MOKO LoRaWAN Gateway

（MKGW2-LW）

Specifications

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Contents

List of Tables

List of Figures

1 General Description

1.1 Product Description

MOKO 8 channels gateway MKGW2 is based on LoRaWAN protocol, which is embedded with Semtech's high performance multi-channel transceiver SX1301/SX1257 and MTK platform. It is for indoor use and easy for installation.

MKGW2-LW includes 2 modes: AP and STA as router, offers 2.4Ghz Wi-Fi and wired Ethernet for connecting internet. The gateway built-in OpenWRT operating system, users can flexibly configure network parameters and LoRaWAN protocol parameters through the Web management platform.

The MKGW2-LW Gateway can be connected to LoRaWAN terminals in various application nodes, collects useful information and sends the data to cloud server. And it supports POE, DC, Micro USB to provide power supply.

1.2 Product Features

- Support LoRaWAN Protocol：Class A and Class C
- Can integrate with both private and public(TTN) Network Servers
- Support WiFi 2.4GHz, compatible with WLAN 802.11b/g/n
- 100Mbase-T Ethernet with POE
- AP and STA mode as router
- Configurable via WIFI
- WEB interface for related configuration and status view
- Support one key reset
- Support download log
- Support upgrade firmware by OTA or USB
- 1xLoRaWAN Antenna, 1xWIFI Antenna
- Indoor operation temperature
- Easy for install

1.3 Application

- Smart home, Smart hotel, Smart building and Smart city
- Wireless sensor network
- Wireless remote meter reading

- Indoor smart parking solution
- Environment monitor

2 Specifications

2.1 Block Diagram
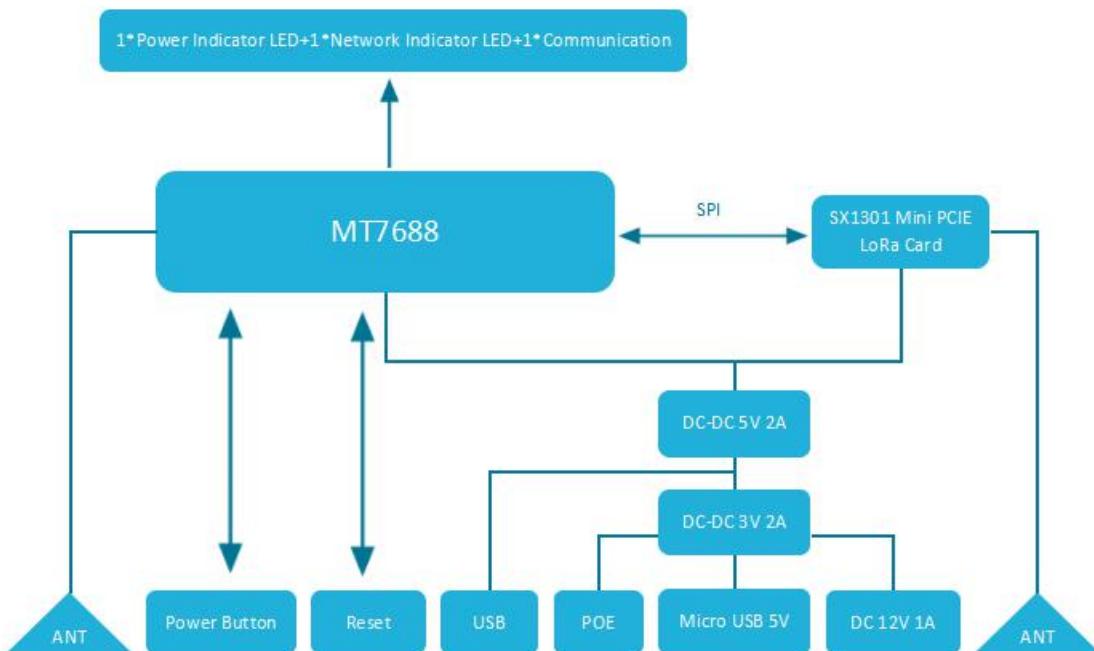
Figure1 MKGW2-LW Functional Block Diagram

2.2 Main Specifications

Category	Feature	Specification
Chipset	LoRa®	Semtech SX1301/1257
	Wi-Fi	MTK MT7688 with 128M DDR and 32M flash
Wireless Characteristics	Wi-Fi Frequencies	2.4GHz
	LoRaWAN Regions	863－870 MHz (EU), 902－928 MHz (US), AU915－928 MHz (AU915 + AS923)
Interfaces	Wired	Ethernet - RJ45 Connector
	Wireless	LoRaWAN, Wi-Fi 2.4 GHz

Software	Operating System	Embedded Linux, 3.10 Kernel version
	LoRa	Packet Network Forwarder with default support for Semtech UDP Packet forwarder
	Configuration	Web-based interface via Wi-Fi
Wireless coverage	WIFI	130M (Open Space)
	LoRa	3km (city environment)
Power Supply	DC Jack	DC 12V-1A
	POE	POE (IEEE 802.3af), 42~57VDC
	Micro USB	5V/2A
Electrical Specification	Stand By Power Consumption	Stand By Average Current ≤ 200mA@12V
	Communication Power Consumption	Communication Transmitting current≤220mA@12V Receiving current≤250mA@12V
	2.4G WIFI Transmission Power	Max 20dBm
	2.4G WIFI Sensitivity	270Mbps: -61dBm@10%PER 135Mbps: -65dBm@10%PER 108Mbps: -68dBm@8%PER 54Mbps: -68dBm@10%PER 11Mbps: -85dBm@8%PER 6Mbps: -88dBm@10%PER 1Mbps: -90dBm@8%PER
	LoRa Output Power	Max: 23dBm
	LoRa Sensitivity	-141dBm@SF12,BW=125kHz
LED	Power LED	1.System operating normally: Solid green 2.System operating abnormally: Solid red 3. System upgrade: Blink blue
	Network LED	1.No network: Solid yellow 2.ETH connection: Solid blue 3. WIFI connection: Solid green
	Communication LED	1.LoRa COMM √, Server COMM ✕: Solid blue 2.LoRa COMM x, Server COMM √: Solid yellow 3.LoRa COMM √, Server COMM √ : Solid green 4.LoRa COMM x, Server COMM x: Solid red
Antenna	WIFI antenna	1.1dBi External antenna
	LoRa antenna	1.6dBi External antenna
Environmental	Operating Temp.	-20°C to 55°C
	Storage Temp.	-40 to +85℃

Regulatory	Approvals	Under Approval FCC/CE
Dimensions Installation	Dimensions	166*105*28.4mm
	Weight	215g
	Installation	On the desktop or Fixed on the wall
Enclosure	Standard	Moulded plastic housing
Warranty	1-Year warranty	

Table 1 MKGW2-LW Main Specifications

2.3 Electrical Specifications

2.3.1 Power Supply

Item	Description
DC Jack	DC 12V-1A
POE	POE (IEEE 802.3af)
Micro USB	5V/2A

Table 2 MKGW2-LW Power Supply

2.3.2 Consumption

Item	Description
Stand by Power Consumption	Average Current $\leqslant$ 200mA@12V
Communication Power Consumption	Communication Transmitting current$\leqslant$220mA@12V Receiving current$\leqslant$250mA@12V

Table 3 MKGW2-LW Power Consumption

2.4 Hardware Interfaces
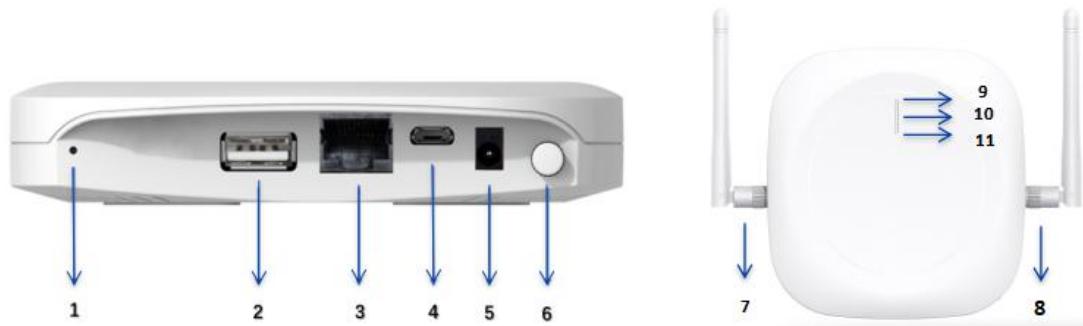
Figure2 MKGW2-LW Interface

No.	Type	Function	Remark
1	Reset button	1.Reset to factory setting 2.Firmware upgrade	1.Reset: Insert and press the button then keep 5s 2.Update: Before firmware upgrade, insert USB Flash Drive and short press the button
2	USB Port	Plug a USB flash drive with upgrade file for firmware upgrade	The name of upgrade file is required to be: MKGW2-LW-Upgrade.bin
3	POE Port	1.POE power supply 2.Ethernet Access	POE (IEEE 802.3af), 42~57VDC
4	Micro USB	USB power supply	5V/2A
5	DC Power Port	DC power supply	12V/1A
6	Power Button	ON/OFF	
7	WiFi Antenna	WiFi Antenna	1.1dBi External antenna
8	LoRa Antenna	LoRa Antenna	1.6dBi External antenna
9	Power LED	Indicate device operating status	1.System operating normally: Solid green 2.System operating abnormally: Solid red 3. System upgrade: Blink green
10	Network LED	Indicate network status	1.No network: Solid yellow 2.ETH connection: Solid blue 3. WIFI connection: Solid green
11	Communication LED	Indicate Lora and server communicate status	1.LoRa COMM √, Server COMM ×: Solid blue 2.LoRa COMM x, Server COMM √: Solid yellow 3.LoRa COMM √, Server COMM √ : Solid green 4.LoRa COMM x, Server COMM x: Solid red

Table 4 MKGW2-LW Hardware Interfaces

# 3 Mechanical Size and Package Information

3.1 Mechanical Size
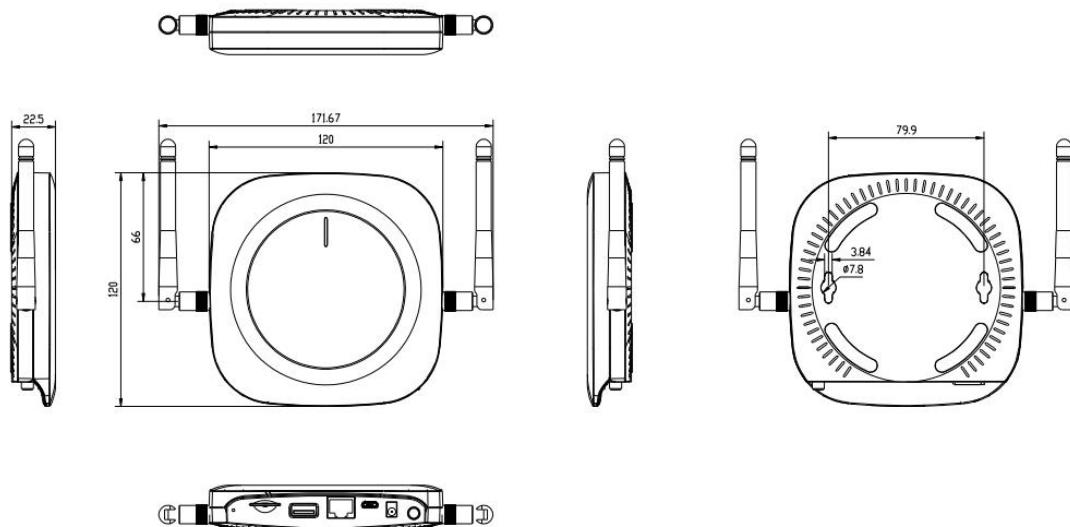
Figure3 MKGW2-LW Mechanical Size

3.2 Package Information

3.2.1 Package List

Item	Qty	Remark
MKGW2-LW	1	Gateway
WiFi Antenna	1	
Lora Antenna	1	
Micro USB cable	1	
Positioning screws	2	Used for fixing on the wall
Expansion rubber plug	2	Used for fixing on the wall
PET localizer	1	

Table 5 MKGW2-LW Package List

3.2.2 Package Information

Figure4 MKGW2-LW Package

4 User Instruction

You can login to the WEB Management page to overview the status of your gateway and configure your gateway.
For more information about the WEB Management platform and the configuration guide of the gateway, please refer to this document:
<*MOKO LoRaWAN Gateway MKGW2-LW configuration Guide*>

5 Ordering Information

Part Number	Description	Remark
MKGW2-LW-915	915Mhz Moko LoRaWAN Gateway	US915, AU915, AS923
MKGW2-LW-868	868Mhz Moko LoRaWAN Gateway	EU868, IN865

Table 6 MKGW2-LW Ordering Information

7 Revision

Version	Description	Editor	Date
1.0	Initial Version	Iris	2020/8/26
1.1	Update document format	Iris	2020/12/11

The contents of this specifications are subject to change without prior notice for further improvement.

MOKO team reserves all the rights for the final explanation.

Please contact MOKO sales team or visit https://www.mokosmart.com to get more related information if needed.

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