



IOT Relay User Manual

V1.9.8.1

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1 Product Overview

1.1 Overview

Support Ethernet, WiFi, RS485, CAN
10/100Mbps ethernet, Auto-MDIX,DHCP ip,Static IP
WiFi 802.11 b/g/n, MAX 150Mbps
Digital input, can be Local Button control(SelfLock/Jogging/Delay)
Support RELAY On/OFF/Jogging/Delay.
Support HTTP GET CGI, UDP, TCP Server, TCP Client
Support Modbus-RTU/ASCII/TCP/UDP/WIFI
Support Modbus-RTU Over TCP/UDP/WIFI
Support Modbus-ASCII Over TCP/UDP/WIFI
Support WEB control
Support MQTT, CoAP
Support NTP, IP Watchdog, Task timer
Support Domoticz, Home Assistant, openHAB

Home Automation System Support:

Name	How to
Domoticz	Appendix II How to use Domoticz https://github.com/dtlzp/Domoticz-Dingtian-Relay-Plugin Software version <=V2.16.xx, please use V1.1 for github software version >=V2.17.xx, please use V1.2 for github
Home Assistant	Appendix VI How to Home Assistant
openHAB	Appendix VII How to openHAB

Notice:

- 1 Close your firewall
- 2 All command and script run as root/administrator

SDK download link:

http://www.dingtian-tech.com/sdk/relay_sdk.zip

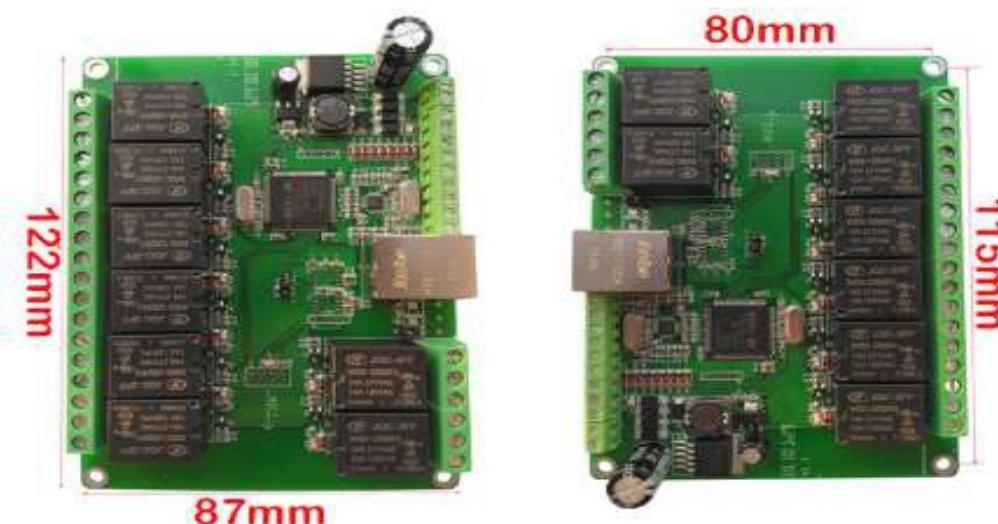
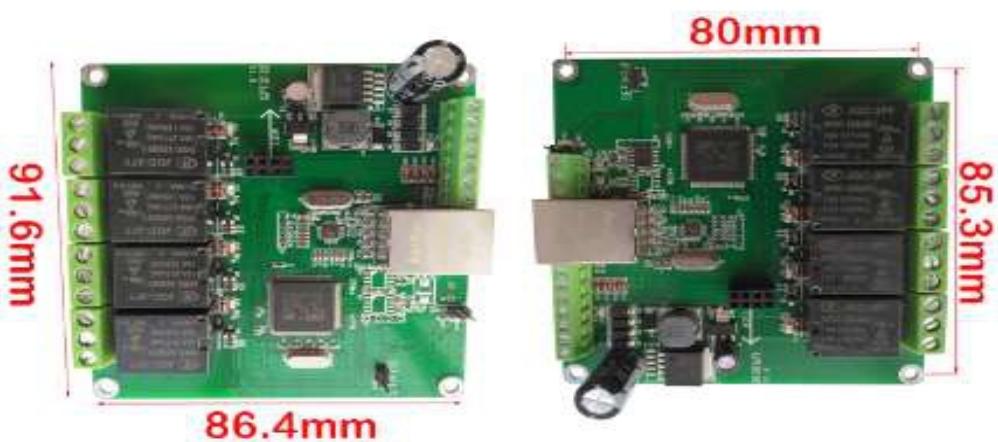
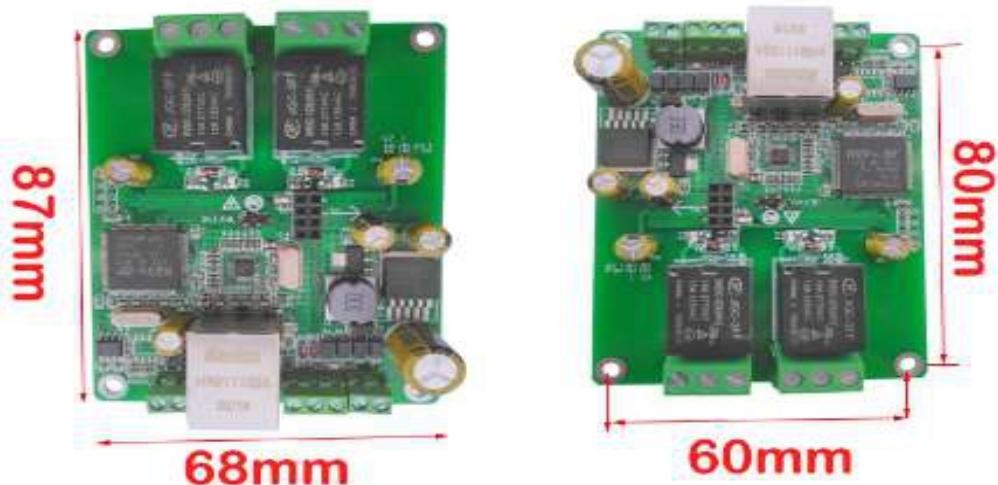
1.2 Technical Parameters

Function	Interface	RJ45/ RS485/CAN/WIFI
	Baudrate	100M/115200bps/125kbps/150Mbps
	Protocol	TCP server/client, UDP HTTP GET CGI, Modbus-RTU/ASCII/TCP/UDP/WIFI Modbus-RTU Over TCP/UDP/WIFI Modbus-ASCII Over TCP/UDP/WIFI MQTT CoAP
	Home Automation System	Domoticz Home Assistant openHAB
	Others	NTP IP Watchdog Task timer
Output	Relay Power	AC 250V/10A,DC 30V/10A
	Contacts	Normally Close(NC) Normally Open(NO)
	Delay	1~65535 seconds
	Momentary	Pull in 0.5 seconds, automatically release
Temperature and Humidity	Storage temperature	-40°C to +70°C
	Operating temperature	-20°C to +70°C
	Relative humidity (during operation)	25°C @ ≤95%, no condensation
Power	Power Specifications	12/24VDC(recommend) 12/24VAC
	Current	2 channel: 0.15A/12V(recommend 1A/12V) 4 channel: 0.25A/12V(recommend 1A/12V) 8 channel: 0.5A/12V(recommend 2A/12V)
	Power consumption	2 channel: 2W 4 channel: 3W 8 channel: 5W

2 Image and Size

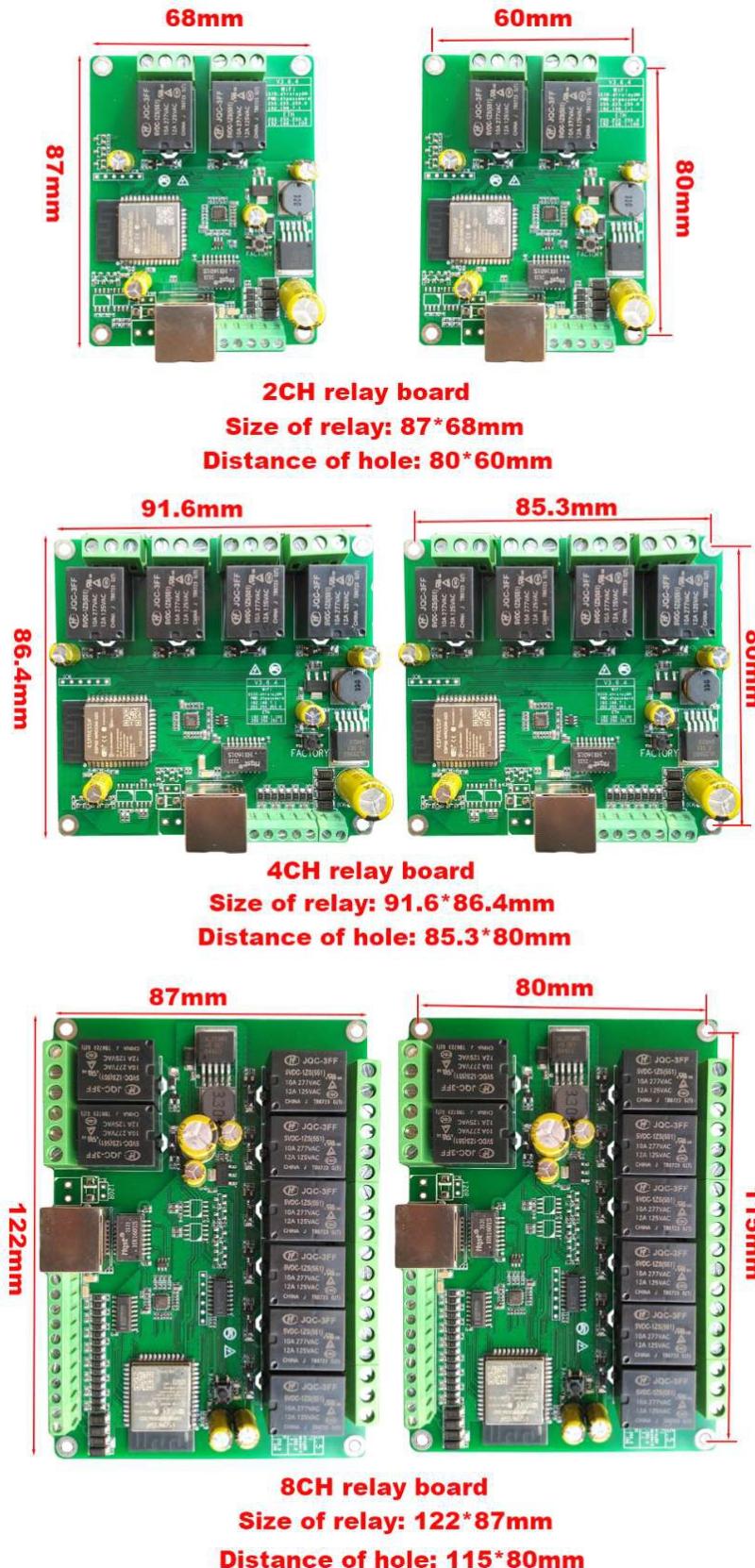
2.1 Hardware version <3.x.x

Hole size: 3.5mm



2.2 Hardware version >=V3.x.x

Hole size: 3.5mm



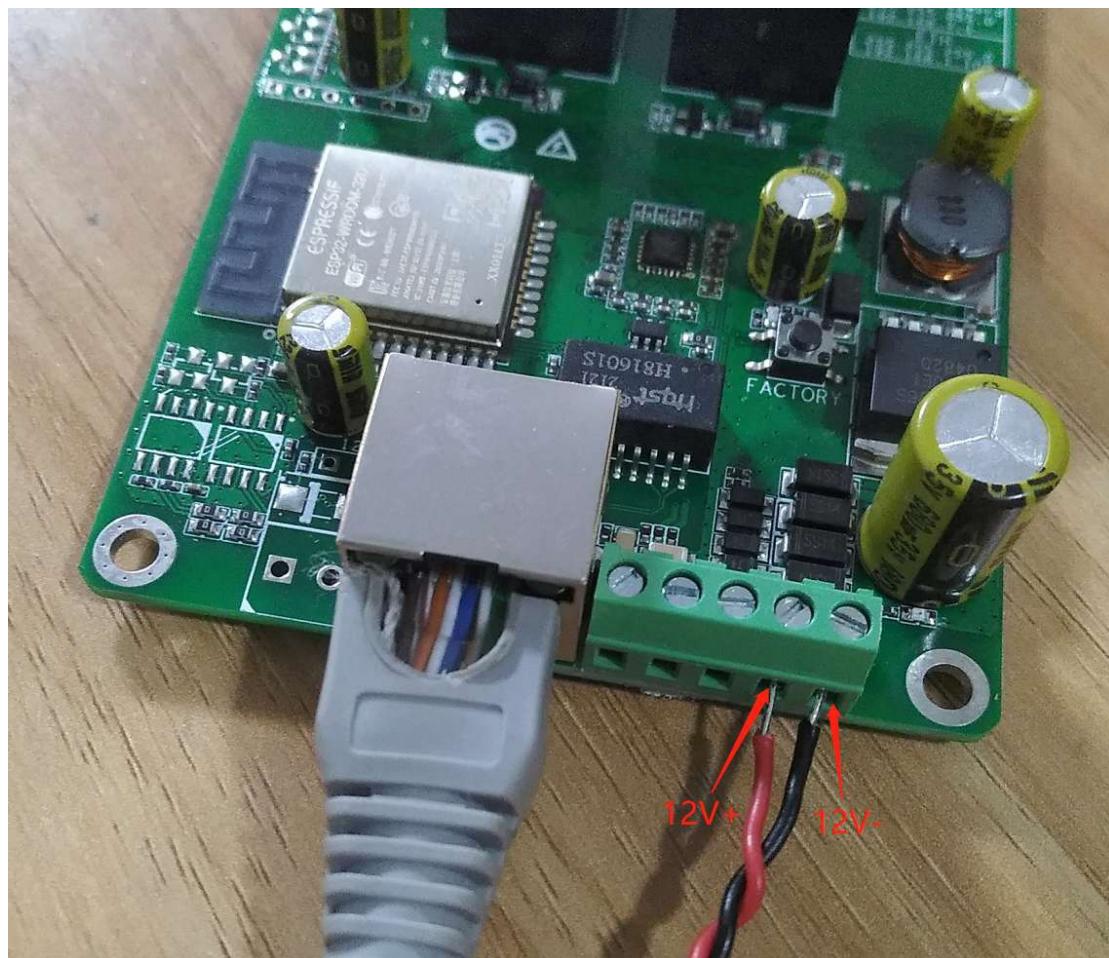
2.3 Case

The 2CH,4CH,8CH Case is ABS material, Standard DIN35 rail installation

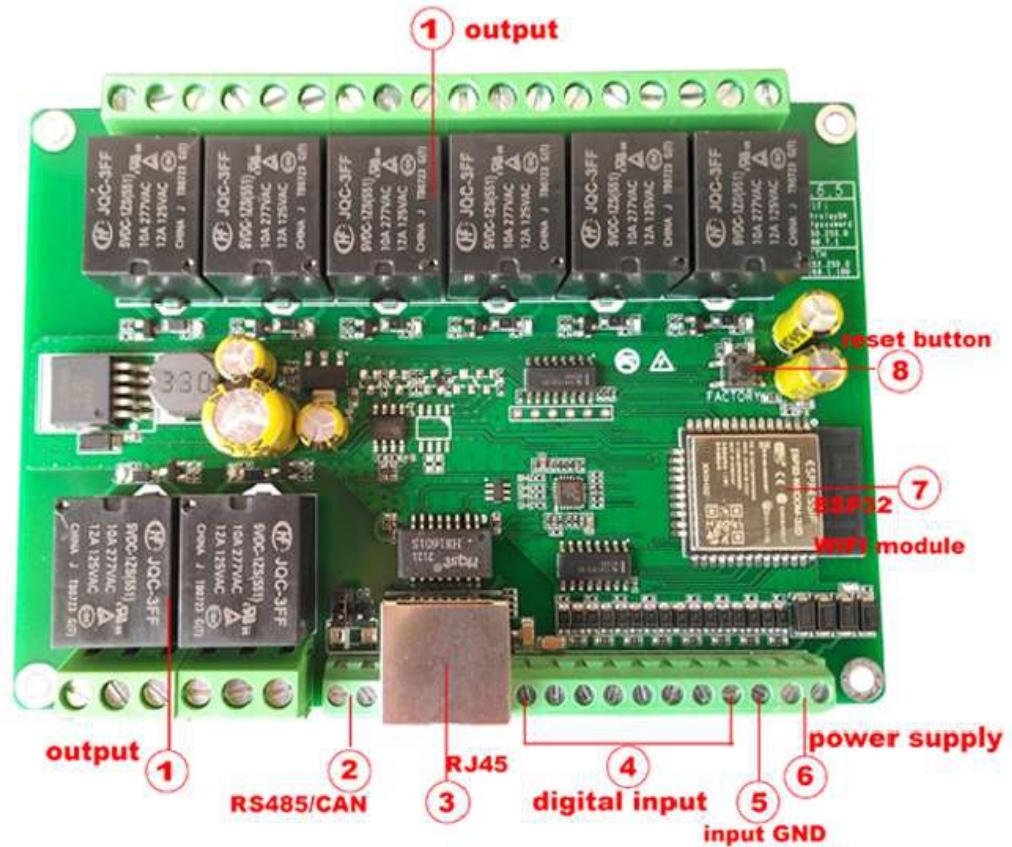


3 Interface Description

3.1 Power Supply

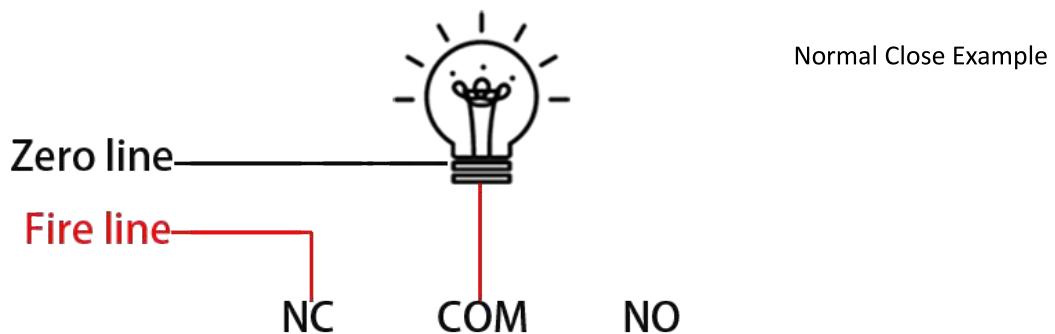


3.2 Funcation

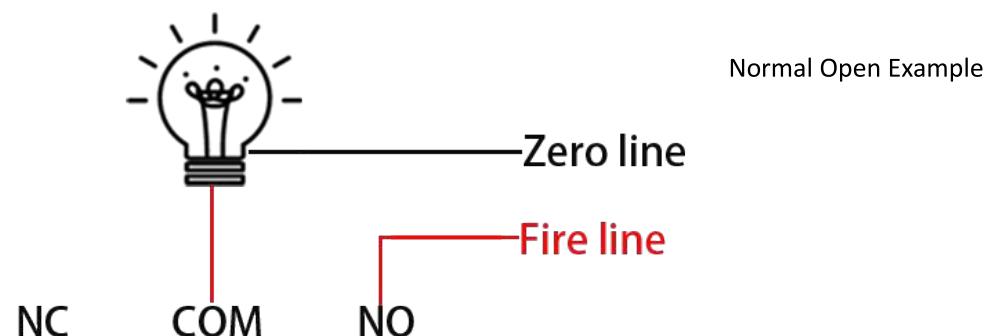


3.3 Relay Contact

Connect Example:



Normal Close Example

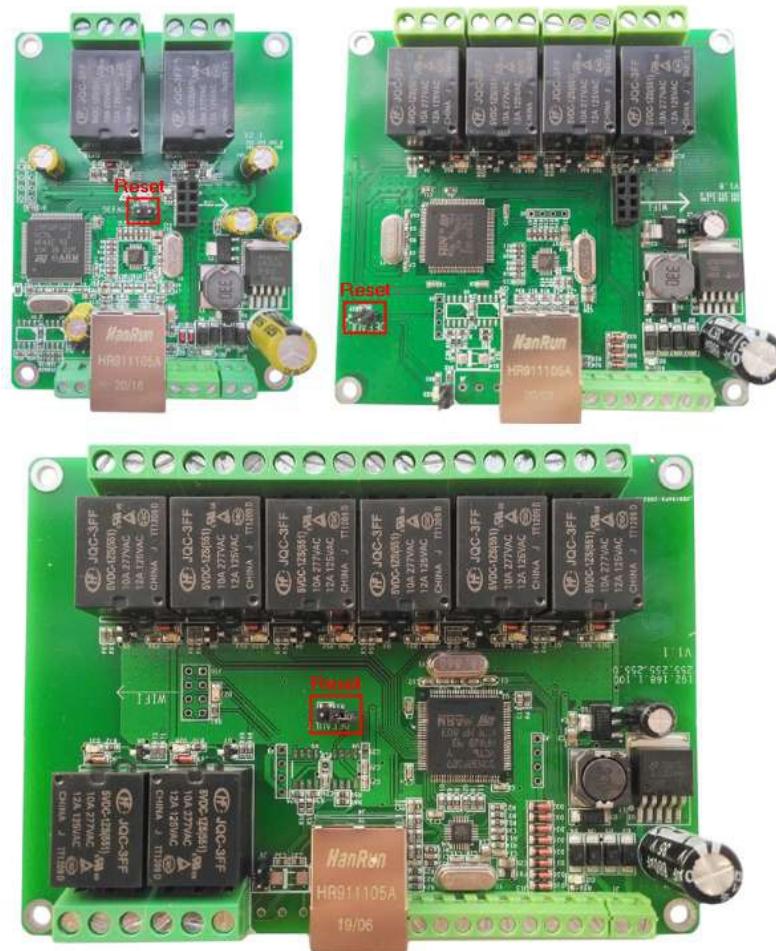


Normal Open Example

3.4 Reset To Factory

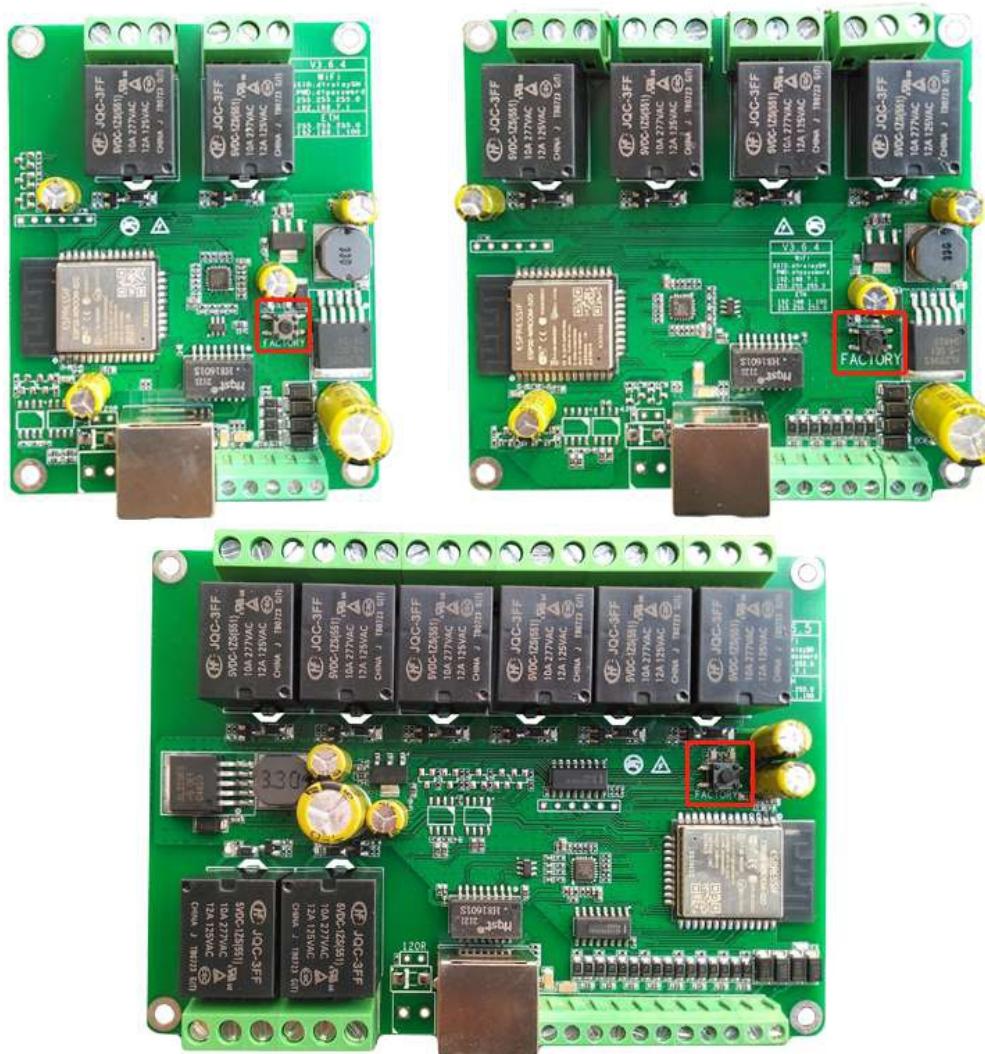
3.4.1 Hardware Version <V3.x.x

1. Short-circuit the 2 pin headers under the Default assembly with a jumper cap



- 2 Power off the relay board
- 3 Power on the relay board
- 4 Pull out the Default jumper cap

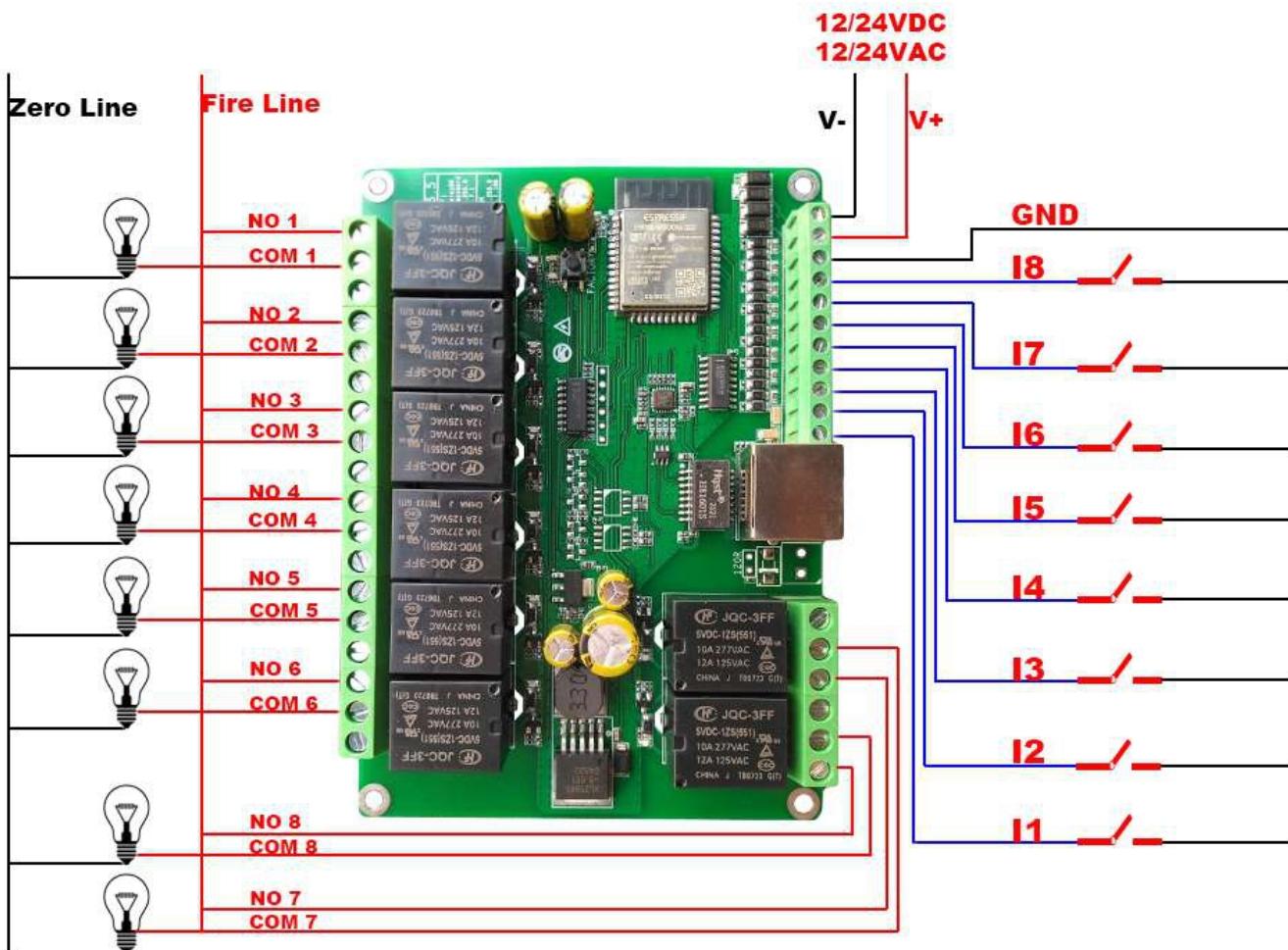
3.4.2 Hardware Version >=V3.x.x



- 1 power on relay board, wait 10 second
- 2 press "FACTORY" button(left light will ON)
- 3 wait 5 second(right light will ON)
- 4 release "FACTORY" button
- 5 relay board will reset all parameter to factory.

3.5 Input Output and Power wiring diagram

	LOW	HIGH
Hardware Version < V1.8	0V	3.3V
Hardware Version >= V1.8	0V	3.3V~24V

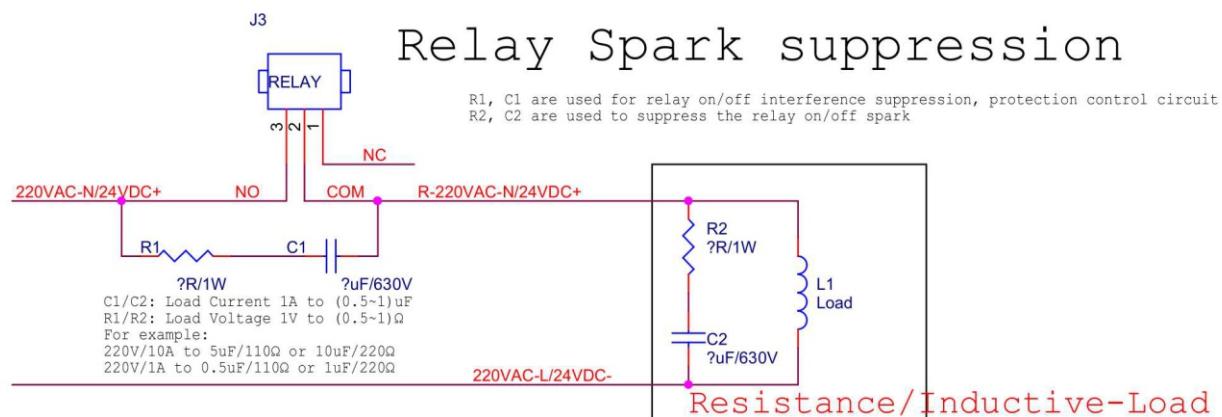


3.6 Add Spark killer and contractor

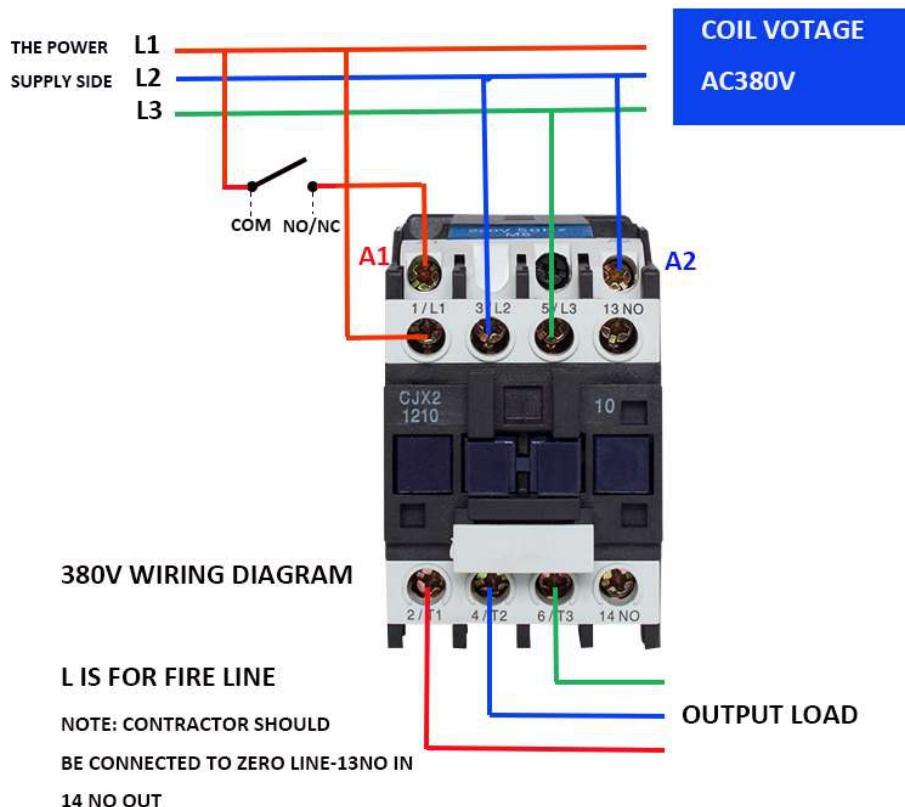
R1,C1 are used for relay on/off interference suppression, protection control circuit

R2,C2 are used to suppress the Load spark and noise when relay ON/OFF

Most of time the Load comes with the best R2+C2, so we don't need care R2 and C2



Our max current is 10A, if the current of your device is too big, suggest add a contractor



4 Ethernet Web Page

IE is not support, please use firefox and chrome

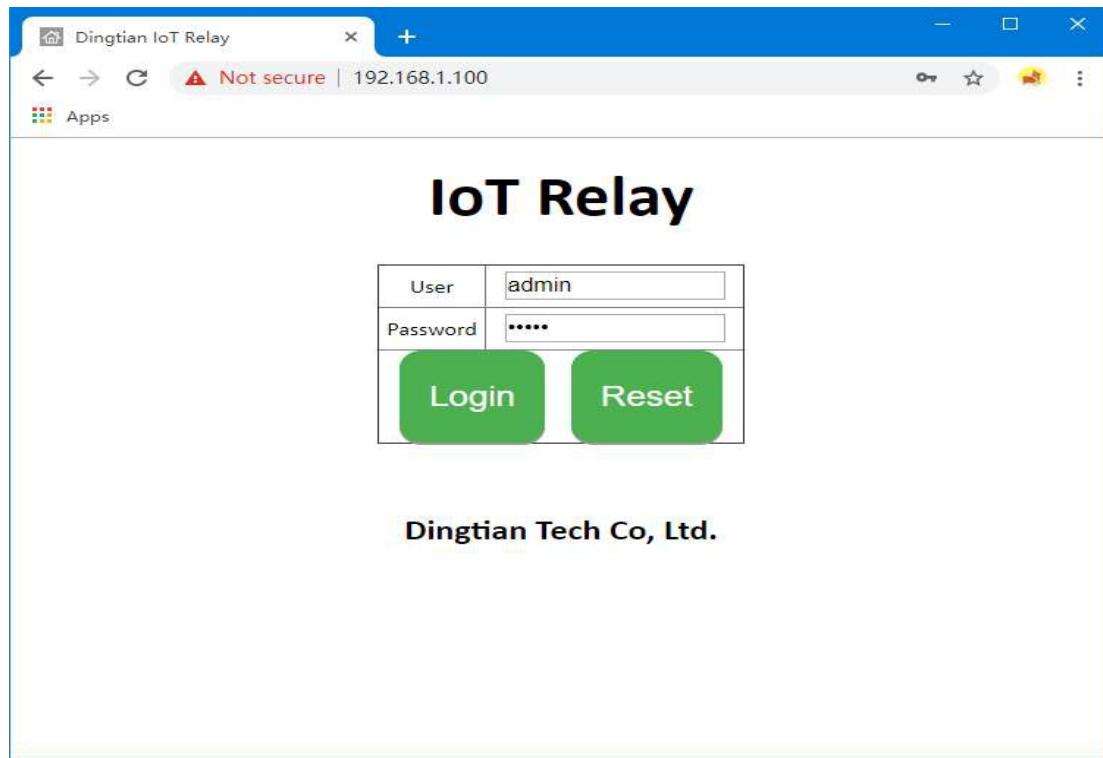


4.1 Login

Default IP: 192.168.1.100

user: admin

password: admin



4.2 Setting Network

Set network information, NTP Server on Relay setting page

after click "Save" button, device well reboot

Parameter:

Software Version: Relay board firmware version

Model:

2CH is Dingtian IOT RELAY-2

4CH is Dingtian IOT RELAY-4

8CH is Dingtian IOT RELAY-8

Serial Number: Relay board Serial Number

Date Time: current date and time (Need internet because of NTP)

NTP Server: NTP server get time from, suggest use pool.ntp.org

DHCP: Ethernet IP DHCP or Static

IP: Ethernet current IP Address

Netmask: Ethernet current Netmask

Gateway: Ethernet current Gateway

DNS: Ethernet current DNS Server

MAC: Ethernet current MAC address

The screenshot shows a web browser window titled "Dingtian IOT Relay" with the URL "192.168.1.100/menu_page.html". The left sidebar has a "Setting" option highlighted with a red box. The main content area is titled "Setting" and contains a table of configuration parameters. A green "Save" button is at the bottom right of the form.

Hardware Version	V1.4
Software Version	V2.17.28
Build Date	2021-01-21 21:23:13
Model	Dingtian IOT RELAY-8
Serial Number	1868
Date Time	1/28/2021, 23:31:43
NTP Server	pool.ntp.org
Hostname	Dingtian-Relay1868
Hostname+Suffix	Dingtian-Relay
HTTP Server Port	80
DHCP	No
IP	192.168.1.100
Netmask	255.255.255.0
Gateway	192.168.1.1
DNS	192.168.1.1
MAC	bc:34:88:00:06:9d
WiFi AP IP	192.168.7.1
WIFI STA IP	192.168.1.97

Save

4.3 Relay Connect

Set control interface parameter of relay board on the Relay connect page and test relay

After click "Save" button, device will reboot

Protocol refers to [programming manual_en.pdf](#)

Channel Parameter:

RS485: RS485 protocol, addr, baudrate, databits, stopbits, parity config

Protocol:

Dingtian String

Dingtian Binary

Modbus-RTU

Modbus-ASCII

Baudrate:

1200bps,2400bps,4800bps,9600bps,19200bps,38400bps,57600bps,115200bps

CAN: CAN protocol, ID, Speed config

Protocol:

Dingtian String

Dingtian Binary

Modbus-RTU(0x03,0x06),only support Read/Write single register once time

Speed:

5Kbps,10Kbps,20Kbps,25Kbps,50Kbps,100Kbps,125Kbps,200Kbps,250Kbps,500Kbps,800Kbps,888 Kbps,1Mbps

ETH-UDP1: Ethernet UDP1 protocol, Remote Server Address,Remote Server Port,Local Port config Protocol:

Dingtian String

Dingtian Binary

Modbus-RTU Over UDP

Modbus-ASCII Over UDP

Modbus-UDP

CoAP(**need change port to 5683**)

Input Mutual Control

ETH-UDP2: Ethernet UDP2 protocol, Remote Server Address,Remote Server Port,Local Port config Protocol:

Dingtian String

Dingtian Binary

Modbus-RTU Over UDP(use RS485 addr)

Modbus-ASCII Over UDP(use RS485 addr)

Modbus-UDP

CoAP(**we suggest enable CoAP at ETH/WiFi-UDP2**)

Input Mutual Control

ETH-TCP Server: Ethernet TCP Server protocol, Local Port config

Protocol:

Dingtian String

Dingtian Binary

Modbus-RTU Over TCP(use RS485 addr)

Modbus-ASCII Over TCP(use RS485 addr)

Modbus-TCP

ETH-TCP Client: Ethernet TCP Client protocol, Remote Server Address,Remote Server Port config

Protocol:

Dingtian String

Dingtian Binary

Modbus-RTU Over TCP(use RS485 addr)

Modbus-ASCII Over TCP(use RS485 addr)

Modbus-TCP

ETH-MQTT: Ethernet MQTT protocol, Broker Address, Broker Port, Broker Username, Broker Password config

Protocol:

MQTT(without tls)

Other Parameter:

Relay Password: use for checking control is valid, only correct password control relay board

Keep Alive Second: send relay status to server with every "Keep Alive Second", **only protocol Dingtian String and Dingtian binary have Keep Alive Second**

Jogging Time: Jogging time, default is 500ms, 1=100ms

what is Jogging: ON then delay 500ms OFF, or OFF then delay 500ms ON,

Power Failure Recovery Relay: relay status will restore after re-power

Input Control Relay: Input link relay output

Button Type Parameter:

Selflock: Connect **Selflock Button**,

press button relay ON, release button relay OFF

Jogging: Connect **Momentary Button**,

press and release button relay Jogging(ON and delay 500ms OFF)

Momentary: Connect **Momentary Button**,

press and release button relay ON, press and release button relay OFF

How to Connect button please move to 3.5

The screenshot shows the 'Dingtian IOT Relay' configuration interface. On the left, a sidebar menu includes 'Setting' and 'Relay Connect' (which is highlighted). The main area is titled 'Relay' and contains several configuration sections:

- Protocol Configuration:** A table for setting up different communication channels (RS485, CAN, ETH-UDP1, ETH-UDP2, ETH-TCP Server, ETH-TCP Client, ETH-MQTT) with their respective parameters like Address, Baud rate, Data bits, Stop bits, and Parity.
- Other Settings:** Includes fields for 'Relay Password' (0-9999), 'Keep Alive Second' (30-120), 'Jogging Time' (5-255), 'Power Failure Recovery Relay' (No/Yes), and 'Input Control Relay' (Yes/No).
- Button Type:** A section where users can select the type of button for each relay channel (Momentary, Selflock, etc.).
- Save:** A large green 'Save' button at the bottom of the configuration section.
- Relay Test:** A section at the bottom containing eight green buttons labeled 'Relay1:On', 'Relay2:On', 'Relay3:On', 'Relay4:On', 'Relay5:On', 'Relay6:On', 'Relay7:On', and 'Relay8:On'. Each button has a small diamond icon next to it.

4.4 Relay CGI Test

relay CGI test

The screenshot shows the 'Dingtian IOT Relay' web interface. On the left, a sidebar menu includes 'Setting', 'Relay Connect', 'Relay CGI Test' (which is highlighted with a red box), 'Relay Task', 'Input', 'Input Link Relay', 'IP WatchDog', 'Reset User', 'To Factory', and 'Reboot'. The main content area is titled 'Relay CGI Test' and contains a table with 8 rows. Each row has columns for 'Relay' (values 1-8), 'Status' (On/Off), 'Jogging(1~255 100ms)', 'Delay(1~65535 Second)', 'On/Off', 'Jogging', and 'Delay'. Below the table, a message says 'Relay CGI load success!'. The URL in the browser is 192.168.1.100.

4.5 Relay Task

Choose "Repeat", you can ask repeat by second/minute/hour/day/week/month

The screenshot shows the 'Dingtian IOT Relay' web interface. The sidebar menu is identical to the previous screenshot. The main content area is titled 'Relay Task' and contains a table with 5 rows. Each row has columns for 'Task', 'Enable', 'Relay Mode', 'On/Off', 'Delay/Jogging', 'Repeat' (with dropdown options: No, Second, Minute, Hour, Day, Week, Month), 'Week' (days of the week), and 'Relay task begin time' (a grid for month, day, hour, minute, second, and interval). The URL in the browser is 192.168.1.100/menu_page.html.

4.6 Input

The screenshot shows a web browser window with two tabs: "Dingtian IOT Relay" and "Dingtian IOT WiFi Relay". The active tab is "Dingtian IOT Relay" with the URL "192.168.1.100". The page title is "Dingtian IOT Relay". On the left, there is a sidebar menu with the following items:

- Setting
- Relay Connect
- Relay CGI Test
- Relay Task
- Input** (highlighted with a red border)
- Input Link Relay
- IP WatchDog
- Reset User
- To Factory
- Reboot

The main content area is titled "Input Test" and contains a table with 8 columns labeled 1 through 8. The first row has the value "0" and the second row has the value "High". Below the table, the text "success!" is displayed.

1	2	3	4	5	6	7	8
0	High						

success!

4.7 Input Link Relay

Select R1~R8, means you add the relay to link with Input, Click the green button R1~R8 means delete relay

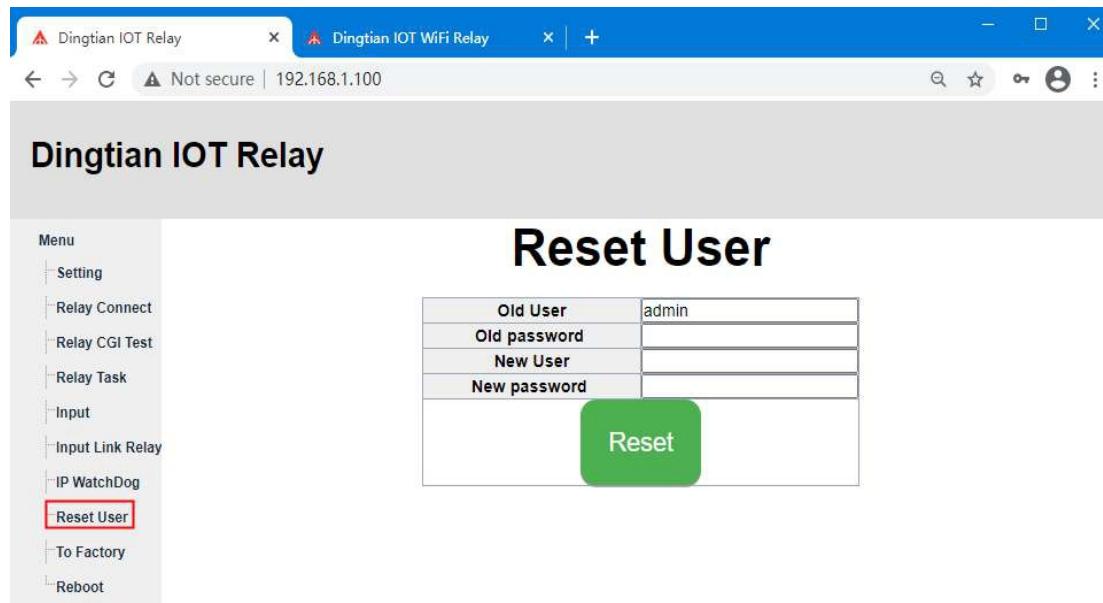
The screenshot shows the 'Input Link Relay' configuration page. On the left is a sidebar menu with options like Setting, Relay Connect, Relay CGI Test, Relay Task, Input, and IP WatchDog. The 'Input Link Relay' option is highlighted with a red box. The main area contains a table titled 'Input Link Relay' with 18 rows (I1 to I8) and 8 columns (ON, Action ON, OFF, Action OFF, R1 to R8). Below the table is a note: 'How to: Select Add/Click Delete'. A large green 'Save' button is centered at the bottom, and a message 'load success!' is displayed below it.

4.8 IP WatchDog

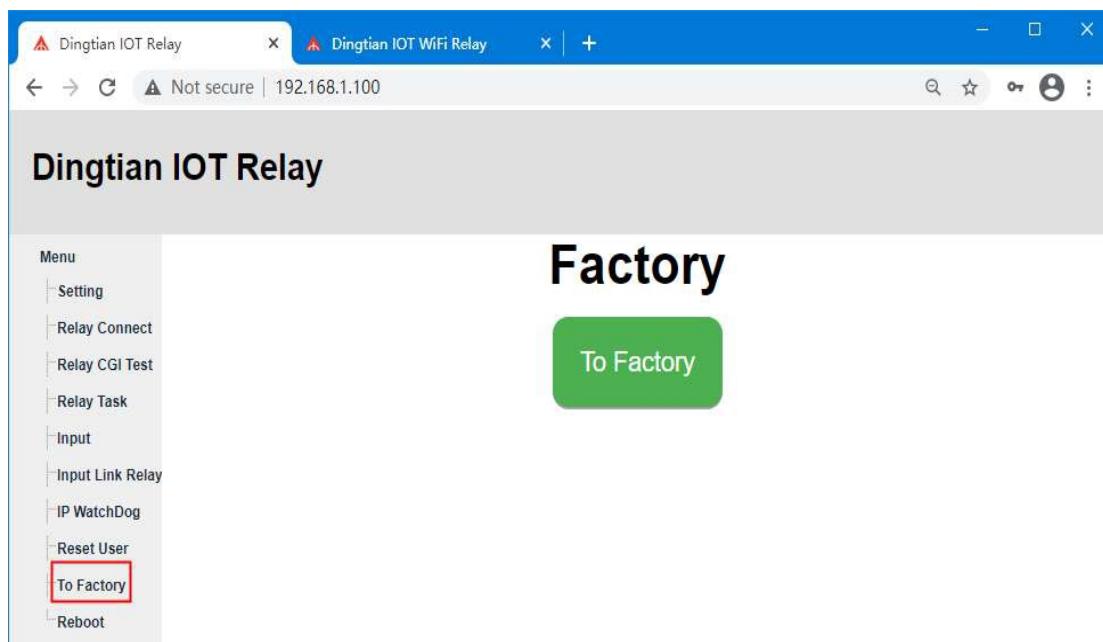
When Enable IP WatchDog function, all relay ON, when the "Watch IP" offline, relay OFF, after seconds, the relay ON automatically, "Ping Interval" must be bigger than "Ping Timeout"

The screenshot shows the 'IP WatchDog' configuration page. The sidebar menu includes 'Setting', 'Relay Connect', 'Relay CGI Test', 'Relay Task', 'Input', 'Input Link Relay', and 'IP WatchDog', with 'IP WatchDog' highlighted by a red box. The main content area has a heading 'IP WatchDog' with a checkbox 'Enable IP WatchDog'. Below is a table with 9 rows, each representing a WatchDog entry. The columns are: WatchDog, Enable, Off Relay, Watch IP, Relay, Off, Ping Interval, Ping Timeout, Ping Retry Times, Offline, Action Time. A note at the bottom states: 'Off Relay: Select Add/Click Delete' and 'Ping Interval Must Greater than Ping Timeout'. A large green 'Save' button is at the bottom, and a message 'load success!' is shown below it.

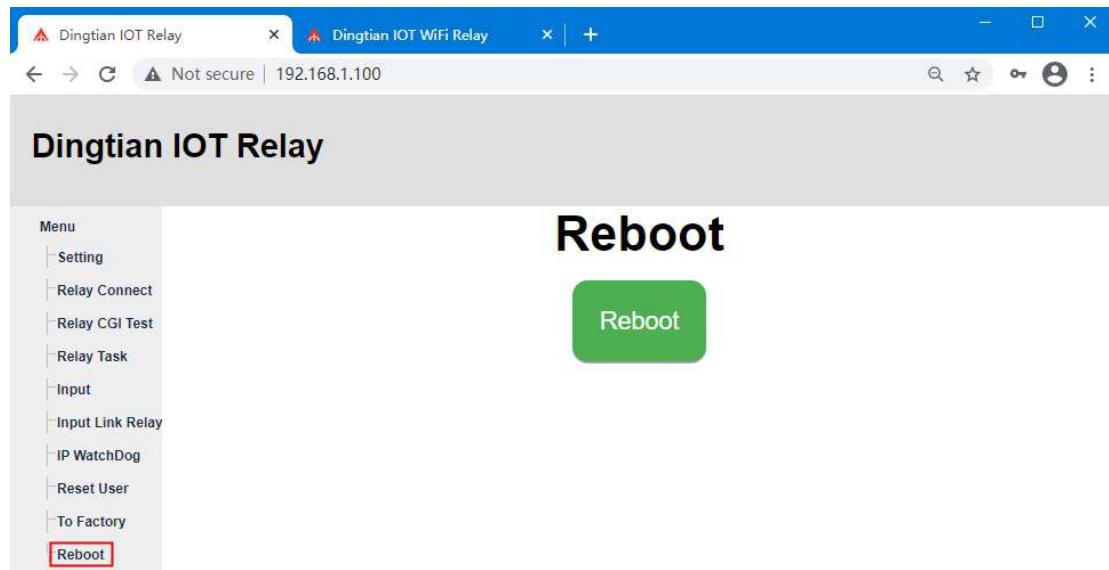
4.9 Reset User



4.10 To Factory



4.11 Reboot



5 WIFI web Page

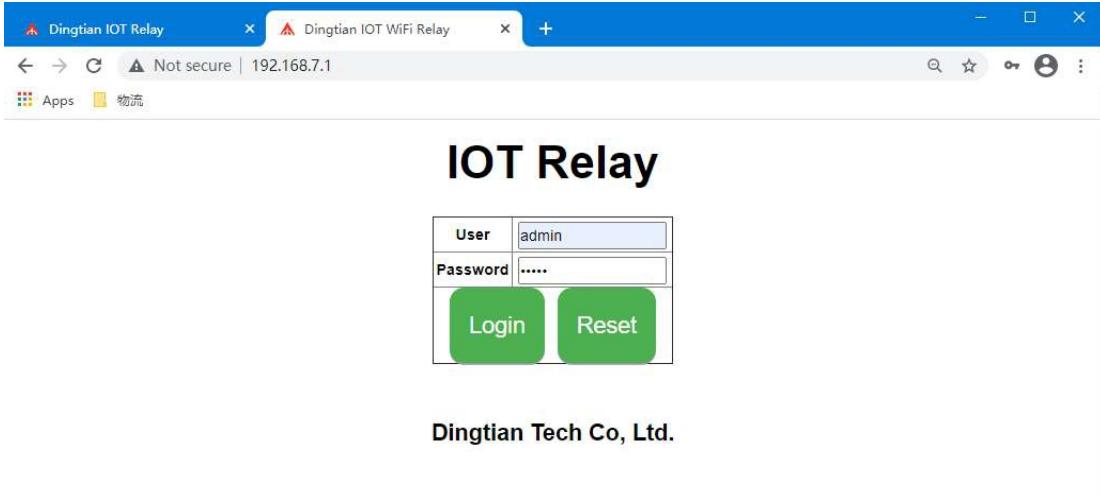
IE is not support, please use firefox and chrome

5.1 Login

Default IP: 192.168.7.1

user:admin

password:admin



5.2 Setting WIFI

Set WIFI information, NTP Server and STA WiFi SSID and password on WIFI Relay setting page

After click "Save" button, device will reboot

Parameter:

Software Version: Relay board firmware version

Model:

2CH is Dingtian IOT WRELAY-2

4CH is Dingtian IOT WRELAY-4

8CH is Dingtian IOT WRELAY-8

Serial Number: Relay board Serial Number

Date Time: current date and time(**Need internet because of NTP**)

NTP Server: NTP server get time from, suggest use pool.ntp.org

STA WiFi SSID: Your Router WiFi Name, Relay board will access to your router

STA WiFi Password: Your Router WiFi Password, Relay board will access to your router

STA IP: Relay board get IP from your Router

Netmask: WIFI Netmask

Gateway: WIFI Gateway

DNS: WIFI DNS Server

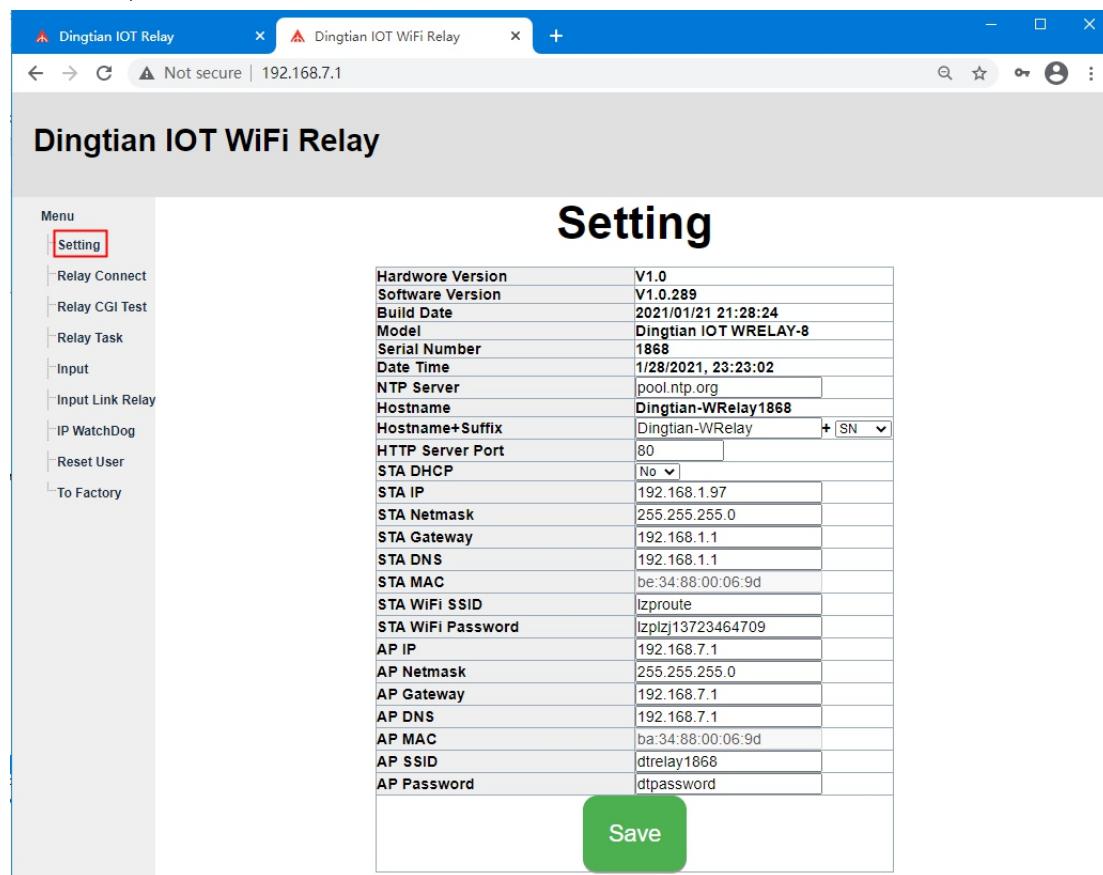
MAC: WIFI MAC address

AP IP: WIFI default address

AP SSID: WIFI default name, as a router, we need to connect the WIFI with your computer firstly and access the wifi web

AP Password: WIFI default Password

we can use STA IP or AP IP to control relay board via WIFI, only accept to use one browser(Firefox or Chrome) to access.



5.3 Setting Relay Connect

WIFI-UDP1: WIFI UDP1 protocol, Remote Server Address,Remote Server Port,Local Port config

Protocol:

Dingtian String

Dingtian Binary

Modbus-RTU Over UDP(use RS485 addr)

Modbus-ASCII Over UDP(use RS485 addr)

Modbus-UDP

CoAP(**need change port to 5683**)

Input Mutual Control

WIFI-UDP2: WIFI UDP2 protocol, Remote Server Address,Remote Server Port,Local Port config

Protocol:

Dingtian String

Dingtian Binary

Modbus-RTU Over UDP(use RS485 addr)

Modbus-ASCII Over UDP(use RS485 addr)

Modbus-UDP

CoAP(**we suggest enable CoAP at ETH/WiFi-UDP2**)

Input Mutual Control

WIFI-TCP Server: WIFI TCP Server protocol, Local Port config

Protocol:

Dingtian String

Dingtian Binary

Modbus-RTU Over TCP(use RS485 addr)

Modbus-ASCII Over TCP(use RS485 addr)

Modbus-TCP

WIFI-TCP Client: WIFI TCP Client protocol, Remote Server Address,Remote Server Port config

Protocol:

Dingtian String

Dingtian Binary

Modbus-RTU Over TCP(use RS485 addr)

Modbus-ASCII Over TCP(use RS485 addr)

Modbus-TCP

WIFI-MQTT: WIFI MQTT protocol, Broker Address, Broker Port, Broker Username, Broker Password config

Protocol:

MQTT(without tls)

Other Parameter:

Relay Password: use for checking control is valid, only correct password control relay board

Keep Alive Second: send relay status to server with every "Keep Alive Second", **only protocol**

Dingtian String and Dingtian binary have Keep Alive Second

Jogging Time: Jogging time, default is 500ms,1=100ms

what is Jogging: ON then delay 500ms OFF,or OFF then delay 500ms ON

Dingtian IOT Relay Dingtian IOT WiFi Relay Not secure | 192.168.7.1

Dingtian IOT WiFi Relay

Relay

Channel	Protocol	Remote Address	Remote Port	Local Port
WIFI-UDP1	Dingtian Binary	192.168.1.9	60000	60000
WIFI-UDP2	Dingtian String	192.168.1.9	60001	60001
WIFI-TCP Server	Modbus-TCP			Local Port 502
WIFI-TCP Client	Modbus-RTU Over TCP	Remote Address	Remote Port 502	
WIFI-MQTT	MQTT	Broker Address	Broker Port 1883	Broker Username mqtt Broker Password 123

Other	
Relay Password	0 ~9999(0 no password)
Keep Alive Second	30 1~120 second(0 close)
Jogging Time	5 1~255 (1=100ms)

Save

Relay Test

Relay1:Off
Relay2:Off
Relay3:Off
Relay4:Off

Relay5:Off
Relay6:Off
Relay7:Off
Relay8:Off

5.4 Relay CG I Test

The screenshot shows a web browser window titled "Dingtian IOT WiFi Relay" with the URL "192.168.7.1". The left sidebar contains a menu with items: Setting, Relay Connect, **Relay CGI Test** (highlighted with a red border), Relay Task, Input, Input Link Relay, IP WatchDog, Reset User, and To Factory.

The main content area is titled "Relay CGI Test" and includes a "Relay Password" input field set to "0 (0~9999)". Below this is a table with 8 rows, each representing a relay channel (1-8) with its status set to "Off". Each row has three columns: "Jogging(1~255 100ms)" with dropdowns for "On" (selected) and "5" (selected), and "500ms" (selected); "Delay(1~65535 Second)" with dropdowns for "On" (selected) and "5" (selected), and "second" (selected); and two green buttons labeled "Do On" and "Do Jogging" followed by a "Delay" button.

A message at the bottom of the table reads "Relay CGI load success!"

Relay	Status	Jogging(1~255 100ms)	Delay(1~65535 Second)	On/Off	Jogging	Delay	
1	Off	On ▾ 5	500ms	On ▾ 5 second	Do On	Do Jogging	Do Delay
2	Off	On ▾ 5	500ms	On ▾ 5 second	Do On	Do Jogging	Do Delay
3	Off	On ▾ 5	500ms	On ▾ 5 second	Do On	Do Jogging	Do Delay
4	Off	On ▾ 5	500ms	On ▾ 5 second	Do On	Do Jogging	Do Delay
5	Off	On ▾ 5	500ms	On ▾ 5 second	Do On	Do Jogging	Do Delay
6	Off	On ▾ 5	500ms	On ▾ 5 second	Do On	Do Jogging	Do Delay
7	Off	On ▾ 5	500ms	On ▾ 5 second	Do On	Do Jogging	Do Delay
8	Off	On ▾ 5	500ms	On ▾ 5 second	Do On	Do Jogging	Do Delay

5.5 Relay Task

Choose "Repeat", you can ask repeat by second/minute/hour/day/week/month

The screenshot shows the 'Relay Task' configuration page. On the left, a sidebar menu includes 'Setting', 'Relay Connect', 'Relay CGI Test', 'Relay Task' (which is highlighted with a red box), 'Input', 'Input Link Relay', 'IP WatchDog', 'Reset User', and 'To Factory'. The main area is titled 'Relay Task' and contains a table for six tasks. Each task row has columns for 'Task', 'Enable', 'Relay Mode', 'On/Off', 'Delay/Jogging', and 'Repeat'. The 'Repeat' column dropdown is expanded, showing options: 'No', 'No', 'Second', 'Minute', 'Hour', 'Day', 'Week', and 'Month'. The 'Month' column is highlighted with a red box. The table rows are numbered 1 through 6, each with its own set of controls.

5.6 Input

The screenshot shows the 'Input Test' configuration page. The sidebar menu is identical to the previous page, with 'Input' highlighted. The main area is titled 'Input Test' and displays a table with columns labeled 1 through 8. Each column has a 'High' or 'Low' value. The first column has a '0' value. The last column has a 'High' value. Below the table, the text 'success!' is displayed.

5.7 Input Link Relay

Select R1~R8, means you add the relay to link with Input, Click the green button R1~R8 means delete relay

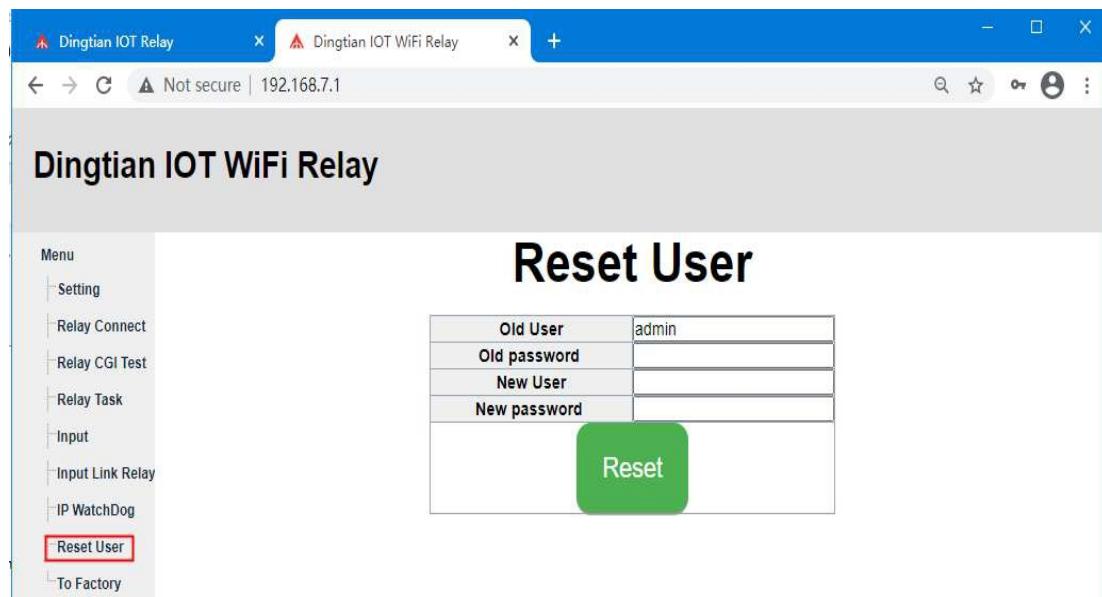
The screenshot shows the 'Dingtian IOT WiFi Relay' web interface. On the left, there is a navigation menu with options like Setting, Relay Connect, Relay CGI Test, Relay Task, Input, **Input Link Relay** (which is highlighted with a red box), IP WatchDog, Reset User, and To Factory. The main content area is titled 'Input Link Relay' and contains a table with 18 rows (labeled I1 to I18) and 8 columns (labeled R1 to R8). Each cell in the table contains a dropdown menu. A green button at the bottom of the table says 'How to: Select Add/Click Delete'. Below the table is a large green 'Save' button. At the very bottom of the page, it says 'load success!'

5.8 IP WatchDog

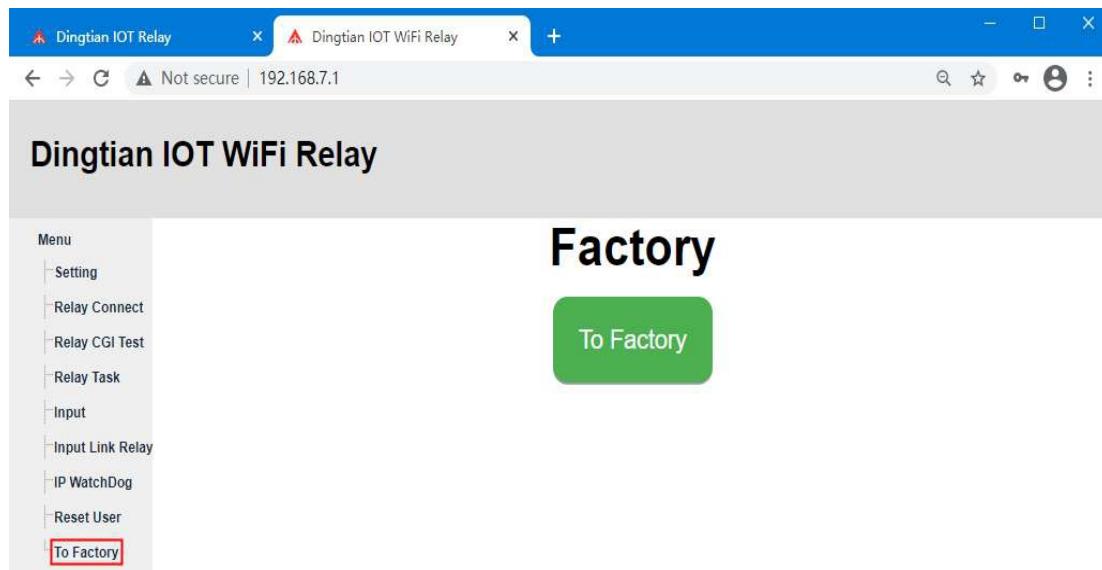
When Enable IP WatchDog function, all relay ON, when the "Watch IP" offline, relay OFF, after seconds, the relay ON automatically, "**Ping Interval**" must be bigger than "**Ping Timeout**"

The screenshot shows the 'Dingtian IOT WiFi Relay' web interface. On the left, there is a navigation menu with options like Setting, Relay Connect, Relay CGI Test, Relay Task, Input, Input Link Relay, **IP WatchDog** (which is highlighted with a red box), Reset User, and To Factory. The main content area is titled 'IP WatchDog' and contains a table with 9 rows (labeled 1 offline to 9 offline) and 11 columns. The columns are: WatchDog, Enable, Off Relay, Watch IP, Relay, Off, Ping Interval, Ping Timeout, Ping Retry Times, Offline Action Time, and Action Time. Below the table is a note: 'Off Relay: Select Add/Click Delete' and 'Ping Interval Must Greater than Ping Timeout'. Below the table is a large green 'Save' button. At the very bottom of the page, it says 'load success!'

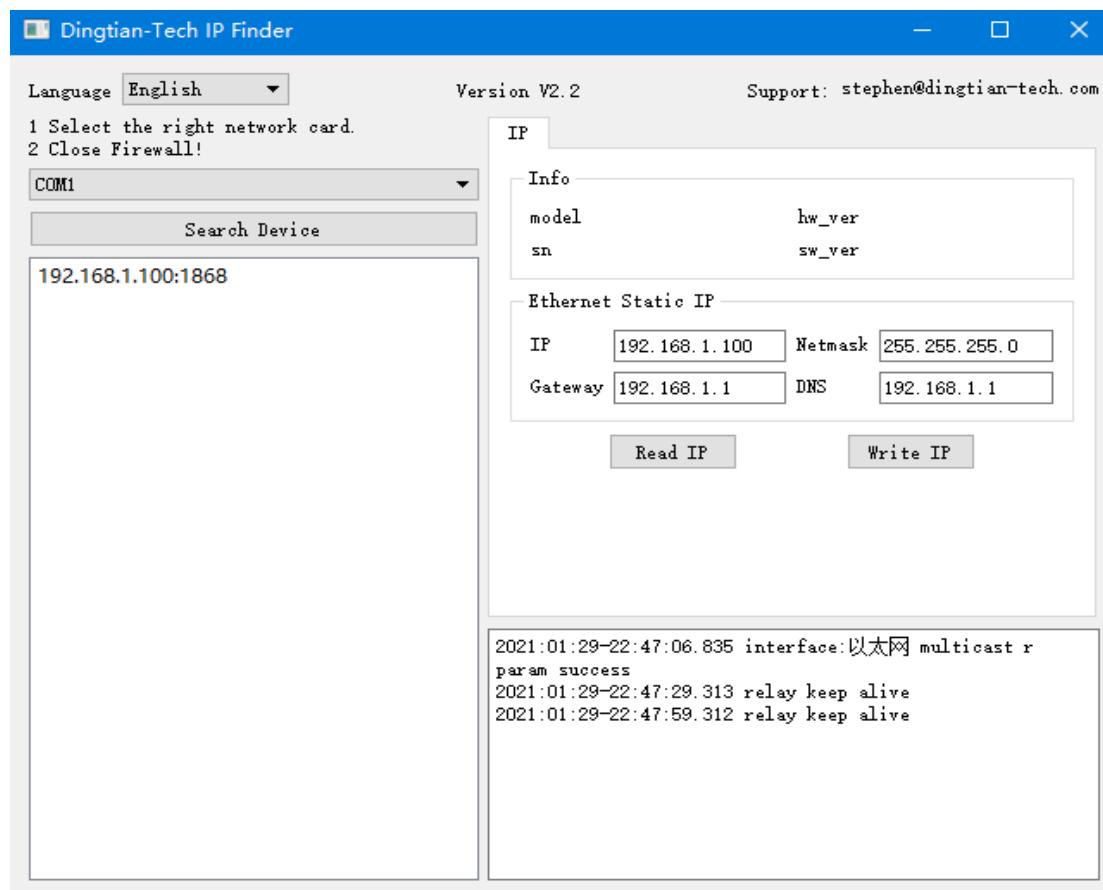
5.9 Reset User



5.10 To Factory



6 IP Finder

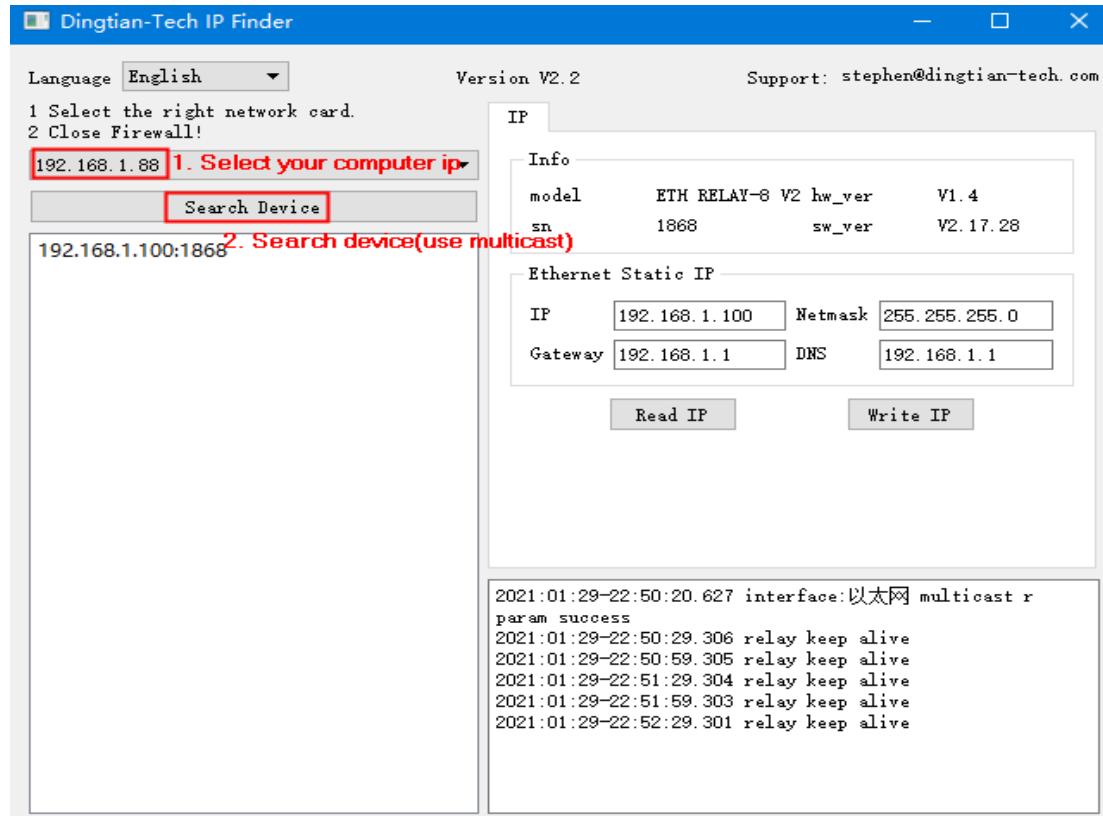


Notice:

please close all firewall, security software(windows defender/firewall also must close)
otherwise nothing will be find

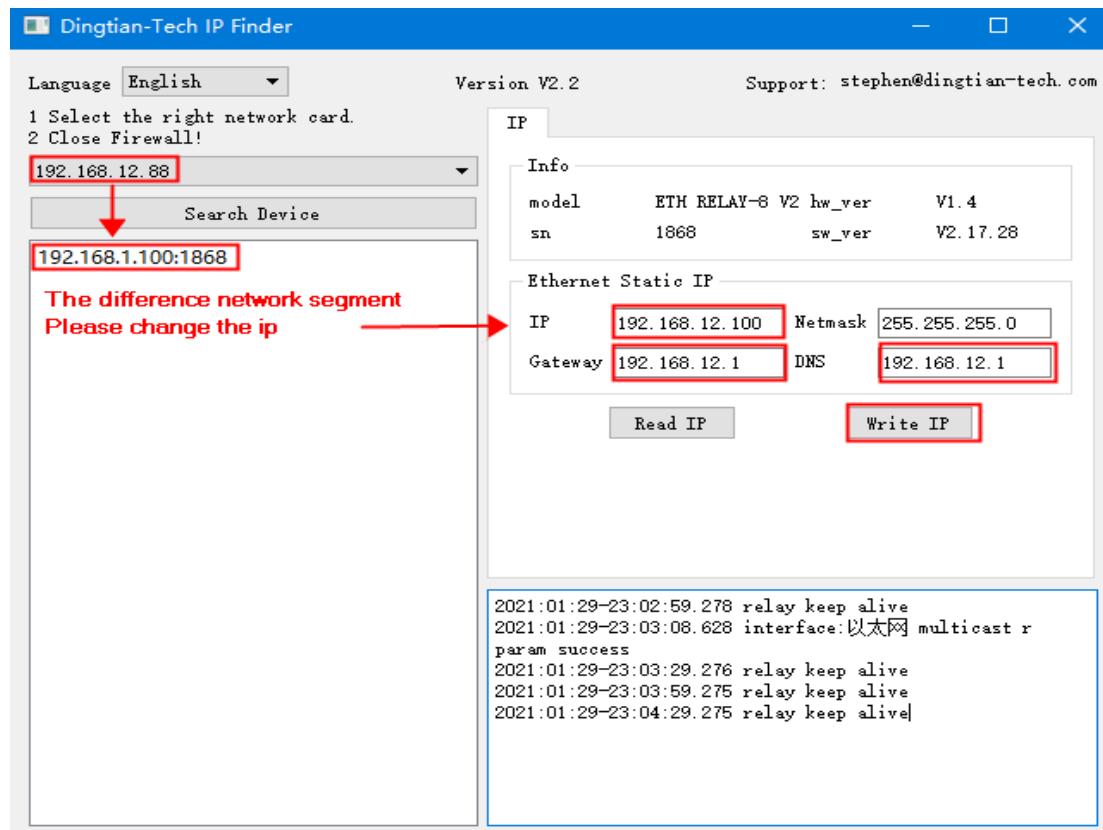
6.1 Search Device

Note: When you use IP Finder to check your relay board ip, please keep your computer just connect with one relay board and the communication of relay board just has one(only Ethernet or WIFI)



If your computer ip is not the same network segment as relay board, you can change the IP in Ethernet Static IP

6.2 Change Static IP



Change Static IP and Click "Write IP", then your relay board ip is 192.168.12.100

Appendix I How to Test Command

step 1: download SDK

we can find network tool in SDK

http://www.dingtian-tech.com/sdk/relay_sdk.zip

unzip relay_sdk.zip

network tool name is net_test

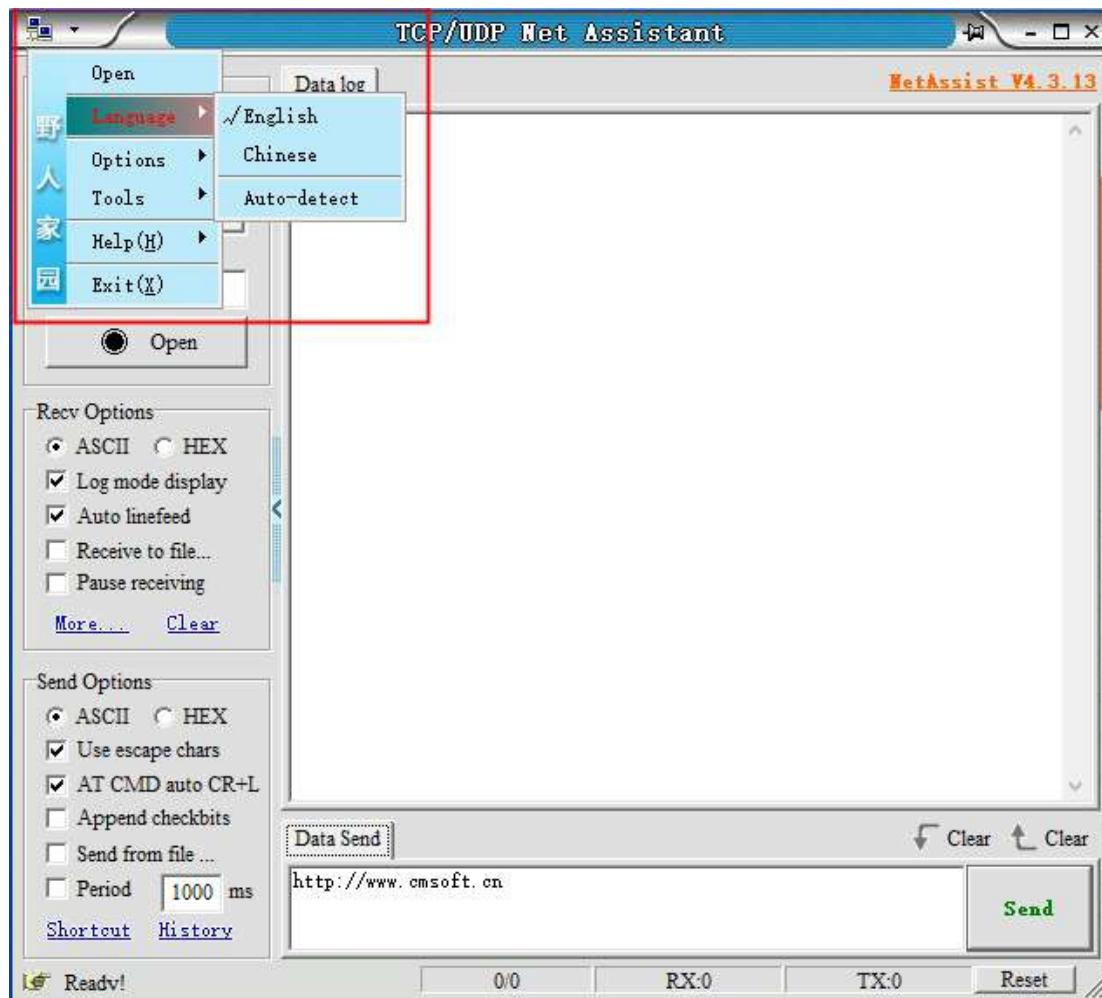
rs485 tool name is rs485_test

名称	修改日期	类型
net_test	2020/2/10 10:17	文件
rs485_test	2020/2/10 10:17	文件
cgitest_v1_1.exe	2020/2/10 10:12	应用
programing manual_en.pdf	2020/2/8 21:13	PDF
readme.txt	2020/2/10 10:18	文本
relay.sh	2019/9/25 23:48	Shell
relay.sh_how_to.txt	2019/9/25 23:59	文本
relaytool_v2_0.exe	2020/2/8 23:32	应用
user_manual_en.pdf	2020/2/8 21:41	PDF

Access directory "net_test"

名称
NetAssist.cfg
NetAssist.exe

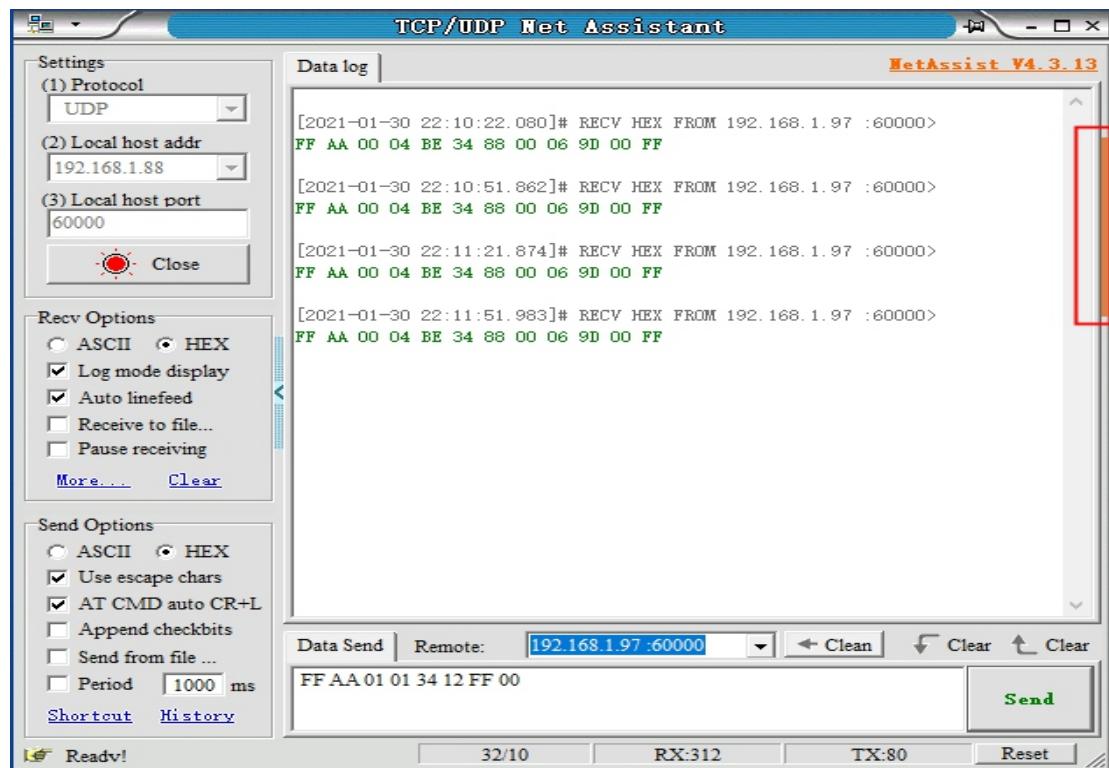
step 2: Change NetAssist language

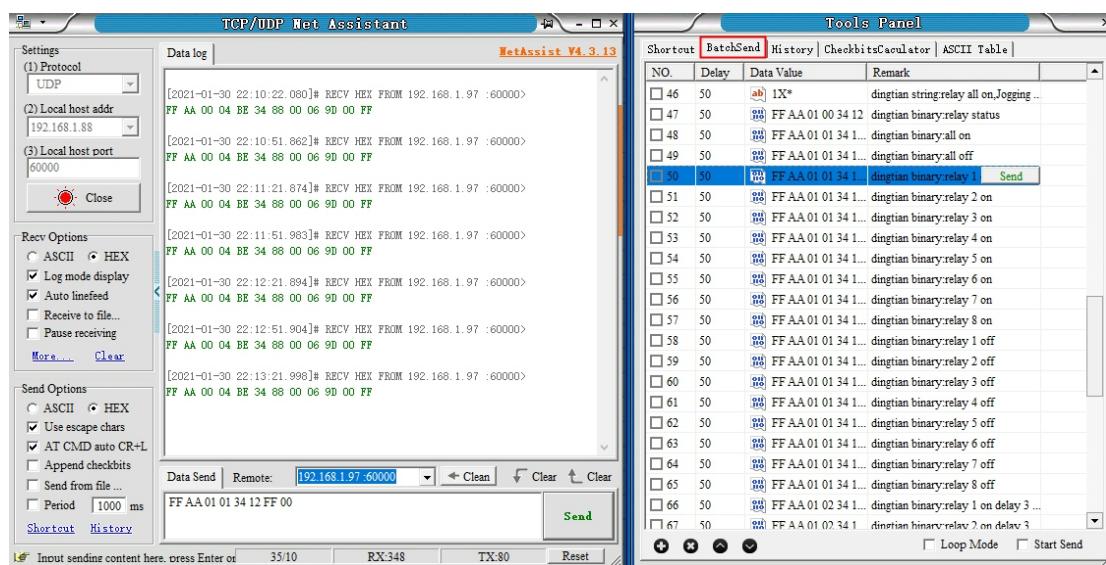
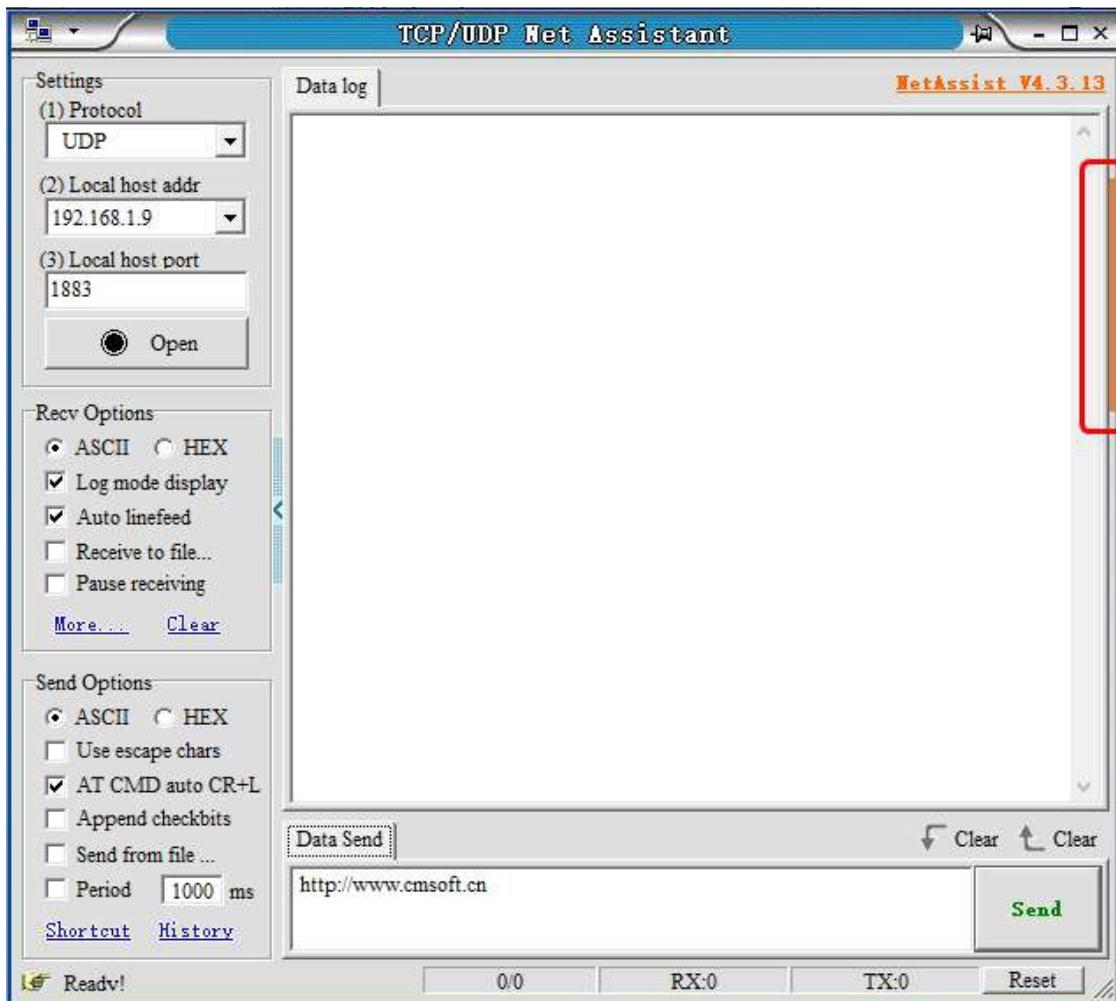


step 3: Control relay via NetAssist network tool by wifi module

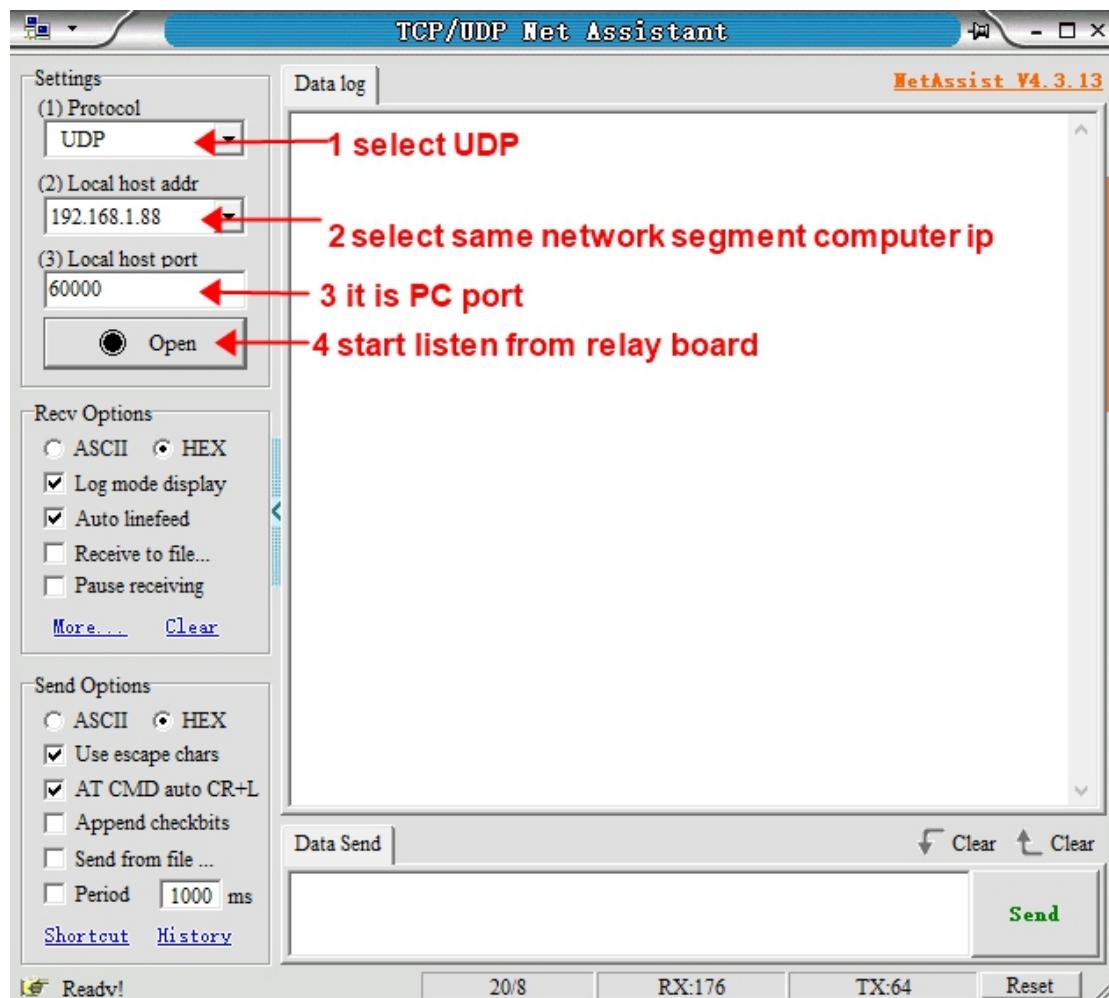
open NetAssist.exe

Shown in red box, open expansion panel

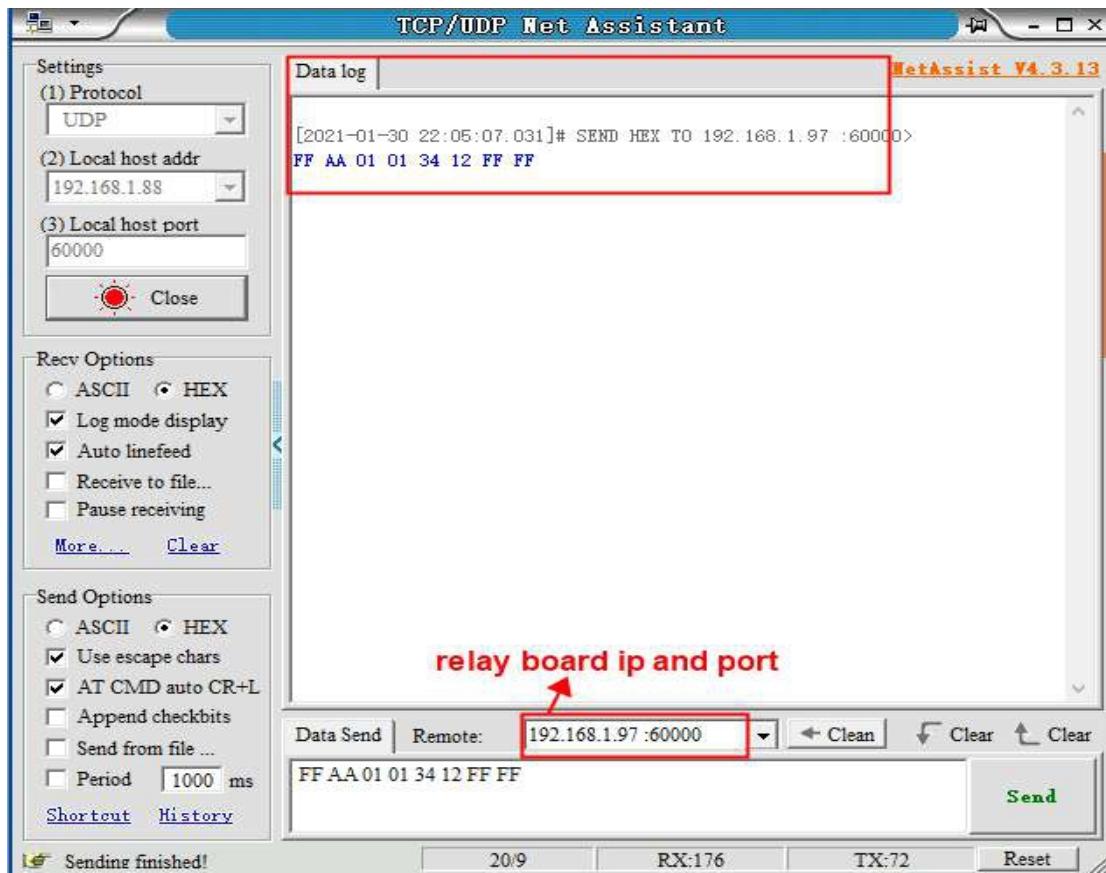




step 4: open UDP listen.



now relay board send relay status to pc via wifi module

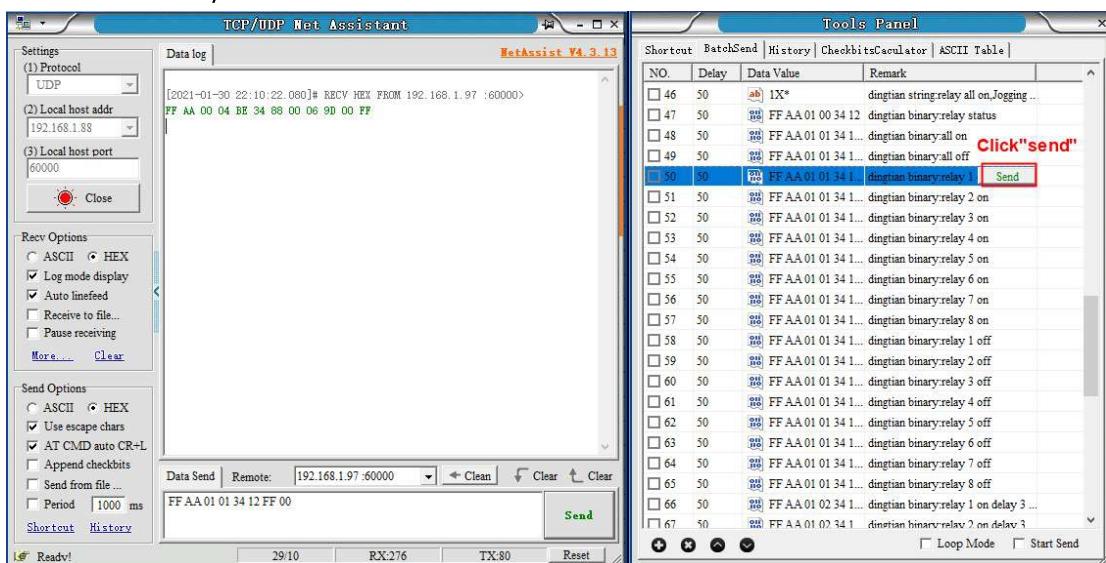


step 5: control relay via wifi module

NetAssist tool saved preset command

we only need send to relay board via netAssist

like below set relay 1 on



Appendix II How to use Domoticz

Notice:

- 1 Close your firewall
- 2 All command and script run as root/administrator
- 3 please step by step

Please install domotiz first

https://releases.domoticz.com/releases/release/domoticz_windows_x86.zip

step 1: install Dingtian plugin to Domoticz

Dingtian plugin find in SDK or github

http://www.dingtian-tech.com/sdk/relay_sdk.zip

<https://github.com/dtlzp/Domoticz-Dingtian-Relay-Plugin>

1 Stop Domoticz



2 Copy Domoticz_plugins\dingtian to Domoticz plugin dir



to Domoticz install dir



now Dingtian Relay plugin install to Domoticz successfully.

step 2: config Dingtian Relay board

1 config relay board UDP Server,Remote Port,Local Port,Keep Alive Second and Relay Password (firmware version <= 2.16.xx)

2 config relay board UDP Server, Remote Port,Local Port and Relay Password (firmware version is 2.17.xx)

Domoticz Ethernet

The screenshot shows the 'Dingtian IOT Relay' configuration interface. On the left is a sidebar with a 'Relay Connect' tab highlighted, containing options like RS485, CAN, ETH-UDP, ETH-TCP, ETH-MQTT, and others. The main area is titled 'Relay'.

Callouts:

- 1** Points to the 'Relay Connect' sidebar.
- 2** Points to the 'ETH-UDP' section where two entries are shown: ETH-UDP1 and ETH-UDP2. Both have 'Remote Address' set to '192.168.1.9'. The first has 'Remote Port' 60000 and 'Local Port' 60000. The second has 'Remote Port' 60001 and 'Local Port' 60001.
- 3** Points to the 'Other' section at the bottom, which includes fields for 'Relay Password' (0-9999), 'Keep Alive Second' (30), 'Jogging Time' (5), 'Power Failure Recovery Relay' (No), and 'Input Control Relay' (Yes).
- 4** Points to the green 'Save' button at the bottom of the 'Other' section.

Relay Test:

Below the configuration sections, there is a 'Relay Test' section with eight buttons labeled: Relay1:Off, Relay2:Off, Relay3:Off, Relay4:Off, Relay5:Off, Relay6:Off, Relay7:Off, and Relay8:Off. Each button has a small diamond icon next to it.

Domoticz WIFI

The screenshot shows the 'Dingtian IOT WiFi Relay' configuration interface. On the left, a sidebar lists various menu items: Setting, Relay Connect (highlighted with a red box and number 1), Relay CGI Test, Relay Task, Input, Input Link Relay, IP WatchDog, Reset User, and To Factory. The main area is titled 'Relay' and contains a table for 'Relay Connect'. The table has columns for Channel, Protocol, Remote Address, Remote Port, Local Port, and Local Port. It lists four entries: 'WIFI-UDP1' (Protocol: Dingtian Binary, Remote Address: 192.168.1.9, Remote Port: 60000, Local Port: 60000), 'WIFI-UDP2' (Protocol: Dingtian String, Remote Address: 192.168.1.9, Remote Port: 60001, Local Port: 60001), 'WIFI-TCP Server' (Protocol: Modbus-TCP, Remote Address: Domoticz server address, Local Port: 502), and 'WIFI-TCP Client' (Protocol: Modbus-RTU Over TCP, Remote Address: 502). Below the table is an 'Other' section with fields for Relay Password (0-9999(0 no password)), Keep Alive Second (30-1-120 second(0 close)), and Jogging Time (5-1-255 (1=100ms)). A green 'Save' button is at the bottom of this section (number 4). At the bottom of the page is a 'Relay Test' section with eight green buttons labeled: Relay1:Off, Relay2:Off, Relay3:Off, Relay4:Off, Relay5:Off, Relay6:Off, Relay7:Off, and Relay8:Off.

Dingtian Relay board web page **Relay Connect**

set **UDP Server, Remote Port, Local Port, Relay Password and Keep Alive Second**(donot need to set for firmware 2.17.xx)

Notice: UDP Server set to Domoticz Server IP Save config

step 3: Add Dingtian Relay to Domoticz

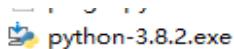
1 Install Python 3.8.2

download link:

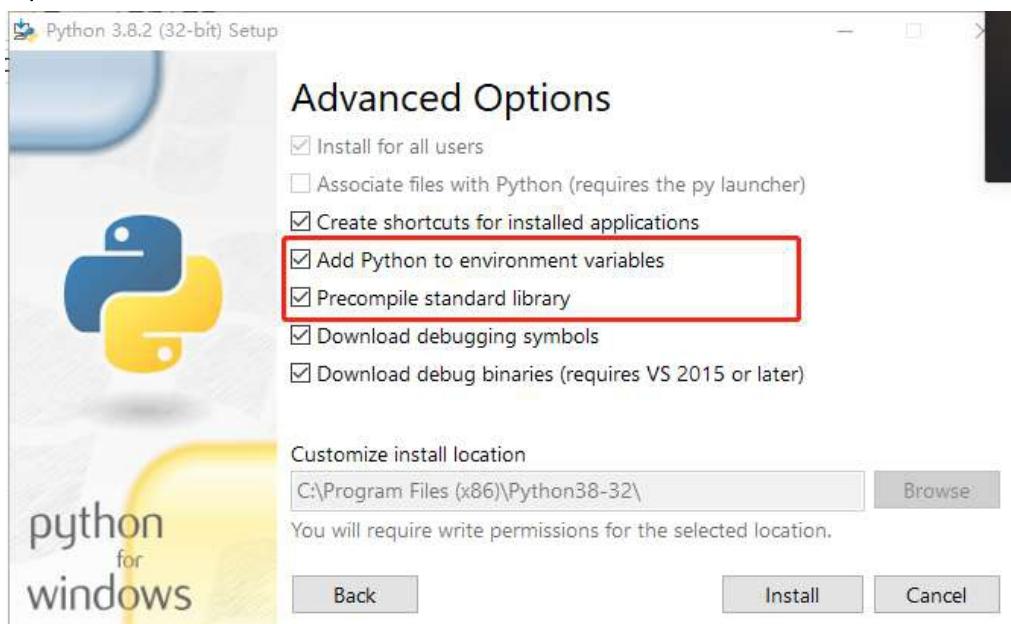
<https://www.python.org/ftp/python/3.8.2/python-3.8.2.exe>

Notice: Domoticz only support 32bit Python

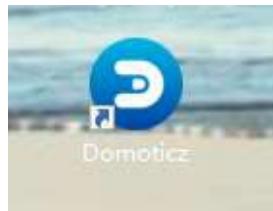
after download, install it



Add Python to environment



2 Run to Domoticz



3 Add Dingtian Relay to Domoticz

1 Find Hardware Menu

The screenshot shows the Domoticz web interface at the URL <http://127.0.0.1:8080/#/LightSwitches>. The top navigation bar includes links for Dashboard, Switches, Scenes, Temperature, Weather, Utility, and Setup. The Setup link is highlighted with a red box. A sidebar on the right contains links for Hardware, Devices, Settings, Check for Update, More Options, Log, and About. The main content area displays the message "No Lights/Switches found or added in the system...".

2 Input Dingtian Relay config(Ethernet)

The screenshot shows the Domoticz web interface at the URL <http://127.0.0.1:8080/#/Hardware>. The page displays a table with columns for Idx, Name, Enabled, Type, Address, Port, and Data Timeout. A message states "No data available in table". Below the table are buttons for Update and Delete. The configuration details for a new relay are as follows:

Enabled:	<input checked="" type="checkbox"/>
Name:	dingtian-relay 1
Type:	Dingtian Relay 2
Data Timeout:	Disabled 3 Specifying a Data Timeout will restart the hardware device if no data is received for the specified time. <i>Do not enable this option for devices that do not receive data!</i>
Wiki URL:	https://github.com/dtlzp/Domoticz-Dingtian-Relay-Plugin
Product URL:	https://www.dingtian-tech/en_us/product.html?tab=relay
IP Address:	192.168.1.100 4
Port:	60001 5
Channel Count:	8 6
Password:	0
Debug:	<input type="checkbox"/> False 7

At the bottom is a blue "Add" button with the number 8 next to it.

3. Input Dingtian Relay config(WIFI)

The screenshot shows the Domoticz web interface with the URL <http://127.0.0.1:8080/#/Hardware>. The 'Hardware' tab is selected. A table lists two entries for 'dingtian-relay'. The second entry is highlighted with a red border. The configuration details for this entry are shown below the table:

- Name: dingtian-relay 1
- Type: Dingtian Relay 2
- Data Timeout: Disabled 3
Specifying a Data Timeout will restart the hardware device if no data is received for the specified time.
Do not enable this option for devices that do not receive data!
- Wiki URL: <https://github.com/dtlzp/Domoticz-Dingtian-Relay-Plugin>
- Product URL: https://www.dingtian-tech/en_us/product.html?tab=relay
- IP Address: 192.168.1.97 4
- Port: 60001 5
- Channel Count: 8 6
- Password: 0 7
- Debug: False 8

At the bottom of the configuration form is a blue 'Add' button.

Type, IP Address, Port, Channel Count, Password must be correct,
Password is 1 config relay board UDP Server, Remote Port, Local Port, Keep Alive Second and Relay
Password

now check parameters is ok,
click "Add" to save

Now you can find Hardware and Relay

The screenshot shows the Domoticz web interface with the URL <http://127.0.0.1:8080/#/Hardware>. The 'Hardware' tab is selected. A table lists two entries for 'dingtian-relay'. The first entry is highlighted with a red border. The second entry is also highlighted with a red border. The configuration details for the first entry are shown below the table:

Idx	Name	Enabled	Type	Address	Port	Data Timeout
3	dingtian-relay	Yes	Dingtian Relay	192.168.1.100	Ethernet	Disabled
2	dingtian-relay	Yes	Dingtian Relay	192.168.1.97	WIFI	Disabled

Below the table, the configuration form for the first entry is shown:

- Name: dingtian-relay
- Type: Dingtian Relay
- Data Timeout: Disabled
Specifying a Data Timeout will restart the hardware device if no data is received for the specified time.
Do not enable this option for devices that do not receive data!
- Wiki URL: <https://github.com/dtlzp/Domoticz-Dingtian-Relay-Plugin>
- Product URL: https://www.dingtian-tech/en_us/product.html?tab=relay
- IP Address: 192.168.1.100
- Port: 60001
- Channel Count: 8
- Password: 0
- Debug: False

At the bottom of the configuration form is a blue 'Add' button.

4 Multiple Relay board Add to Domoticz

Domoticz Need 2 UDP port for each Relay board

default is: 60000 and 60001

you can add multiple with different UDP port like:

60002 and 60003

60004 and 60005

60006 and 60007

below is example 60002 and 60003

Enabled:

Name: eth2-r8

Type: Dingtian Relay

Data Timeout: Disabled

Wiki URL: <https://github.com/dtlzp/Domoticz-Dingtian-Relay-Plugin>

Product URL: https://www.dingtian-tech/en_us/product.html?tab=relay

Dingtian-tech Relay Domoticz Plugin.

IP Address: 192.168.1.100

Port: **60003**

Channel Count: 8

Password: 0

Debug: False

Add

Relay

Channel	Protocol	Addr	Baud	Databits	Stopbits	Parity
RS485	Modbus-RTU	1	115200bps	8bit	1bit	None
CAN	Dingtian String	ID	Speed			
ETH-UDP1	Dingtian Binary	Remote Address	192.168.1.88	Remote Port	Local Port	
ETH-UDP2	Dingtian String	Remote Address	192.168.1.88	Remote Port	Local Port	
ETH-TCP Server	Modbus-TCP			Local Port		
ETH-TCP Client	Modbus-RTU Over TCP	Remote Address	192.168.1.9	Remote Port		
ETH-MQTT	MQTT	Broker Address	192.168.1.88	Broker Port	Broker Username	Broker Password

5 Add Relay to Switches Page

Domoticz 2020.2

Dashboard | Switches | Scenes | Temperature | Weather | Utility | **Setup**

Show 25 entries

	Idx	Hardware	ID	Unit	Name	Type	SubType	Data	Last Seen
<input type="checkbox"/>	7	dingtian-relay	00020007	7	dingtian-relay - RELAY7	Light/Switch	Switch	Off	2020-04-30 10:26:14
<input type="checkbox"/>	8	dingtian-relay	00020008	8	dingtian-relay - RELAY8	Light/Switch	Switch	Off	2020-04-30 10:26:14
<input type="checkbox"/>	2	dingtian-relay	00020002	2	dingtian-relay - RELAY2	Light/Switch	Switch	Off	2020-04-30 10:26:13
<input type="checkbox"/>	3	dingtian-relay	00020003	3	dingtian-relay - RELAY3	Light/Switch	Switch	Off	2020-04-30 10:26:13
<input type="checkbox"/>	4	dingtian-relay	00020004	4	dingtian-relay - RELAY4	Light/Switch	Switch	Off	2020-04-30 10:26:13
<input type="checkbox"/>	5	dingtian-relay	00020005	5	dingtian-relay - RELAY5	Light/Switch	Switch	Off	2020-04-30 10:26:13
<input type="checkbox"/>	6	dingtian-relay	00020006	6	dingtian-relay - RELAY6	Light/Switch	Switch	Off	2020-04-30 10:26:13
<input type="checkbox"/>	1	dingtian-relay	00020001	1	dingtian-relay - RELAY1	Light/Switch	Switch	Off	2020-04-30 10:26:12

Showing 1 to 8 of 8 entries

First Previous 1 Next Last

Click Add Device to use Relay

Domoticz 2020.2

Dashboard | Switches | Scenes | Temperature | Weather | Utility | **Setup**

Show 25 entries

	Idx	Hardware	ID	Unit	Name	Type	SubType	Data	Last Seen
<input checked="" type="checkbox"/>	7	dingtian-relay	00020007	7	dingtian-relay - RELAY7	Light/Switch	Switch	Off	2020-04-30 10:26:14
<input checked="" type="checkbox"/>	8	dingtian-relay	00020008	8	dingtian-relay - RELAY8	Light/Switch	Switch	Off	2020-04-30 10:26:14
<input checked="" type="checkbox"/>	2	dingtian-relay	00020002	2	dingtian-relay - RELAY2	Light/Switch	Switch	Off	2020-04-30 10:26:13
<input checked="" type="checkbox"/>	3	dingtian-relay	00020003	3	dingtian-relay - RELAY3	Light/Switch	Switch	Off	2020-04-30 10:26:13
<input checked="" type="checkbox"/>	4	dingtian-relay	00020004	4	dingtian-relay - RELAY4	Light/Switch	Switch	Off	2020-04-30 10:26:13
<input checked="" type="checkbox"/>	5	dingtian-relay	00020005	5	dingtian-relay - RELAY5	Light/Switch	Switch	Off	2020-04-30 10:26:13
<input checked="" type="checkbox"/>	6	dingtian-relay	00020006	6	dingtian-relay - RELAY6	Light/Switch	Switch	Off	2020-04-30 10:26:13
<input checked="" type="checkbox"/>	1	dingtian-relay	00020001	1	dingtian-relay - RELAY1	Light/Switch	Switch	Off	2020-04-30 10:26:12

Showing 1 to 8 of 8 entries

First Previous 1 Next Last

Click Add Device to confirm

→ C 127.0.0.1:8080/#/Devices

应用

Domoticz 2020.2

All Devices Not Used Refresh

Show 25 entries

Add Device

Name: dingtian-relay - RELAY7

As: Main Device Sub/Slave Device

Add Device Cancel

Idx	Hardware	ID	Unit	Name	Type	SubType	Data	Last Seen
7	dingtian-relay	00020007	7	dingtian-relay - RELAY7	Light/Switch	Switch	Off	2020-04-30 10:26:14
8	dingtian-relay	00020008	8	dingtian-relay - RELAY8	Light/Switch	Switch	Off	2020-04-30 10:26:14
2	dingtian-relay	00020002	2	dingtian-relay - RELAY2	Light/Switch	Switch	Off	2020-04-30 10:26:13
3	dingtian-relay	00020003	3	dingtian-relay - RELAY3	Light/Switch	Switch	Off	2020-04-30 10:26:13
4	dingtian-relay	00020004	4	dingtian-relay - RELAY4	Light/Switch	Switch	Off	2020-04-30 10:26:13
5	dingtian-relay	00020005	5	dingtian-relay - RELAY5	Light/Switch	Switch	Off	2020-04-30 10:26:13
6	dingtian-relay	00020006	6	dingtian-relay - RELAY6	Light/Switch	Switch	Off	2020-04-30 10:26:13
1	dingtian-relay	00020001	1	dingtian-relay - RELAY1	Light/Switch	Switch	Off	2020-04-30 10:26:12

Showing 1 to 8 of 8 entries First Previous 1 Next Last

result

→ C 127.0.0.1:8080/#/Devices

应用

Domoticz 2020.2

All Devices Not Used Refresh

Show 25 entries

Idx	Hardware	ID	Unit	Name	Type	SubType	Data	Last Seen
7	dingtian-relay	00020007	7	dingtian-relay - RELAY7	Light/Switch	Switch	Off	2020-04-30 10:26:14
8	dingtian-relay	00020008	8	dingtian-relay - RELAY8	Light/Switch	Switch	Off	2020-04-30 10:26:14
2	dingtian-relay	00020002	2	dingtian-relay - RELAY2	Light/Switch	Switch	Off	2020-04-30 10:26:13
3	dingtian-relay	00020003	3	dingtian-relay - RELAY3	Light/Switch	Switch	Off	2020-04-30 10:26:13
4	dingtian-relay	00020004	4	dingtian-relay - RELAY4	Light/Switch	Switch	Off	2020-04-30 10:26:13
5	dingtian-relay	00020005	5	dingtian-relay - RELAY5	Light/Switch	Switch	Off	2020-04-30 10:26:13
6	dingtian-relay	00020006	6	dingtian-relay - RELAY6	Light/Switch	Switch	Off	2020-04-30 10:26:13
1	dingtian-relay	00020001	1	dingtian-relay - RELAY1	Light/Switch	Switch	Off	2020-04-30 10:26:12

Showing 1 to 8 of 8 entries First Previous 1 Next Last

4 Control Dingtian Relay with Domoticz

Switch “Switches” page

The screenshot shows the Domoticz interface with the 'Switches' tab selected. There are eight relay switches listed:

- dingtian-relay - RELAY1: Off. Last Seen: 2020-04-30 10:26:12. Type: Light/Switch, Switch, On/Off.
- dingtian-relay - RELAY2: Off. Last Seen: 2020-04-30 10:26:13. Type: Light/Switch, Switch, On/Off.
- dingtian-relay - RELAY3: Off. Last Seen: 2020-04-30 10:26:13. Type: Light/Switch, Switch, On/Off.
- dingtian-relay - RELAY4: Off. Last Seen: 2020-04-30 10:26:13. Type: Light/Switch, Switch, On/Off.
- dingtian-relay - RELAY5: Off. Last Seen: 2020-04-30 10:26:13. Type: Light/Switch, Switch, On/Off.
- dingtian-relay - RELAY6: Off. Last Seen: 2020-04-30 10:26:13. Type: Light/Switch, Switch, On/Off.
- dingtian-relay - RELAY7: Off. Last Seen: 2020-04-30 10:26:14. Type: Light/Switch, Switch, On/Off.
- dingtian-relay - RELAY8: Off. Last Seen: 2020-04-30 10:26:14. Type: Light/Switch, Switch, On/Off.

Each switch has a lightbulb icon, a star icon, and four buttons: Log, Edit, Timers, and Notifications.

Click light icon to control relay

The screenshot shows the Domoticz interface with the 'Switches' tab selected. The 'dingtian-relay - RELAY1' switch is highlighted with a red box around its lightbulb icon. A cursor is clicking on this icon. The other seven relays are shown in their original state.

C ① 127.0.0.1:8080/#/LightSwitches

Domoticz 2020.2

Dashboard Switches Scenes Temperature Weather Utility Setup ▾

2020-04-30 10:37:40 *▲05:52 ▼18:50

◀ Manual Light/Switch Learn Light/Switch ▶

dingtian-relay - RELAY1	On
Last Seen: 2020-04-30 10:37:36	Type: Light/Switch, Switch, On/Off

dingtian-relay - RELAY2	Off
Last Seen: 2020-04-30 10:26:13	Type: Light/Switch, Switch, On/Off

dingtian-relay - RELAY3	Off
Last Seen: 2020-04-30 10:26:13	Type: Light/Switch, Switch, On/Off

dingtian-relay - RELAY4	Off
Last Seen: 2020-04-30 10:26:13	Type: Light/Switch, Switch, On/Off

dingtian-relay - RELAY5	Off
Last Seen: 2020-04-30 10:26:13	Type: Light/Switch, Switch, On/Off

dingtian-relay - RELAY6	Off
Last Seen: 2020-04-30 10:26:13	Type: Light/Switch, Switch, On/Off

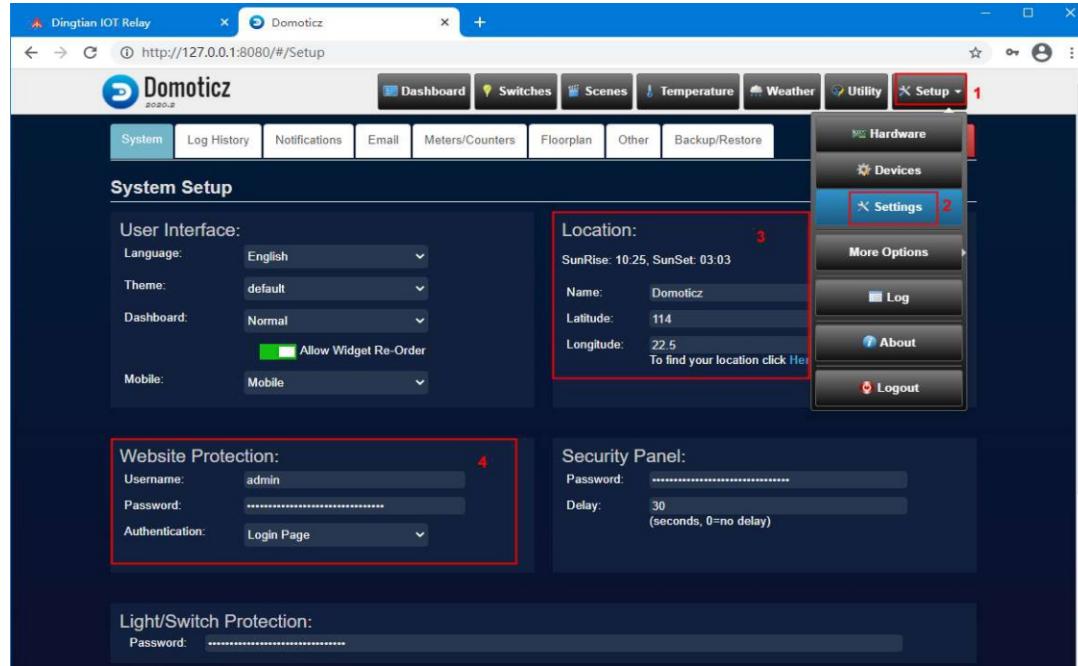
dingtian-relay - RELAY7	Off
Last Seen: 2020-04-30 10:26:14	Type: Light/Switch, Switch, On/Off

dingtian-relay - RELAY8	Off
Last Seen: 2020-04-30 10:37:28	Type: Light/Switch, Switch, On/Off

step 4: Domoticz mobile application

Please follow up step 1/2/3 firstly to confirm PC Domoticz connect

1 Set the Location, User name and password on PC Domoticz



2 Install Domoticz

Android google play "Domoticz Home Automation Lite", which is free of charge and cannot refresh automatically. So please refresh by manual after do it



3 Set Domoticz Server parameter

Server Name
domoticz server

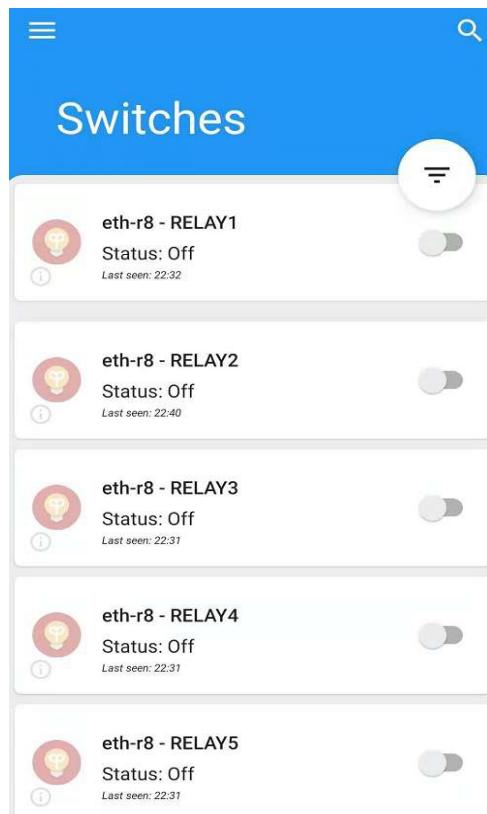
Server address
192.168.1.88

HTTP Port 8080

Username admin Password Show password

Directory

Different server address
Use different address for local connection



Domoticz mobile connect successfully, then you can control the switch by mobile phone

Appendix III How to MQTT

MQTT Ethernet

Dingtian IOT WiFi Relay | Not secure | 192.168.1.100/menu_page.html

Dingtian IOT Relay

Setting

Hardware Version	V1.4
Software Version	V2.17.28
Build Date	2021-01-21 21:23:13
Model	Dingtian IOT RELAY-8
Serial Number	1868
Date Time	1/30/2021, 22:47:00
NTP Server	pool.ntp.org
Hostname	Dingtian-Relay1868
Hostname+Suffix	Dingtian-Relay
HTTP Server Port	80
DHCP	No
IP	192.168.1.100
Netmask	255.255.255.0
Gateway	192.168.1.1
DNS	192.168.1.1
MAC	bc:34:88:00:06:9d
WiFi AP IP	192.168.7.1
WIFI STA IP	192.168.1.97

Save

MQTT WIFI

The screenshot shows a web browser window titled "Dingtian IOT WiFi Relay". The URL is "Not secure | 192.168.1.100/menu_page.html". The main content is the "Setting" page for the Dingtian IOT Relay. On the left is a sidebar menu with options like "Menu", "Setting" (which is selected), "Relay Connect", "Relay CGI Test", "Relay Task", "Input", "Input Link Relay", "IP WatchDog", "Reset User", "To Factory", and "Reboot". The main area has a large title "Setting" and a table of configuration parameters. The "Serial Number" row is highlighted with a red box. A green "Save" button is at the bottom right of the form.

Hardware Version	V1.4
Software Version	V2.17.28
Build Date	2021-01-21 21:23:13
Model	Dingtian IOT RELAY-8
Serial Number	1868
Date Time	1/30/2021, 22:47:00
NTP Server	pool.ntp.org
Hostname	Dingtian-Relay1868
Hostname+Suffix	Dingtian-Relay + SN
HTTP Server Port	80
DHCP	No
IP	192.168.1.100
Netmask	255.255.255.0
Gateway	192.168.1.1
DNS	192.168.1.1
MAC	bc:34:88:00:06:9d
WiFi AP IP	192.168.7.1
WIFI STA IP	192.168.1.97

Save

Relay board Ethernet MQTT Client Id

dingtian-relay+SN

Relay board WiFi MQTT Client Id

dingtian-wrelay+SN

example:

below relay board “Serial Number” is 1868

so ETH MQTT client id is:dingtian-relay1868

so WiFi MQTT client id is:dingtian-wrelay1868

Relay board MQTT Topic and Publish format:

below V2.15.869

/dingtian/relay/in/control

/dingtian/relay/out/relayX

above V2.15.869

/dingtian/relaySN/in/control

/dingtian/relaySN/out/relayX

above V2.17.xx

ETH

/dingtian/relaySN/in/control

/dingtian/relaySN/in/rX

/dingtian/relaySN/out/rX

/dingtian/relaySN/out/iX

/dingtian/relaySN/out/relayX

/dingtian/relaySN/out/inputX

/dingtian/relaySN/out/ip

/dingtian/relaySN/out/sn

/dingtian/relaySN/out/mac

/dingtian/relaySN/out/input_cnt

/dingtian/relaySN/out/relay_cnt

WiFi

/dingtian/wrelaySN/in/control

/dingtian/wrelaySN/in/rX

/dingtian/wrelaySN/out/rX

/dingtian/wrelaySN/out/iX

/dingtian/wrelaySN/out/relayX

/dingtian/wrelaySN/out/inputX

/dingtian/wrelaySN/out/ip

/dingtian/wrelaySN/out/sn

/dingtian/wrelaySN/out/mac

/dingtian/wrelaySN/out/input_cnt

/dingtian/wrelaySN/out/relay_cnt

example:

below V2.15.869

```
/dingtian/relay/in/control  
/dingtian/relay/out/relay1  
/dingtian/relay/out/relay2  
/dingtian/relay/out/relay3  
/dingtian/relay/out/relay4  
/dingtian/relay/out/relay5  
/dingtian/relay/out/relay6  
/dingtian/relay/out/relay7  
/dingtian/relay/out/relay8
```

above V2.15.869

```
/dingtian/relay1868/in/control  
/dingtian/relay1868/out/relay1  
/dingtian/relay1868/out/relay2  
/dingtian/relay1868/out/relay3  
/dingtian/relay1868/out/relay4  
/dingtian/relay1868/out/relay5  
/dingtian/relay1868/out/relay6  
/dingtian/relay1868/out/relay7  
/dingtian/relay1868/out/relay8
```

above V2.17.xx

ETH

```
/dingtian/relay1868/in/control  
/dingtian/relay1868/in/r1~8  
/dingtian/relay1868/out/r1~8  
/dingtian/relay1868/out/i1~8  
/dingtian/relay1868/out/relay1~8  
/dingtian/relay1868/out/input1~8  
/dingtian/relay1868/out/ip  
/dingtian/relay1868/out/sn  
/dingtian/relay1868/out/mac  
/dingtian/relay1868/out/input_cnt  
/dingtian/relay1868/out/relay_cnt
```

WIFI

```
/dingtian/wrelay1868/in/control  
/dingtian/wrelay1868/in/r1~8  
/dingtian/wrelay1868/out/r1~8  
/dingtian/wrelay1868/out/i1~8  
/dingtian/wrelay1868/out/relay1~8  
/dingtian/wrelay1868/out/input1~8
```

```
/dingtian/wrelay1868/out/ip  
/dingtian/wrelay1868/out/sn  
/dingtian/wrelay1868/out/mac  
/dingtian/wrelay1868/out/input_cnt  
/dingtian/wrelay1868/out/relay_cnt
```

Relay board MQTT Topic to subscribe:

```
/dingtian/relay/in/control  
or  
/dingtian/relay1868/in/control
```

```
type:ON/OFF,DELAY,JOGGING  
idx:1~8  
status:ON,OFF  
time: (ON/OFF)0,(DELAY)1~65535second,(JOGGING)1~255*100ms  
pass:0~9999
```

example:

```
{"type":"ON/OFF","idx":1,"status":"ON","time":0,"pass":0}  
{"type":"DELAY","idx":2,"status":"ON","time":5,"pass":0}  
{"type":"JOGGING","idx":3,"status":"ON","time":5,"pass":0}  
{"type":"ON/OFF","idx":4,"status":"OFF","time":0,"pass":0}
```

Relay board MQTT Topic to publish:

```
/dingtian/relay/out/relay1  
/dingtian/relay/out/relay2  
/dingtian/relay/out/relay3  
/dingtian/relay/out/relay4  
/dingtian/relay/out/relay5  
/dingtian/relay/out/relay6  
/dingtian/relay/out/relay7  
/dingtian/relay/out/relay8  
or  
/dingtian/relay1868/out/relay1  
/dingtian/relay1868/out/relay2  
/dingtian/relay1868/out/relay3  
/dingtian/relay1868/out/relay4  
/dingtian/relay1868/out/relay5  
/dingtian/relay1868/out/relay6  
/dingtian/relay1868/out/relay7  
/dingtian/relay1868/out/relay8  
or  
/dingtian/relay1868/out/r1~8  
/dingtian/relay1868/out/i1~8
```

```
/dingtian/relay1868/out/relay1~8  
/dingtian/relay1868/out/input1~8  
/dingtian/relay1868/out/ip  
/dingtian/relay1868/out/sn  
/dingtian/relay1868/out/mac  
/dingtian/relay1868/out/input_cnt  
/dingtian/relay1868/out/relay_cnt
```

idx:1~8
status:ON,OFF

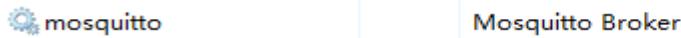
example:
{“idx”:”1”,“status”:”OFF”}

step 1: Install and config Broker

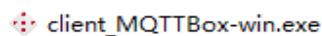


1 config “mosquitto.conf”
bind_address 0.0.0.0
port 1883

2 start windows Service “mosquitto”



step 2: Install MQTT PC client



step 3: MQTTBox Add Client



Protocol:mqtt/tcp
Host:192.168.1.88:1883(Broker server ip and port)
Username:mqtt
Password:123
Broker MQTT V3.1.1 compliant

MQTT Client Name	MQTT Client Id	Append timestamp to MQTT client id?	Broker is MQTT v3.1.1 compliant?
relay_board	c27e3dba-456d-47d3-9209-1bt	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Yes
Protocol	Host	Clean Session?	Auto connect on app launch?
mqtt / tcp	192.168.1.88:1883	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Yes
Username	Password	Reschedule Pings?	Queue outgoing QoS zero messages?
mqtt	...	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Yes
Reconnect Period (milliseconds)	Connect Timeout (milliseconds)	KeepAlive (seconds)	
1000	30000	10	
Will - Topic	Will - QoS	Will - Retain	Will - Payload
Will - Topic	1 - Atleast Once	<input checked="" type="checkbox"/> Yes	
		Save	Delete

Config Relay board Web page MQTT parameter

Dingtian IOT Relay

Menu
 └ Setting
 └ Relay Connect
 └ Relay CGI Test
 └ Relay Task
 └ Input
 └ Input Link Relay
 └ IP WatchDog
 └ Reset User
 └ To Factory
 └ Reboot

Channel	Protocol	Addr	Baud	Databits	Stopbits	Parity
RS485	Modbus-RTU	1	115200bps	8bit	1bit	None
CAN	Dingtian String	1	125Kbps			
ETH-UDP1	Dingtian Binary	192.168.1.88	60000	60000		
ETH-UDP2	Dingtian String	192.168.1.88	60001	60001		
ETH-TCP Server	Modbus-TCP				Local Port	
ETH-TCP Client	Modbus-RTU Over TCP	192.168.1.9	502			
ETH-MQTT	MQTT	192.168.1.88	1883	mqtt	123	

Relay

Other
Relay Password 0 0~9999(0 no password)
Keep Alive Second 30 1~120 second(0 close)
Jogging Time 5 1~255 (1=100ms)
Power Failure Recovery Relay No
Input Control Relay Yes

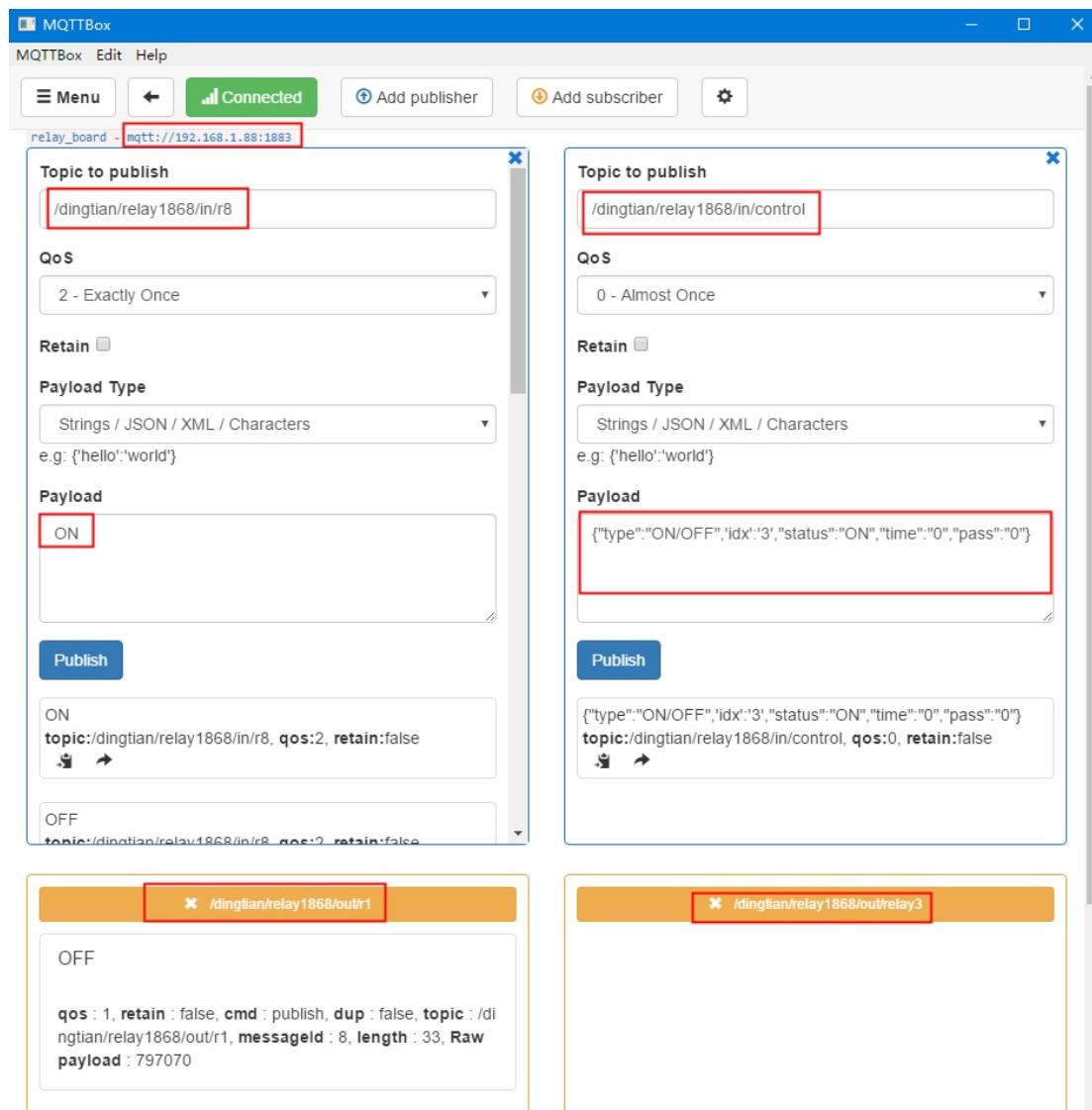
Button Type			
Momentary	Momentary	Momentary	Momentary
Momentary	Momentary	Momentary	Momentary

Save

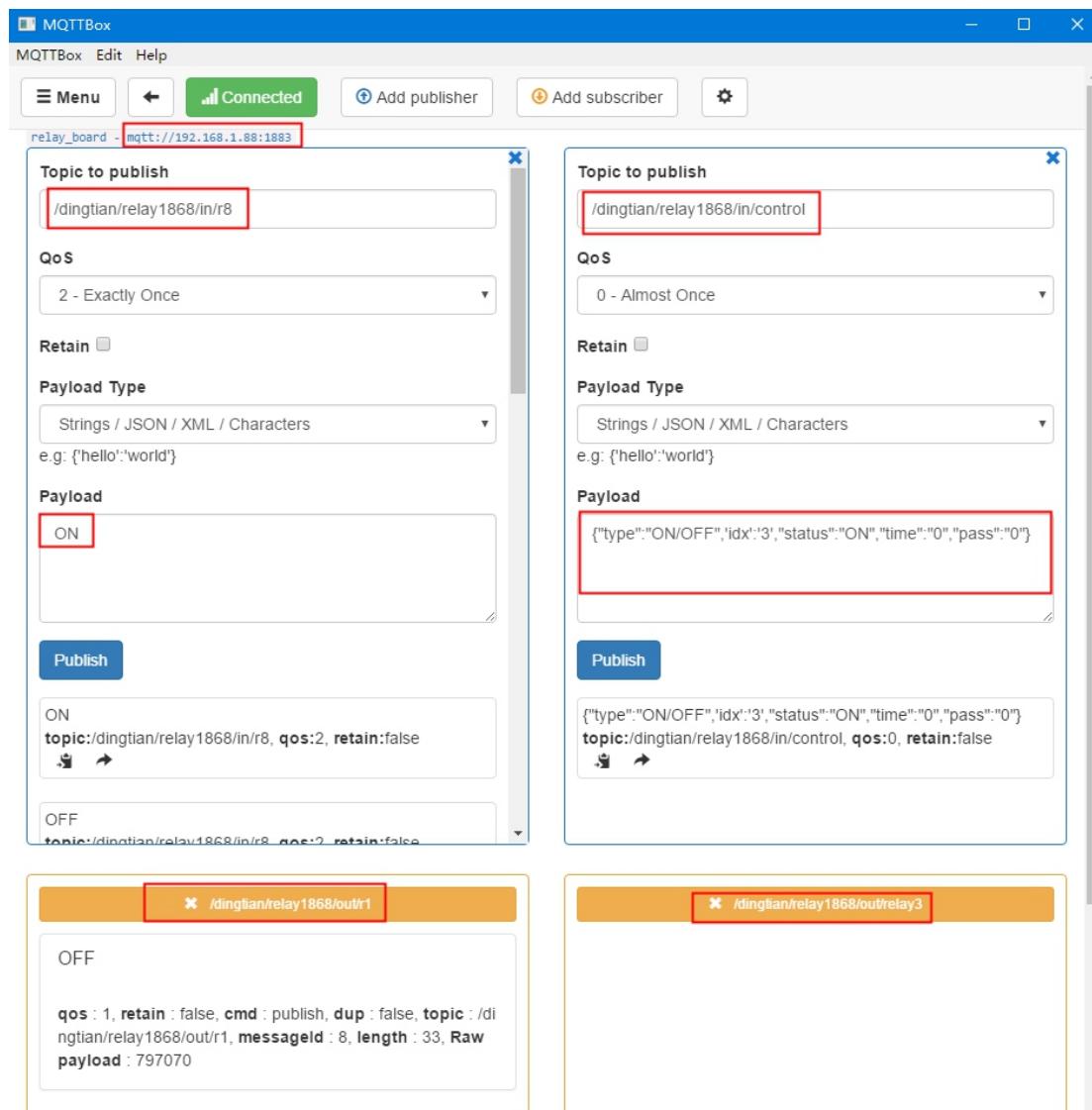
Relay Test

Relay1:Off Relay2:Off Relay3:Off Relay4:Off
 Relay5:Off Relay6:Off Relay7:Off Relay8:Off

step 4: MQTTBox Publish topic to relay board and subscribe topic



step 4: MQTTBox Publish topic to relay board and subscribe topic



Appendix IV How to CoAP

you need linux system

step 1: compile libcoap

```
git clone --rec urse-submodules https://github.com/obgm/libcoap  
./autogen.sh  
./configure --disable-manpages --enable-examples --enable-tests  
make
```

step 2: CoAP Get relay status

Relay Status(1:ON, 0:OFF)

```
./coap-client -m get coap://192.168.1.100/dingtian/r1  
./coap-client -m get coap://192.168.1.100/dingtian/r2  
./coap-client -m get coap://192.168.1.100/dingtian/r3  
./coap-client -m get coap://192.168.1.100/dingtian/r4  
./coap-client -m get coap://192.168.1.100/dingtian/r5  
./coap-client -m get coap://192.168.1.100/dingtian/r6  
./coap-client -m get coap://192.168.1.100/dingtian/r7  
./coap-client -m get coap://192.168.1.100/dingtian/r8
```

Input Status(1:High, 0:Low)

```
./coap-client -m get coap://192.168.1.100/dingtian/i1  
./coap-client -m get coap://192.168.1.100/dingtian/i2  
./coap-client -m get coap://192.168.1.100/dingtian/i3  
./coap-client -m get coap://192.168.1.100/dingtian/i4  
./coap-client -m get coap://192.168.1.100/dingtian/i5  
./coap-client -m get coap://192.168.1.100/dingtian/i6  
./coap-client -m get coap://192.168.1.100/dingtian/i7  
./coap-client -m get coap://192.168.1.100/dingtian/i8
```

step 3: CoAP Control relay(simple)

```
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r1      # relay1 ON  
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r1      # relay1 OFF  
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r2      # relay2 ON  
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r2      # relay2 OFF  
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r3      # relay3 ON  
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r3      # relay3 OFF  
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r4      # relay4 ON  
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r4      # relay4 OFF  
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r5      # relay5 ON  
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r5      # relay5 OFF  
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r6      # relay6 ON  
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r6      # relay6 OFF
```

```
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r7      # relay7 ON  
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r7      # relay7 OFF  
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r8      # relay8 ON  
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r8      # relay8 OFF
```

step 4: CoAP Control relay

format:

```
status:type:time:password  
status:0,1  
type:ON/OFF,DELAY,JOGGING  
time:(ON/OFF)0,(DELAY)1~65535second,(JOGGING)1~255*100ms  
password:0~9999
```

example:

```
1:ON/OFF:0:4660  
status:1  
type:ON/OFF  
time:0  
password:4660
```

ON/OFF example:

```
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r1  
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r2  
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r3  
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r4  
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r5  
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r6  
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r7  
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r8  
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r1  
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r2  
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r3  
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r4  
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r5  
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r6  
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r7  
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r8
```

DELAY example:

```
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r1  
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r2  
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r3  
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r4  
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r5
```

```
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r6
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r7
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r8
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r1
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r2
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r3
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r4
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r5
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r6
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r7
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r8
```

JOGGING example:

```
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r1
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r2
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r3
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r4
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r5
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r6
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r7
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r8
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r1
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r2
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r3
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r4
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r5
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r6
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r7
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r8
```

Appendix V How to “input mutual control”

Example param:

DevA IP: 192.168.1.100

DevB IP: 192.168.1.101

web config “Input Control Relay”

“No”:input only control remote output

“Yes”:input control local output and remote output

DevA web config:

Menu

- Setting
- Relay Connect
- Relay CGI Test
- Relay Task
- Input
- Input Link Relay
- IP WatchDog
- Reset User
- To Factory
- Reboot

Relay

Channel	Protocol	Addr	Baud	Databits	Stopbits	Parity
RS485	Modbus-RTU	1	115200bps	8bit	1bit	None
CAN	Dingtian String	1	Speed 125Kbps			
ETH-UDP1	Dingtian Binary	192.168.1.9	Remote Address	Remote Port	Local Port	
ETH-UDP2	Input Mutual Control	192.168.1.101	Other Relay Board IP DevB IP	Remote Port 60001	Local Port 60001	
ETH-TCP Server	Modbus-TCP			Local Port 502		
ETH-TCP Client	Modbus-RTU Over TCP	192.168.1.9	Remote Address	Remote Port 502		
ETH-MQTT	MQTT	192.168.1.9	Broker Address	Broker Port 1883	Broker Username mqtt	Broker Password 123

Other		
Relay Password	0	0~9999(0 no password)
Keep Alive Second	30	1~120 second(0 close)
Jogging Time	5	1~255 (1=100ms)
Power Failure Recovery Relay	No	
Input Control Relay	No	DevA input not control relay

Button Type			
Momentary	Momentary	Momentary	Momentary

Save

DevB web config:

- Menu
- Setting
- Relay Connect
- Relay CGI Test
- Relay Task
- Input
- Input Link Relay
- IP WatchDog
- Reset User
- To Factory
- Reboot

Relay

Channel	Protocol	Addr	Baud	Databits	Stopbits	Parity
RS485	Modbus-RTU	1	115200bps	8bit	1bit	None
CAN	Dingtian String	ID	Speed			
ETH-UDP1	Dingtian Binary	Remote Address		Remote Port	Local Port	
ETH-UDP2	Input Mutual Control	Other Relay Board IP	192.168.1.100	DevA IP	60001	60001
ETH-TCP Server	Modbus-TCP			Local Port		
ETH-TCP Client	Modbus-RTU Over TCP	Remote Address	192.168.1.9	Remote Port	502	
ETH-MQTT	MQTT	Broker Address	192.168.1.9	Broker Port	1883	Broker Username: mqt Broker Password: 123

Other

Relay Password	0	0~9999(0 no password)
Keep Alive Second	30	1~120 second(0 close)
Jogging Time	5	1~255 (1=100ms)
Power Failure Recovery Relay	No	
Input Control Relay	No	DevB input not control relay

Button Type

Momentary ▾ Momentary ▾ Momentary ▾ Momentary ▾

Save

Relay Test

Relay1:Off
Relay2:Off
Relay3:Off
Relay4:Off

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Appendix VI How to Home Assistant

Notice:

- 1 Close your firewall
- 2 All command and script run as root/administrator
- 3 please step by step

Step 1 config Relay board

Dingtian IOT Relay

Relay

Menu

Setting

Relay Connect

Relay CGI Test

Relay Task

Input

Input Link Relay

IP WatchDog

Reset User

To Factory

Upgrade

Reboot

Channel	Protocol	Addr	Baud	Databits	Stopbits	Parity
RS485	Modbus-RTU	1	115200bps	8bit	1bit	None
CAN	Dingtian String	ID	Speed	Frame Type		
UDP1	Dingtian Binary	Remote Address	192.168.1.9	Remote Port	Local Port	
UDP2	Dingtian String	Remote Address	192.168.1.9	Remote Port	Local Port	
TCP Server	Modbus-TCP	Remote Address		Remote Port	Local Port	
TCP Client	Modbus-RTU Over TCP	Broker Address	192.168.1.9	Broker Port	Broker Username	Broker Password
MQTT	MQTT	Broker Address	192.168.1.9	Broker Port	mqtt	123

Other

Relay Password: 0 (0~9999(0 no password))

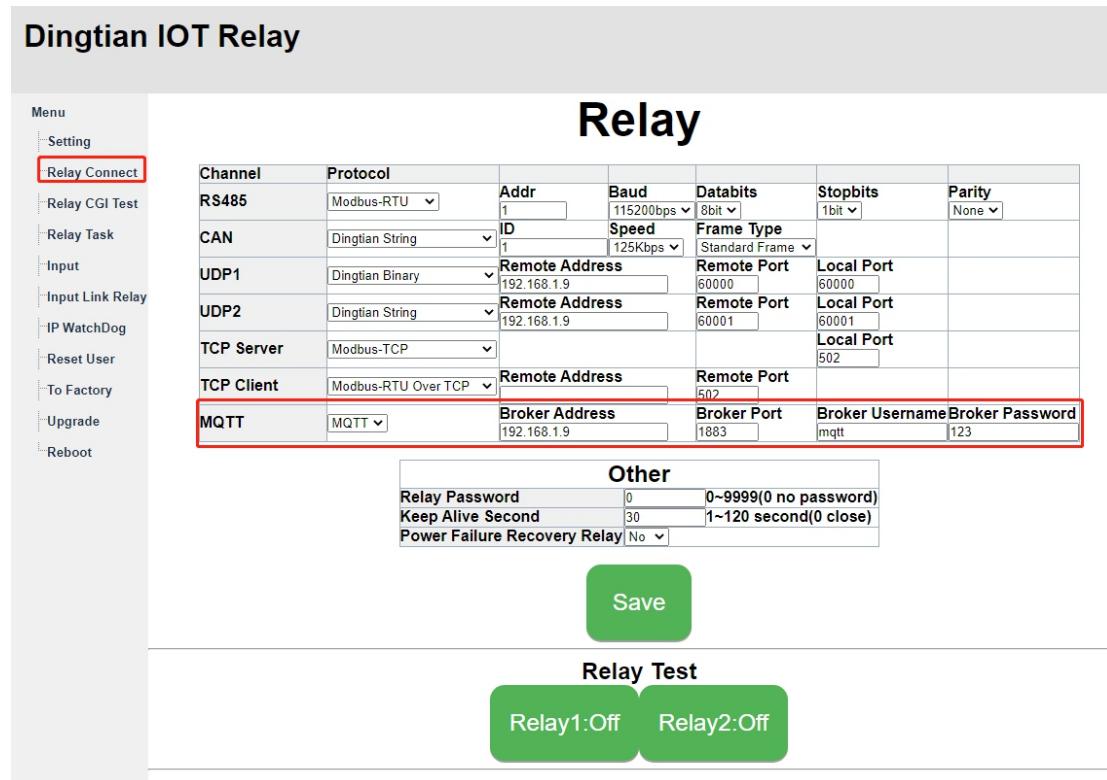
Keep Alive Second: 30 (1~120 second(0 close))

Power Failure Recovery Relay: No

Save

Relay Test

Relay1:Off Relay2:Off



The “**192.168.1.9**” is MQTT broker IP

Step 2 Install MQTT Broker

Link step 1: Install and config Broker for details how to install MQTT Broker

Step 3 Install Home Assistant

1 install python

Python download link:

<https://www.python.org/ftp/python/3.10.0/python-3.10.0.exe>

2 install Home Assistant

Windows install command:

python -m pip install --upgrade homeassistant tzdata met

3 Add relay board Switch and input to Home Assistant

Home assistant default config yaml path:

<C:\Users\Administrator\AppData\Roaming\homeassistant\configuration.yaml>

example is 2 channel relay board, SN is 100

when you use it please replace with your relay board SN

SDK path:

MQTT\home_assistant_example.yaml

add below lines to <configuration.yaml>

```
#####
# start #####
switch:
  - platform: mqtt
    unique_id: dingtian100-r1
    name: "Dingtian Ethernet Switch1"
    state_topic: "/dingtian/relay100/out/r1"
    command_topic: "/dingtian/relay100/in/r1"
    availability:
      - topic: "/dingtian/relay100/out/lwt_availability"
        payload_available: "online"
        payload_not_available: "offline"
      payload_on: "ON"
      payload_off: "OFF"
      state_on: "ON"
      state_off: "OFF"
    optimistic: false
```

```
    qos: 0
    retain: false

    - platform: mqtt
      unique_id: dingtian100-r2
      name: "Dingtian Ethernet Switch2"
      state_topic: "/dingtian/relay100/out/r2"
      command_topic: "/dingtian/relay100/in/r2"
      availability:
        - topic: "/dingtian/relay100/out/lwt_availability"
          payload_available: "online"
          payload_not_available: "offline"
          payload_on: "ON"
          payload_off: "OFF"
          state_on: "ON"
          state_off: "OFF"
          optimistic: false
      qos: 0
      retain: false

binary_sensor:
  - platform: mqtt
    unique_id: dingtian100-i1
    name: "Dingtian Ethernet Input1"
    state_topic: "/dingtian/relay100/out/i1"
    availability:
      - topic: "/dingtian/relay100/out/lwt_availability"
        payload_available: "online"
        payload_not_available: "offline"
        payload_on: "ON"
        payload_off: "OFF"
    qos: 0

  - platform: mqtt
    unique_id: dingtian100-i2
    name: "Dingtian Ethernet Input2"
    state_topic: "/dingtian/relay100/out/i2"
    availability:
      - topic: "/dingtian/relay100/out/lwt_availability"
        payload_available: "online"
        payload_not_available: "offline"
        payload_on: "ON"
        payload_off: "OFF"
    qos: 0
```

```
##### end #####
```

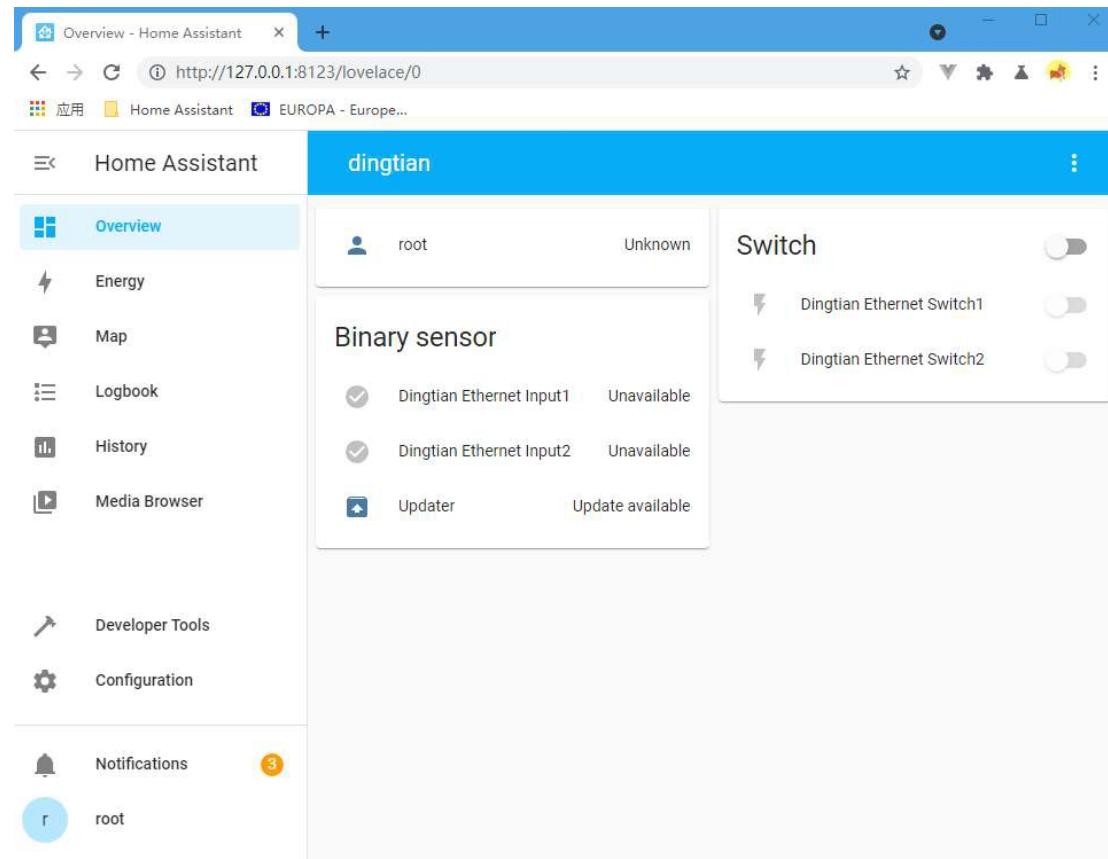
4 Home Assistant config MQTT Broker

Windows open Home Assistant command:

hass –open-ui

Home Assistant web link:

<http://127.0.0.1:8123/>



config MQTT Broker

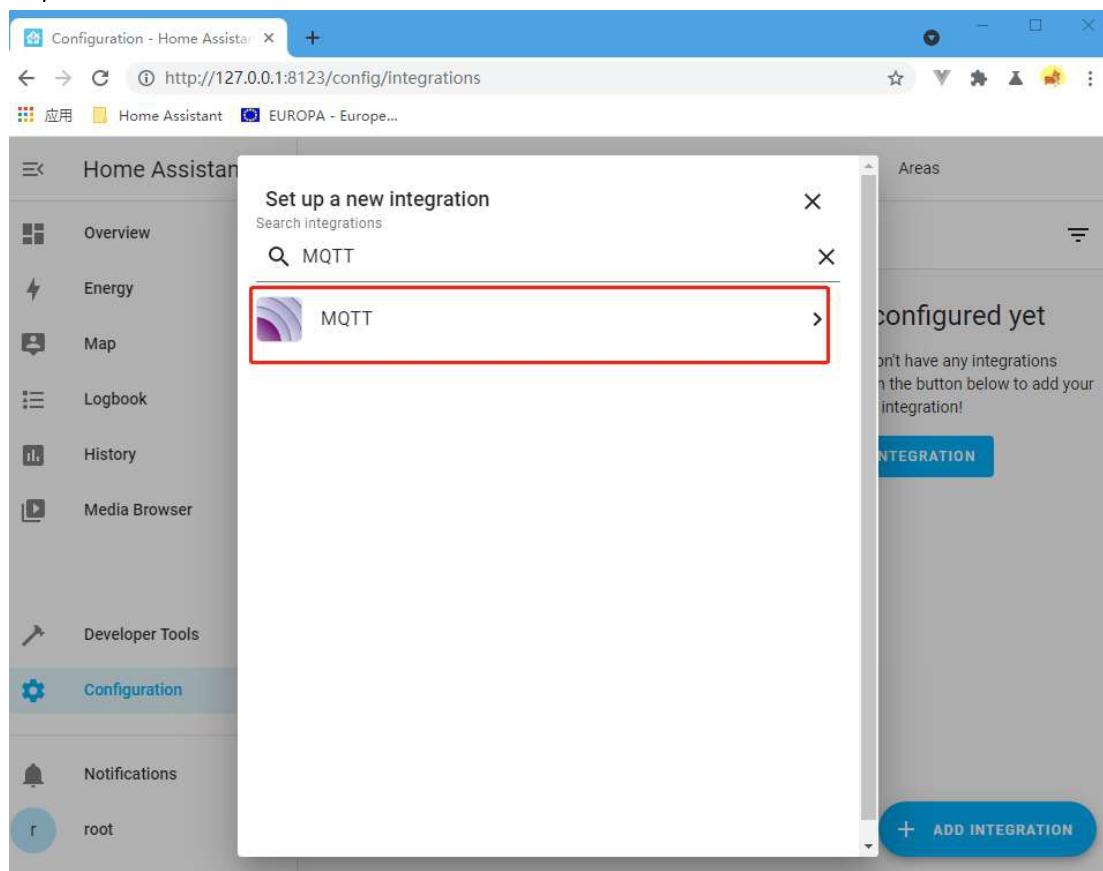
step 1

The screenshot shows the Home Assistant Configuration dashboard at <http://127.0.0.1:8123/config/dashboard>. The left sidebar has 'Configuration' selected (marked with a red box 1). The main area is titled 'Configure Home Assistant' with the sub-section 'Integrations' highlighted (marked with a red box 2). Other sections include 'Devices', 'Entities', 'Areas', 'Blueprints', and 'Automations'. A notification badge '3' is visible on the Notifications icon.

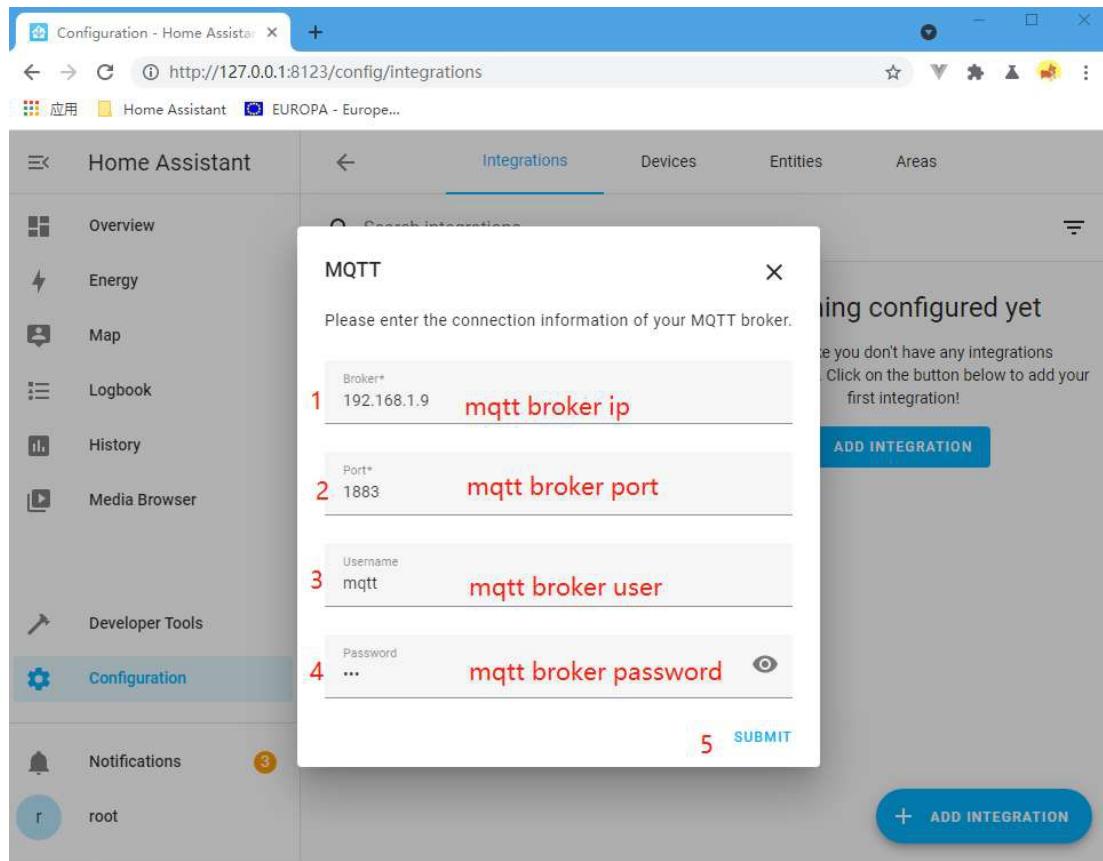
step 2

The screenshot shows the 'Integrations' configuration page at <http://127.0.0.1:8123/config/integrations>. The left sidebar has 'Configuration' selected (marked with a red box 1). The main area shows a 'Discovered' section with a card for '投屏电视C0' (DLNA Digital Media Renderer) with 'CONFIGURE' and 'IGNORE' buttons. A large red box highlights the 'ADD INTEGRATION' button at the bottom right. A notification badge '3' is visible on the Notifications icon.

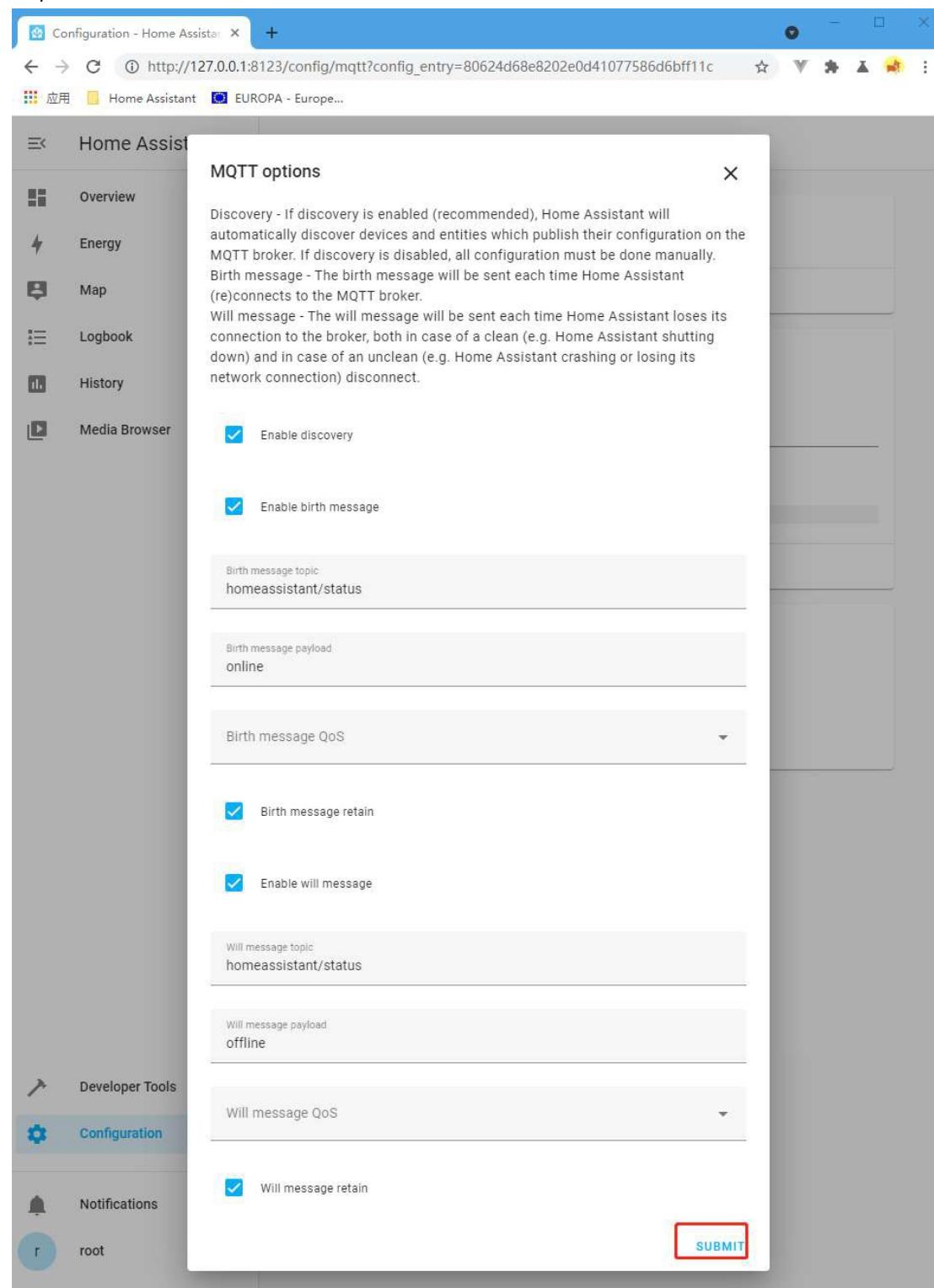
step 3



step 4



step 5



step 6

restart Home Assistant

Ctrl+C hot key to Stop Home Assistant

hass –open-ui to start Home Assistant

step 6

new Home Assistant can control relay and get input status

The screenshot shows the Home Assistant interface with a sidebar on the left containing links like Overview, Energy, Map, Logbook, History, Media Browser, Developer Tools, Configuration, Notifications (with a '2' notification), and root. The main area displays a card titled "dingtian". Inside the card, there is a user profile for "root" with "Unknown" status. Below the profile is a "Binary sensor" section showing "Dingtian Ethernet Input1" and "Dingtian Ethernet Input2", both set to "Off". To the right of the binary sensors is a "Switch" section with two entries: "Dingtian Ethernet Switch1" and "Dingtian Ethernet Switch2", both of which are currently off.

Appendix VII How to openHAB

Notice:

- 1 Close your firewall
- 2 All command and script run as root/administrator
- 3 please step by step

Step 1 config Relay board

Dingtian IOT Relay

Relay

Menu

- Setting
- Relay Connect**
- Relay CGI Test
- Relay Task
- Input
- Input Link Relay
- IP WatchDog
- Reset User
- To Factory
- Upgrade
- Reboot

Channel	Protocol	Addr	Baud	Databits	Stopbits	Parity
RS485	Modbus-RTU	1	115200bps	8bit	1bit	None
CAN	Dingtian String	ID	Speed	Frame Type		
UDP1	Dingtian Binary	Remote Address	192.168.1.9	Remote Port	Local Port	
UDP2	Dingtian String	Remote Address	192.168.1.9	Remote Port	Local Port	
TCP Server	Modbus-TCP	Remote Address		Remote Port	Local Port	
TCP Client	Modbus-RTU Over TCP	Broker Address	192.168.1.9	Broker Port	Broker Username	Broker Password
MQTT	MQTT	Broker Address	192.168.1.9	Broker Port	mqtt	123

Other

Relay Password	0	0~9999(0 no password)
Keep Alive Second	30	1~120 second(0 close)
Power Failure Recovery Relay	No	

Save

Relay Test

Relay1:Off Relay2:Off

The “**192.168.1.9**” is MQTT broker IP

Step 2 Install MQTT Broker

Link step 1: Install and config Broker for details how to install MQTT Broker

Step 3 install JDK and openHAB

1 Download

JDK download link:

https://cdn.azul.com/zulu/bin/zulu11.54.25-ca-jdk11.0.14.1-win_x64.msi

OpenHAB download link:

<https://openhab.jfrog.io/artifactory/libs-release-local/org/openhab/distro/openhab/3.2.0/openhab-3.2.0.zip>

OpenHAB add-on download link:

<https://openhab.jfrog.io/artifactory/libs-release-local/org/openhab/distro/openhab-addons/3.2.0/openhab-addons-3.2.0.kar>

2 install

unpack zip directory tree as below image(Example install directory is "D:\tool\openHAB"):

Notice:

The openHAB install directory must **contain no spaces**

data (D:) > tool > openHAB			
名称	修改日期	类型	大小
openhab-3.2.0	2022-03-30 15:43	文件夹	
zulu11.54.25-ca-jdk11.0.14.1-win_x64	2022-02-08 4:30	文件夹	

data (D:) > tool > openHAB > openhab-3.2.0			
名称	修改日期	类型	大小
addons	2022-03-30 15:43	文件夹	
conf	2021-12-20 4:45	文件夹	
runtime	2021-12-20 4:45	文件夹	
userdata	2021-12-20 4:45	文件夹	
LICENSE.TXT	2021-12-20 4:45	文本文档	14 KB
start.bat	2021-12-20 4:27	Windows 批处理...	1 KB
start.sh	2021-12-20 4:27	Shell Script	1 KB
start_debug.bat	2021-12-20 4:27	Windows 批处理...	1 KB
start_debug.sh	2021-12-20 4:27	Shell Script	1 KB

data (D:) > tool > openHAB > openhab-3.2.0 > addons			
名称	修改日期	类型	大小
openhab-addons-3.2.0.kar	2022-03-30 14:50	KAR 文件	276,869 KB
README	2021-12-20 4:45	文件	1 KB

jdk11.0.14.1-win_x64

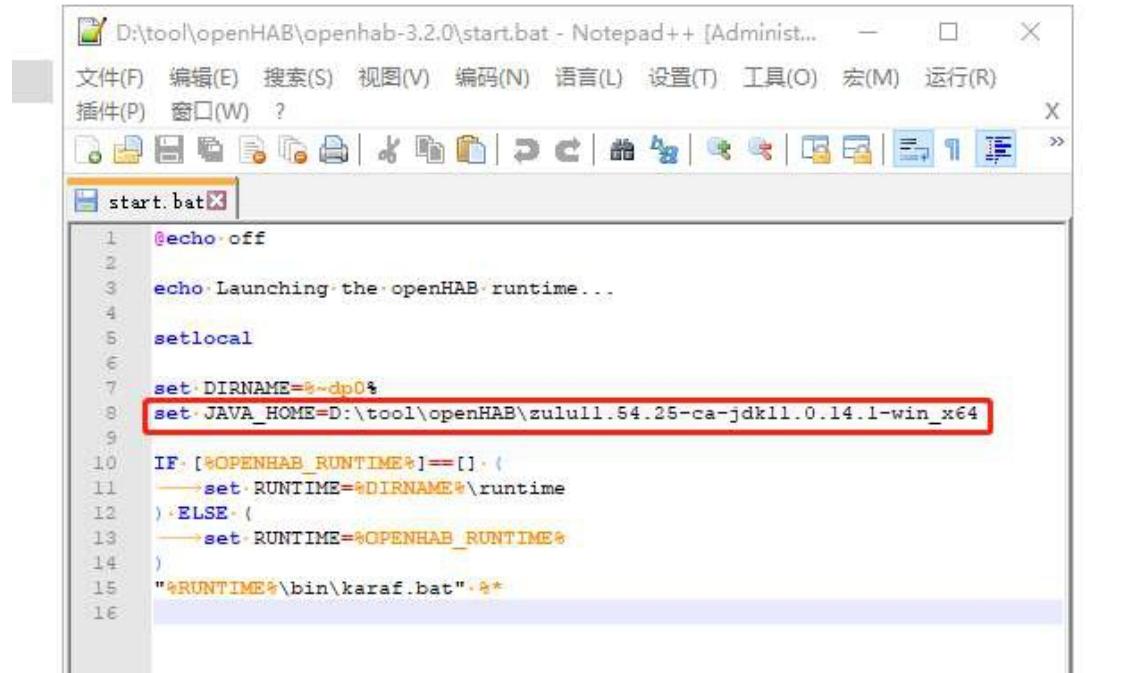
data (D:) > tool > openHAB > zulu11.54.25-ca-jdk11.0.14.1-win_x64			
名称	修改日期	类型	大小
bin	2022-02-08 4:30	文件夹	
conf	2022-02-08 4:26	文件夹	
demo	2022-02-08 4:26	文件夹	
include	2022-02-08 4:26	文件夹	
jmods	2022-02-08 4:26	文件夹	
legal	2022-02-08 4:26	文件夹	
lib	2022-02-08 4:26	文件夹	
DISCLAIMER	2022-02-08 4:30	文件	3 KB
readme.txt	2022-02-08 4:30	文本文档	1 KB
release	2022-02-08 4:26	文件	2 KB
Welcome.html	2022-02-08 4:30	Chromium HTM...	2 KB

3 Add jdk directory to “start.bat”

Add “set JAVA_HOME=D:\tool\openHAB\zulu11.54.25-ca-jdk11.0.14.1-win_x64”
to file start.bat as below



名称	修改日期	类型	大小
addons	2022-03-30 15:43	文件夹	
conf	2021-12-20 4:45	文件夹	
runtime	2021-12-20 4:45	文件夹	
userdata	2021-12-20 4:45	文件夹	
LICENSE.TXT	2021-12-20 4:45	文本文档	14 KB
start.bat	2022-03-30 16:26	Windows 批处理...	1 KB
start.sh	2021-12-20 4:27	Shell Script	1 KB
start_debug.bat	2021-12-20 4:27	Windows 批处理...	1 KB
start_debug.sh	2021-12-20 4:27	Shell Script	1 KB



```
1 echo off
2
3 echo Launching the openHAB runtime...
4
5 setlocal
6
7 set DIRNAME=%~dp0%
8 set JAVA_HOME=D:\tool\openHAB\zulu11.54.25-ca-jdk11.0.14.1-win_x64
9
10 IF [%OPENHAB_RUNTIME%]==[] (
11     set RUNTIME=%DIRNAME%\runtime
12 ) ELSE (
13     set RUNTIME=%OPENHAB_RUNTIME%
14 )
15 "%RUNTIME%\bin\karaf.bat" &
```

4 First time init openHAB

1 double click "start.bat"

data (D:) > tool > openHAB > openhab-3.2.0			
名称	修改日期	类型	大小
addons	2022-03-31 21:05	文件夹	
conf	2022-03-31 21:06	文件夹	
runtime	2022-03-31 21:05	文件夹	
userdata	2022-04-01 16:28	文件夹	
LICENSE.TXT	2021-12-20 4:45	文本文档	14 KB
start.bat	2022-03-30 17:33	Windows 批处理...	1 KB
start.sh	2021-12-20 4:27	Shell Script	1 KB
start_debug.bat	2021-12-20 4:27	Windows 批处理...	1 KB
start_debug.sh	2021-12-20 4:27	Shell Script	1 KB

The screenshot shows a terminal window titled "管理员: Karaf". The title bar also includes "Launching the openHAB runtime...". The main area of the window displays the openHAB logo, which consists of several abstract shapes forming a stylized letter 'H'. Below the logo, the text "3.2.0 - Release Build" is visible. Further down, there is a command-line interface with the following text:
Use '<tab>' for a list of available commands
and '[cmd] --help' for help on a specific command.
To exit, use '<ctrl-d>' or 'logout'.
openhab> -

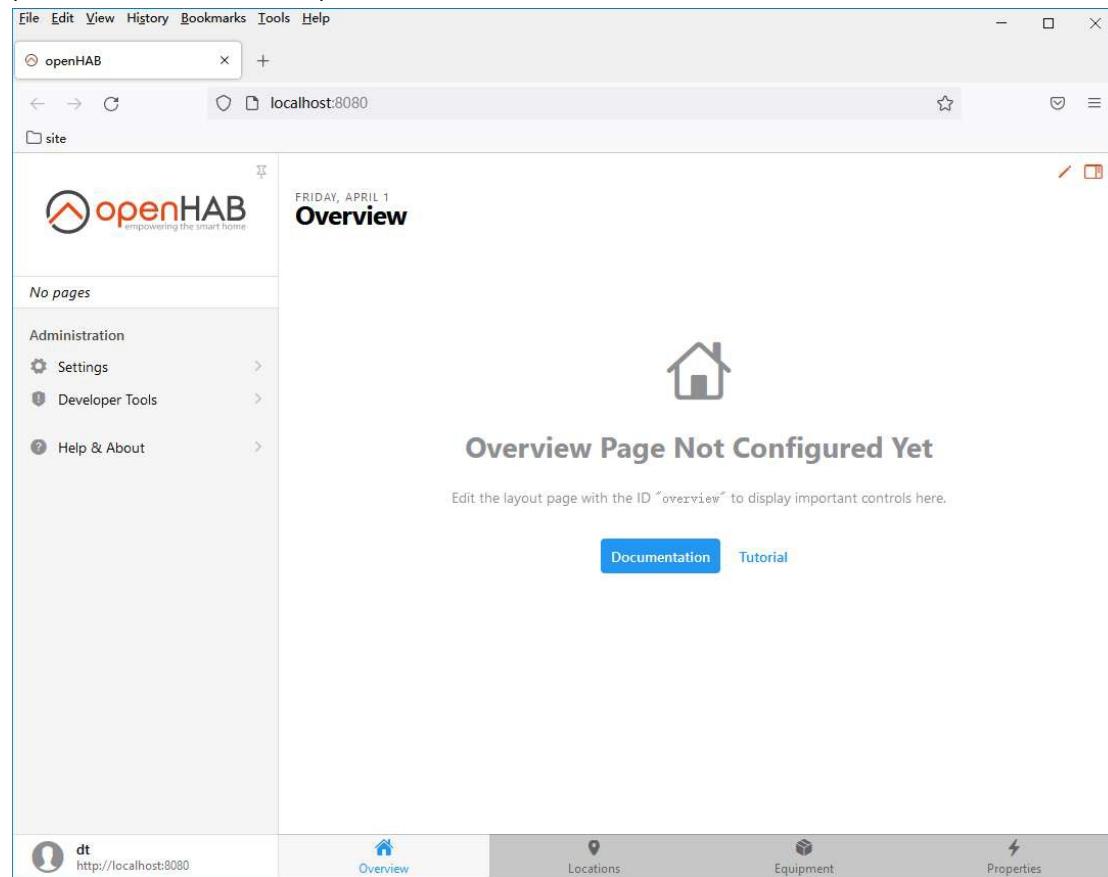
2 First time init openHAB

use Firefox open URL "<http://localhost:8080>"(my computer chromium can't open openHAB web page)

after first time config,you can get main web page like below

Notice:

please save username and password



3 install MQTT-binding

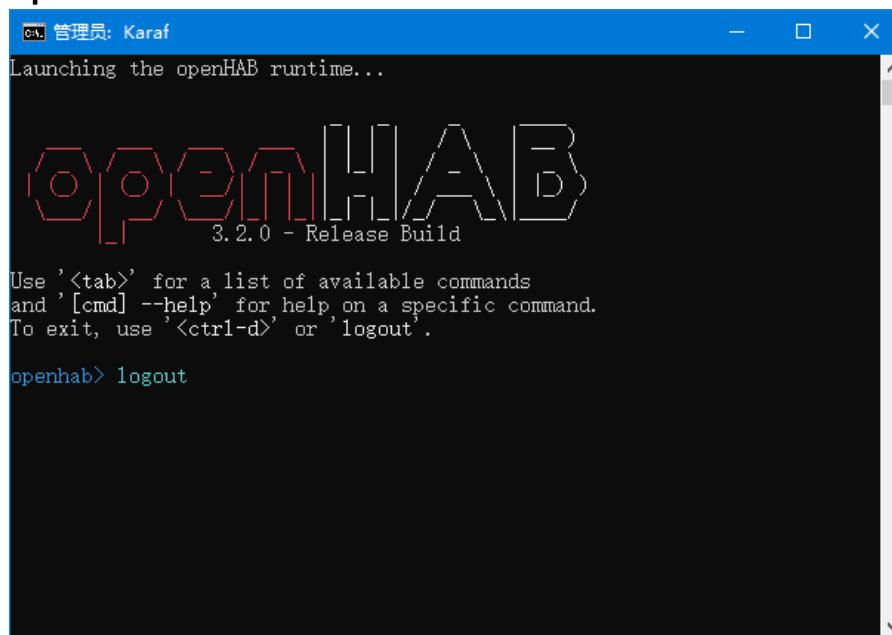


管理员: Karaf
Launching the openHAB runtime...

[O] [O] [E] [R] [U] [A] [B]
3.2.0 - Release Build

Use '<tab>' for a list of available commands
and '[cmd] --help' for help on a specific command.
To exit, use '<ctrl-d>' or 'logout'.
openhab> feature:install openhab-binding-mqtt

4 Stop openHAB



管理员: Karaf
Launching the openHAB runtime...

[O] [O] [E] [R] [U] [A] [B]
3.2.0 - Release Build

Use '<tab>' for a list of available commands
and '[cmd] --help' for help on a specific command.
To exit, use '<ctrl-d>' or 'logout'.
openhab> logout

Step 4 Add Dingtian Relay board to openHAB

2ch_config for 2 channel relay board

4ch_config for 4 channel relay board

8ch_config for 8 channel relay board

1 Change json MQTT broker host, username,password

change file “org.openhab.core.thing.Thing.json”

```
1  {
2   "mqtt:broker:dingtianbroker": {
3     "class": "org.openhab.core.thing.internal.BridgeImpl",
4     "value": {
5       "label": "MQTT Broker",
6       "channels": [],
7       "configuration": {
8         "properties": {
9           "certificatepin": false,
10          "clientid": "ble677c2-577c-4678-86f6-5e0a060827b6",
11          "enableDiscovery": false,
12          "host": "192.168.1.9", change to you broker IP
13          "keepAlive": 60,
14          "lwtQos": 1,
15          "lwtRetain": true,
16          "password": "123", change to you broker password
17          "port": 1883,
18          "publickeypin": false,
19          "qos": 1,
20          "reconnectTime": 60000,
21          "secure": false,
22          "username": "mqtt" change to you broker username
23        },
24        "properties": {},
25      },
26      "uid": {
27        "segments": [
28          "mqtt",
29          "broker",
30          "dingtianbroker"
31        ],
32        "uid": "mqtt:broker:dingtianbroker"
33      },
34      "thingTypeUID": {
35        "segments": [
36          "mqtt",
37          "broker"
38        ],
39        "uid": "mqtt:broker"
40      }
41    },
42  }
```

2 Change json SN(example SN 7920) to you relay board SN

Change file:

“org.openhab.core.thing.Thing.json”

“org.openhab.core.thing.link.ItemChannelLink.json”

“org.openhab.core.items.Item.json”

Step 4 Add Dingtian Relay board to openHAB

2ch_config for 2 channel relay board

4ch_config for 4 channel relay board

8ch_config for 8 channel relay board

1 Change json MQTT broker host, username,password

change file “org.openhab.core.thing.Thing.json”

```
1  {
2  2     "mqtt:broker:dingtianbroker": {
3  3         "class": "org.openhab.core.thing.internal.BridgeImpl",
4  4         "value": {
5  5             "label": "MQTT Broker",
6  6             "channels": [],
7  7             "configuration": {
8  8                 "properties": {
9  9                     "certificatepin": false,
10 10                    "clientid": "ble677c2-577c-4678-86f6-5e0a060827b6",
11 11                    "enableDiscovery": false,
12 12                    "host": "192.168.1.9", change to you broker IP
13 13                    "keepAlive": 60,
14 14                    "lwtQos": 1,
15 15                    "lwtRetain": true,
16 16                    "password": "123", change to you broker password
17 17                    "port": 1883,
18 18                    "publickeypin": false,
19 19                    "qos": 1,
20 20                    "reconnectTime": 60000,
21 21                    "secure": false,
22 22                    "username": "mqtt" change to you broker username
23 23                },
24 24                "properties": {},
25 25            },
26 26            "uid": {
27 27                "segments": [
28 28                    "mqtt",
29 29                    "broker",
30 30                    "dingtianbroker"
31 31                ],
32 32                "uid": "mqtt:broker:dingtianbroker"
33 33            },
34 34            "thingTypeUID": {
35 35                "segments": [
36 36                    "mqtt",
37 37                    "broker"
38 38                ],
39 39                "uid": "mqtt:broker"
40 40            }
41 41        }
42 42    }
43 }
```

2 Change json SN(example SN 7920) to you relay board SN

Change file:

“org.openhab.core.thing.Thing.json”

“org.openhab.core.thing.link.ItemChannelLink.json”

“org.openhab.core.items.Item.json”

org.openhab.core.thing.Thing.json

The screenshot shows a JSON editor interface with a search and replace dialog open over a JSON file. The file contains configuration for an MQTT broker and a relay board.

Search Dialog:

- Find what: 7920
- Replace with: 1 input you relay board SN
- Replace All button is highlighted (2)
- Replace All in All Opened Documents button
- Close button

File Status:

- Length: 16,233
- Lines: 605
- Ln: 43
- Col: 43
- Sel: 4 | 1
- Unix (LF)
- UTF-8
- INS

org.openhab.core.thing.link.ItemChannelLink.json

The screenshot shows a code editor interface with three tabs at the top: "org.openhab.core.thing.Thing.json", "org.openhab.core.thing.link.ItemChannelLink.json", and "org.openhab.core.items.Item.json". The "ItemChannelLink.json" tab is active. A replace dialog box is open over the code. The "Find what" field contains "7920" and the "Replace with" field contains "1 input you relay board SN". The replace dialog includes several search and replace options:

- Find Next
- Replace
- In selection
- Replace All (highlighted)
- Replace All in All Opened Documents
- Close

Below the replace dialog, there are search mode options: Normal (selected), Extended (\n, \r, \t, \b, \x...), and Regular expression. There is also a transparency slider and a "matches newline" checkbox.

```
1 {
2   "DingtianRelay7920I1 -\u003e mqtt:topic:dingtianbroker:DingtianRelay7920:I1": {
3     "class": "org.openhab.core.thing.link.ItemChannelLink",
4     "value": {
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```

org.openhab.core.items.Item.json

The screenshot shows a code editor interface with three tabs at the top: "org.openhab.core.thing.Thing.json", "org.openhab.core.thing.link.ItemChannelLink.json", and "org.openhab.core.items.Item.json". The "org.openhab.core.items.Item.json" tab is active. A search and replace dialog box is open over the code area. The "Find what" field contains "7920" and the "Replace with" field contains "1 input you relay board SN". The "Replace All" button is highlighted in red. The code itself is a JSON object with various items, some of which have "label" fields containing "DingtianRelay7920-I1" through "I6".

```
1, "DingtianRelay7920I1": {  
2,     "class": "org.openhab.core.items.ManagedItemProvider$PersistedItem",  
3,     "value": {}  
4,     "tags": [  
5,         {"g": Replace}  
6,         {"i": Find}, {"t": Replace}, {"f": Find in Files}, {"m": Mark}  
7,         {"Find what": 7920, "Replace with": 1 input you relay board SN}  
8,         {"Backward direction": checked}, {"Match whole word only": unchecked}, {"Match case": unchecked}, {"Wrap around": checked}  
9,         {"Search mode": Normal (radio button selected), Extended (\n, \r, \t, \0, \x...), Regular expression (checkbox unchecked, matches newline: unchecked)}  
10,        {"In selection": unchecked}, {"Replace All": 2}, {"Replace All in All Opened Documents": unchecked}, {"Close": Close}  
11,     "groupNames": [],  
12,     "label": "DingtianRelay7920-I1",  
13,     "category": ""},  
14, }, "DingtianRelay7920I2": {  
15,     "class": "org.openhab.core.items.ManagedItemProvider$PersistedItem",  
16,     "value": {}  
17,     "tags": [  
18,         {"g": Replace}, {"i": Find}, {"t": Replace}, {"f": Find in Files}, {"m": Mark}  
19,         {"Find what": 7920, "Replace with": 1 input you relay board SN}  
20,         {"Backward direction": checked}, {"Match whole word only": unchecked}, {"Match case": unchecked}, {"Wrap around": checked}  
21,         {"Search mode": Normal (radio button selected), Extended (\n, \r, \t, \0, \x...), Regular expression (checkbox unchecked, matches newline: unchecked)}  
22,         {"In selection": unchecked}, {"Replace All": 2}, {"Replace All in All Opened Documents": unchecked}, {"Close": Close}  
23,     "groupNames": [],  
24,     "label": "DingtianRelay7920-I2",  
25,     "category": ""},  
26, }, "DingtianRelay7920I3": {  
27,     "class": "org.openhab.core.items.ManagedItemProvider$PersistedItem",  
28,     "value": {}  
29,     "tags": [  
30,         {"g": Replace}, {"i": Find}, {"t": Replace}, {"f": Find in Files}, {"m": Mark}  
31,         {"Find what": 7920, "Replace with": 1 input you relay board SN}  
32,         {"Backward direction": checked}, {"Match whole word only": unchecked}, {"Match case": unchecked}, {"Wrap around": checked}  
33,         {"Search mode": Normal (radio button selected), Extended (\n, \r, \t, \0, \x...), Regular expression (checkbox unchecked, matches newline: unchecked)}  
34,         {"In selection": unchecked}, {"Replace All": 2}, {"Replace All in All Opened Documents": unchecked}, {"Close": Close}  
35,     "groupNames": [],  
36,     "label": "DingtianRelay7920-I3",  
37,     "category": ""},  
38, }, "DingtianRelay7920I4": {  
39,     "class": "org.openhab.core.items.ManagedItemProvider$PersistedItem",  
40,     "value": {}  
41,     "tags": [  
42,         {"g": Replace}, {"i": Find}, {"t": Replace}, {"f": Find in Files}, {"m": Mark}  
43,         {"Find what": 7920, "Replace with": 1 input you relay board SN}  
44,         {"Backward direction": checked}, {"Match whole word only": unchecked}, {"Match case": unchecked}, {"Wrap around": checked}  
45,         {"Search mode": Normal (radio button selected), Extended (\n, \r, \t, \0, \x...), Regular expression (checkbox unchecked, matches newline: unchecked)}  
46,         {"In selection": unchecked}, {"Replace All": 2}, {"Replace All in All Opened Documents": unchecked}, {"Close": Close}  
47,     "groupNames": [],  
48,     "label": "DingtianRelay7920-I4",  
49,     "category": ""},  
50, }, "DingtianRelay7920I5": {  
51,     "class": "org.openhab.core.items.ManagedItemProvider$PersistedItem",  
52,     "value": {}  
53,     "tags": [  
54,         {"g": Replace}, {"i": Find}, {"t": Replace}, {"f": Find in Files}, {"m": Mark}  
55,         {"Find what": 7920, "Replace with": 1 input you relay board SN}  
56,         {"Backward direction": checked}, {"Match whole word only": unchecked}, {"Match case": unchecked}, {"Wrap around": checked}  
57,         {"Search mode": Normal (radio button selected), Extended (\n, \r, \t, \0, \x...), Regular expression (checkbox unchecked, matches newline: unchecked)}  
58,         {"In selection": unchecked}, {"Replace All": 2}, {"Replace All in All Opened Documents": unchecked}, {"Close": Close}  
59,     "groupNames": [],  
60,     "label": "DingtianRelay7920-I5",  
61,     "category": ""},  
62, }, "DingtianRelay7920I6": {  
63,     "class": "org.openhab.core.items.ManagedItemProvider$PersistedItem",  
64,     "value": {}  
65,     "tags": [  
66,         {"g": Replace}, {"i": Find}, {"t": Replace}, {"f": Find in Files}, {"m": Mark}  
67,         {"Find what": 7920, "Replace with": 1 input you relay board SN}  
68,         {"Backward direction": checked}, {"Match whole word only": unchecked}, {"Match case": unchecked}, {"Wrap around": checked}  
69,         {"Search mode": Normal (radio button selected), Extended (\n, \r, \t, \0, \x...), Regular expression (checkbox unchecked, matches newline: unchecked)}  
70,         {"In selection": unchecked}, {"Replace All": 2}, {"Replace All in All Opened Documents": unchecked}, {"Close": Close}  
71,     "groupNames": [],  
72,     "label": "DingtianRelay7920-I6",  
73,     "category": ""},  
74, }]
```

JSON file length : 4,466 lines : 194 Ln : 2 Col : 17 Sel : 4 | 1 Unix (LF) UTF-8 INS .

3 Cover openHAB json

OpenHAB json path: "D:\tool\openHAB\openhab-3.2.0\userdata\jsondb"

Notice:

example openHAB install path "D:\tool\openHAB\openhab-3.2.0"

名称	修改日期	类型	大小
cover this 3 json file with yours	2022-04-01 16:31	文件夹	
org.openhab.core.items.item.json	2022-03-31 17:08	JSON 源文件	5 KB
org.openhab.core.thing.link.ItemChannelLink.json	2022-03-31 17:11	JSON 源文件	8 KB
org.openhab.core.thing.Thing.json	2022-04-01 16:28	JSON 源文件	16 KB
uicomponents_ui_page.json	2022-03-31 21:12	JSON 源文件	1 KB
users.json	2022-04-01 16:31	JSON 源文件	2 KB

4 Control relay board with openHAB

1 double click "start.bat"

名称	修改日期	类型	大小
addons	2022-03-31 21:05	文件夹	
conf	2022-03-31 21:06	文件夹	
runtime	2022-03-31 21:05	文件夹	
userdata	2022-04-01 16:28	文件夹	
LICENSE.TXT	2021-12-20 4:45	文本文档	14 KB
start.bat	2022-03-30 17:33	Windows 批处理...	1 KB
start.sh	2021-12-20 4:27	Shell Script	1 KB
start_debug.bat	2021-12-20 4:27	Windows 批处理...	1 KB
start_debug.sh	2021-12-20 4:27	Shell Script	1 KB

The screenshot shows a terminal window titled "管理员: Karaf". It displays the following text:
Launching the openHAB runtime...
[openHAB logo] 3.2.0 - Release Build
Use '<tab>' for a list of available commands
and '[cmd] --help' for help on a specific command.
To exit, use '<ctrl-d>' or 'logout'.
openhab> -

Wait 1 minute for openHAB startup

2 Open openHAB web page

It shows MQTT broker and Relay board 7920 is online

The screenshot shows the openHAB web interface at `localhost:8080/settings/things/`. The left sidebar shows navigation options like Administration, Settings, Things, Model, Items, Pages, Rules, Scripts, Schedule, Developer Tools, and Help & About. The main content area is titled "Things" and shows a list of "2 things":
- MQTT Broker (mqtt:broker:dingtianbroker) status ONLINE
- Relay7920 (mqtt:topic:dingtianbroker:DingtianRelay7920) status ONLINE

control relay

File Edit View History Bookmarks Tools Help

openHAB

localhost:8080/settings/model/

site

openHAB empowering the smart home

No pages

Administration

Settings

Things

Model

Items

Pages

Rules

Scripts

Schedule

Developer Tools

Help & About

Settings

Semantic Model

Search

DingtianRelay7920-I1
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DingtianRelay7920-I2
Point

DingtianRelay7920-I3
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DingtianRelay7920-I4
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DingtianRelay7920-I5
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DingtianRelay7920-I6
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DingtianRelay7920-I7
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DingtianRelay7920-I8
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DingtianRelay7920-R1
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DingtianRelay7920-R2
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DingtianRelay7920-R3
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DingtianRelay7920-R4
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DingtianRelay7920-R5
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DingtianRelay7920-R6
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DingtianRelay7920-R7
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DingtianRelay7920-R8
Point

click to control relay

Analyze

Item

D DingtianRelay7920-R1
Switch · Point
DingtianRelay7920R1

Edit Remove

Metadata

Add Metadata

Channel Links

D Relay7920
DingtianRelay7920-R1
mqtt:topic:dingtianbroker:DingtianRelay7920:R1

ONLINE

Add Link

Clear

Show non-semantic

The screenshot shows the openHAB Semantic Model interface. On the left, a sidebar navigation includes 'Administration', 'Settings', 'Things', 'Model' (which is selected), 'Items', 'Pages', 'Rules', 'Scripts', 'Schedule', 'Developer Tools', and 'Help & About'. The main content area has tabs for 'Settings' and 'Semantic Model'. The 'Semantic Model' tab is active, displaying a search bar and a list of semantic points. A specific item, 'DingtianRelay7920-R1', is highlighted. To the right of the list is a large button labeled 'click to control relay' with a red icon. Below the list are sections for 'Item', 'Metadata', and 'Channel Links'. The 'Item' section shows the detailed configuration for 'DingtianRelay7920-R1'. The 'Metadata' section has a 'Add Metadata' button. The 'Channel Links' section shows a connection to 'Relay7920' with status 'ONLINE' and the MQTT topic 'mqtt:topic:dingtianbroker:DingtianRelay7920:R1'. At the bottom are 'Clear' and 'Show non-semantic' buttons.