



Shenzhen Hi-Link Electronic Co., Ltd.

HLK-SW01 User Manual



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1. Brief description

HLK-SW01 is a single-channel relay controller. It is connected to the Ali Life IoT platform and supports Cloud Intelligence APP. It can realize remote control of relay switching, timing and count-down operations, and supports smart speaker control relay switching.



Figure 1. HLK-SW01 real picture

2. Hardware descriptions

The hardware part of HLK-SW01 is mainly composed of AC to DC power supply module HLK-PM01, WIFI module HLK-M50, and relay. The relevant parameters of the hardware are detailed below.

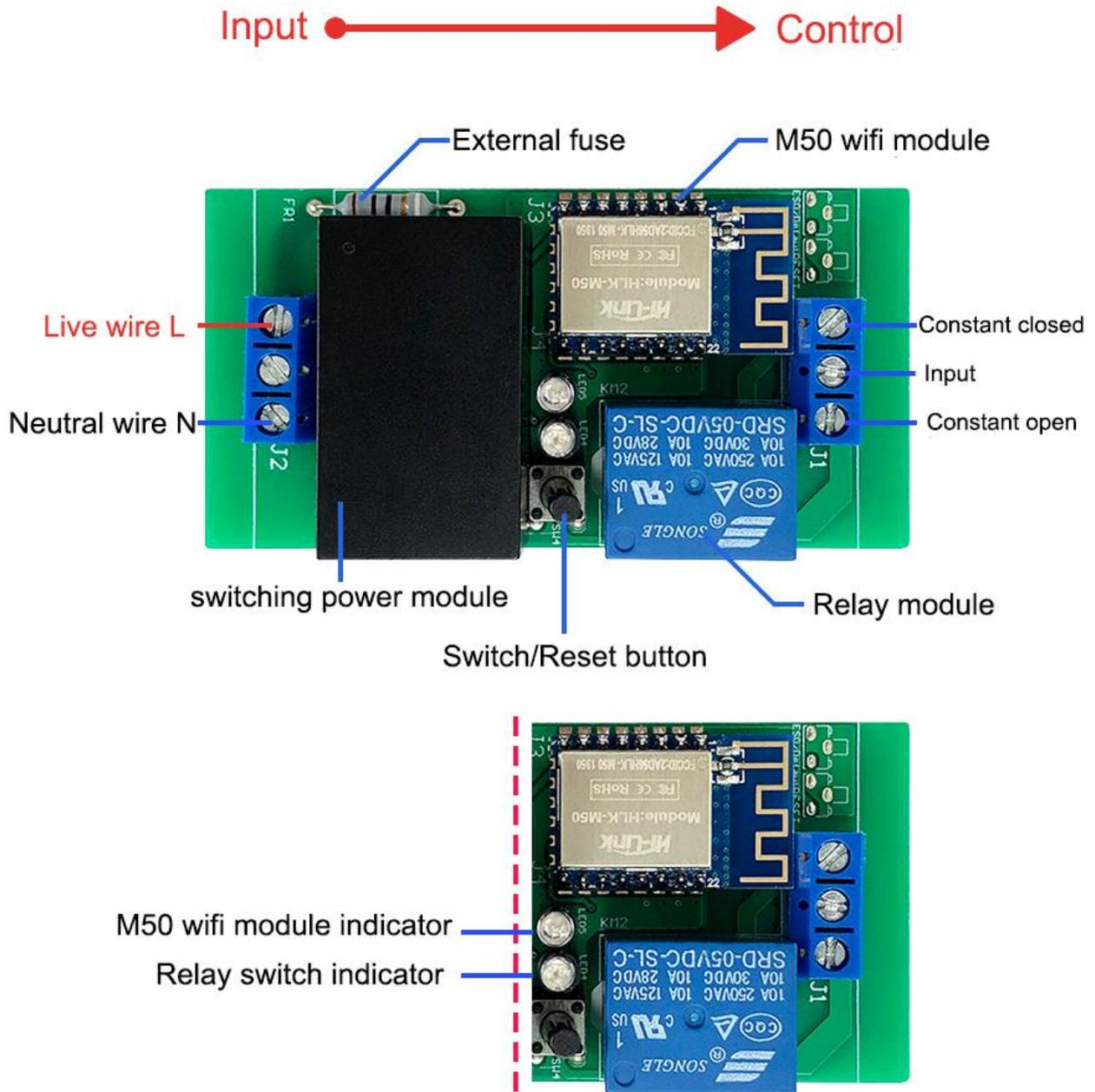


Figure 2. HLK-SW01 Hardware function diagram

2.1 HLK-M50 module description

The relay controller is developed based on the HLK-M50 module. HLK-M50 is a cost-effective embedded serial-WiFi transparent transmission module developed by Hi-link Electronics. The module has a built-in TCP / IP protocol stack, which can realize the conversion between user serial ports and wireless networks (WiFi) interfaces, enables transparent transmission of data between serial ports and network TCP / UDP connections.

WiFi module parameter specification table:

Network parameters	
Network Standard	Wireless standards: IEEE 802.11n, IEEE 802.11g, IEEE 802.11b
Wireless transmission rate	11n: maximum up to 150Mbps 11g: maximum up to 54Mbps 11b: maximum up to 11Mbps
Number of channels	1~11
Frequency Range	2.4~2.4835G
Transmit power	15~20 dBm
Interface	One serial port, one usb port (host), GPIO
Antenna	
Antenna types	On-board antenna / external antenna
Functional parameters	
WiFi work mode	STA/AP
Wireless security	64/128 / 152-bit WEP encryption
	WEP, WPA, WPA2 (CCMP, TKIP) security mechanism (WPA2-CCMP only supported in AP mode)
Configuration method	Serial AT command
Serial to Network	
Network connection type	TCP Server/TCP Client/ UDP Server/ UDP Client
Maximum connections under TCP server	5
Serial baud rate	1200~3000000bps
Other parameters	
Status indicator	1 Status indicator
Environmental standard	Operating temperature: -20-70℃
	Operating humidity: 10%-90%RH(non-condensing)
	Storage temperature: -40-80℃
	Storage humidity: 5%-90%RH(non-condensing)
Additional properties	Frequency bandwidth optional: 20MHz, 40MHz, Automatic

Figure 1. WiFi Module Parameters Table

2.2 Power module parameter description

HLK-PM01 ultra-small series module power supply is a small size and high efficiency power module designed by Hi-Link Electronics for customers. With global input voltage range, low temperature rise, low power consumption, high efficiency, high reliability, high safety isolation and other advantages.

Items	Technical Parameters	Units	Notes
No-load rated output voltage	5.0±0.1	Vdc	
Full-load rated output voltage	5.0±0.2	Vdc	
Short time maximum output current	≥700	mA	
Rated output current	600	mA	
Voltage regulation	±0.2	%	
Load regulation	±0.5	%	
Input low voltage efficiency	Vin=115Vac , Output full load ≥73	%	
Input high voltage efficiency	Vin=230Vac , Output full load ≥73	%	
Output ripple and noise (mVp-p)	≤100 Rated input voltage, output full load. With 20MHz bandwidth oscilloscope, Load side 10uF and 0.1uF capacitance test.	mV	
Switching on/off overshoot amplitude	(Rated input voltage, output plus 10% load) ≤ 5	%V _O	
Output over-current protection	Output maximum load 110-150%	A	
Output short circuit protection	Direct short circuit in normal output and automatic return to normal operation after removal of short circuit		No-damage to the whole device

2.3 Relay hardware parameters

- Relay contact load voltage: 250VAC / 30VDC
- Relay contact load maximum input current: 15A

2.4 Indicator and key functions

Indicator:

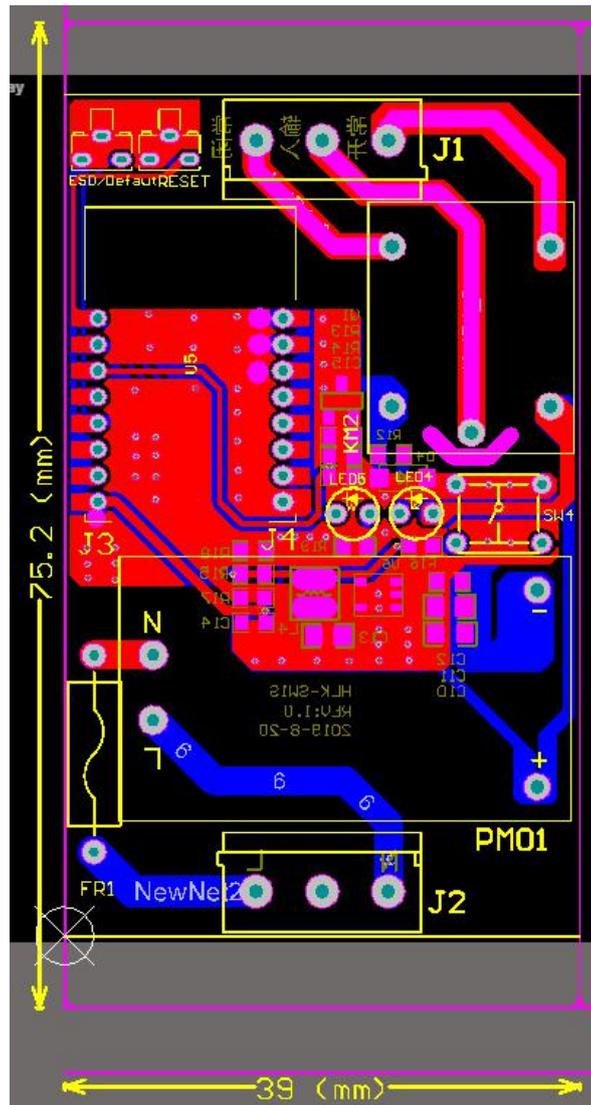
LED5 indicator effect	State description
Quick flash three times periodically	Module activation code is invalid
Quick flash twice periodically	Network configuration mode, you can use the APP to configure the network of the module and bind the device
Continuous slow flashing (on 1s off 1s)	Module is trying to connect to a WiFi hotspot
Continuous quick flash	The module tries to connect to Alibaba Cloud normally
Steady on (on for 5s and short off once)	The module is connected to Alibaba Cloud

LED4 indicator effect	State description
Steady on	Relay open state
Steady Off	Relay off state

Button:

Item Name	Function description
SW4	Short press to manually control relay switch; long press for 6-10s to restore the factory settings

Hardware size:



3. Application field

The relay is a product with a wide range of uses. It can be used in communication equipment, automatic devices, household appliances, automotive electronic devices and other places where circuit conversion functions are required.

HLK-SW01 has a relay with a contact capacity of 250VAC 15A / 30VDC 10A, which can directly control DC equipment below DC30V, such as: solenoid valve, access control switch, dry contact switch equipment, and can also control 220V household equipment, such as electric lights, air conditioning, Socket, water heater, etc.

The relay is connected to the bulb (the default state of the bulb when powered on is off) as follows

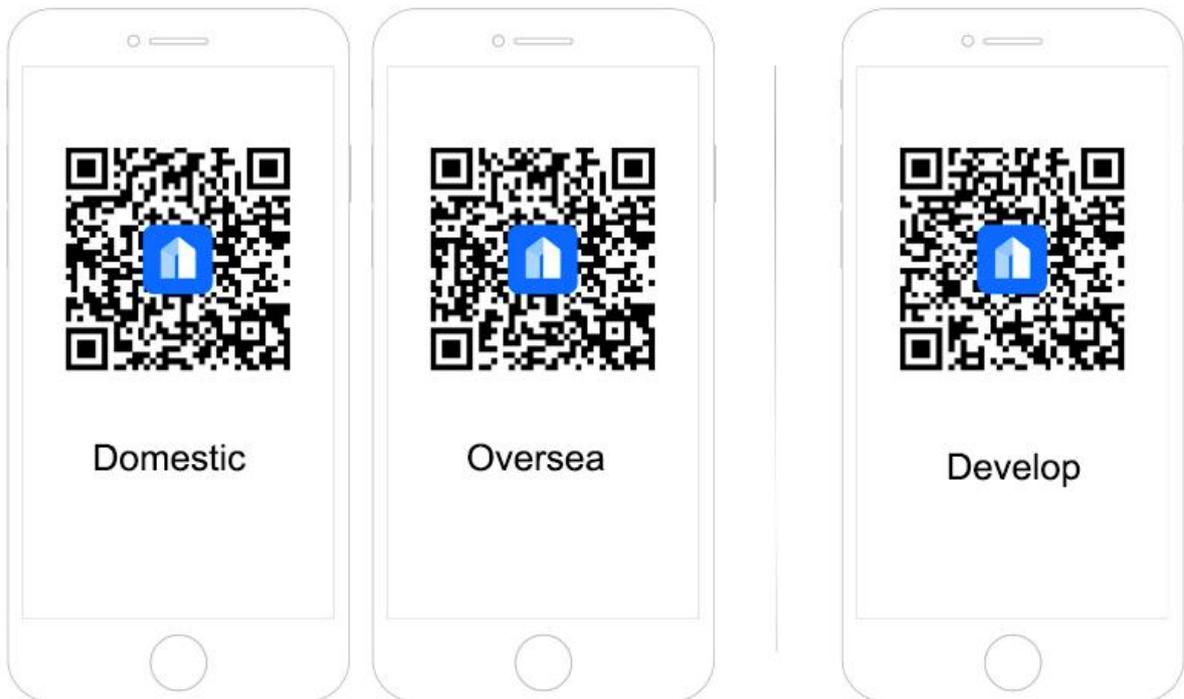


4. APP instructions for use

Download and install the cloud intelligence APP and register. Download the QR code as follows:

The APP is released to global application store, search for name “Cloud intelligence” or scan the QR Code as below to download

IOS/Android compatible



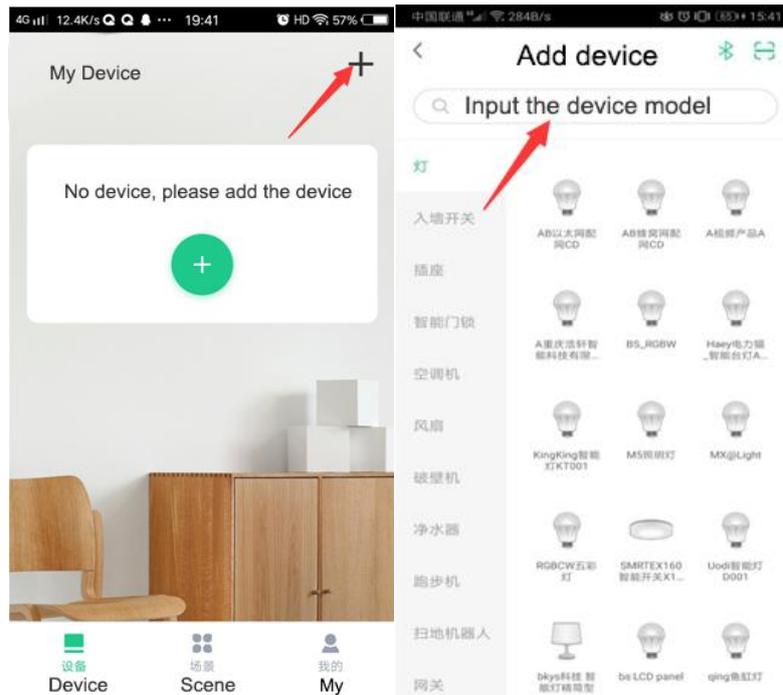
4.1 One-click configuration networking

Use the app to perform one-click network configuration operation. Before the network configuration, confirm that the device is in the network configuration state (through the indicator light). If the device is not in the network configuration state, first perform the device recovery default operation to make the device enter the network configuration state.

Restore the default operation method: long press ES0 button for 6 to 10 seconds.

There are two ways to enter the distribution network interface. One is to scan the QR code of the equipment distribution network in the interface of adding equipment, and the other is to directly search for "Hi-link Socket AC-SW01" in the interface of adding equipment. After searching, click Enter the distribution network interface directly.

Input the device model to enter the distribution interface



Scan the device distribution network QR code to enter the distribution network interface

Distribution Network QR code (Domestic)

it is advised to print the QR code on products package to scan



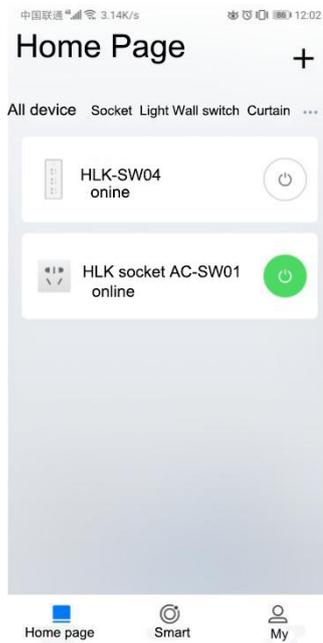
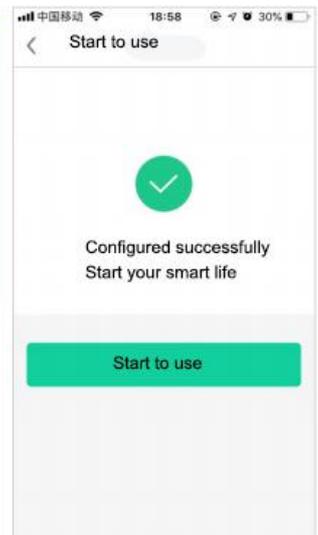
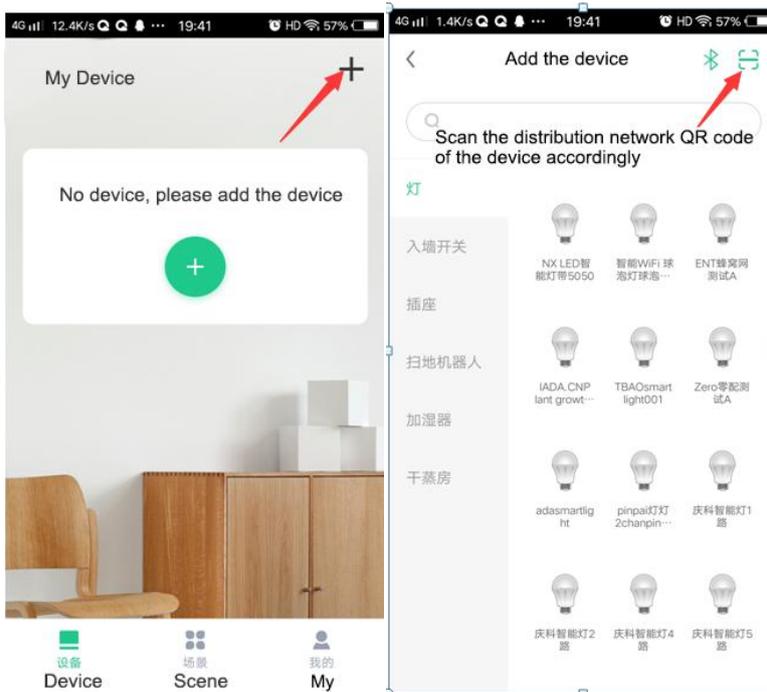
Domestic:

Distribution Network QR code (Oversea)

it is advised to print the QR code on products package to scan

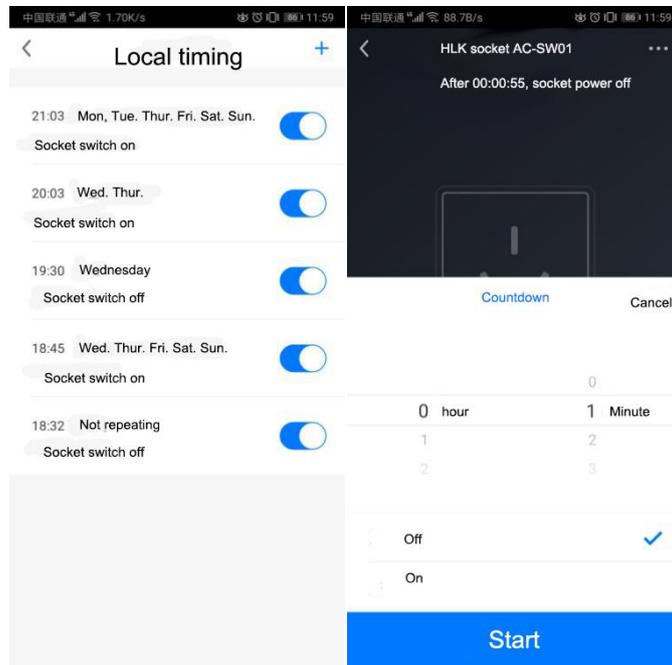


Oversea:



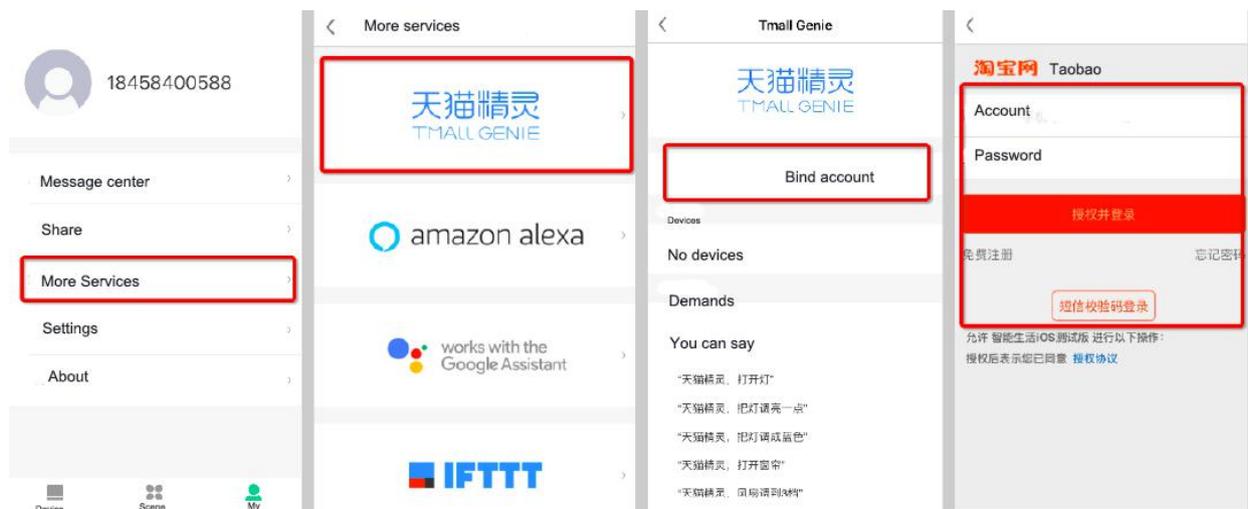
4.2 Setting the relay countdown and timing

After the APP shows the device is online, you can set the local timing and local countdown.

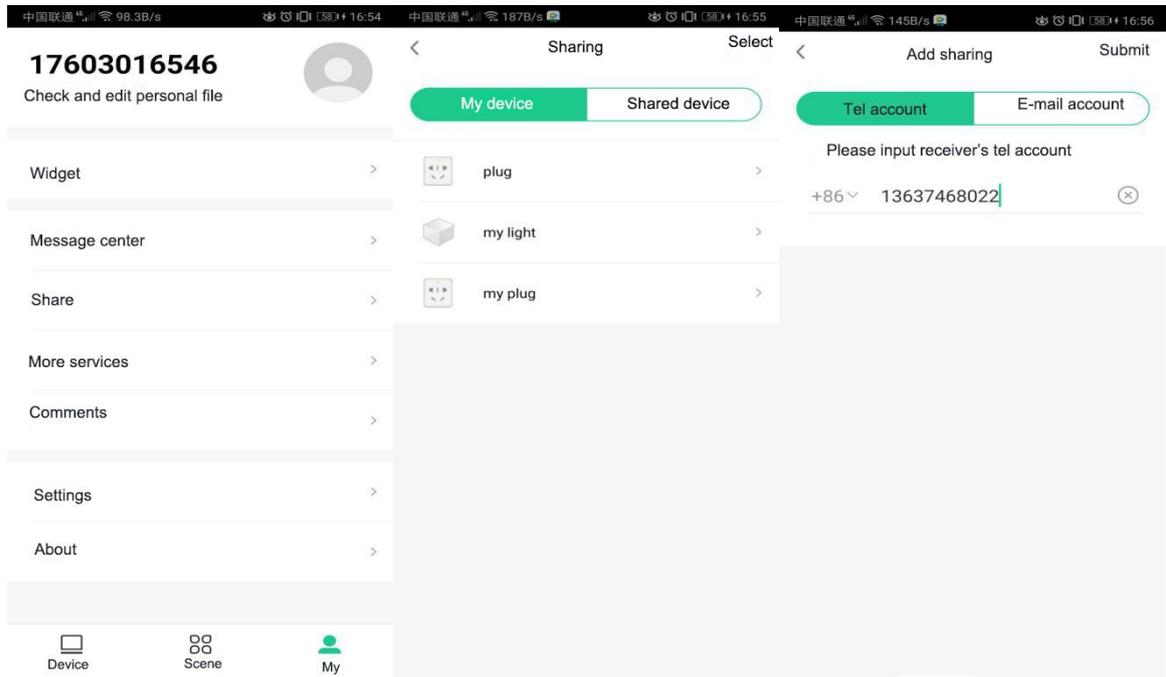


4.3 Third-party platform access

The current firmware uses the ICA standard data format for device control by default. For users with third-party control centers, smart home applications also provide connectivity. Currently, it supports Tmall Genie, Amazon Echo, Google Home, and IFTTT to achieve unified control. For example, Tmall Genie access steps are as follows:

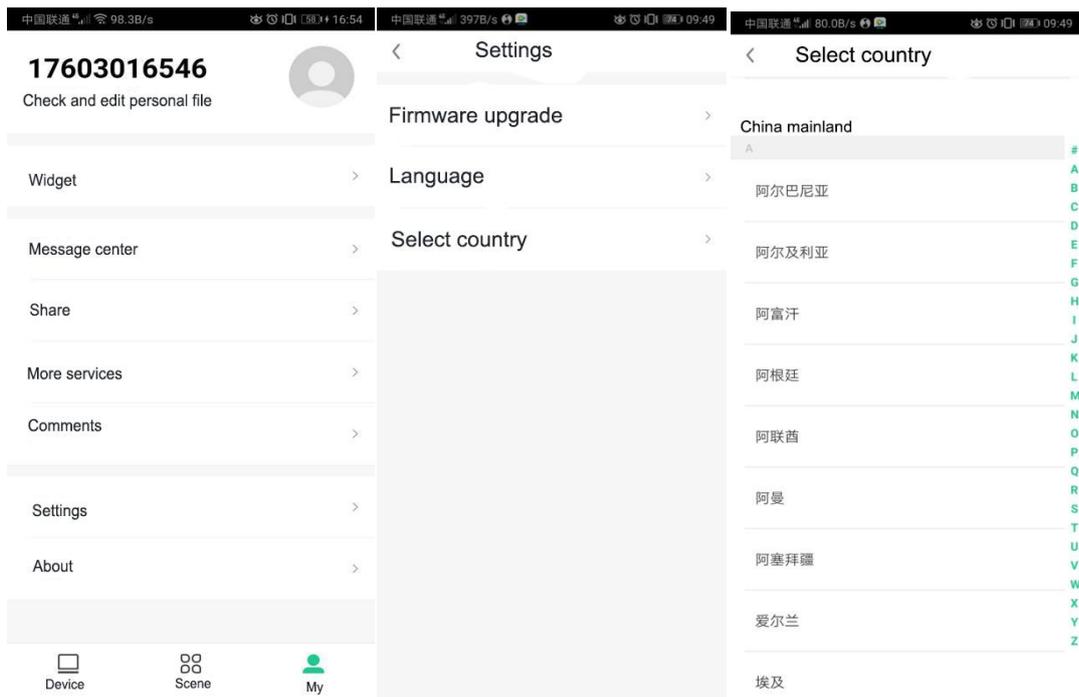


Device sharing function: Select sharing on the "My" interface. After entering the sharing, select the device to be shared, input the account of the other party's cloud intelligence app, and select Submit.



4.4 International and domestic versions descriptions

HLK-SW01 is divided into international version and domestic version. The distribution network QR code of the two versions is different, but the same app can be used to configure the network and control. Different countries and regions need to be selected according to different versions. When registering an account in the international version, pay attention to selecting an overseas region (accounts in overseas regions are connected to Alibaba Cloud International Station by default). When registering an account in the domestic version, pay attention to selecting the Chinese region. Convert countries in the app as follows



5. Revision record

Date	Version	Revised details
2019/8/6	1.0	Initial version
2019/10/22	1.1	Modify button function description
2019/11/21	1.2	Update indicator description
2019/12/11	1.3	Update the international version of the QR code
2020/3/30	1.4	Update hardware picture

6. Technical Support and Contact



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