



深圳市艾尔赛科技有限公司  
Shenzhen LC Technology Co., Ltd.

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**aersey12Vfour wayWIFIRelay module**

**LC-Relay-ESP01-4R-12V**

**12V ESP8266four wayWiFiRelay IoT smart home hand**

**machineAPPremote control**

**Shenzhen Airsay Technology Co., Ltd.**

**2018-01**



## I. Overview

ersey12V ESP8266four wayWIFIThe relay module isESP-01asWIFIModule, with mature and stable8 BitMCUChip, only a simple configuration process can be used to use the mobile phoneAPPwithin LAN4 Wireless control of circuit relays.

## 2. Functional features

1, onboard high-performance microprocessor andESP-01 WIFI module;

2, the module has2working mode:

model1: The mobile phone is directly installed on theWIFIon module; mode2: mobile phone and

WIFIThe module is also installed on the router; additional functions: after unpluggingESP-01It can

also be used asUSBRelay is used.

3,Transmission distance:

(1)In an open environment, the mobile phone is mounted onWIFIMaximum stable transmission distance when the module is installed100m;

(2)whenWIFIWhen the module and mobile phone are mounted on the router at the same time, the transmission distance depends on the signal strength of the router.

4,useSmartconfigtechnology in mobile phonesAPPto complete the pairingESP-01 WIFIConfiguration of module account and password. The configured account and password have power-off memory function;

5, onboard12V,10A/250VAC 10A/30V DCRelay, continuous closing1010,000 times, with diode leakage protection and short response time;

6, onboard mode selection and real-time working status indicator lights;

7,bring4Optocoupler isolation, strong anti-interference ability;

8, reservedUARTdebugging interface andMCUProgram download interface.

## 3. Hardware introduction and description

Board size:60\*63mm

Board function description:

1, onboard resource introduction:

IN+,IN-:12Vpower input;

5V,GND,Tx,RX:UARTSerial port pin; SWIM,PIN8,NRST

: reservedMCUProgram download port. buttonS1:

Mode switch, default is mode1 buttonS2:reset

LED D1/D2/D3/D4(Red light): Relay working indicator light, lights up when turned

on LED D7(red light): mode1indicator light LED D5(blue light): mode2indicator light

LED D6(Green light): Working status indicator light, described as follows:



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- (1) When it is off, it means that it is self-configuring or has lost connection with the router;
  - (2) 0.5S Flashing quickly means waiting for the phone APP for ESP-01 Module configuration WiFi Account number and password;
  - (3) 2S When it flashes slowly, it means that the configuration is completed and waiting to be established with the mobile phone. TCP connect;
  - (4) When it stays on, it means successful establishment with the mobile phone. TCP connect.

Reserved 2 jumper caps: please insert them to the bottom during normal use (i.e. RX even RX1, TX even TX1), if you want to use it alone USB change TTL Serial port module debugging ESP-01 Modules, please insert them to the top (otherwise there may be interference).

### COM1: Public port;

NC1: Normally closed end, before the relay closes COM1 Short-circuited, left in the air after closing; NO1:

Normally open, the relay is left floating before closing, and connected with the relay after closing COM1

Short. COM2: Public port;

NC2: Normally closed end, before the relay closes COM2 Short-circuited, left in the air after closing; NO2:

Normally open, the relay is left floating before closing, and connected with the relay after closing COM2

Short. COM3: Public end;

NC3: Normally closed end, before the relay closes COM3 Short-circuited, left open after pull-in; NO3:

Normally open, the relay is suspended before closing, and connected after closing COM3

Short. COM4: Public end;

NC4: Normally closed end, before the relay closes COM4 Short-circuited, left open after pull-in; NO4:

Normally open, the relay is suspended before closing, and connected after closing COM4 Short.

### Relay control instructions (hex form):

Open the first relay: A0 01 01 A2 Close

the first relay: A0 01 00 A1 Open the

second relay: A0 02 01 A3 Turn off the

second relay: A0 02 00 A2 Open the

third relay: A0 03 01 A4 Turn off the

third relay: A0 03 00 A3 Open the

fourth relay: A0 04 01 A5 Turn off the

fourth relay: A0 04 00 A4

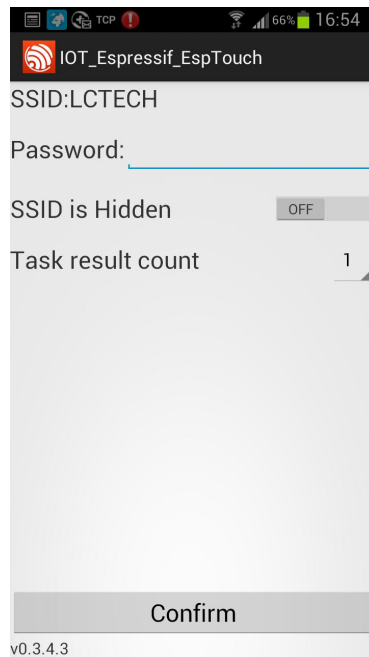
**Warm reminder: All the following are done using mobile phones APP Control the front 2 Take the relay as an example. The third and fourth routes are used in the same way, but the relay control instructions are different.**

2, prepare the following tools and software before use:

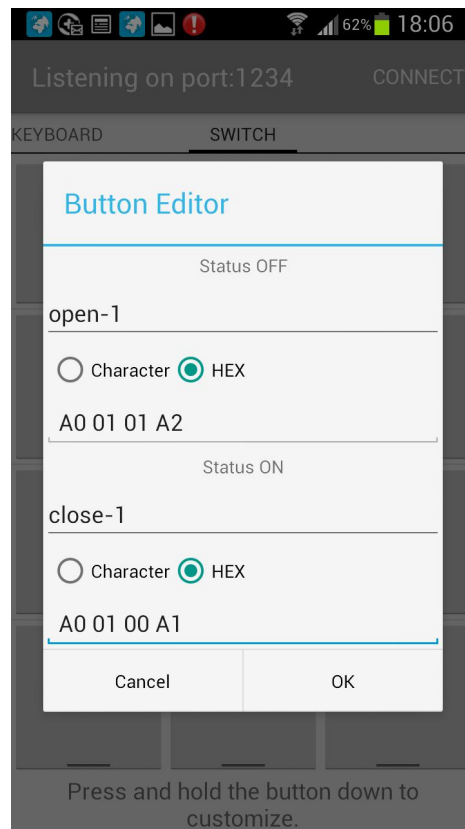
(1) 12V/1A Power adapter, connect the positive and negative poles of the power supply to the module IN+ and IN-;

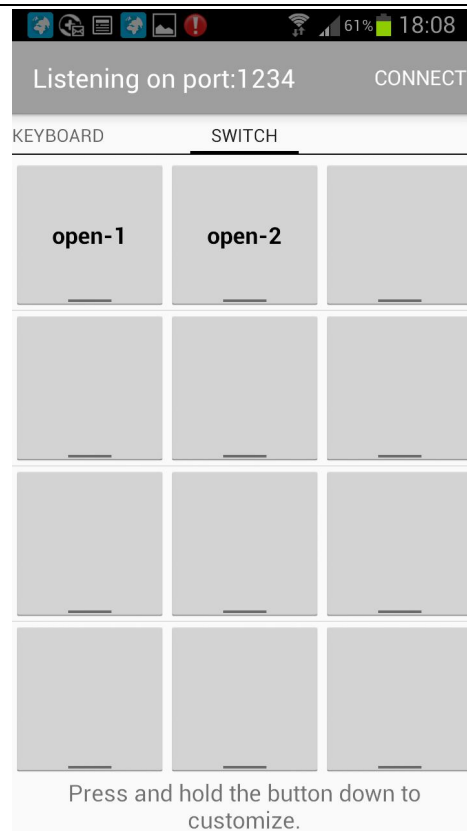
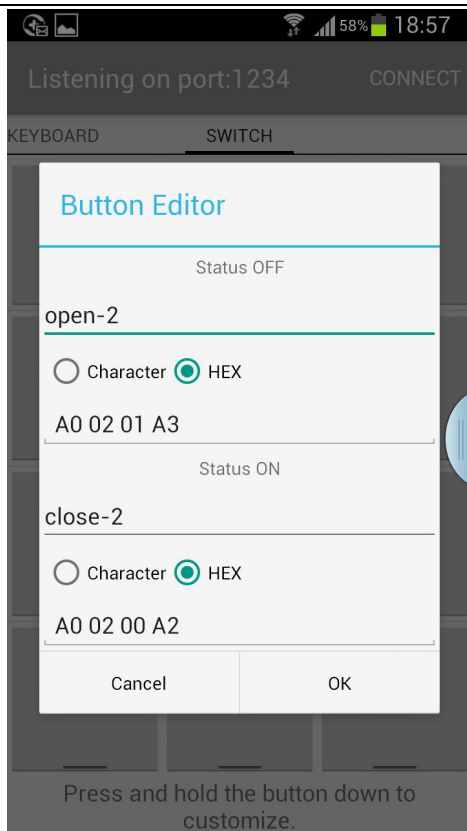
(2) Android mobile phone installation APP "EspTouch\_Demo", for first use working mode 2 Time to give

ESP-01 Module configuration WiFi Account number and password;

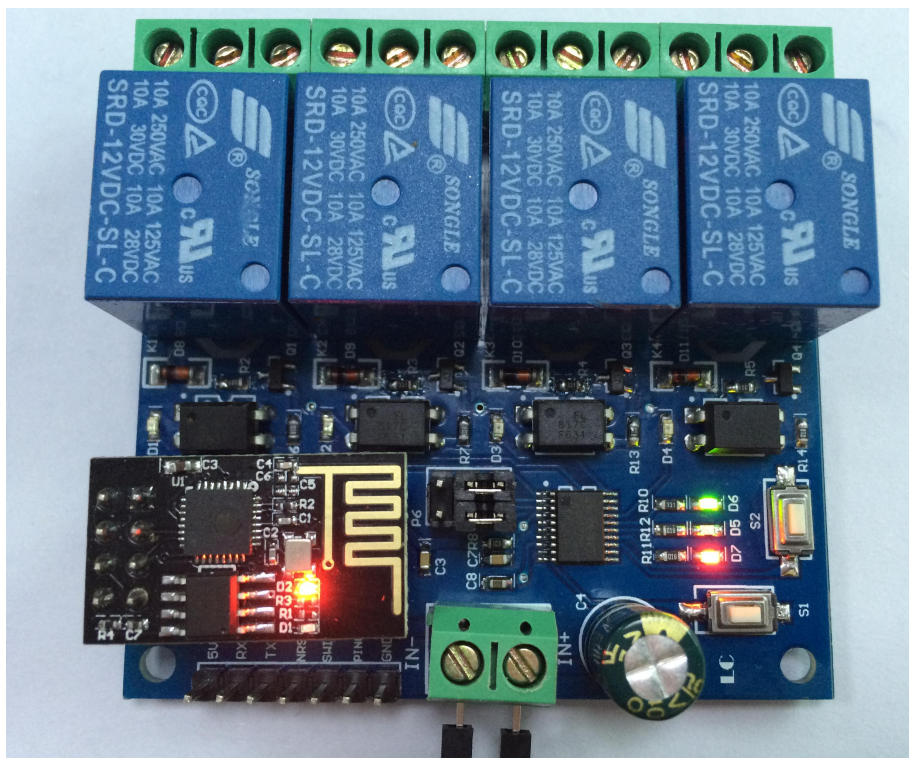


(3) Android mobile phone installation APP "EasyTCP\_20", TCP Transmission tool, used to send relay control instructions, click "SWITCH", then long press the gray square in the interface to enter respectively the name and content of the circuit relay control instruction (the instruction format is HEX form) previously Road relay as an example:.



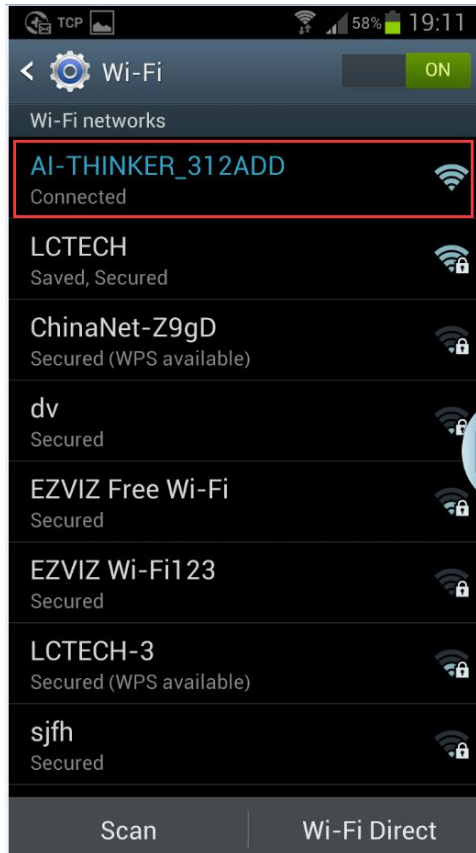


3,Operating mode1(Mobile phone equipped withESP-01module) instructions for use, previously2Take the circuit relay as an example: (1) plug in ESP-01Module, module is powered on, approx.45The green light after the bell changes from extinguishing to25Flashes slowly, indicating that the configuration is completed, as follows:

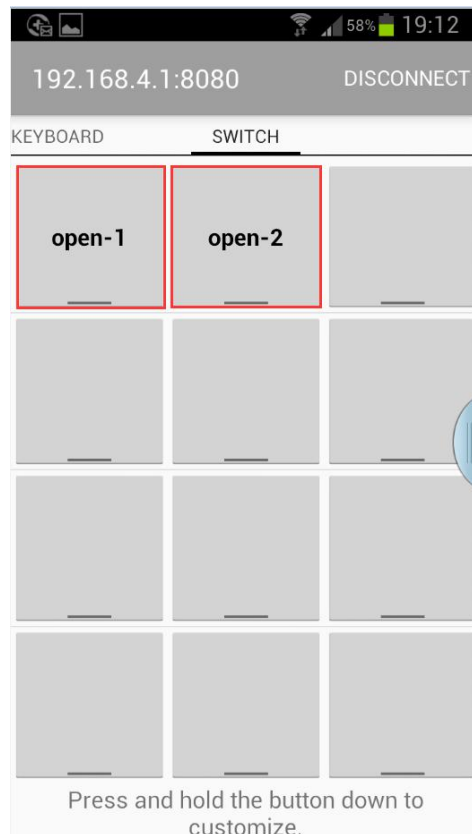
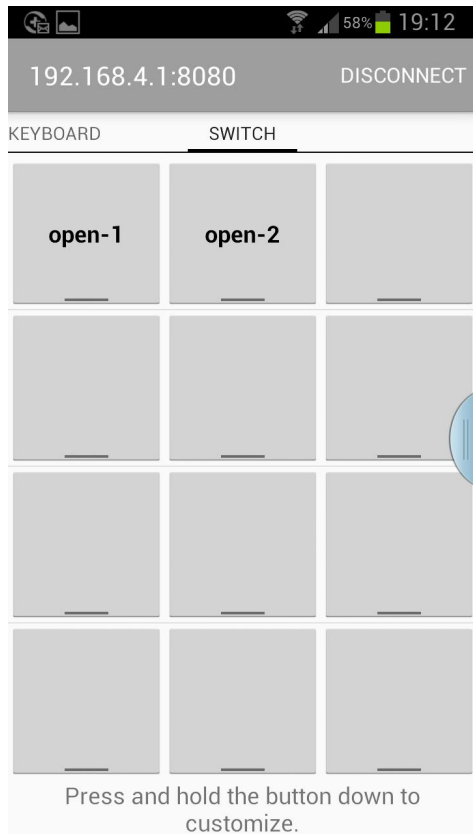
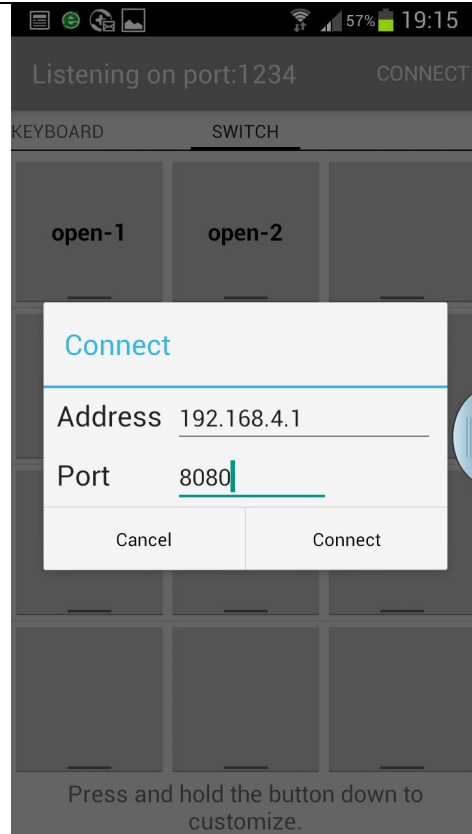
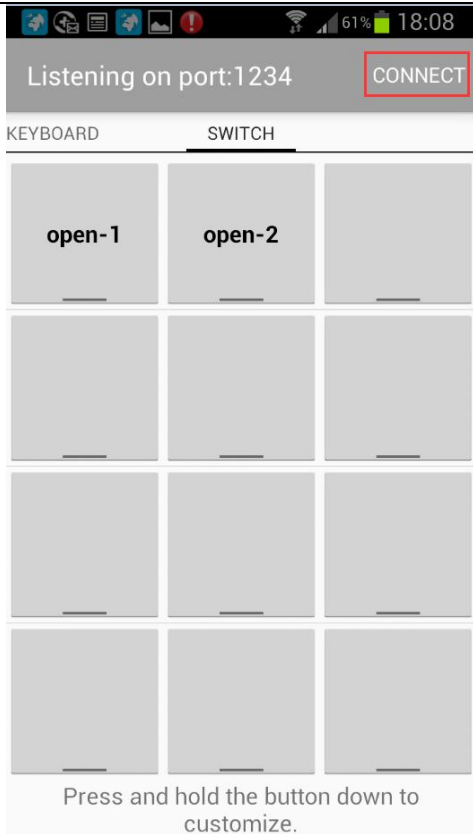


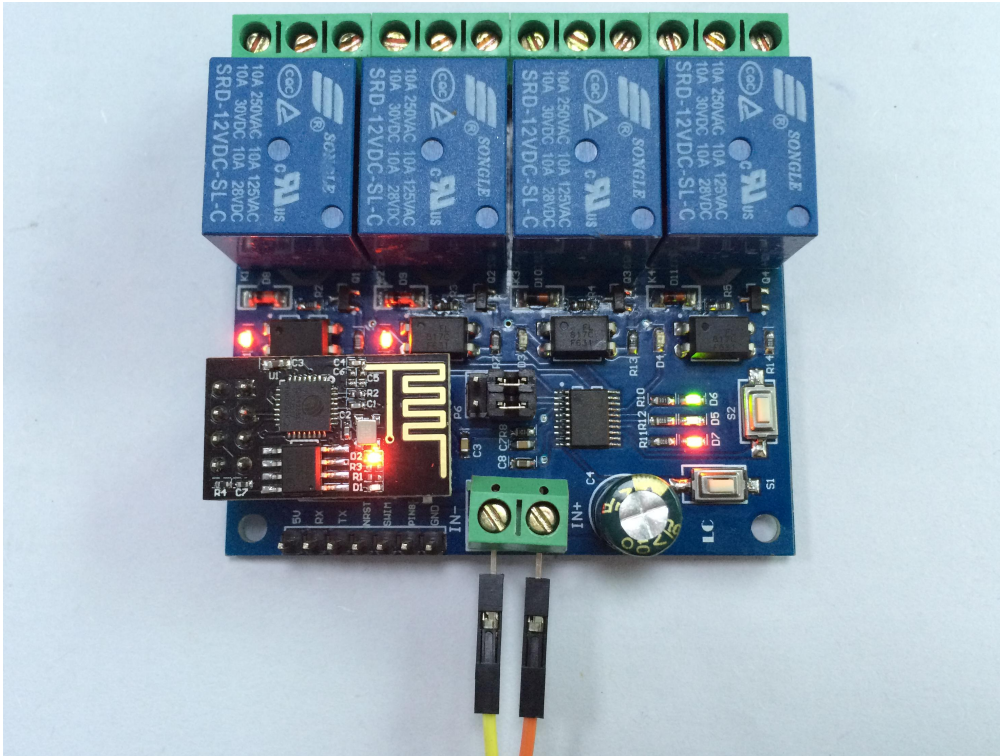


(2) mobile phone connected ESP-01 issued by the module APhoto signal



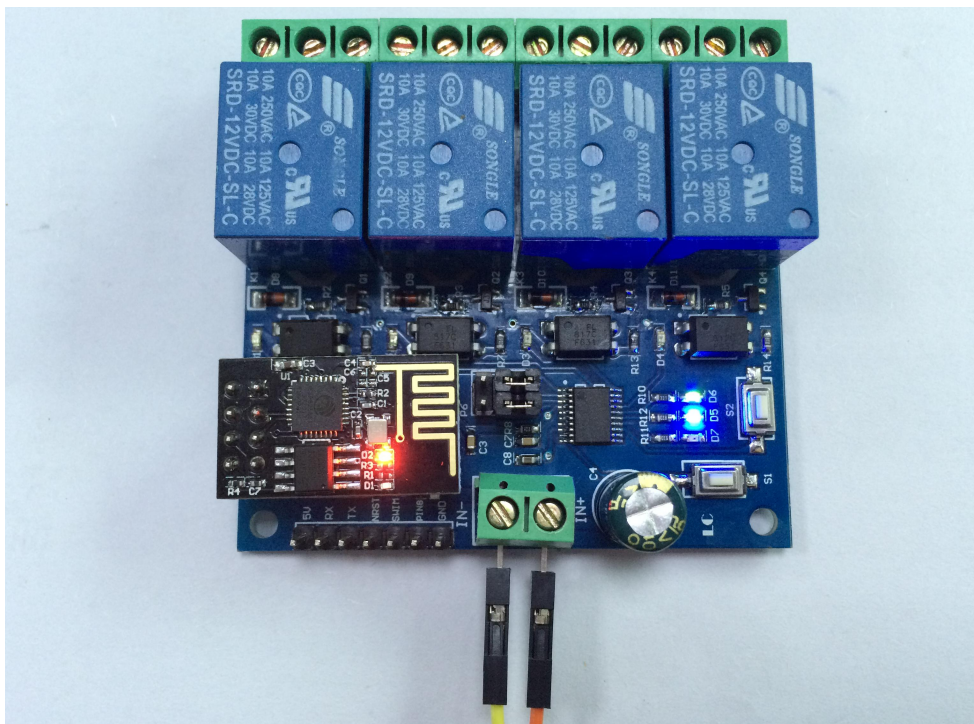
(3) Open "EasyTCP\_20" APP, click "CONNECT", enter IP address: 192.168.4.1 and port number 8080, then click "Connect", after the connection is successful, the green light will flash slowly for seconds and turn to a solid light. Click the gray square to send instructions to control the switch of the relay.





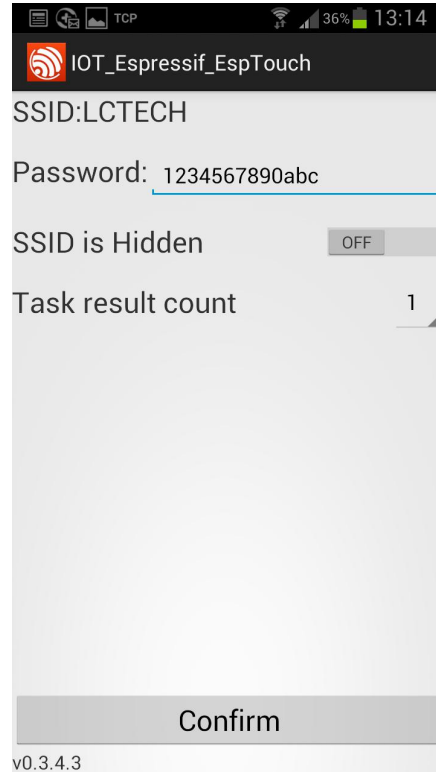
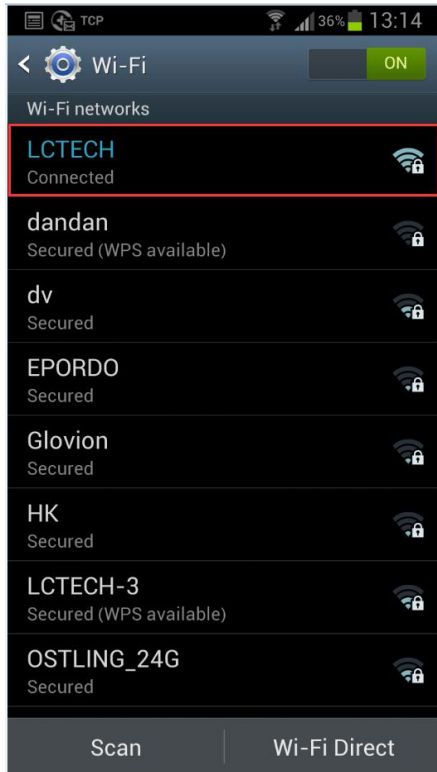
4, Operating mode2 (mobile phone and ESP-01 module is installed on the router at the same time) Instructions for use, previously 2 Road relay as an example:

(1) plug in ESP-01 Module, power on the module, wait until the green light flashes slowly and then press S1 key to switch to mode2, the blue light is on, approx. 1 After a few minutes, the green light turns from off to 0.5S Flashing, indicating that we are waiting. "EspTouch\_Demo" APP configure it WIFI Account number and password

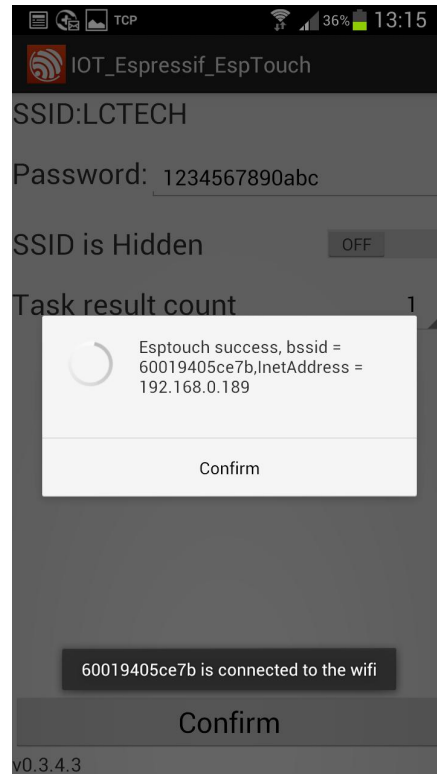
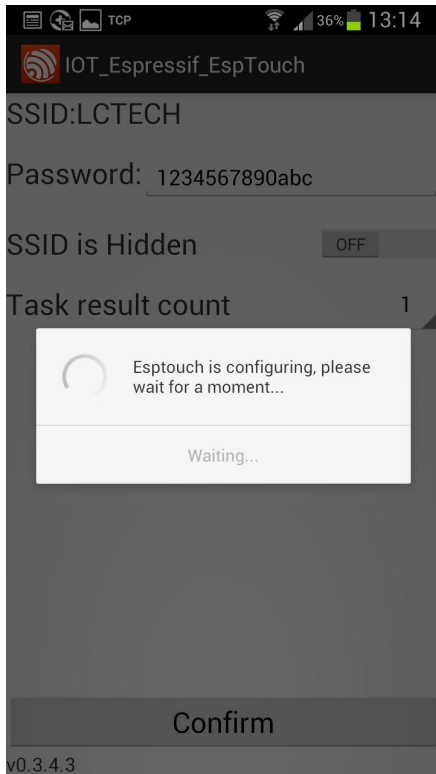




(2) At this time, the mobile phone first connects to the router and opens "EspTouch\_Demo" APP, enter the router password, click "Confirm"

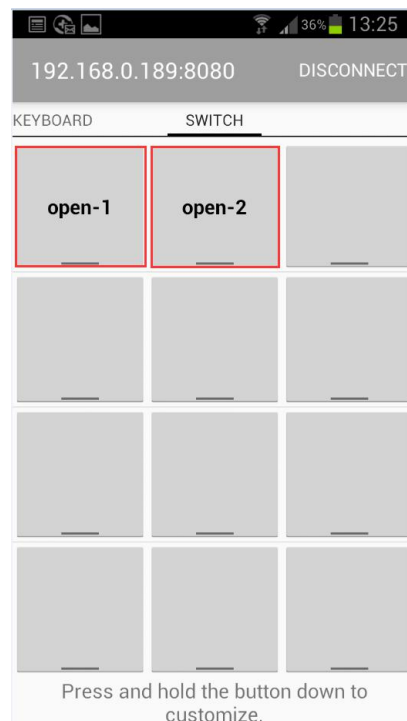
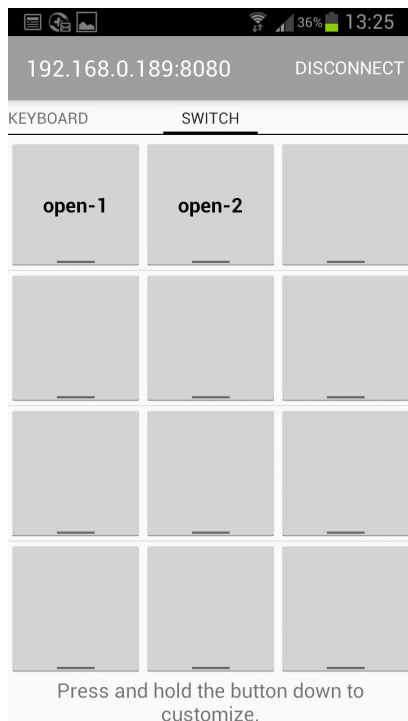
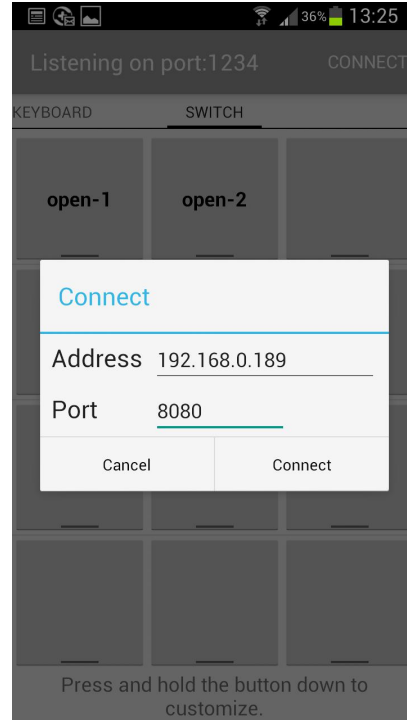
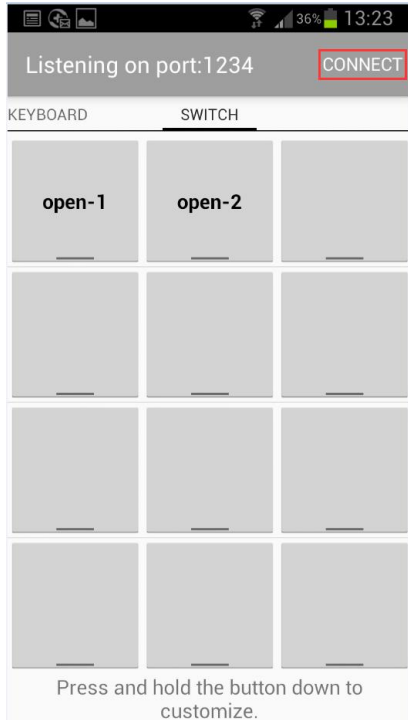


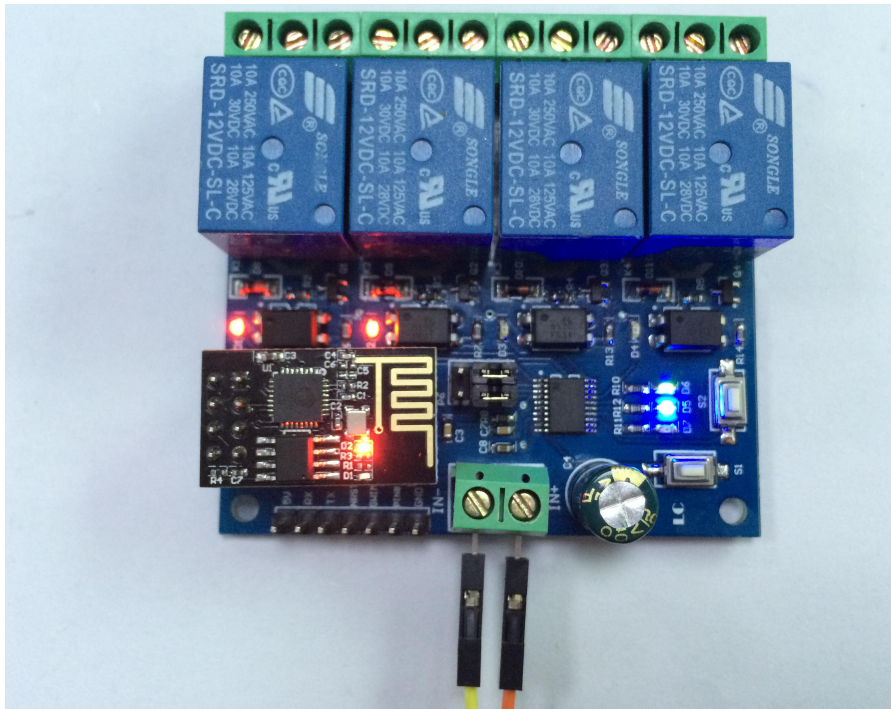
(3) Wait for the configuration to be successful, when the APP interface appears ESP-01 of IP (like 192.168.0.189) Description after the address ESP-01 The module successfully connected to the router and automatically memorized the account and password to enter the mode next time. 2 will automatically connect (approx. 20-60s can be connected)



have to be aware of it 192.168.0.189 this IP addresses are dynamically assigned by routers to ESP-01. For modules, the address may change after the next reconnection. You can check it in the device list of the router. ESP-01 module real-time IP address.

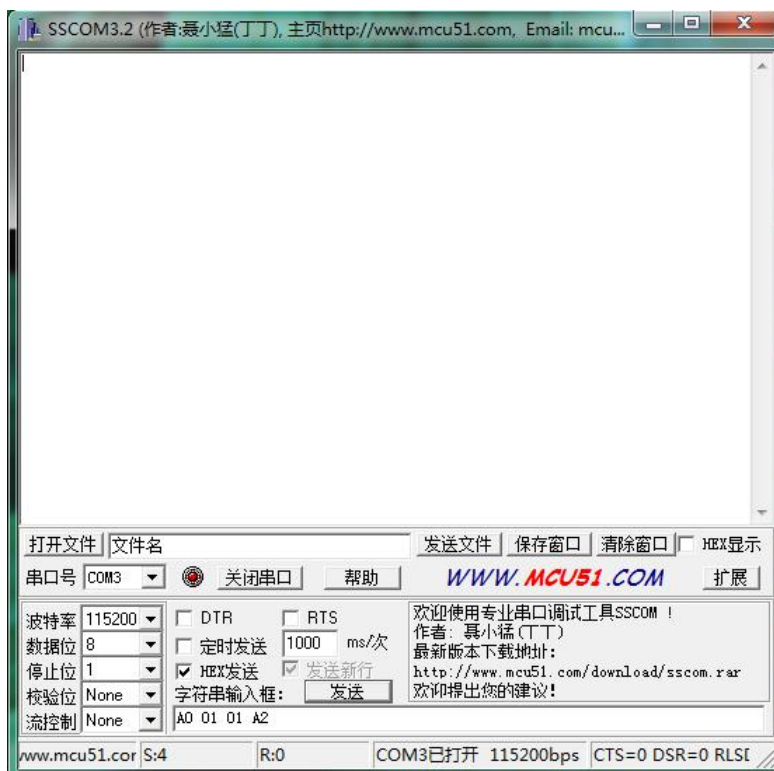
(4) Open "EasyTCP\_20" APP, click "CONNECT", enter ESP-01 Modular IP address: 192.168.0.189 and port number 8080, then click "Connect", after the connection is successful, the green light is 2Flashes slowly for seconds and turns to solid light. Click the gray square to send instructions to control the switch of the relay.

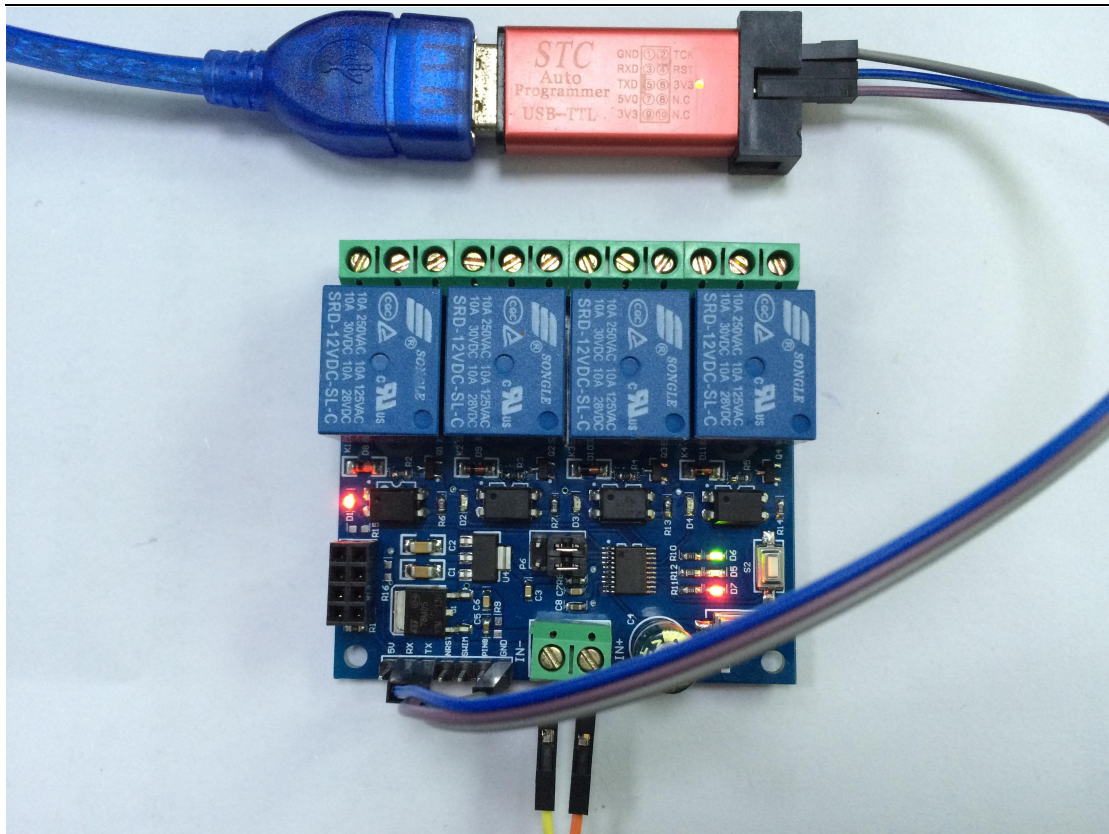




5, additional functionality (asUSBRelay) Instructions for use:

prepare one USB change TTL serial port module, TTL Modular GND, Tx, RX Connected to relay modules respectively GND, Tx, RX, unplug ESP-01 Module, select mode 1, wait until the green light changes to 2S After slow flashing, open the serial port debugging software on the computer (such as SSCOM32), select the baud rate 115200, in hexadecimal (hex), the corresponding relay can be turned on or off by sending a relay control command. Taking the first relay as an example, send A0 01 01 A2 You can open the first relay:





## Kind tips:

- 1, first use configurationWiFiThe password waiting time will be slightly longer (approx.1minutes), after the configuration is completed, the next boot time is as short as20It will automatically connect in seconds.
- 2, if you want to replace the router, you can power off and restart or pressS2key (pressS2key will clear the previous memoryWiFi account and password), in mode2Reset toESP-01ConfigurationWiFiAccount number and password.
- 3,whenESP-01When the signal of the memorized router is very weak or is not in the service area, causing the connection to be interrupted, the green light will go out and the connection will be automatically attempted. During this process, the buttons will be inactive. When the green light turns2SWhen it flashes slowly, the connection has been restored.
- 4,modelLand pattern2Only when the green light is2The button is only available when it flashes slowly or stays on for seconds. In other cases, it is the internal self-configuration of the chip or waiting for the configuration process, and the button is invalid.
- 5,ESP-01There is a timeout mechanism, and the mobile phone andESP-01No data exchange exceeds6It will automatically disconnect in minutesTCP Connect, click "EasyTCP\_20" APPTThe "CONNNECT" The connection will be re-established. 6, about onboardUARTInterface: when debugging8266hour,USBchangeTTLModularTx,RX, GND Connected to relay modules respectivelyRX,Tx,GND;When the relay module is used asUSBWhen the relay is used, USBchangeTTLModularTx,RX,GNDConnected to modules separatelyTx,RX,GND.
- 7, about reservedMCUProgram download port: when onboardMCUforSTM8S003/STM8S103hourNRST, SWIMThat is the programming interface; when the onboardMCUforN76E003hour,NRST,SWIM,PIN8 corresponding toNu-LinkProgrammer'sRST,CLK,DATinterface.
- 8, onboardMCUThe serial port baud rate is115200, so whenAPPandESP-01If you cannot connect, please make sure you are usingESP-01The baud rate of the module is also115200.



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