

MG6810

LoRaWAN Indoor Pico Gateway User Manual

V1.0.0

Document Information

Version	Time	Description	Remark
V1.0.0	2019-9-21	Preliminary version	Mike

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1. General Description

MG6810 is designed to be a fully compliant LoRaWAN gateway, with WiFi and ethernet as the backhaul (4G Optional). It includes one or two LoRa concentrator, which provides up to 16 programmable parallel demodulation paths. This gateway is perfectly designed for indoor public network extension or for ad-hoc indoor private coverage, like manufacturing, logistics or industrial sites requiring continuous connectivity for their IoT applications.

2. Features

- LoRaWAN™ network compliant
- Channels: Up to 16 concurrent channels
- Supports ethernet and WIFI , 4G (Optional) backhaul
- Based on OpenWrt system
- Compact size:126*148*49 mm ±0.3mm
- Simple to mount and install
- EU868, US915, AS923 , AU915Mhz , IN865MHz and CN470 versions available.



Ordering information

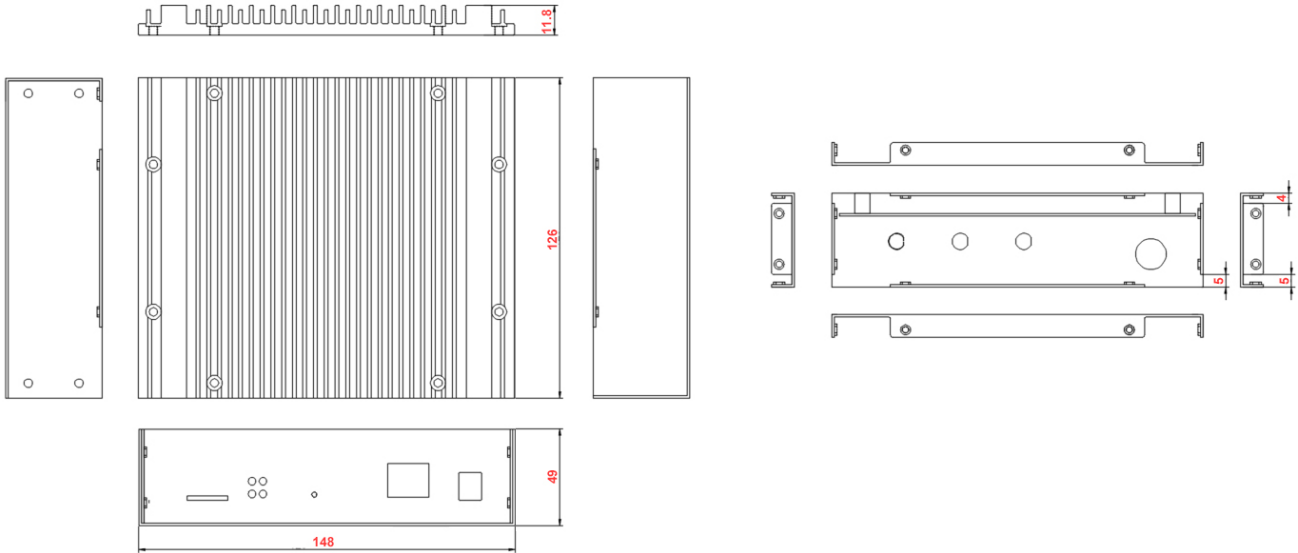
No.	Item	Description
1	MG6810-U	902-928MHz,Suitable for USA ,Australia, Asia ,Korea, Japan etc..
2	MG6810-E	863~870MHz , for Europe
3	MG6810-C	470-510MHz, for China
4	MG6810-W	433MHz , for China or Europe.

Table 2.1ordering info

3. Mechanical and interfaces

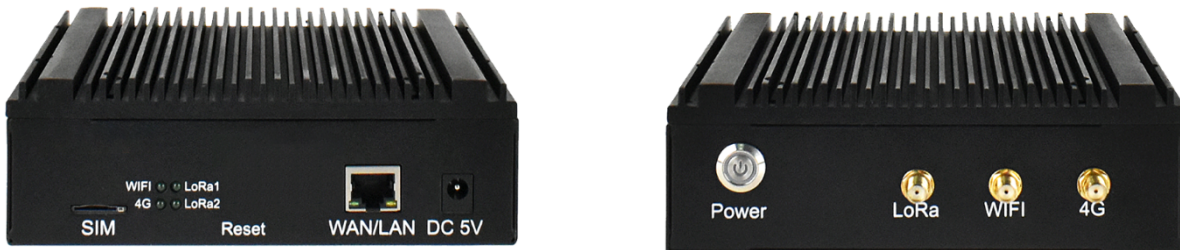
3.1 Mechanical Diagram

Dimensions: 126*148*49 mm



3.2 LED indicator

The following figure shows the LoRa gateway connectors and interfaces on the front and back panels.



No.	Indicator	State	Description
1	WIFI LED	Solid Green	WIFI connected
		Blinking	Blinking 1s during data transmission
2	4G LED	Solid Green	4G connected
		Blinking	Blinking 1s during data transmission
3	LoRa1 LED	Solid Green	LoRa1 Connected
		Blinking	Blinking 1s during data transmission
4	LoRa2 LED	Solid Green	LoRa2 Connected

		Blinking	Blinking 1s during data transmission
5	Power LED	Solid Red	Power on
		Off	Power off

Table 3.2 LED indicator

3.3 Buttons and Interfaces

No.	Button/interface	Description	Remark
1	Power button	With red led indicator	
2	Reset button	Long press 5S to reset the device	
3	SIM card slot	Insert 4G SIM card	
4	DC IN 5V	Power supply : 5V/2A , DC2.1	
5	WAN/LAN port	Backhaul through Ethernet	
6	LoRa antenna connector	Connect LoRa antenna, SMA type	
7	WiFi antenna connector	Connect 2.4G WIFI antenna , SMA type	
8	4Gantenna connector	Connect 4G antenna , SMA type	

Table3.3 Buttons and interfaces

4. Specification

Hardware:

- CPU: MT7688AN
- Core : MIPS24KEc
- Frequency : 580MHz
- RAM: DDR2, 128M
- FLASH: SPI Flash 32M

Power supply:

- DC5V/2A
- Average power consumption: 5W

Enclosure:

- Alloy

Install:

- Strand mount/wall mount,

Communication:

- 10/100M Ethernet*1,
- 150M WIFI rate , support 802.11b/g/n
- LED indicator
- Secure VPN, No external IP address required
- LoRaWAN™ compliant (433~510MHz or 863~928MHz , Opt)
- LoRa™ Sensitivity -142.5dBm, up to 16 LoRa™ demodulators
- More than 10km in LoS and1 ~ 3km in dense environment

GENERAL INFORMATION:

- Dimensions: 126*148*49 mm
- Operation temperature: -40 °C~+80 °C
- Storage temperature: -40 °C~+80 °C
- Weight : 0.875KG

5. Gateway config guide

5.1 Power on

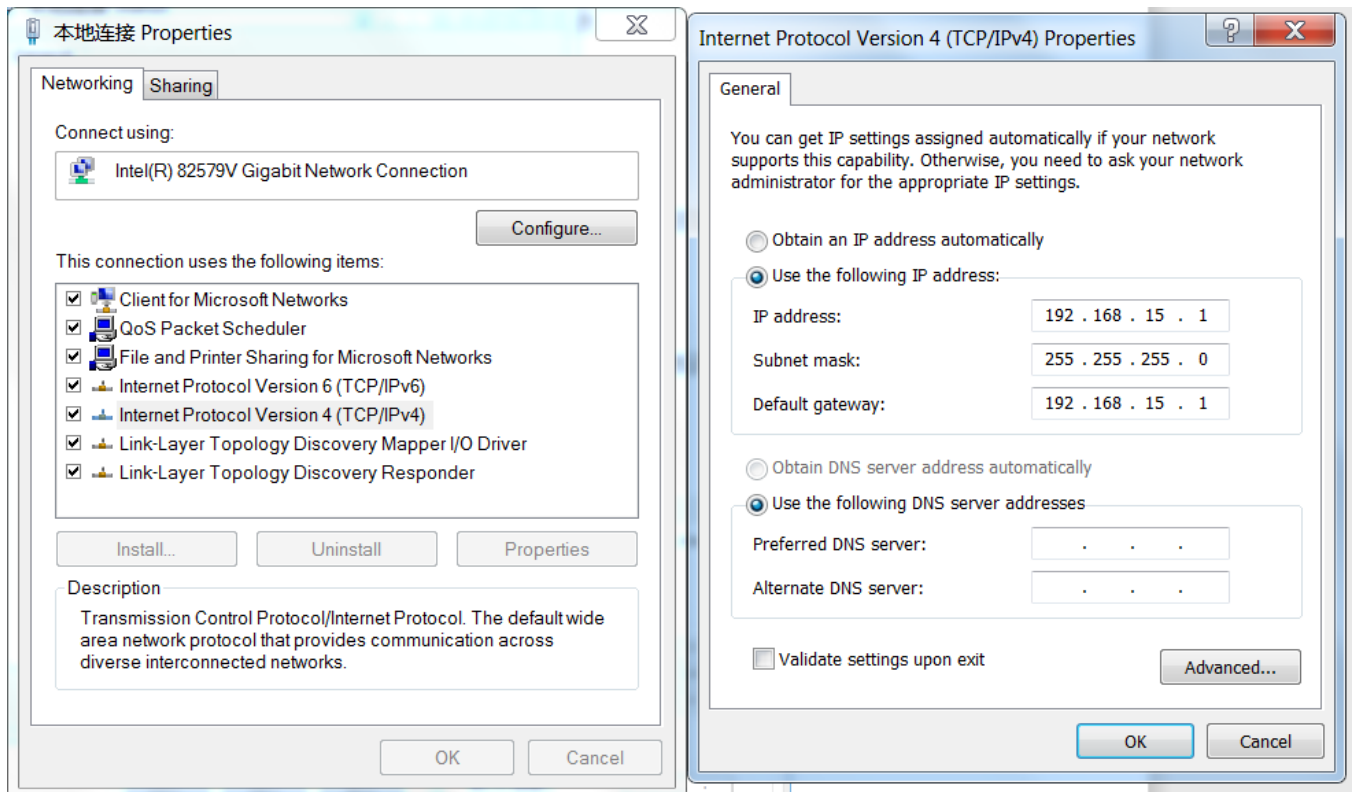
Power on the device and connect the LAN port



5.2 Config Internet protocol TCP/IPv4

Control Panel→Network&internet→networking properties→TCP/IPv4.

Change computer access IP to fixed IP: 192.168.15.1

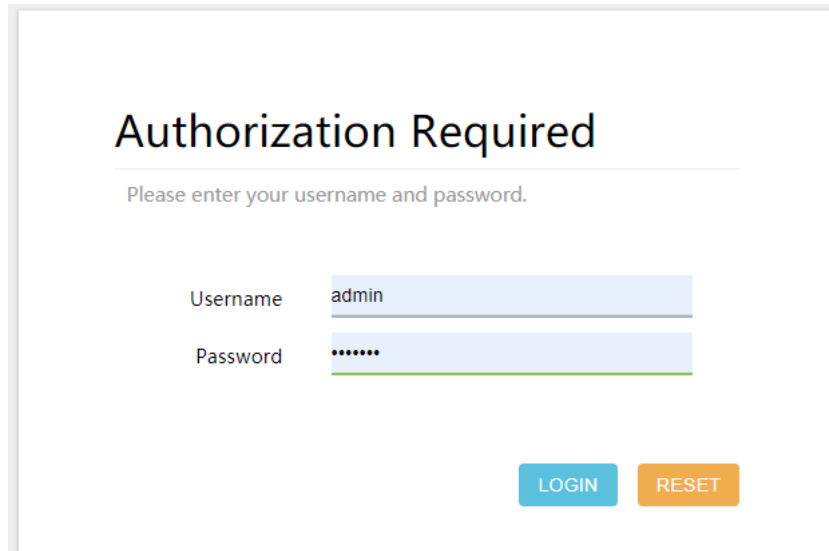


5.3 Login the server

After the gateway is powered on for 2 minutes , enter the following address in Google Chrome.

192.168.15.1

Login with your user name and password. (User name: [admin](#), Password: [Admin17](#))



Authorization Required

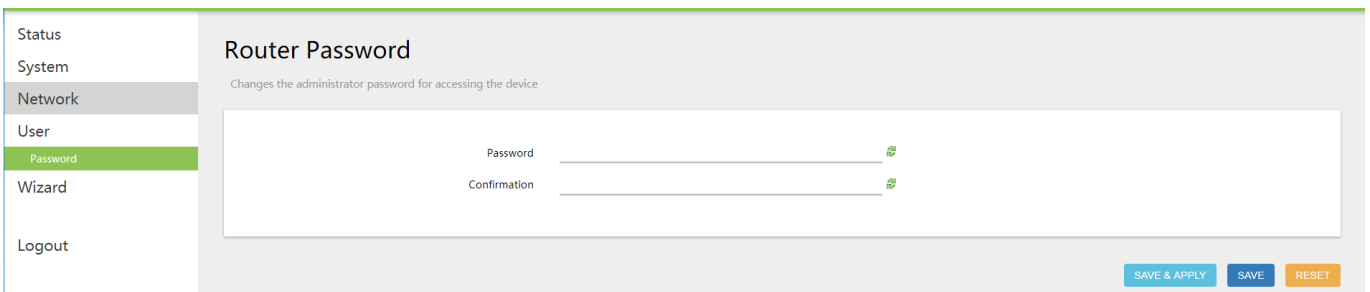
Please enter your username and password.

Username

Password

5.4 Change Password

Click **User**→**Password**→Type new password→Confirm→Save →Refresh the page



Router Password

Changes the administrator password for accessing the device

Password

Confirmation

5.5 Network config

5.5.1 View network status

Click **Network**→**Interfaces** to view the network status

WAN LTE

Interfaces

Interface Overview

Network	Status	Actions
LTE 3g-LTE	RX: 0 B (0 Pkts.) TX: 0 B (0 Pkts.)	CONNECT STOP EDIT DELETE
WAN eth0	Uptime: 1h 30m 28s MAC-Address: C6:18:02:00:01:14 RX: 3.18 MB (24788 Pkts.) TX: 2.01 MB (7835 Pkts.) IPv4: 192.168.181.104/24	CONNECT STOP EDIT DELETE

ADD NEW INTERFACE...

SAVE & APPLY SAVE RESET

5.5.2 Connect to a wireless network

Click Network→Wireless→Scan→Choose the wireless network you want to join→Add

radio0: Master "Maxilot"

Wireless Overview

Generic MAC80211 802.11bgn (radio0)
Channel: 11 (2.462 GHz) | Bitrate: 7 Mbit/s

0% SSID: Maxilot | Mode: Master
BSSID: C6:18:02:00:01:12 | Encryption: WPA PSK (CCMP)

SCAN ADD DISABLE EDIT REMOVE

Associated Stations

SSID	MAC-Address	Host	Signal / Noise	RX Rate / TX Rate
No information available				

hidden 37% Channel: 1 Mode: Master BSSID: 3C:33:00:AE:1F:06 Encryption: WPA2 - PSK	JOIN NETWORK
RM 32% Channel: 1 Mode: Master BSSID: 1C:5F:2B:65:2A:D1 Encryption: mixed WPA/WPA2 - PSK	JOIN NETWORK
maxilot03_5G 27% Channel: 1 Mode: Master BSSID: 14:75:90:82:5E:40 Encryption: mixed WPA/WPA2 - PSK	JOIN NETWORK
XYH_AP 54% Channel: 2 Mode: Master BSSID: C0:61:18:CB:54:04 Encryption: mixed WPA/WPA2 - PSK	JOIN NETWORK
ChinaNet-y9pE 41% Channel: 5 Mode: Master BSSID: DC:A3:33:9D:BD:DE Encryption: mixed WPA/WPA2 - PSK	JOIN NETWORK
hidden 27% Channel: 6 Mode: Master BSSID: BC:3D:85:34:D4:0D Encryption: WPA2 - PSK	JOIN NETWORK
GV-VPN 30% Channel: 6 Mode: Master BSSID: BC:3D:85:34:D4:0C Encryption: WPA2 - PSK	JOIN NETWORK
hidden 27% Channel: 6 Mode: Master BSSID: B8:C3:85:74:0B:69 Encryption: WPA2 - PSK	JOIN NETWORK
simplewe customer 40% Channel: 10 Mode: Master BSSID: 10:C3:7B:E1:C1:51 Encryption: mixed WPA/WPA2 - PSK	JOIN NETWORK
ctf_xm 34% Channel: 10 Mode: Master BSSID: 50:64:2B:A1:4C:6B Encryption: open	JOIN NETWORK
Maxilot 41% Channel: 11 Mode: Master BSSID: C6:18:02:00:00:7C Encryption: WPA - PSK	JOIN NETWORK
maxilot01 41% Channel: 10 Mode: Master BSSID: 10:C3:7B:E1:C1:50 Encryption: WPA2 - PSK	JOIN NETWORK
maxilot4_2G 38% Channel: 11 Mode: Master BSSID: 20:AA:48:91:30:DD Encryption: mixed WPA/WPA2 - PSK	JOIN NETWORK

5.6 LoRa Config

5.6.1 Server address setting

- Status
- System
- System
- System
- Remote Control
- LED Configuration
- Backup / Flash Firmware
- Reboot
- Services
- Network
- User
- Wizard
- Logout

SSH Tunnel

Remote Control Device Over SSH.

Remote Server

Host Address:
⊙ Server IP Address

Host Port:
⊙ Remote Server Port

Tunnel

	Server Address	Remote Address	Remote Port	Local Address	Local Port	
http	<input type="text" value="maxiot"/>	<input type="text" value="*"/>	<input type="text" value="15003"/>	<input type="text" value="127.0.0.1"/>	<input type="text" value="80"/>	DELETE
ssh	<input type="text" value="maxiot"/>	<input type="text" value="*"/>	<input type="text" value="25003"/>	<input type="text" value="127.0.0.1"/>	<input type="text" value="22"/>	DELETE

[ADD](#)

5.6.2 Gateway parameters setting

- Status
- System
- Services
- Network
- Interfaces
- Wireless
- Diagnostics
- Firewall
- LoRa Gateway
- User
- Wizard
- Logout

Gateway Parameters

- General Settings
- Forward Rules
- GPS Settings
- Beacon Settings

Server Address:
⊙ Domain or IP address

Server Port (Up):

Server Port (Down):

Keep Alive Interval:
⊙ in second

Push Timeout:
⊙ in microsecond

Statistics Interval:
⊙ in second

Enable Log:
⊙ Improve performance when disable

- Status
- System
- Services
- Network
- Interfaces
- Wireless
- Diagnostics
- Firewall
- LoRa Gateway
- User
- Wizard
- Logout

LoRa Gateway1

LoRa Gateway

LoRa Gateway

- Gateway Parameters
- SX1301 Parameters
- Radio Parameters
- Channel Parameters
- Tx LUT Parameters

SX1301 Parameters

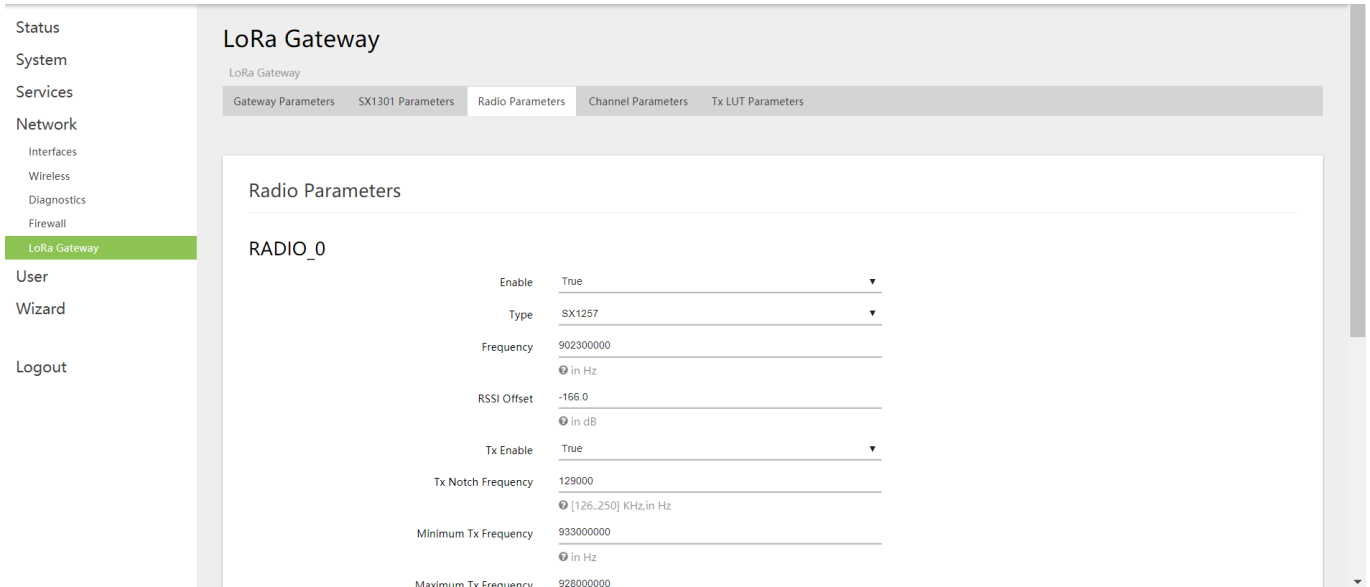
LoRaWAN is public:
⊙ radio_1 provides clock to concentrator for most devices except MultiTech. For MultiTech set to 0.

Clock Source:
⊙ Antenna Gain, in dBi

Antenne Gain:

Advanced: [SIMPLE](#)

[SAVE & APPLY](#)
[SAVE](#)
[RESET](#)



The screenshot shows the 'LoRa Gateway' web interface. On the left is a navigation menu with options: Status, System, Services, Network (with sub-items: Interfaces, Wireless, Diagnostics, Firewall), LoRa Gateway (highlighted), User, Wizard, and Logout. The main content area is titled 'LoRa Gateway' and has several tabs: Gateway Parameters, SX1301 Parameters, Radio Parameters (selected), Channel Parameters, and Tx LUT Parameters. Under the 'Radio Parameters' tab, the configuration for 'RADIO_0' is displayed as follows:

Parameter	Value
Enable	True
Type	SX1257
Frequency	902300000 in Hz
RSSI Offset	-166.0 in dB
Tx Enable	True
Tx Notch Frequency	129000 [126..250] KHz, in Hz
Minimum Tx Frequency	933000000 in Hz
Maximum Tx Frequency	928000000

5.7 Reset

Press and hold the Reset button for 5 seconds to reset the device

Factory default setting:

User name: [admin](#), Password: [Admin17](#)

Local IP address : [192.168.15.1](#)

Remote server port: [10000](#)

All wireless network cleared

6. Installation

MG6810 series gateway has 2 installation methods:

6.1 Desktop

Put the gateway on a flat surface such as the top of a table, then adjust antenna direction accordingly, which is suitable for temporary demonstration and debugging.

6.2 Wall Mounting

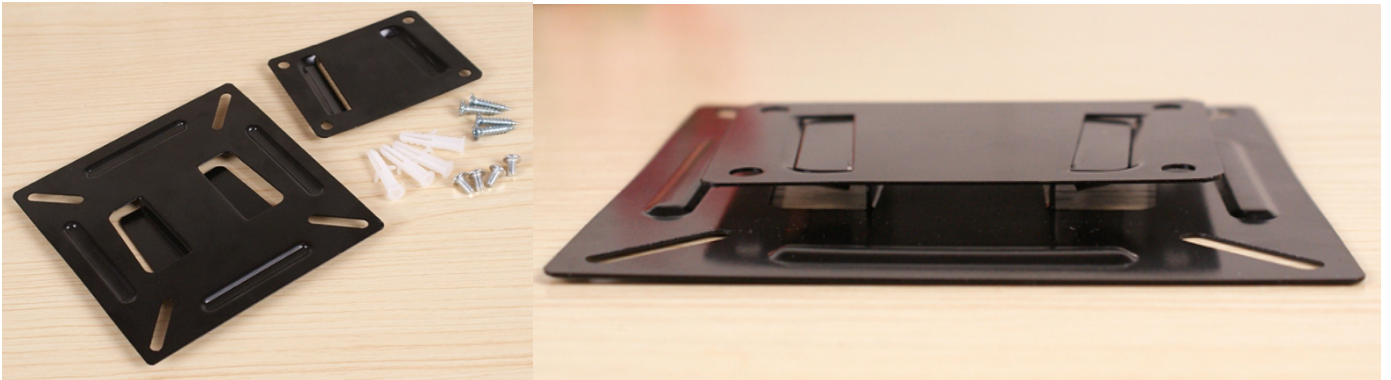
Install the gateway bracket:

Step1: Select installation position on wall and mark the locations where the screw holes for the

screws will be drilled.

Step 2 : Drill holes in the wall and plug in plastic extension pipes, then place the gateway bracket onto the marked location with holes aligned.

Step3: Tighten the screw.



Place gateway into bracket

Step1: Connect 4G /LoRa/WIFI antennas

Step2: Connect power adapter, put the SIM card into the slot, or connect the Ethernet cable. when gateway is powered on , check the LED status, make sure gateway is working normally.







Step3: Attach gateway to bracket, make the hook in the gateway align to the bracket grooves, push the gateway upward (in a direction shown with a blue arrow) and lock it to the bracket.

NOTES:

- The gateway should be handled gently without violent collisions and drops.
- The gateway should be mounted on a flat and dry surface with little dust and good ventilation.

Do not expose the gateway to rain, water leakage and any humidity.

7. Packing List

No.	Item		QTY(PCS)	Remark
1	MG6810 gateway		1	
2	Power Code		1	EU/US/CH standards optional
3	Ethernet cable		1	
4	WiFi/4G antenna		1	
5	LoRa antenna		1	
5	Wall mount bracket		1	
6	User manual		1	
7	Warranty card		1	

Gift box package, G.W:1.7KG, Dimensions: 350*300*100mm