

MOKO
MOKO MK110
Plus 03 BLE
Gateway



MOKO MK110 Plus 03 BLE Gateway User Manual

[Home](#) » [MOKO](#) » MOKO MK110 Plus 03 BLE Gateway User Manual 

Contents

- [1 MOKO MK110 Plus 03 BLE Gateway](#)
- [2 Product Usage Instructions](#)
- [3 Install the Gateway](#)
- [4 Configure gateway with APP](#)
- [5 Appendix A: WPA2 Enterprise Security](#)
- [6 FCC Warning](#)
- [7 Documents / Resources](#)
 - [7.1 References](#)
- [8 Related Posts](#)

MOKO

MOKO MK110 Plus 03 BLE Gateway



Specifications

- **Product Name:** MK110 Plus 03 BLE Gateway
- **Version:** V1.0
- **Functionality:** BLE to WiFi plug gateway with power metering
- **Features:** Collects Beacon advertising data, transfers data to cloud, remote control for on/off switching, power consumption monitoring

Product Usage Instructions

Install the Gateway

Insert the gateway into a power socket. The LED will blink to indicate the status:

- If never configured, LED blinks Blue (pairing mode).
- If previously configured, LED blinks Green (reconnecting to the network).

Configure Gateway with APP

To configure the gateway:

1. Download the MKScannerPro app from the APP Store or Google Play.
2. When installing, allow location and storage permissions.
3. Configure the app to connect to MQTT broker.
4. Configure the gateway to connect to MQTT broker.

Configure Mobile APP

To configure the mobile app

1. Run the mobile app and select "Remote gateway with metering" for configuration.
2. Click to configure MQTT settings for the app. You can use default settings or customize as needed.
3. If connection is successful, the app will show success; if failed, check settings and try again.

FAQ

- **Q: How do I know if the gateway is in pairing mode?**
 - A: The LED will blink Blue when the gateway is in pairing mode.
- **Q: What permissions are required for the mobile app?**
 - A: The mobile app requires location and storage permissions for installation and configuration.

MK110 Plus 03 BLE Gateway

User Manual

Version V1.0

About this document

MK110 Plus 03 is a BLE to WiFi plug gateway with power metering. The gateway collects Beacon advertising data and transfers to cloud, at the same time, it is an intelligent and metering plug, it can be remotely controlled to switch on/off and monitor the power consumption of connected load, users can easily realize Beacon data collecting, intelligent control and power monitoring together by the one device.

This User Guide was designed to help users to know the MOKO MK110 Plus 03 gateway and set up the gateway with MOKO APP.

LED status

Function	Action	LED Patterns
Bluetooth status (Pairing mode)	Bluetooth is advertising	Flash Blue
	Bluetooth is connected	Solid Blue
WIFI status	Connecting to the WIFI	Slowly flash Green (every 2s)
	Connecting to the server	Quickly flash Green (every 500ms)
	Connected to the server successfully	Solid Green
Downlink communication	Connected with Beacon	Solid Purple
Restore to factory settings	Press button for 10 seconds in 1 minute after powered, the gateway will be reset and enter pairing mode.	Alternately flash Blue and Green once
OTA status	OTA process	Flash Yellow
	OTA succeed	Solid Yellow
	OTA failed	Solid Red

Install the Gateway

Insert the gateway into a power socket, the gateway will start work immediately, we can see the LED blinking.

If the gateway has been never configured, it will enter pairing mode, the LED will blink Blue. If the gateway has been configured before, it will try re-connecting to the network, the LED will blink Green.





Configure gateway with APP

MOKO provides a demo APP with users to configure the gateway, please search “MKScannerPro” in APP Store or Google Play to download the APP. When install it, please allow the location and storage permissions.

In the configuration, we will firstly configure the app connecting to MQTT broker and then configure gateway connecting to MQTT broker. After the APP and gateway are both connected with MQTT broker, then users can use the APP to remotely manage the gateway.

Configure mobile APP

Run the mobile APP on your mobile phone, select “Remote gateway with metering” to start the configuration.

Click  to configure MQTT settings for the APP. The APP has default MQTT settings, if using default settings for testing purpose, just click . It also allows to change the settings, after enter and save new settings, app will connect to the MQTT server. If connect successfully, it will show “success”, otherwise it will show “connect failed”. If connect failed, please check the settings and connect again.

MKScannerPro

Please add new device!

Add Devices

Settings for APP

Broker Setting

Host47.104.81.55

Port1883

Client Id111

Topics

Subscribe0-128 Characters

Publish0-128 Characters

Note: The topic settings is only for connecting to Alibaba iot.Please leave it blank if connecting to a MQTT broker or AWS iot.

General

User Credentials

SSL/TLS

Clean Session

Qos012

Keep Alive120s

Clear All Configurations

There are three buttons in the very bottom of this page to help users quickly complete the configuration

- **Clear all configurations:** Delete all the current settings, so that users can input new settings.
- **Export config file:** Export the current settings from the APP, it will create a excel file and can be sent by email.
- **Import config file:** With the exported file, users can change the settings and import the new file to the APP, then the APP will use the new settings.

If configure with customer server, please follow these settings description as below

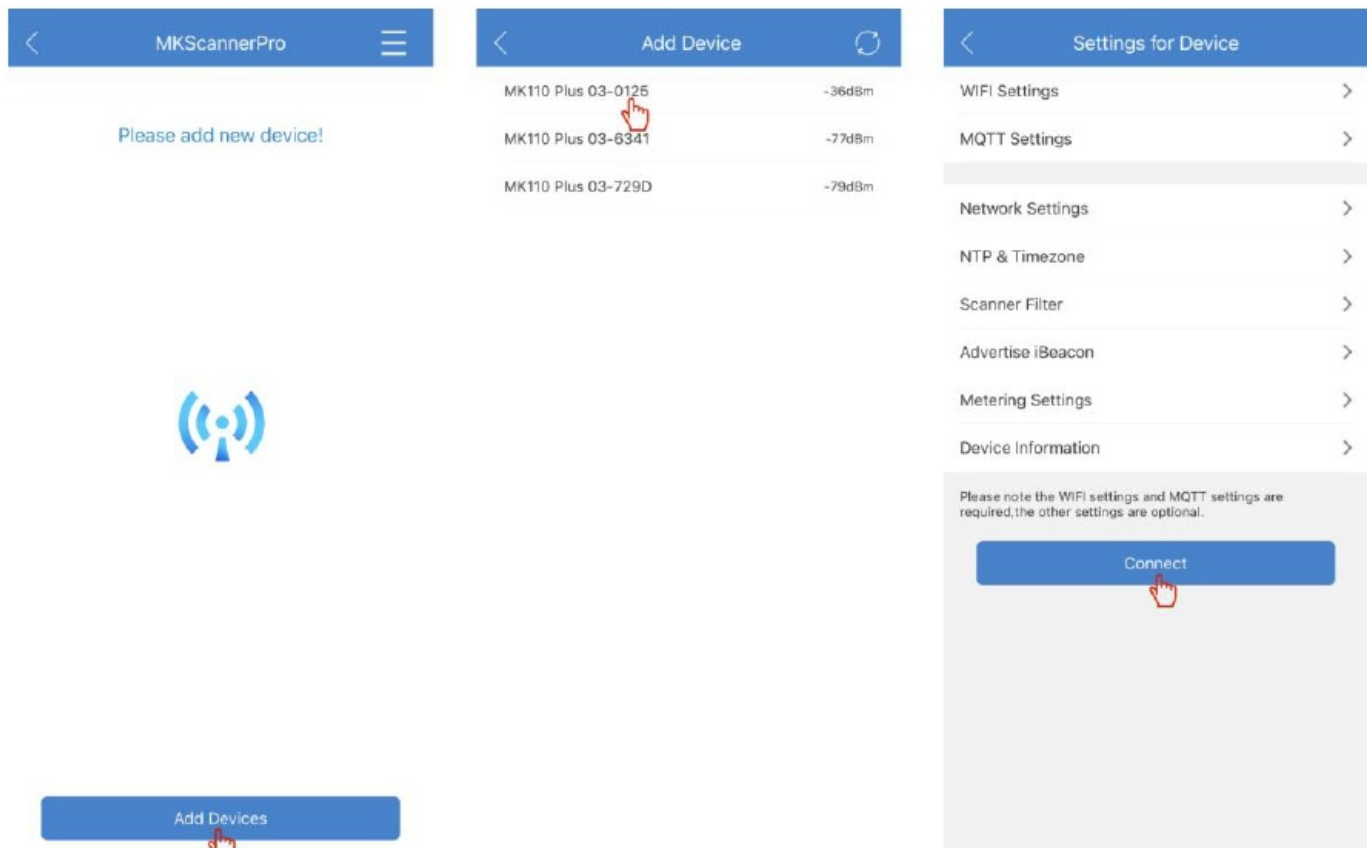
Type	Parameter	Description
Broker setting	Host	Server IP address or domain name
	Port	Server port
	Client id	MQTT client id, each device connected to the server should have a different client id.
Topics	Subscribe	These two settings are used for connecting to Alibaba cloud. If connect to a MQTT broker or AWS IoT, please leave it blank.
	Publish	
General	Clean session	Default: Enable, range: Enable/Disable
	Qos	Quality of service. Default: 1, range: 0-2
	Keep Alive	Default: 60, range: 10-120
User Credentials	Username	If access to your server doesn't require a username and password, it can be blank.
	Password	

SSL/TLS	SSL/TLS	on: SSL encryption. off: no encryption
	Certificates	It supports CA signed server certificate/CA certificate file/Self signed certificates

Configure gateway

When the gateway LED flashes Blue, click “Add Devices” . We can see some advertisers named “MK110 Plus 03-XXXX”, select the correct device and enter password Moko4321. After APP connects with the gateway Bluetooth, the LED will turn to solid Blue.

Then we can configure the Network, MQTT and some other settings for the gateway. After all settings are finished, click “Connect” button, the gateway will connect to the WiFi and then connect to the server. If it cannot connect to server in 90 seconds, the gateway will go back to pairing mode, we can configure it again.



Please note: the network and MQTT settings are must-required, while other settings are optional.

WiFi settings

- To configure network type and IP for the gateway.
- The gateway supports both personal and Enterprise WiFi security. The personal WiFi requires only the SSID and password. The enterprise WIFI supports different EAP types and requires different authentication, please see the Appendix A: WPA2 Enterprise Security to get more details.
- If connect to a 5GHZ WIFI, the country&Band is required to select.



If connecting with customer server, please follow the below descriptions to finish the configuration

Type	Parameter	Description
Broker setting	Host	Server IP address or domain name
	Port	Server port
	Client id	MQTT client id, each device connected to the server should have a different client id. The default id is device MAC address.
Topics	Subscribe	It has a default topic, can be changed
	Publish	It has a default topic, can be changed
General	Clean session	on/off
	Qos	Quality of service. Default: 1, range: 0-2
	Keep Alive	Default: 60, range: 10-120
User Credentials	Username	If access to your server doesn't require a username and password, it can be blank.
	Password	
SSL/TLS	SSL/TLS	on: SSL encryption. off: no encryption
	Certificates	It supports CA signed server certificate/CA certificate file/Self signed certificates
LWT	LWT	on/off
	Retain	on/off
	Qos	Quality of service. Default: 1, range: 0-2
	Topic	It has a default topic, can be changed
	Payload	It has a default topic, can be changed

NTP&Timezone

To configure the NTP server and time zone for the gateway.

The screenshot shows a mobile application interface for configuring NTP and Timezone. At the top is a blue header bar with a back arrow on the left, the title "NTP & Timezone" in the center, and a save icon on the right. Below the header, there are two main sections. The first section is "NTP server", which has a text input field containing "0-64 Characters". The second section is "Timezone", which has a blue button labeled "UTC+00:00". Below these sections is a large, empty light gray rectangular area.

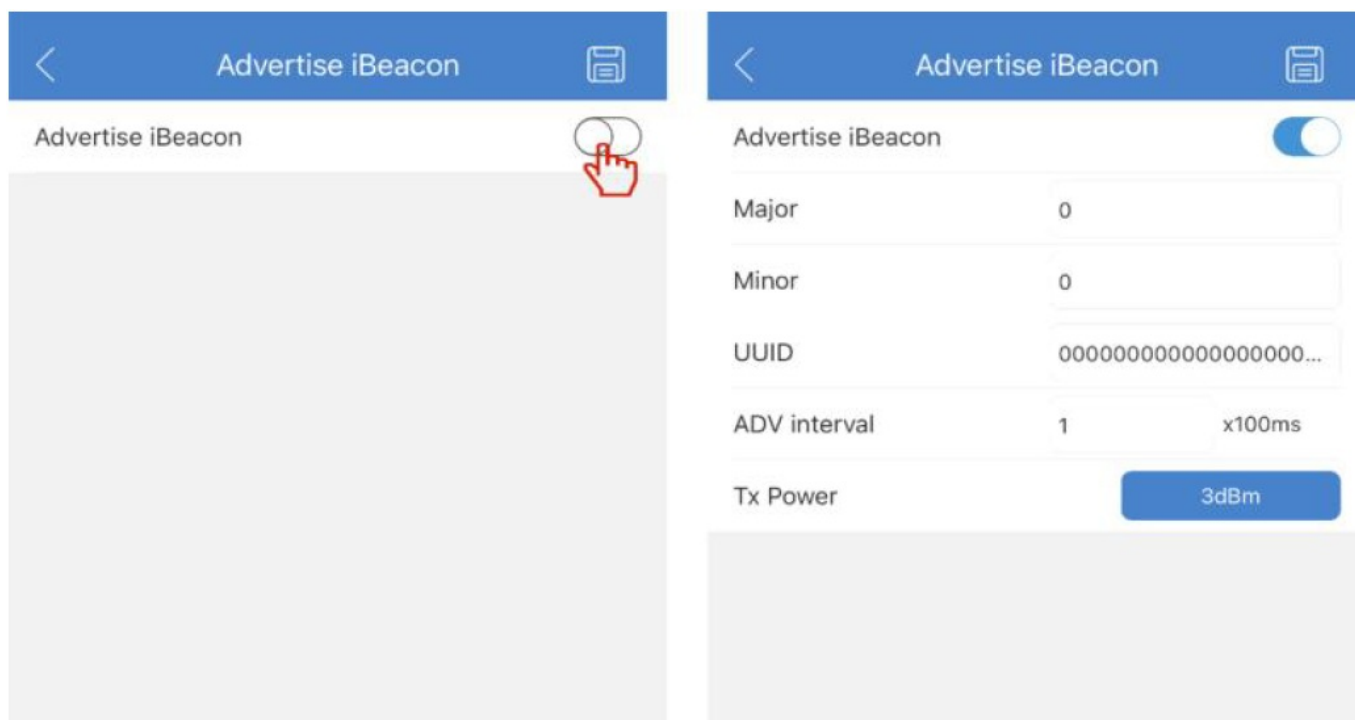
Scanner filters

To configure the scanner filter for the gateway. It supports filter by RSSI, MAC and advertising name.

The screenshot shows a mobile application interface for configuring scanner filters. At the top is a blue header bar with a back arrow on the left, the title "Scanner Filter" in the center, and a save icon on the right. Below the header, there are three filter sections. The first section is "RSSI Filter" with a range of "(-127dBm - 0dBm)" and a slider control set to "-127dBm". The second section is "Filter by MAC Address" with a text input field containing "0-6 Bytes". The third section is "Filter by ADV Name" with a text input field containing "0-20 Characters". Below these sections is a large, empty light gray rectangular area.

Advertise iBeacon

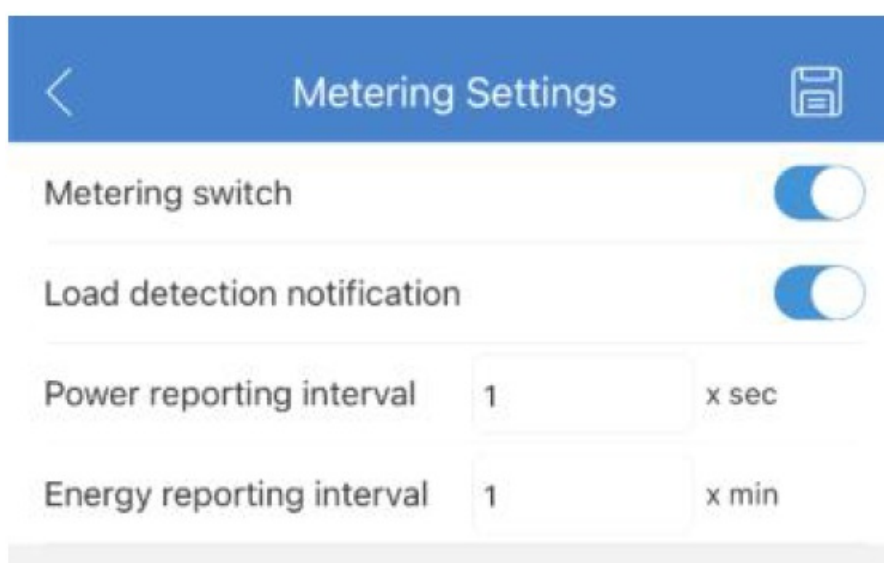
To set the gateway advertise iBeacon and setup advertising parameters. By default, iBeacon advertisement is turned off. if it is turned to on, the gateway will advertise iBeacon frame after it connects to server.



Metering settings

To configure the power metering parameters.

- **Metering switch:** if it is on, the gateway will periodically report power and energy data after it connects to cloud. If it is off, the data reporting will be off.
- **Load detection notification:** if it is on, when the gateway detects the electrical load is removed or inserted, it will report a notification to cloud. If it is off, the reporting will be off.
- **Power reporting interval:** to determine the reporting interval of current, voltage and active power data. Range: 1-86400, unit: second
- **Energy reporting interval:** to determine the reporting interval of active energy. Range: 1-60, unit: minute



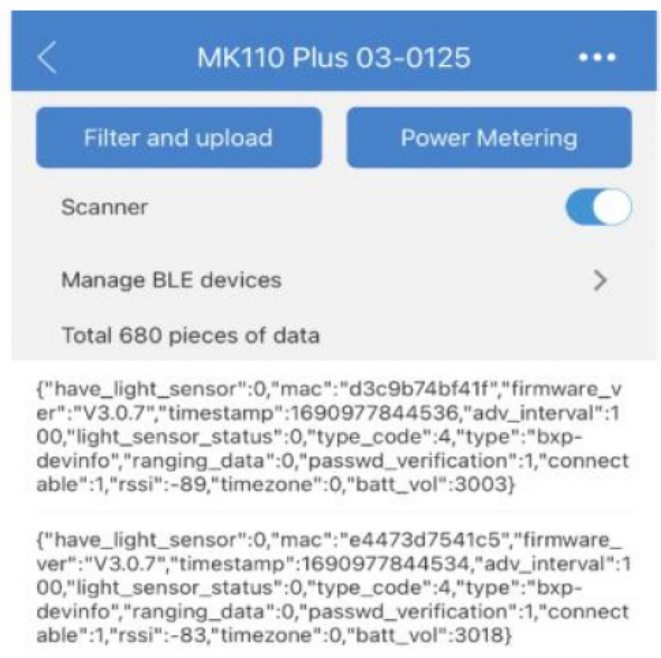
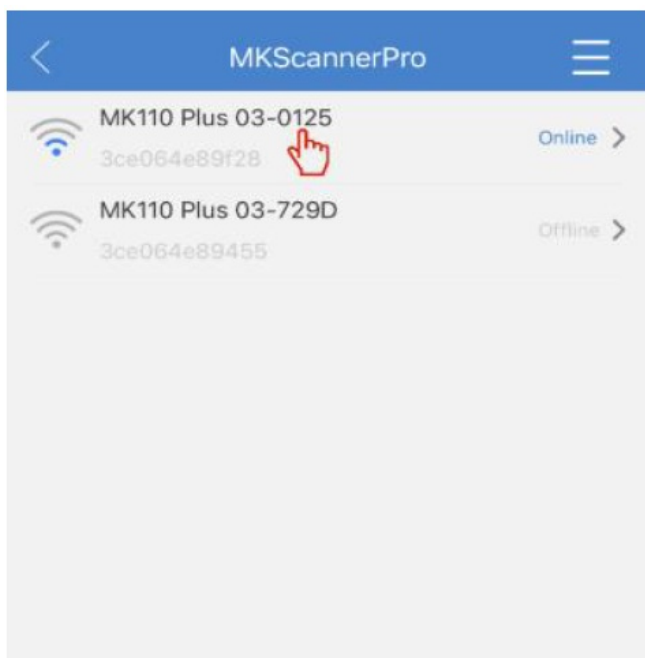
Device information

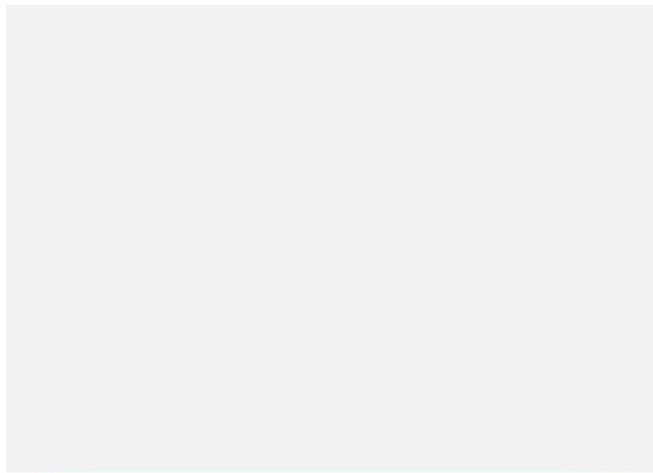
To read the device information of the gateway.

Device Information	
Device name	MK110 Plus 03-0125
Product model	MK110 Plus 03
Manufacturer	MOKO TECHNOLOGY LTD.
Firmware version	V1.0.3
Software version	V6.10.00.05
Hardware version	V2.1.1.0
WIFI STA MAC	3C:E0:64:E8:9F:28
BT MAC	64:E8:33:C8:01:25

Scan BLE devices

When the gateway is successfully configured, it will automatically start scanning. At the same time, the gateway will measure the network status and show it in the app.









Add Devices

```
{ "have_light_sensor":0,"mac":"f59304114b61","firmware_ver":"V0.0.32","timestamp":1690977844532,"adv_interval":1000,"light_sensor_status":1,"type_code":4,"type":"bxp-devinfo","ranging_data":-65,"passwd_verification":1,"connectable":1,"rssi":-97,"timezone":0,"batt_vol":3499}
```

```
{ "have_light_sensor":0,"mac":"c5d354a7f88d","firmware_ver":"V3.0.6","timestamp":1690977844527,"adv_interval":1000,"light_sensor_status":0,"type_code":4,"type":"bxp-devinfo","ranging_data":0,"passwd_verification":1,"connectable":1,"rssi":-95,"timezone":0,"batt_vol":3599}
```

```
{ "type_code":10,"rsp_data":"","rssi":-93,"connectable":0,"mac":"24e993734d08","timezone":0,"type":"other","timestamp":1690977844525,"adv_data":"1eff060001092022884050351f4e3e4976f2da91edc1e81038a20e7fa96c14"}
```

```
{ "type_code":0,"major":0,"rssi":-95,"mac":"ca41b77ba80c","connectable":1,"minor":28,"timezone":0,"uuid":"e2c56db5dffb48d2b060d0f5a71096e0","rssi_1m":-80,"type":"ibeacon","timestamp":1690977844522}
```

Icon	Network status	RSSI
	OFFLINE	/
	POOR WiFi	<-65 dBm
	MEDIUM WiFi	-65~-50 dBm
	GOOD WiFi	>-50 dBm

Manage BLE devices

Click the manage BLE device button, it will jump to the next page where you can search and connect the nearby Beacon device.

We can research a MK Button device for connection. After the gateway is connected with the Beacon, we can get the product information, battery and alarm information, and dismiss the alarm status. The “disconnect” button in the top used to disconnect from the beacon.


```

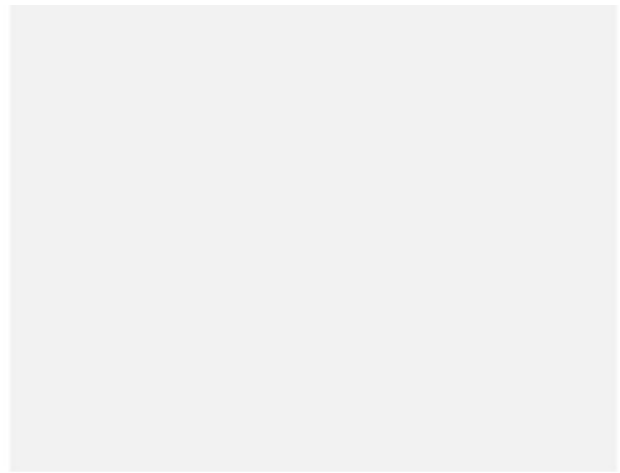
{"temperature":33,"mac":"e38e20491413","timestamp":16
91204219394,"type_code":3,"type":"eddystone-
t1m","runtime":"12d1h1m16.6S","connectable":1,"rssi":-68,"
adv_count":4133004,"timezone":0,"t1m_version":0,"batt_v
ol":3026}

{"type_code":10,"rsp_data":"","rssi":-86,"connectable":0,"
mac":"36ab40d3c598","timezone":0,"type":"other","timest
amp":1691204219388,"adv_data":"1eff060001092022ea5
6a64b8cdef6b96d86d67124461fca9edb80ec68b7e"}

{"type_code":10,"rsp_data":"","rssi":-88,"connectable":0,"
mac":"c82832624211","timezone":0,"type":"other","timest
amp":1691204219386,"adv_data":"0201060fff8f030a101c
0000b702c11d41b0ec"}

{"type_code":10,"rsp_data":"","rssi":-85,"connectable":0,"

```



Filter By RSSI

The gateway filters beacon data according to the RSSI, it will upload the beacon advertising data with RSSI no less than the setting value.

Parameter	Description
RSSI	Default: -127 dBm, range: -127~0 dBm.

Filter By PHY

The gateway filters beacon data according to the PHY type.

The coded PHY (V5.0) enables BLE long range feature. At the same time, your beacon need advertise data with coded PHY, otherwise the beacon can't be detected by the gateway.

Parameter	Description
PHY	Default: 1M PHY (V4.2) Range: 1M PHY (V4.2)/ 1M PHY (V5.0)/ 1M PHY (V4.2) & 1M PHY (V5.0)/ Coded PHY

Filter By MAC address

The gateway filters beacon data according to beacon MAC address, it supports up to 10 sets of MAC address at the same time.

Filter by MAC Address

Precise Match

☐

Reverse Filter

☐

Edit Mac Address

+

-

MAC 1

dd20

Parameter	Description
Precise match	OFF: Upload the advertising data of the beacon whose MAC address contains the input expression. ON: Upload the advertising data of Beacon whose first N (N<=6) bytes of MAC is the same as the input expression.
Reverse filter	OFF: Upload advertising data of Beacon whose MAC address conforms the input expression. ON: Upload advertising data of Beacon whose MAC address doesn't conform the input expression.
MAC address	Click the “ ” icon, it can add at most 10 sets of MAC address, the relationship of each MAC is “or”, and case insensitive. Click the “ ” icon, it will delete the MAC address input box.

Filter by ADV Name

The gateway filters beacon data according to beacon advertising name, and it supports up to 10 set of advertising name at the same time.

Filter by ADV Name

Precise Match

Reverse Filter

Edit ADV Name

+

-

ADV Name1

MK button

Parameter	Description
Precise match	OFF: Upload the advertising data of the beacon whose adv name contains the input expression. ON: Upload the advertising data of Beacon whose first N (N<=20) bytes of adv name is the same as the input expression.
Reverse filter	OFF: Upload advertising data of Beacon whose adv name conforms the input expression. ON: Upload advertising data of Beacon whose adv name doesn't conform the input expression.
ADV name	OFF: Upload the advertising data of the beacon whose adv name contains the input expression. ON: Upload the advertising data of Beacon whose first N (N<=20) bytes of adv name is the same as the input expression.

Filter by Raw Data

The gateway filters beacon data according to advertising data type.


The first 10 types are supported by MOKO beacon, the gateway will decode all MOKO beacon data. Other beacon data apart from the 10 types will be called "Other", gateway will not decode the data, directly upload raw data to cloud.

Filter by Raw Data	
iBeacon	ON >
Eddystone-UID	ON >
Eddystone-URL	ON >
Eddystone-TLM	ON >
BXP - Device info	<input checked="" type="checkbox"/>
BXP - ACC	<input checked="" type="checkbox"/>
BXP - T&H	<input checked="" type="checkbox"/>
BXP-Button	ON >
BXP-Tag	ON >
PIR Presence	ON >
Other	ON >

iBeacon

To determine iBeacon frame is uploaded or not.

If the iBeacon switch is on, the iBeacon UUID, major and minor are empty, the gateway will upload all detected iBeacon data. If the iBeacon UUID, major and minor are filled with some value, the gateway will upload only the iBeacon data which conforms the value.

<
iBeacon


iBeacon ☒

iBeacon UUID

0~16 Bytes

iBeacon Major

Min
~
Max

iBeacon Minor

Min
~
Max

Parameter	Description
Switch	On: upload, off: not upload
iBeacon UUID	0-16 bytes iBeacon UUID with Hex format
iBeacon major	From 0 to 65535, the Max value must be no less than the Min value.
iBeacon minor	From 0 to 65535, the Max value must be no less than the Min value.

Eddystone – UID

To determine Eddystone-UID frame is uploaded or not.

If the Ecdysone-UID switch is on, the Namespace ID and Instance ID are empty, the gateway will upload all detected Eddystone – UID data. If the Namespace ID and Instance ID are filled with some value, the gateway will upload only the Eddystone – UID data which conforms the value.

The screenshot shows a mobile application interface for configuring Eddystone-UID. At the top is a blue header bar with a back arrow, the title 'Eddystone-UID', and a save icon. Below the header, there is a toggle switch labeled 'Eddystone-UID' which is currently turned on. Underneath the toggle are two text input fields. The first field is labeled 'Namespace ID' and has a placeholder hint '0~10 Bytes'. The second field is labeled 'Instance ID' and has a placeholder hint '0~6 Bytes'.

Parameter	Description
Switch	On: upload, off: not upload
Namespace ID	0-10 bytes Hex data
Instance ID	0-6 bytes Hex data

Eddystone – URL

To determine Eddystone-URL frame is uploaded or not.

If the Eddystone – URL switch is on, the URL is empty, the gateway will upload all detected Eddystone – URL data. If the URL is filled with some value, the gateway will upload only the Eddystone – URL data which conforms the value.

Parameter	Description
Switch	On: upload, off: not upload
URL	0-37 characters, for example: www.mokosmart.com

Eddystone – TLM

To determine Eddystone-TLM frame is uploaded or not.

If the Eddystone – TLM switch is on, the TLM version is all, the gateway will upload all detected Eddystone – TLM data. If the TLM version is configured to 0 or 1, the gateway will upload only the Eddystone – TLM data whose TLM version conforms the configuration.

Parameter	Description
Switch	On: upload, off: not upload
TLM version	Range: All/ version 0/ version 1 Ø Null: All versions will be uploaded; Ø Version 0: Unencrypted TLM; Ø Version 1: Encrypted TLM

BXP- Device info

To determine MOKO BXP-Device info frame is uploaded or not.

Parameter	Description
Switch	To determine upload BXP-device info data or not. On: upload, off: not upload

BXP- ACC

To determine MOKO BXP-ACC frame is uploaded or not.

Parameter	Description
Switch	To determine upload BXP-ACC data or not. On: upload, off: not upload

BXP- T&H

To determine MOKO BXP-T&H frame is uploaded or not.

Parameter	Description
Switch	To determine upload BXP-T&H data or not. On: upload, off: not upload

BXP- Button

To determine MOKO BXP-Button frame is uploaded or not.

It supports filter the specified data by trigger modes. If all modes are on, the gateway will upload all detected BXP-button data. If the modes are off, the gateway will not upload the advertising data triggered by the modes.



BXP-Button	
BXP- button	<input checked="" type="checkbox"/>
Single press mode	<input checked="" type="checkbox"/>
Double press mode	<input checked="" type="checkbox"/>
Long press mode	<input checked="" type="checkbox"/>
Abnormal inactivity mode	<input checked="" type="checkbox"/>

BXP- Tag

To determine MOKO BXP-Tag frame is uploaded or not. It supports filter the specified data by Tag ID, allows to set up to 10 sets of Tag id at the same time.

The screenshot shows a mobile application interface for configuring BXP-Tag. The top bar is blue with a back arrow on the left, the title 'BXP-Tag' in the center, and a save icon on the right. Below the header, there are three toggle switches: 'BXP-Tag' (turned on), 'Precise Match' (turned off), and 'Reverse Filter' (turned off). At the bottom, there is a 'Tag ID' section with a plus icon and a minus icon.

Parameter	Description
Switch	On : upload, off: not upload
Precise match	OFF : Upload advertizing data of Beacon whose tag id contains the input expression. ON : Upload advertizing data of Beacon whose first N (N<=3) bytes of tag id is the same as the input expression.
Reverse filter	OFF : Upload advertising data of Beacon whose tag id conforms the input expression. ON : Upload advertising data of Beacon whose tag id doesn't conform the input expression.
Tag id	Click the “+” icon, it can add at most 10 sets of tag id, the relationship of each tag id is “or”, and case insensitive. Click the “-” icon, it will delete the tag id input box.

PIR Presence

To determine MOKO PIR Presence frame is uploaded or not.

It supports filter the specified data by sensor status and major, minor.

<
PIR Presence

PIR Presence
☒

Delay response status
all

Door open/close status
all

Sensor sensitivity
all

Detection status
all

Major

Min
0~65535
~
Max
0~65535

Minor

Min
0~65535
~
Max
0~65535

Parameter	Description
Switch	On: upload, off: not upload
Delay response status	Options: All/low delay/ medium delay/high delay All: All delay status advertising data will be uploaded
Door open/close response status	Options: All/close/open All: All door status advertising data will be uploaded

Sensor sensitivity	Options: All/low/medium/high All: All sensor sensitivity advertising data will be uploaded
Detection status	Options: All/no motion detected/motion detected All: All detection status advertising data will be uploaded
Major	From 0 to 65535, the Max value must be no less than the Min value.
Minor	From 0 to 65535, the Max value must be no less than the Min value.

Other

The Beacon data other than the above 10 types will be judged as “other”. The gateway will transfer the other type data directly, without decoder.

To determine the other type is uploaded or not, the gateway can filter other type data by adv raw data.

Parameter	Description
Switch	On: upload, off: not upload
Condition A	<p>Ø Data type: 1 byte Bluetooth data type</p> <p>Ø Data range: The start and end byte under the data type. It can be set to any two values from 1-29, the end value must be no less than the start value.</p> <p>Ø Raw data field: Raw data value under the data type, and the data length should match the data range.</p>
Condition B	The same as condition A

Condition C	The same as condition A
Filter relationship	The “AND/OR” logic setting for the conditions.

Filter Relationship

After the MAC filter, ADV name filter or raw data filter are set, it also needs to set the filter relationship, the relationship determines the processing logic.

If you set one or more filters, but relationship is set as “Null”, the filters will not take effect. The relationship should include the filters, then the filters will take effect.

Parameter	Description
Relationship	<p>Default: Null</p> <p>Range: Null/ Only MAC/ Only ADV name/ Only raw data/ ADV name & Raw data/ MAC & ADV name & Raw data/ ADV name Raw data/ ADV name& MAC.</p>

Duplicate Data Filter

To reduce too many duplicate data uploaded to your server. In a filtering period, If the gateway scans a new data, it will report the data immediately, and throw the following data which are same as that one, finally report only one piece which is latest scanned in the period.

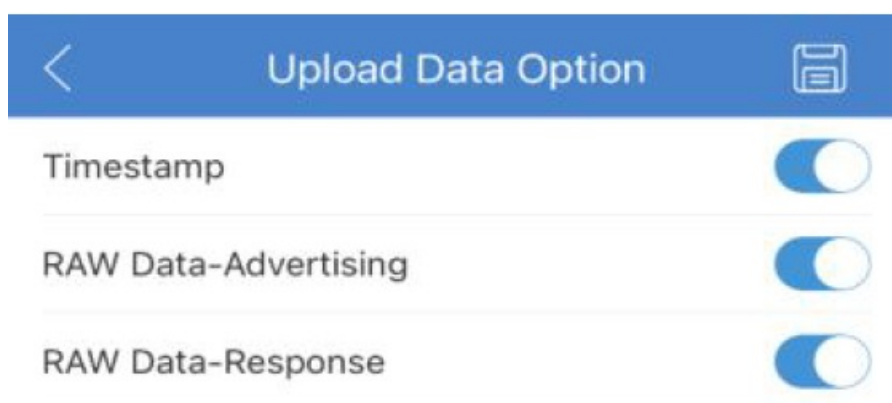


The screenshot shows a mobile app interface for 'Duplicate Data Filter'. At the top is a blue header bar with a back arrow, the title 'Duplicate Data Filter', and a save icon. Below the header, there is a 'Filter by' section with a blue button labeled 'MAC'. Underneath, there is a 'Filtering Period' section with a text input field containing '10' and a unit selector dropdown set to 'Sec'.

Parameter	Description
Filter by	<p>Default: None, range: None/MAC/MAC + Data Type/MAC + Raw Data</p> <p>Ø None: Duplicate data filter is disabled.</p> <p>Ø MAC: Judge whether the data is duplicate according to the MAC address</p> <p>Ø MAC+ Data Type: Judge whether the data is duplicate according to the MAC address and the data type.</p> <p>Ø Mac+ Raw Data: Judge whether the data is duplicate according to the MAC address and the raw data.</p>
Filtering Period	Only when the filter is enabled, the filtering period can be set. Default: 10, range: 1-8 6400 (Unit: second)

Upload Data Option

To determine the payload content uploaded to server. The Bluetooth data packet uploaded to the server includes timestamp, MAC, RSSI, advertising raw data and response raw data. The timestamp and raw data are optional.



The screenshot shows a mobile app interface for 'Upload Data Option'. It has a blue header bar with a back arrow, the title 'Upload Data Option', and a save icon. Below the header, there are three toggle switches, each with a label to its left: 'Timestamp', 'RAW Data-Advertising', and 'RAW Data-Response'. All three toggle switches are currently turned on (blue).

Power metering

To enter the page where we can get set the metering parameters and get the power and energy consumption data. The metering switch is on, the gateway will periodically report the voltage, current, active power and energy data to cloud, we can set the reporting parameters. If the metering switch is off, the data reporting will be off.

<

MK110 Plus 03-0125

...

Filter and upload

Power Metering

Scanner

Manage BLE devices

Total 4130 pieces of data

{
"type_code":10,"rsp_data":"","rssi":-67,"connectable":0,"mac":"3660ff42a07c","timezone":0,"type":"other","timestamp":1691204219404,"adv_data":"1eff060001092002a885af39e8385bd12b32d7cf915a58e69686385baf885a"}
}

{
"type_code":10,"rsp_data":"","rssi":-85,"connectable":0,"mac":"20ce902e1d33","timezone":0,"type":"other","timestamp":1691204219399,"adv_data":"1eff060001092022c979f844d57764f1fb9a2c459f2e4f795f66d1e69bcb01"}
}

{
"type_code":0,"major":0,"rssi":-98,"mac":"50325fab8dc5","connectable":0,"minor":234,"timezone":0,"uuid":"00000000000000000000000000000000","rssi_1m":-59,"type":"ibeacon","timestamp":1691204219395}
}

{
"type_code":0,"major":0,"rssi":-98,"mac":"50325fab8dc5","connectable":0,"minor":234,"timezone":0,"uuid":"00000000000000000000000000000000","rssi_1m":-59,"type":"ibeacon","timestamp":1691204219395}
}

{
"temperature":33,"mac":"e38e20491413","timestamp":1691204219394,"type_code":3,"type":"eddystone-tlm","runtime":"12d1h1m16.6S","connectable":1,"rssi":-68,"adv_count":4133004,"timezone":0,"tlm_version":0,"batt_vol":3026}
}

{
"type_code":10,"rsp_data":"","rssi":-86,"connectable":0,"mac":"36ab40d3c598","timezone":0,"type":"other","timestamp":1691204219388,"adv_data":"1eff060001092022ea56a64b8cdef6b96d86d67124461f1ca9edb80ec68b7e"}
}

{
"type_code":10,"rsp_data":"","rssi":-88,"connectable":0,"mac":"c82832624211","timezone":0,"type":"other","timestamp":1691204219386,"adv_data":"0201060fff8f030a101c0000b702c11d41b0ec"}
}

{
"type_code":10,"rsp_data":"","rssi":-85,"connectable":0,"mac":"20ce902e1d33","timezone":0,"type":"other","timestamp":1691204219399,"adv_data":"1eff060001092022c979f844d57764f1fb9a2c459f2e4f795f66d1e69bcb01"}
}

<

Power Metering

Metering switch

ON

Voltage(V)

229.8

Current(mA)

136

Power(W)

18.8

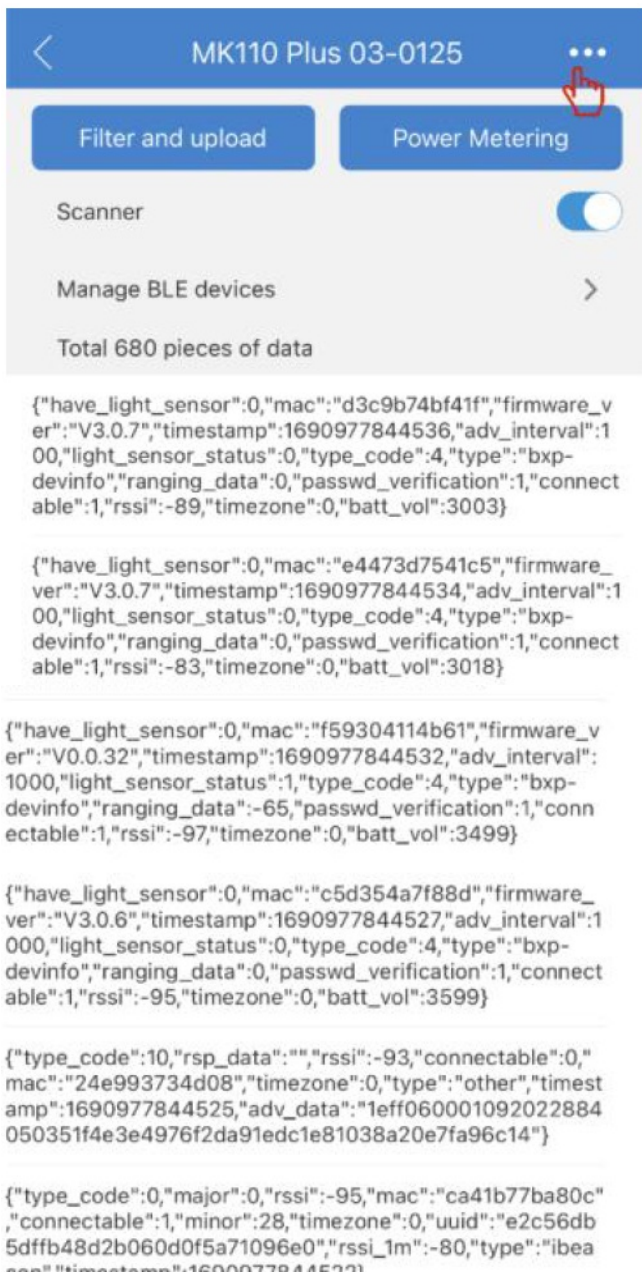
Energy (KW.h)

0.004

Reset energy data

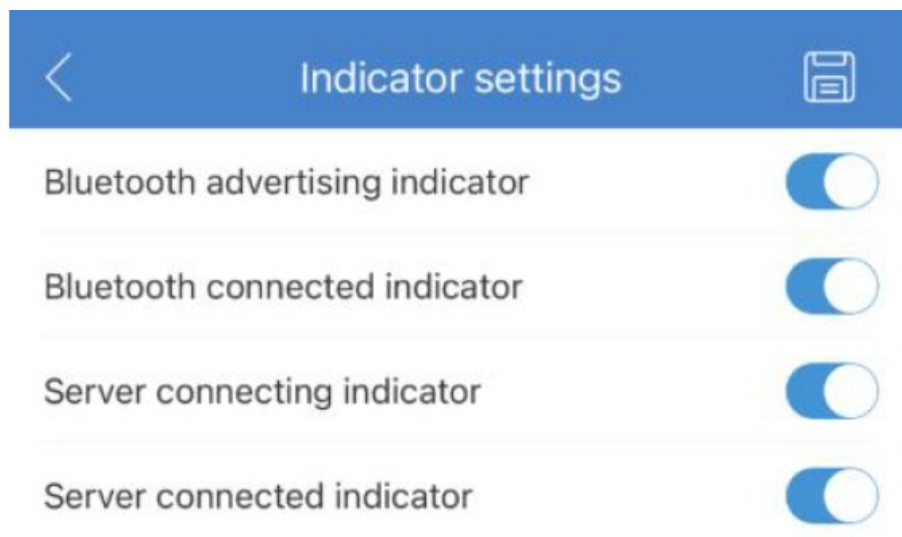
Gateway parameter settings

The gateway allows users to change its parameters. All parameters in the settings page can be modified.



Indicator settings

The LED indicator function in different device status can be configured.



Parameter	Description
Bluetooth advertising indicator	Default is enabled, when it is disabled, the LED will be OFF
Bluetooth connected indicator	Default is enabled, when it is disabled, the LED will be OFF

Server connecting indicator	Default is enabled, when it is disabled, the LED will be OFF
Server connected indicator	Default is enabled, when it is disabled, the LED will be OFF

Network Status Report Period

The gateway reports its network status to the server to notify the server that it is online. The report interval can be configured.

Parameter	Description
Network status report period	<p>Default: 30, range: 0 or 10-86400 (unit: second)</p> <p>Value 0 means that the gateway will report the network status only once when it successfully connects to the server, will not report it later.</p>

Reconnect Timeout

The gateway will automatically reboot once when it cannot connect to server in the configured timeout.

Parameter	Description
Connect timeout	<p>Default: 3, range: 0-1440 (unit: minute)</p> <p>Value 0 means that the device will not reboot</p>

Communication timeout

If the gateway doesn't get any downlink message from the cloud in the timeout, it will automatically disconnect from the beacon.

Parameter	Description
Communicate timeout	<p>Default: 10, range: 0-60 (unit: minute) Value 0 means no automatic disconnection</p>

System Time

After the gateway connected with the server, it will synchronize time from the NTP server every 1 hour.

If the NTP server is invalid, it also supports to synchronize time from user's phone. The "Sync" button is used to require the UTC time from your phone, it also needs to select the Time Zone to obtain the local current time.

<

System time

Sync Time From NTP >

Sync Time From Phone

Sync

TimeZone

UTC+00:00


Device time:2023-07-29 06:49 UTC+00:00

Advertise iBeacon


To set the gateway advertise iBeacon data.

<

Advertise iBeacon





Advertise iBeacon



<

Advertise iBeacon



Advertise iBeacon 

Major

0

Minor

0

UUID

00000000000000000000...

ADV interval

1

x100ms

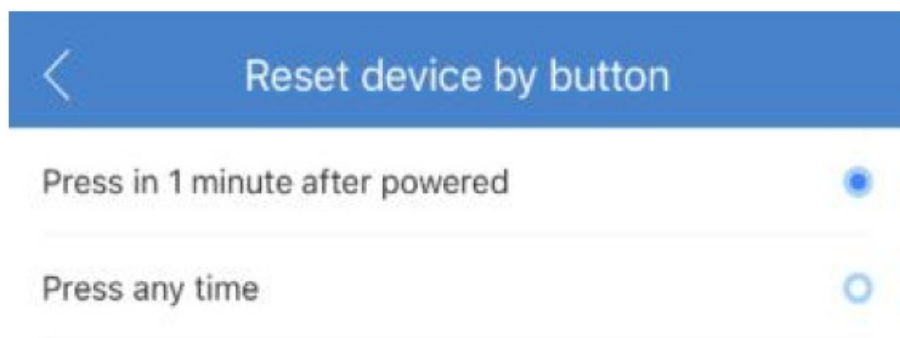
Tx Power

3dBm

Parameter	Description
Advertise iBeacon	On/off
Major	0-65535
Minor	0-65535
UUID	16 bytes
ADV interval	Range: 1-100, unit: 100ms
Tx power	-24dBm~21dBm, step by 3 dBm.

Reset device by button

To determine the reset device mode triggered by the physical button.



Output switch

The gateway has an AC power output, to determine the output switch.

Parameter	Description
Output switch	On: turn on the AC output Off: turn off the AC output

Output control by button

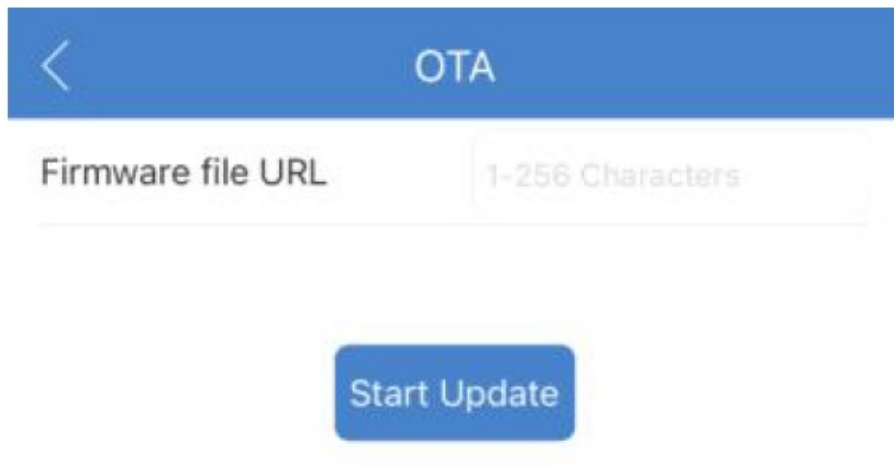
To determine the AC output can be controlled by the physical button or not. By default, pressing the button will not switch output.

Parameter	Description
Output control by button	On: Short click button will change the output switch Off: Short click button will not change the output switch

OTA

The gateway has an ability to update firmware over the air. When MOKO releases a new firmware, you can easily upgrade your gateway firmware by loading an upgrade Bin file with

MOKO APP. The firmware file URL will be like: http://47.104.172.169:8080/updata_fold/MK110_V1.0.4.bin
During upgrade process, LED will flash yellow, if upgrade succeed, LED turns solid yellow, if failed, LED turns solid red.

The image shows a mobile application screen for OTA updates. At the top is a blue header with a white back arrow on the left and the text "OTA" in the center. Below the header is a text input field with the placeholder "Firmware file URL" and a character count "1-256 Characters" on the right. At the bottom of the screen is a blue button with the text "Start Update".

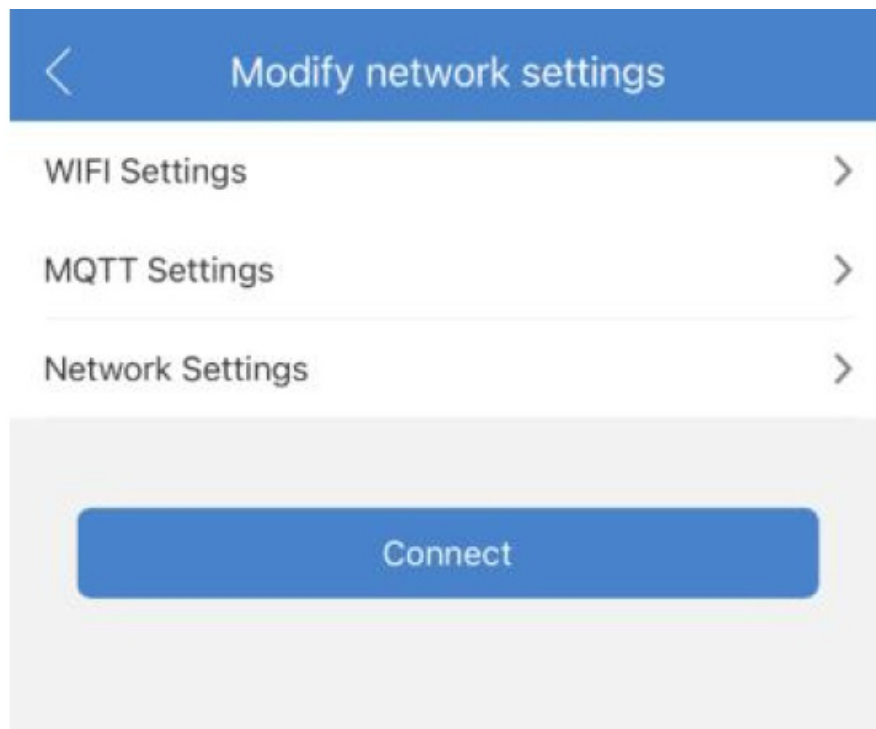
< OTA

Firmware file URL 1-256 Characters

Start Update

Modify Network settings

Change the WiFi, MQTT and network settings for the gateway, it allows users to change the settings independently. After the WIFI, MQTT or network settings are changed, click the “Connect” button, the gateway will reboot once and reconnect using the new settings.

The image shows a mobile application screen for modifying network settings. At the top is a blue header with a white back arrow on the left and the text "Modify network settings" in the center. Below the header are three menu items: "WIFI Settings", "MQTT Settings", and "Network Settings", each followed by a right-pointing chevron. At the bottom of the screen is a blue button with the text "Connect".

< Modify network settings

WIFI Settings >

MQTT Settings >

Network Settings >

Connect

Modify WiFi settings

To change the WIFI settings for the gateway. If we change security from personal to Enterprise, it requires to upload WIFI certificates, the certificates will be obtained from your HTTP server. The CA cert file URL will be like:
http://47.104.172.169:8080/updata_fold/wifi_ca.pem

SSL/TLS ☒

Certificate **Self signed certificates**

CA cert file URL 0-256 Characters

Client cert file URL 0-256 Characters

Client key file URL 0-256 Characters

Clear All Configurations

Device Information

You can get the device information in this page.

Device Information	
Device name	MK110 Plus 03-0125
Product model	MK110 Plus 03
Manufacturer	MOKO TECHNOLOGY LTD.
Firmware version	V1.0.3
Software version	V6.10.00.05
Hardware version	V2.1.1.0
WIFI STA MAC	3C:E0:64:E8:9F:28
BT MAC	64:E8:33:C8:01:25

Reboot

The “Reboot” button is used to send a reboot command to the device. After that, the gateway will reboot once.

Reset Device

The “Reset Device” button is used to send a reset command to the device. After that, the device will restore to factory settings, and the indicator will flash blue and green once.

We can also press and hold the reset button for 10 seconds to reset it, please notice, with default settings, the reset will take effect only in 1 minute after the gateway is powered up.

Appendix A: WPA2 Enterprise Security

Go to WIFI settings, select Enterprise for security, then select EAP type and enter the correct settings.

WIFI Settings

Security

Enterprise

EAP type

PEAP-MSCHAPV2

SSID

1-32 Characters

Username

0-32 Characters

Password

0-64 Characters

Verify server

☒

CA cert file URL

0-256 Characters

Country&Band

United States of America

Please note the country&Band is a configuration for 5GHZ WiFi,if using 2.4GHZ WiFi, there is no need to choose the band.

WIFI Settings

Security

Enterprise

EAP type

TTLS-MSCHAPV2

SSID

1-32 Characters

Username

0-32 Characters

Password

0-64 Characters

Verify server

☒

CA cert file URL

0-256 Characters

Country&Band

United States of America

Please note the country&Band is a configuration for 5GHZ WiFi,if using 2.4GHZ WiFi, there is no need to choose the band.

WIFI Settings

Security

Enterprise

EAP type

TLS

SSID

1-32 Characters

Domain ID

0-64 Characters

CA cert file URL

0-256 Characters

Client cert file URL

0-256 Characters

Client key file URL

0-256 Characters

Country&Band

United States of America

Please note the country&Band is a configuration for 5GHZ WiFi,if using 2.4GHZ WiFi, there is no need to choose the band.

- **PEAP-MSHCHAPV2:** The user should enter the WIFI SSID, EAP username, EAP password. If verify server is enabled, it requires to upload the CA certificate from your phone.
- **TTLS-MSHCHAPV2:** The settings are the same as PEAP-MSHCHAPV2
- **TTLS:** The user should enter the WIFI SSID, domain ID, and upload certificates. The CA certificate is must-required, the client certificate and client key are optional.

Appendix B: Connect to AWS IoT

Go to Settings for APP page, firstly users should configure the APP connecting to AWS IoT. Then go to settings for device-> MQTT settings, configure the gateway connecting to AWS IoT.

The host is AWS host URL, port is 8883, turn on the SSL/TLS, select CA self signed certificates as the certificate type, then upload the CA certificate, client key and client cert file from your phone.

If using Android phone, the certificate files must be saved in the root directory of the local storage, otherwise the APP cannot obtain the files correctly.

Settings for APP

Broker Setting

Host

a1fhygr0xxahcm-ats.iot.us-west-2.ama

Port

8883

Client Id

MK_F2919D43

Topics

Subscribe

0-128 Characters

Publish

0-128 Characters

MQTT settings

Broker Setting

Host

1ygr0xxahcm-ats.iot.us-west-2.amazoni

Port

8883

Client Id

4091519c75c0

Topics

Subscribe

/MK110/4091519c75c0/receive

Note: The topic settings is only for connecting to Alibaba
iot.
Please leave it blank if connecting to a MQTT broker or
AWS iot.

General	User Credentials	SSL/TLS
SSL/TLS <input checked="" type="checkbox"/>		
Certificate Self signed certificates		
CA File	/storage/emulated/0/.001/MOKO AWS file/zaws-root-ca.pem	...
Client Key	/storage/emulated/ 0/.001/MOKO AWS file/ zapp-private.pem.key	...
Client Cert File	/storage/emulated/ 0/.001/MOKO AWS file/ zapp-certificate.pem.crt	...

General	User Credentials	SSL/TLS
SSL/TLS <input checked="" type="checkbox"/>		
Certificate Self signed certificates		
CA File	/storage/emulated/0/.001/MOKO AWS file/zaws-root-ca.pem	...
Client Key	/storage/emulated/ 0/.001/MOKO AWS file/ zapp-private.pem.key	...
Client Cert File	/storage/emulated/ 0/.001/MOKO AWS file/ zapp-certificate.pem.crt	...

If using IOS phone, users need convert AWS certificates to required format, and import the certificates into your
IOS phones through iTunes, then users can upload certificates from their phones.

Please note that only the APP settings require the converted certificate, while the device settings still use the CA
root certificate, private key and client certificate original files.

Settings for APP	
Broker Setting	
Host	a1fhygr0xxahcm-ats.iot.us...
Port	8883
Client Id	MK_62316651
Topics	
Subscribe	0-128 Characters
Publish	0-128 Characters
Note: The topic settings is only for connecting to Alibaba iot.Please leave it blank if connecting to a MQTT broker or AWS iot.	
General	User Credentials SSL/TLS
General User Credentials SSL/TLS	
SSL/TLS <input checked="" type="checkbox"/>	
Certificate Self signed certificates	
CA File	aws-root-ca.der
P12 Cert File	ios-certificate file.p12
Clear All Configurations	

MQTT settings	
Broker Setting	
Host	a1fhygr0xxahcm-ats.iot.us...
Port	8883
Client Id	c8f09ee8327c
Topics	
Subscribe	/MK110 plus 01/c8f09ee83...
Publish	/MK110 plus 01/c8f09ee83...
General	Credentials SSL/TLS LWT
SSL/TLS <input checked="" type="checkbox"/>	
SSL/TLS <input checked="" type="checkbox"/>	
Certificate Self signed certificates	
CA File	zaws-root-ca.pem
Client Key	zdevice-private.pem.key
Client Cert File	zdevice-certificate.pem.crt
Clear All Configurations	

Revision History

Revision	Description	Editor	Date
V1.0	Initial version	Weiguifen	2023.9.12

MOKO TECHNOLOGY LTD.



4F, Building2, Guanghua Technology Park, MinQing Rd, Longhua, Shenzhen, Guangdong, China



Tel: 86-755-23573370-829



sales@mokosmart.com



<https://www.mokosmart.com>

www.mokosmart.com

FCC Warning

Labeling requirements.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

Information to user.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Information to the user.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC RF Radiation Exposure Statement

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

IC Warning

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions


1. This device may not cause interference;
2. This device must accept any interference, including interference that may cause undesired operation of the device.

The information listed above provides the user with information needed to make him or her aware of a RF exposure, and what to do to assure that this radio operates within the FCC exposure limits of this radio.

The device complies with RF specifications when the device used at 20cm from the body. Third-party belt-clips, holsters, and similar accessories used by this device should not contain any metallic components. Body-worn accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided. Use only the supplied or an approved antenna.

The band 5150-5250MHz indoor use only.

Documents / Resources

	<p>MOKO MK110 Plus 03 BLE Gateway [pdf] User Manual MK110 Plus, MK110 Plus 03 BLE Gateway, 03 BLE Gateway, BLE Gateway, Gateway</p>
--	---

References

- [Your IoT Devices ODM & JDM Partner - MOKOSmart #1 Smart Device Solution in China](#)
- [Your IoT Devices ODM & JDM Partner - MOKOSmart #1 Smart Device Solution in China](#)
- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

This website is an independent publication and is neither affiliated with nor endorsed by any of the trademark owners. The "Bluetooth®" word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. The "Wi-Fi®" word mark and logos are registered trademarks owned by the Wi-Fi Alliance. Any use of these marks on this website does not imply any affiliation with or endorsement.