HLK-SW16 User Manual

Serial to Ethernet

Shenzhen Hi-Link electronic Co., LTD

1 Summary

HLK-SW16 is a new professional remote control terminal launched by Hi-Link electronic , is a realization of TCP through the gateway and establishes communication connection with the remote device, it can be based on without modifying the original protocol, to realize the connection of network client and equipment directly, save the development cycle, enhance the user experience.

Compared with the traditional dynamic domain name plus router port mapping mode,has the incomparable superiority, for the user saving the application of dynamic domain name, the router port mapping and frequent operation, make equipment to achieve the plug-in effect.

1.1 Technical Specifications：

Table1 HLK-SW16 Technical Specifations

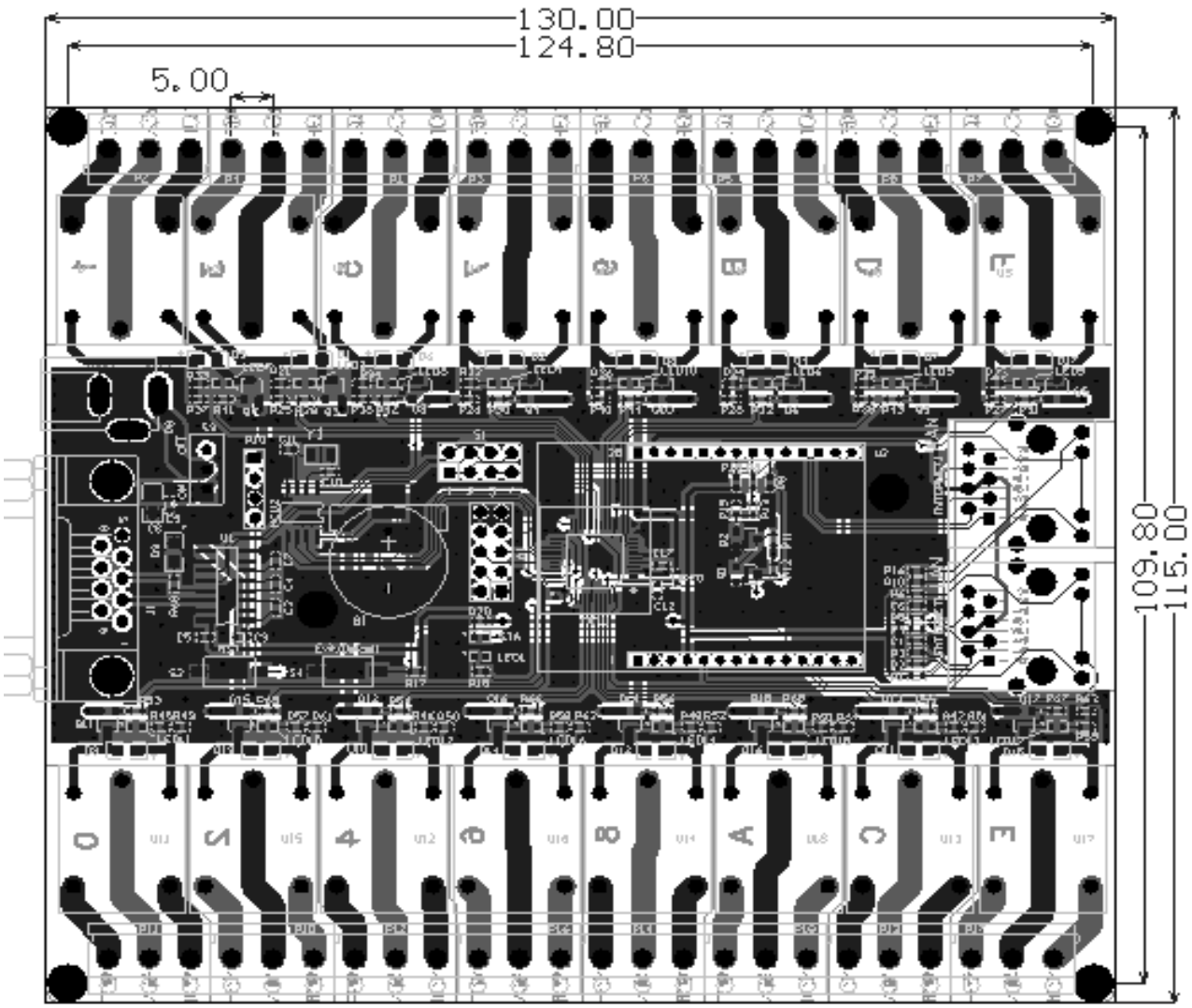
Network standard	wireless：IEEE 802.11n、IEEE 802.11g、IEEE 802.11b
	wired：IEEE 802.3、IEEE 802.3u
Wireless transmission rate	11n: maximum up to 150Mbps 11g: maximum up to 54Mbps 11b: maximum up to 11Mbps
Tracks number	1-14
Frequency range	2.4-2.4835G
Emission power	12-15DBM
Interface	2 Ethernet,1 serial,1 5V power interface
Antenna	
Antenna type	External Antenna
Functional Parameters	
WIFI work mode	Client/AP/Router
WDS Function	Support WDS wireless bridge connection
Wireless security	Wireless MAC address filtering
	Wireless security function switch
	64/128/152 bit WEP encryption
	WPA-PSK/WPA2-PSK、WPA/WPA2 security mechanism

Network management	Remote Web management
	Configuration file import and export
	WEB software upgrade
Serial to Ethernet	
Maximum transmission rate	500000bps
TCP connection	Max connection number>20
UDP connection	Max connection number>20
Serial baud rate	1200~500000bps
Other Parameters	
Status indicator	Status indicator
Environmental standard	Operating temperature：-20-70℃
	Operating humidity：10%-90%RH（noncondensing）
	Storage temperature：-40-80℃
	Storage humidity：5%-90%RH（noncondensing）
Additional properties	Frequency bandwidth optional：20MHz、40MHz，Automatic

1.2 Electrical Characteristics

1. Input Power: 5V
2. Input Current: 2A
3. Relay Maximum input voltage: 220v
4. Relay Maximum Input Current: 10A
5. Input and output: 16 outputs
6. Default IP: 192.168.16.254
7. The default port number: 8080
8. Networking Series: No restrictions

1.3 Dimensions

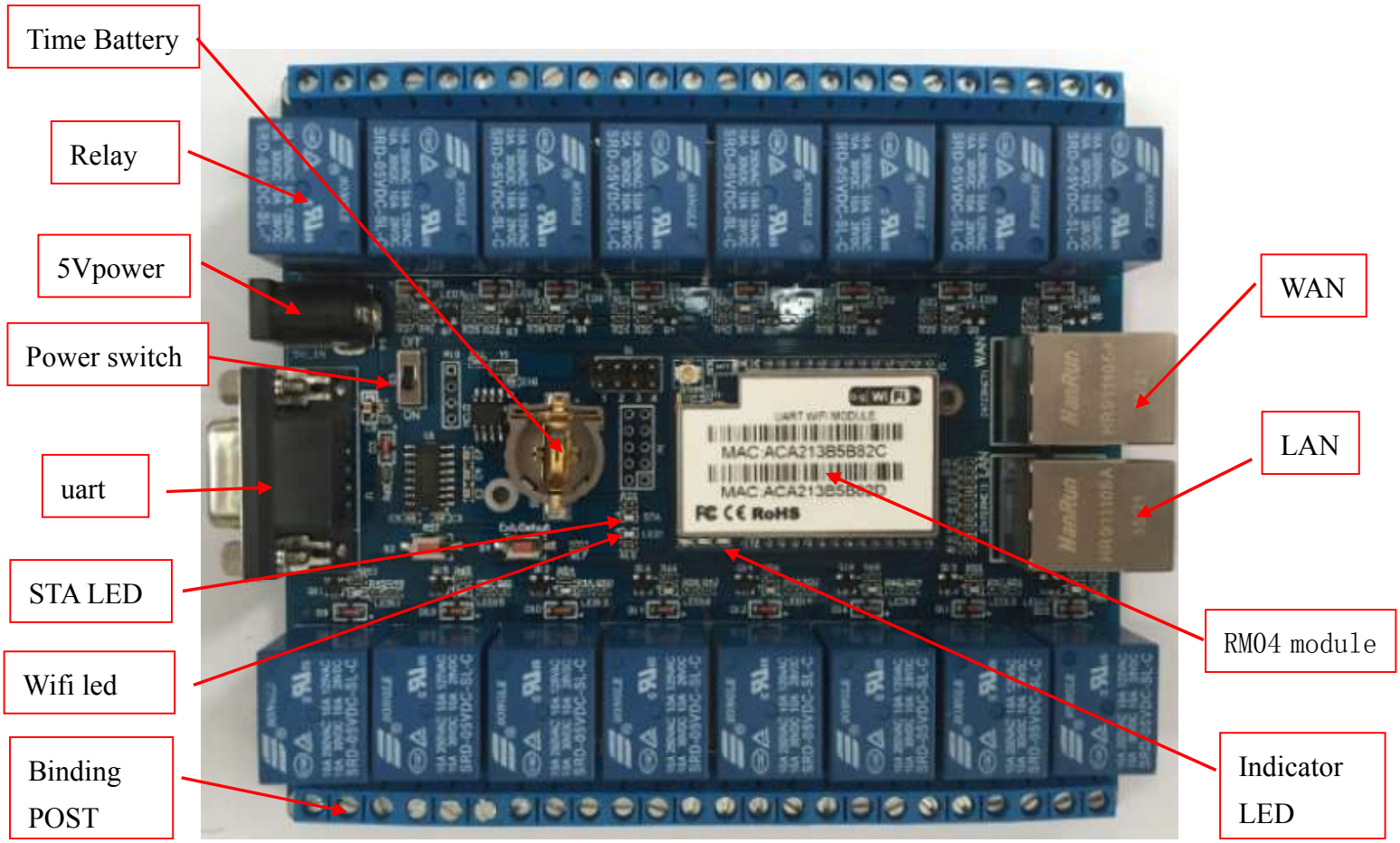


HLK-SW16 Dimension（TOP view）

Note：130×115×19mm

1.4 Hardware instruction

Some features of based board are shown below :



HLK-SW16 STARTKIT

Interface introduction

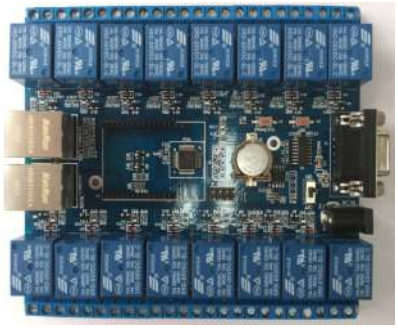
Function	Name	Tag No.	Description
Outside interface	DB9	J1	RS232 interface，For data communications and execute AT commands
	DC5V	P1	DC 5V input voltage range: 4.5-5.5V
	Status Light	LED1	Microcontroller running status lights, 1 second flash once
	Network port	LAN,WAN	WAN:with router function，LAN:without router

			function
	Binding Post	P1-P8	16 way 220v，10A relay
LED	STA	STA	Indicates the connection status of the client and the server: ON: client and server has been connected Off: client and server is not connected Flashing: The client and server is going on data communication
	WIFI		WIFI indicator, when wifi working, wifi light starts blinking, if it has data transmission , accelerate flashes
	LED3-18	LED3-18	Indicates the Work status of relay ON: relay works OFF: relay break
Button	RST	RST	MCU reset
	Exit/Default	Exit/Default	**Short Press (0.5-5 seconds): module go into the AT command mode** **Long press (more than 6 seconds): restore factory default settings**

1.5 Typical Application

- Handheld device
- Remote control
- Consumer Electronics
- IOT application
- Industial control
- Medical device
- LED control
- Sensor network application

Note: To ensure the normal operation, please ensure that you have bought our HLK-SW16 development kit. As shown below

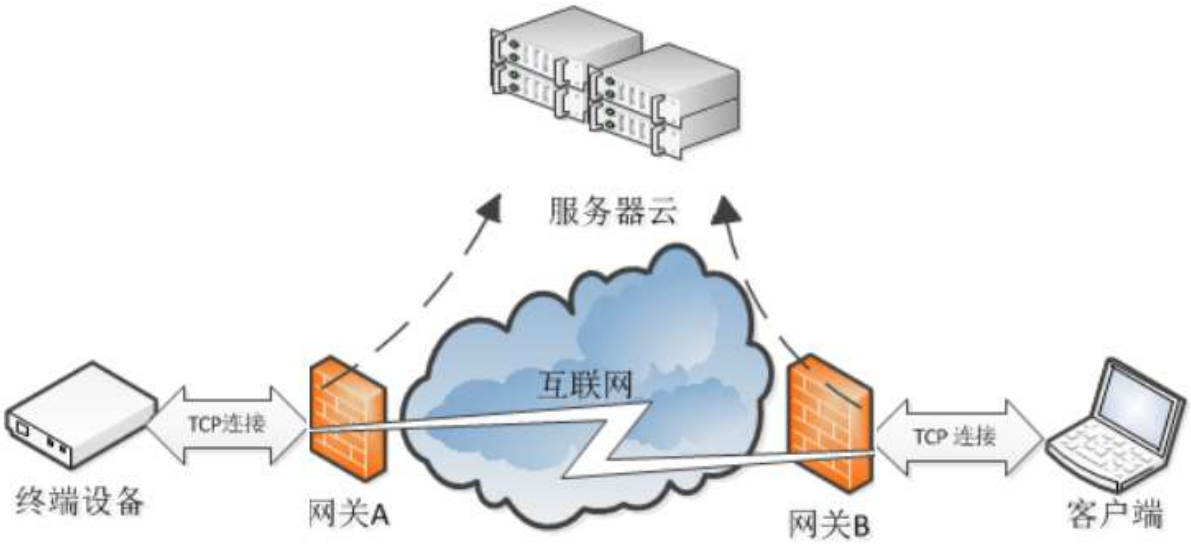
	HLK-RM04 module P2P version
	HLK-SW16 based board
	2.4G flexible antenna
	5V 2000mA power supply
	Network Cable (optional)

Please connect the module well as the way shown in the followed picture:

Please note the direction that the HLK-RM04 module plug in the carrier board!

2.1 System principle.

The whole system consists of server, terminal program and client components, as shown in fig.:



1) server

Receiving device and client registration, to assist the client to find equipment and establish the connection

2) device

Automatically connect to the server after the device is started

3) the client

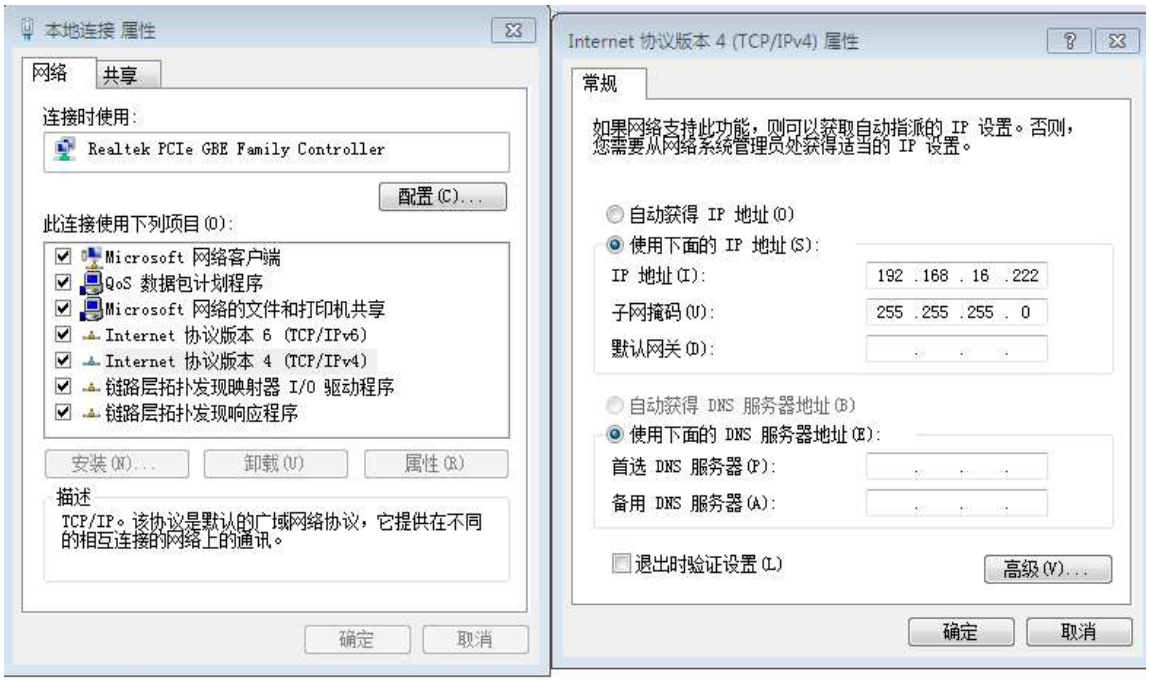
Run the client will automatically connect to the server, to establish a connection to terminal equipment with the aid of a server.

2.2 Look over the module P2P account and password

1 To ensure that the RM04 module is in the factory default settings.Method for Restore factory settings: to power on the module , wait for about 35 seconds. Then press the Exit/Default button on the based board more than 6 seconds,then the module will restart automatically.

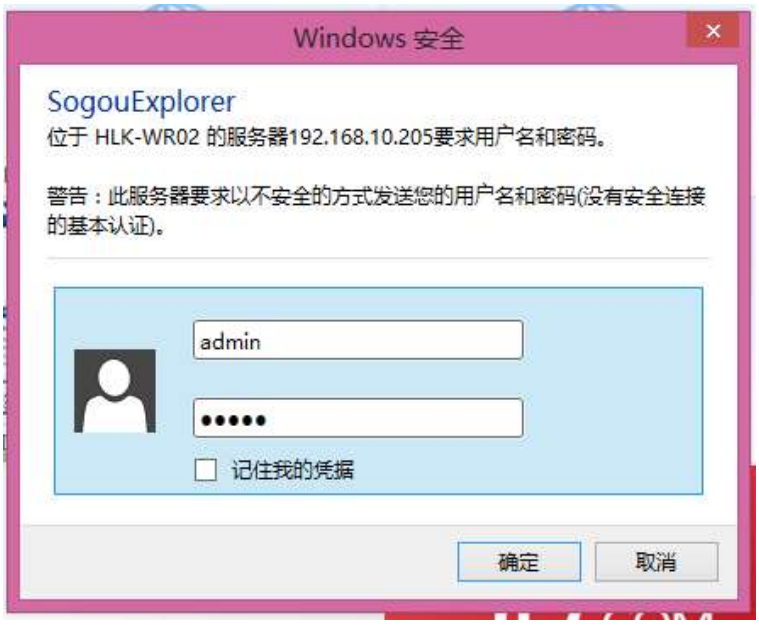
2 Power on the module again, waiting for 35S, the LEDs on the module flashing .

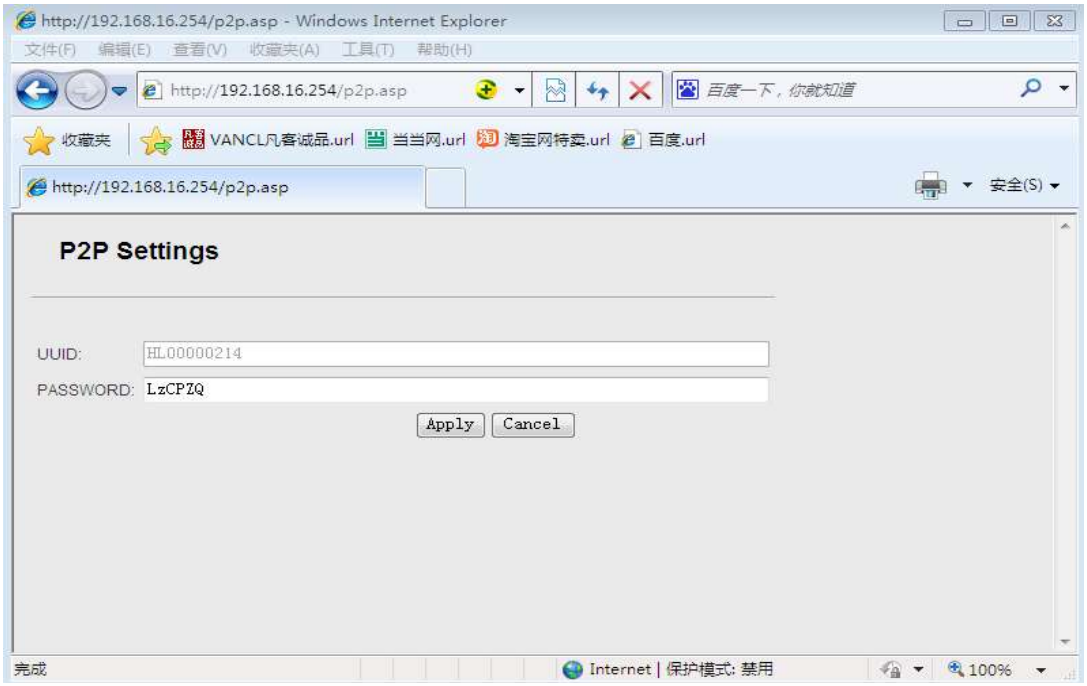
3 Use Ethernet cable connect the computer and the module LAN port, configuration the computer’s IP and module’s IP in the same network segment, Set path: Control Panel - "Network and Internet-" Network and Sharing Center - "Change adapter settings -" local connection - "Properties -" Internet Control Version 4 (TCP / IPv4), as shown:as shown in fig.:



(You can also use a computer or cell phone to connect module's Wifi)

4. Enter the 192.168.16.254/p2p.asp in your computer's web browser,enter the user name admin,password admin, click OK. To view account and password; at the same time, can change the password on this interface (account can not be modified). Shown as the following diagram:





(Note: the account and passwords are case sensitive！！！)

2.3 Open P2P software, enter the account number and password, and click Connect, as shown in the picture below：

1.Connection

If SW16 module in the LAN, then the software will automatically connect to the module through Lan, if not , the software will automatically connect to the module through remote way .

Note: This picture shows is the PC side, If you use mobile client,just as same way

2. Connection Status Displays

The lowermost interface 局域网连接：已连接 displays the connection status.

3. Time Dispaly

The bottom screen display items 15/7/31-11:3:44-5 shows the current time

4. On and off

Click the button 0 Can control the opening and closing of the relay 0, click the all open 全开 all closed 全关, the 16 groups can be fully open and fully closed.

5. Time calibration

SW16 comes with clock chip, you can click 时间校准 button to upgrade the time

6. Advanced Button

Click the Advanced button to expand the interface, from where you can control corresponding properties through the button. Shown as below:

7. Modify button's name

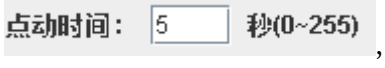
For example, You want to change the Button 0 to T.V, firstly, you need to click on the button 0, in the place here 

will show the name of this button,, modify the 0 to TV , Then click the 

button, after that you will find the button 0 become to TV already.

8. Set inching function

Firstly choose one button you want to set for, click on the button 

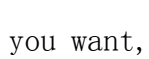
, in the inching time item 

, input the time you want to set, like 5 , then click the button commit 

, If the pop-up prompt window reads: 出提 

, it means you already set the inching function successfully. When you open the button, it will close automatically after 5 second.

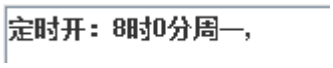
9. Set the timer function

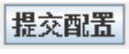
First choose the button you want, like 0, select timer 

, then you can set timer function now., if you want to set the time to 8am On Monday, set it firstly 

, then click the add button 

, Then you will get the clue 

, at this time, the time you add will show in the time list: 

, click the submit button 

, when you get the pop-up window 

, it shows the timer function for 0 have finished. On Monday 8AM, the relay for button 0 will open auto. If you want delete it, just choose the time in the list 

, then click delete button 

, you will get clue window 

, it means the time have been deleted.

10. Remove the inching and timer function

First, click the botton like 0, then choose the button 

or 

, then click thesubmit button, if you see the po-up window 

, which shows you have remove it succesfully.

11. Inquiry

Fist click the button like 0, then click on the inquiry button, you can see the parametersof button 0.