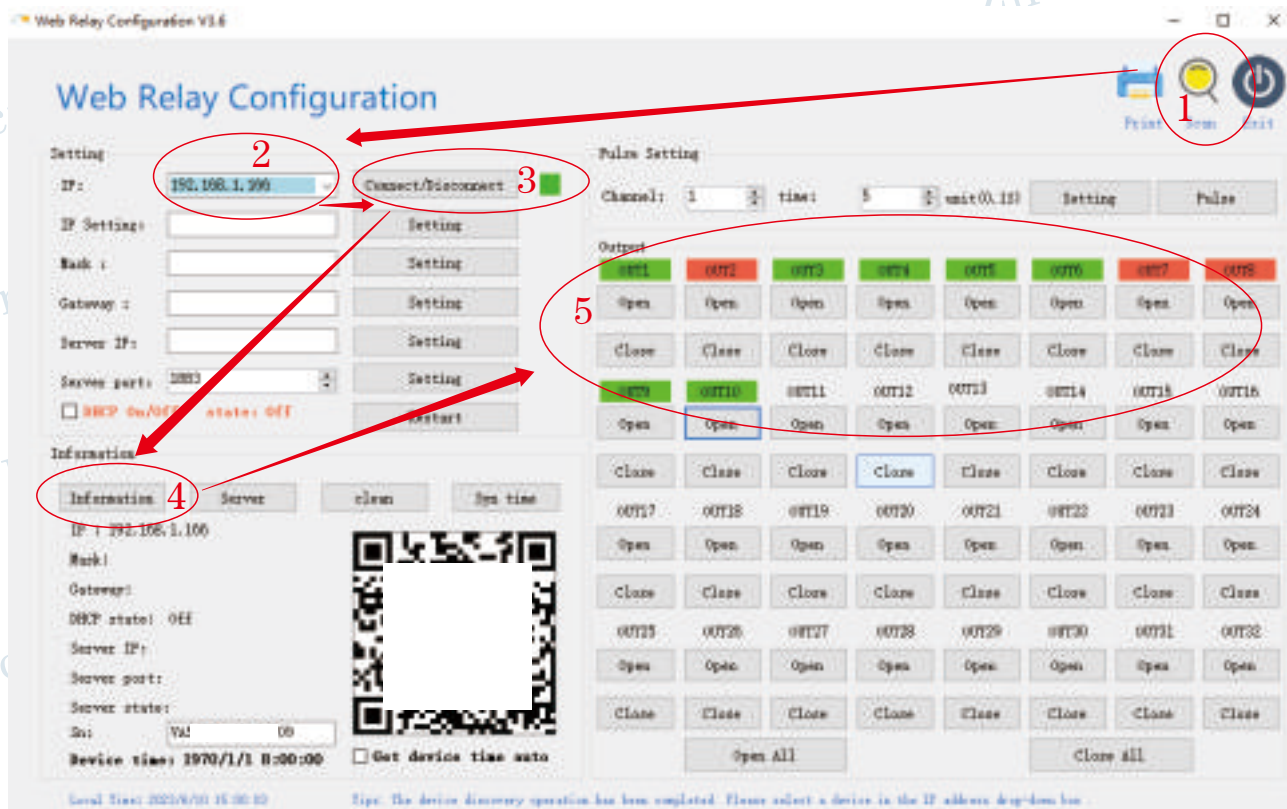
- (1) Emergency shutdown of all relays: in the working state, press the reset button to turn off all relays;
- (2) Reset parameters: power off the device, press and hold the black button next to the network port, power up the device, wait for 30 seconds, and then release the button. (\*Please do it in order)

### 3. Instructions for use

\*Power up the device and plug the network cable into the router.

\*Open the "Zhenming Electronic Device Configuration Software-Web Relay Configuration".

The operation steps are shown in the following figure:



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## LAN access

(1) Enter HTTP://IOTZONE/ in the Google Chrome browser, and the following will appear on the right:

(2) In the username box, enter the ADMIN password and enter 12345678. If you have changed the password, please enter your modified password.

(3) Click Login, the main page of the web page appears, and select the English interface

Sign in to access this site  
Authorization required by http://192.168.1.100  
Your connection to this site is not secure

Username:

Password:

网络控制器

- 开关控制
- 设备配置
- 系统配置
- 定时配置
- 场景设置
- 电能计量
- 传感器
- 扩展设置
- 智能RS485
- English

Ethernet IO controller

- IO Control
- IO Settings
- System Settings
- Timer Settings
- Scene Settings
- Electric Energy
- Sensor
- Sensor Settings
- RS485 Settings
- Chinese

## Equipment parameter settings

According to your usage habits, enter a familiar name for each controller configuration, and click OK to complete the configuration. Upper The bit software will automatically synchronize the device name and output channel name.

At this point, the relay control interface will display the name you have configured and the set touch time, which can be set to 0.1-6000 seconds, actual touch time=set time \* 0.1s.

[IO Control](#) | [IO Settings](#) | [System Settings](#) | [Timer Settings](#) | [Scene Setting](#) | [Electric Energy](#) | [Sensor](#) | [Sensor Settings](#) | [RS485 Settings](#)

### IO Settings

Set the time of pulse, the maximum of time is 6000 seconds.

Item	Settings
Device Serial Number(SN)	WA5d759349d9c709
Relay1 (0.1s)	<input type="text" value="10"/>
Relay2 (0.1s)	<input type="text" value="10"/>
Relay3 (0.1s)	<input type="text" value="10"/>
Relay4 (0.1s)	<input type="text" value="10"/>
Relay5 (0.1s)	<input type="text" value="10"/>
Relay6 (0.1s)	<input type="text" value="10"/>
Relay7 (0.1s)	<input type="text" value="10"/>
Relay8 (0.1s)	<input type="text" value="10"/>
Relay9 (0.1s)	<input type="text" value="10"/>
Relay10 (0.1s)	<input type="text" value="10"/>





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## LAN access

The relay can be operated on and off through the switch control. The light bulb icon is blue when the relay is off, and yellow when the relay is on. If you want to get the current status, please refresh the webpage. Touch to automatically close the relay after a delay period of time when it is opened. The delay time is described in the device parameter settings.

[IO Control](#) | [IO Settings](#) | [System Settings](#) | [Timer Settings](#) | [Scene Setting](#) | [Electric Energy](#) | [Sensor](#) | [Sensor Settings](#) | [RS485 Settings](#)

### IO Control

Item	Settings		
Relay1	ON	OFF	PULSE
Relay2	ON	OFF	PULSE
Relay3	ON	OFF	PULSE
Relay4	ON	OFF	PULSE
Relay5	ON	OFF	PULSE
Relay6	ON	OFF	PULSE
Relay7	ON	OFF	PULSE
Relay8	ON	OFF	PULSE
Relay9	ON	OFF	PULSE
Relay10	ON	OFF	PULSE
ALL	ON	OFF	

## Timer settings

The current time can be manually set in the upper half of the timed operation interface, and generally there is no need for users to manually set it. When connected to the network

In this case, it will automatically synchronize with the national time server. If it is found that synchronization is not possible, the possible reason is that the device is unable to access the internet normally. If there is an error between the device time and the computer time, it may be due to inaccurate computer time.

[IO Control](#) | [IO Settings](#) | [System Settings](#) | [Timer Settings](#) | [Scene Setting](#) | [Electric Energy](#) | [Sensor](#) | [Sensor Settings](#) | [RS485 Settings](#)

### Timer Settings

Here you can set the time, and the timer parameters

15:27:34

MON

Time Format	Setting
Year-Month-Day	2023-4-17
Hour-Minute-Second	15-27-27
Week	1
NTP IP	123.67.12.252
Time Zone	8

OK Undo

The upper part of the webpage can be manually set by setting the time, such as year, day, hour, minute, second, and week. After setting it, click OK.

Through the webpage, 16 sets of timing switches can be set to input the timing time (which can be accurately timed to seconds). Enabling requires a scheduled week, with 0 indicating prohibition and 1 indicating enabling. From left to right, they are Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday.

Channel output, when the time is up, triggers the output. 0 means to turn off the relay, 1 means to turn on the relay, 2 means to touch, indicating to maintain the previous state without action (if it was on or off before), and from left to right, it represents relays 1-10. After setting up, click OK at the bottom.

Method to turn off the timer: Set all weeks to 0 and all outputs to.

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Item	Timer Time	Week Cycle	Outputs
定时1	6-4-0	0000000	0000000000
定时2	6-4-0	0000000	0000000000
定时3	6-4-0	0000000	0000000000
定时4	6-4-0	0000000	0000000000
定时5	6-4-0	0000000	0000000000
定时6	6-4-0	0000000	0000000000
定时7	6-4-0	0000000	0000000000
定时8	6-4-0	0000000	0000000000
定时9	6-4-0	0000000	0000000000
定时10	6-4-0	0000000	0000000000
定时11	6-4-0	0000000	0000000000
定时12	6-4-0	0000000	0000000000
定时13	6-4-0	0000000	0000000000
定时14	6-4-0	0000000	0000000000
定时15	6-4-0	0000000	0000000000
定时16	6-4-0	0000000	0000000000

OK Undo

### Scenario settings

Scenario settings are used to set the mapping relationship between input and output. The default is one-to-one correspondence between input and output, and the input is off, while the output is off; Input on, output on. The scenario status indicates the association status between input and output, and if it defaults to association, "Enable" is displayed. Here, complex logical relationships can be achieved through settings, such as connecting a physical switch to an input implement full open and close actions, as shown in the following figure:

The scenario function has strong flexibility and requires users to explore and research more in order to achieve stronger and more complex logical relationships.

[10.Control](#) | [10.Settings](#) | [System Settings](#) | [Timer Settings](#) | [Scene Setting](#) | [Electric Energy](#) | [Sensor](#) | [Sensor Settings](#) | [RS485 Settings](#)

### Scene Setting

Each input can trigger a different state of the 8 outputs, default for input 1 trigger output 1. 0 indicates that the relay is closed, 1 indicates the relay is open, and the 2 represents the point touch, X said no action

Item	Input off	Input on	Output
Input 1	00000000	10000000	enable
Input 2	01000000	01000000	enable
Input 3	00100000	00100000	enable
Input 4	00010000	00010000	enable
Input 5	00001000	00001000	enable
Input 6	00000100	00000100	enable
Input 7	00000010	00000010	enable
Input 8	00000001	00000001	enable
Input 9	00000000	00000001	enable
Input 10	00000000	00000001	enable

OK Undo

### Sensors

The sensor values can be viewed in real-time in the sensor, and the page will automatically refresh. When there is no sensor connected, the data is 0.

The parameter settings of the sensor refer to "8 Extension Settings".

[10.Control](#) | [10.Settings](#) | [System Settings](#) | [Timer Settings](#) | [Scene Setting](#) | [Electric Energy](#) | [Sensor](#) | [Sensor Settings](#) | [RS485 Settings](#)

### Sensor

Item	Temperature(°C)	Humidity(RH%)	CO2(ppm)	PM2.5(μg/m3)	Light(Lux)
Sensor 1	0.0	0.0	0	0	0
Sensor 2	0.0	0.0	0	0	0
Sensor 3	0.0	0.0	0	0	0

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## Extension Settings

Expansion settings mainly utilize the controller expansion interface to connect external sensors, where relevant sensor parameters can be configured. Additionally set the sensor threshold to trigger and achieve closed-loop automatic control.

[IO Control](#) | [IO Settings](#) | [System Settings](#) | [Timer Settings](#) | [Scene Setting](#) | [Electric Energy](#) | [Sensor](#) | [Sensor Settings](#) | [RS485 Settings](#)

### RS485 Settings

Configure RS485 interface parameters here

Item	Settings
Baud rate	9600
Check bit	0
RTU to TCP modbus enable	<input type="button" value="Disable"/>
RS485 to MQTT enable	<input type="button" value="Disable"/>
Relay control by RS485 enable	<input type="button" value="Enable"/>
RS485 address(Serial relay mode valid)	3

The above parameters are relatively easy to understand, and the settings need to be consistent with the sensor, otherwise the sensor data cannot be read. The sensor function can be turned off without the need for a sensor.

For sensor threshold triggering to be implemented, the automatic control function must be enabled. The threshold must be an integer, not a decimal. The output is consistent with the scene function and timer function methods, but touch output is not supported.

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### Sensor Settings

Configure the sensor device parameters here, and the value needs to be an integer.output only supports on (1) and off (0). Please connect to port A2 and B2

Item	Threshold	Settings
Transformer ratio		1
Sensor rate		3
Scanning cycle(0.1s)		3
Sensor 1 address		1
Sensor 2 address		2
Sensor 3 address		3
Sensor function enable		<input type="button" value="Enable"/>
Sensor trigger enable		<input type="button" value="Disable"/>
Temperature 1 high threshold	0	xxxxxxxx
Temperature 1 low threshold	0	xxxxxxxx
Temperature 2 high threshold	0	xxxxxxxx
Temperature 2 low threshold	0	xxxxxxxx
Temperature 3 high threshold	0	xxxxxxxx
Temperature 3 low threshold	0	xxxxxxxx
Humidity 1 high threshold	0	xxxxxxxx
Humidity 1 low threshold	0	xxxxxxxx
Humidity 2 high threshold	0	xxxxxxxx
Humidity 2 low threshold	0	xxxxxxxx
Humidity 3 high threshold	0	xxxxxxxx
Humidity 3 low threshold	0	xxxxxxxx
CO2 1 high threshold	0	xxxxxxxx
CO2 1 low threshold	0	xxxxxxxx
CO2 2 high threshold	0	xxxxxxxx



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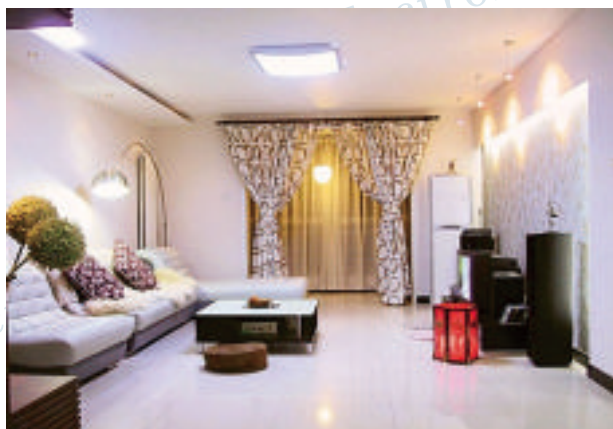
## Secondary development

Support the "ZMRN1016S3-V10 Communication Protocol .pdf" of Zhenming Electronics, which can be obtained from our company.

## Application occasions

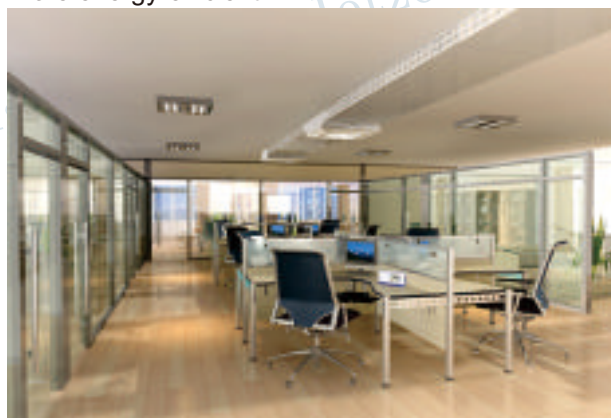
### Home Furnishings

Forget to turn off the lights when you go out, you don't have to turn back halfway. Lying in bed in winter, don't worry about the kitchen lights still on. You can turn on your home appliances anytime, anywhere, as you please.



### Office

You don't have to worry about turning off the water dispenser after work every day. Come to the office early to make a cup of coffee and start a new day of work. The company's lights, computers, water dispensers, etc. do not have to be in standby mode all the time, making the office smarter and more energy-efficient.



### Industry

The machines in the workshop and the lights on the assembly line can be controlled reasonably by sitting in front of a computer, making it more energy-efficient.



### Agriculture

The vegetables and fruits in the greenhouse need to be watered again. You don't need to run into the hot greenhouse, you can irrigate them at home.





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### Precautions for use

High voltage and strong current, please do not touch! Do not short-circuit! Please disconnect the power supply when wiring the controller! Please have a professional electrician perform the wiring operation!

### After sales support

Three year warranty

**Marketing Department:**

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