



Chengdu Alinkwise Future Technology Co., Ltd.

**G6xx Series Indoor LoRaWAN Gateway Specification**

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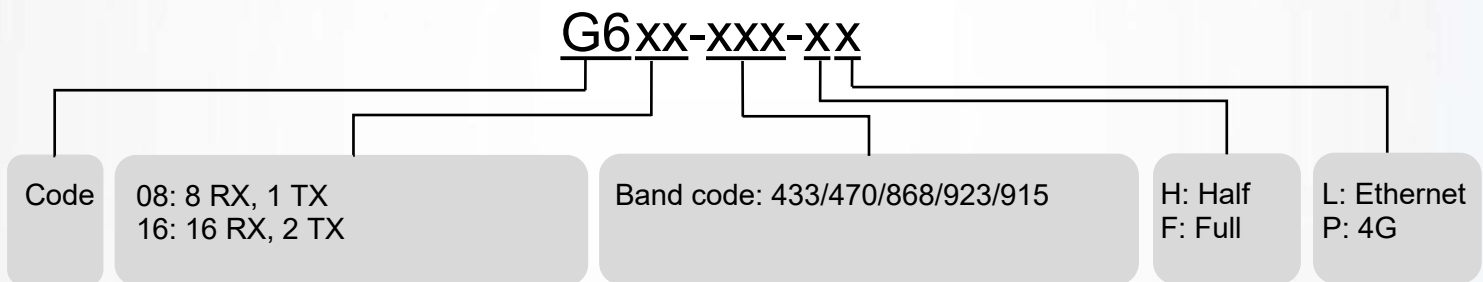
## Product Overview

The G6xx Series Indoor LoRaWAN Gateway is based on the Semtech SX1302 platform. It supports half/full-duplex LoRa communication and Ethernet, 4G, and WiFi backhaul. It can operate as a LoRaWAN packet forwarder or with an optional built-in LoRaWAN NS/AS. It supports local Web configuration, remote configuration, upgrades, and management for indoor IoT scenarios such as buildings, campuses, warehouses, and factories.

The built-in NS/AS version requires no standalone LoRaWAN Server. JS scripts enable data parsing, forwarding, linkage control, and scheduled acquisition for fast integration with user platforms.



## Model Number



## Product Features

- GWMP/MQTT access to ChirpStack, TTN, TTS, Tencent Lianlian and other LoRaWAN servers
- Built-in LoRaWAN NS/AS and JS scripting for data parsing, forwarding, linkage control and scheduled acquisition
- MQTT, HTTP, TCP, WebSocket and Modbus-RTU/TCP integration with user servers
- Global LoRaWAN frequency plans and user-defined frequencies
- LoRaWAN 1.0.2/1.0.3/1.0.4 and Class A/C
- Half/full-duplex LoRa with 8/16 RX channels and 1/2 TX channels
- Tx power up to 27 dBm; Rx sensitivity down to -140 dBm @ SF12, BW125 kHz
- Ethernet, 4G and WiFi backhaul, with data buffering during network outages
- Local Web configuration, plus local/remote upgrade and configuration

- End-device packet viewing, data statistics and network connection testing
- 4G traffic statistics and signal strength display
- LoRa range: up to 12 km line-of-sight and up to 5 km in urban areas (environment-dependent)

## Hardware Specifications

- Core parameters:
  - CPU: MT7688
  - RAM: 128 MB DDR2
  - Flash: 64 MB NAND Flash
  - Clock: 580 MHz
- LoRa concentrator: 8/16 RX channels and 1/2 independent TX channels; max Tx power 27 dBm; min Rx sensitivity -140 dBm (SF12, BW125 kHz)
- 4G: Optional Quectel EC200 (Cat 1), EC20 (Cat 4) or EG25 (global Cat 4); optional GPS timing/location customization
- WiFi: AP+STA mixed mode, IEEE 802.11b/g/n



## Software Support

### LoRa

- Class A/C
- LoRa packet forwarding
- Region settings
- Tx power settings
- Data display/statistics
- Server address/port settings
- Built-in NS/AS

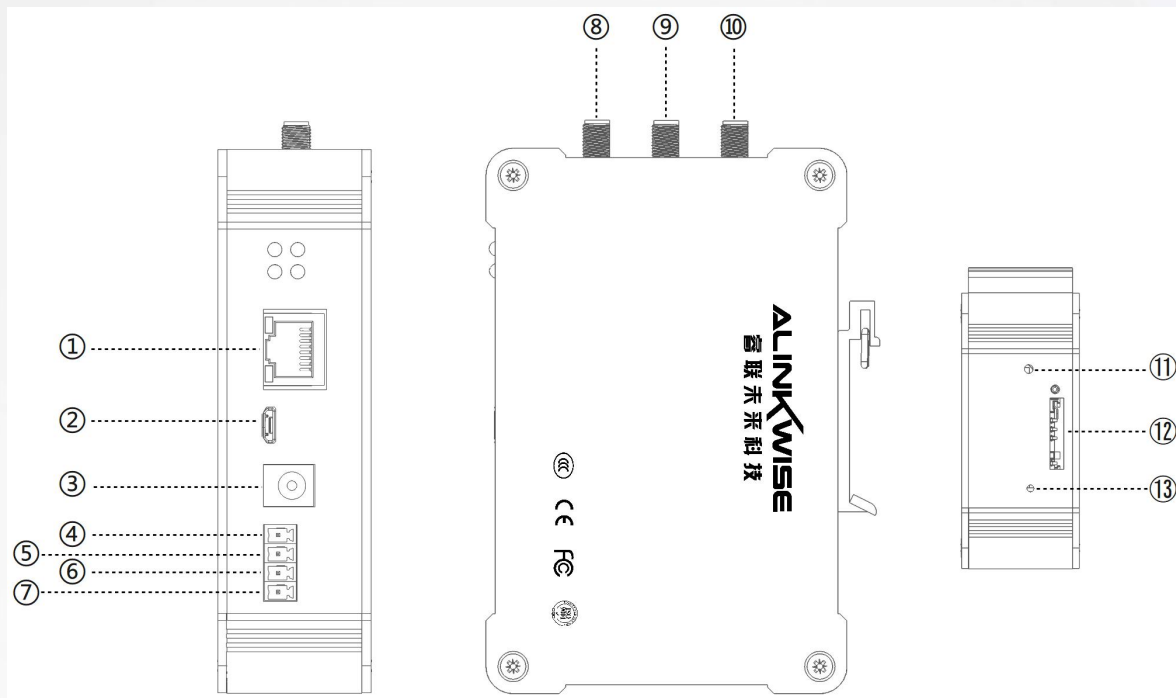
### Network

- Ethernet
- 4G
- WiFi
- UDP transport
- MQTT/HTTP/TCP
- 4G traffic statistics and signal strength display

### Device Management

- Web configuration interface
- Local and remote upgrade
- Local and remote configuration

## Interface Description



| No. | Name                      | Description                                                 |
|-----|---------------------------|-------------------------------------------------------------|
| 1   | Ethernet Port             | 10/100 Mbps RJ45 Ethernet port                              |
| 2   | Micro USB                 | USB-TTL debug port for debugging or log output              |
| 3   | Main Power Input          | DC5.5 x 2.1 mm, DC9-28 V main power input                   |
| 4   | Power + Terminal          | DC9-28 V positive power terminal, connected to main power + |
| 5   | Power - Terminal          | DC9-28 V negative power terminal, connected to main power - |
| 6   | RS485_A Port              | RS485_A                                                     |
| 7   | RS485_B Port              | RS485_B                                                     |
| 8   | LoRa Antenna Connector    | SMA external-thread, female-center LoRa antenna connector   |
| 9   | WiFi Antenna Connector    | SMA external-thread, female-center WiFi antenna connector   |
| 10  | 4G Antenna Connector      | SMA external-thread, female-center 4G antenna connector     |
| 11  | Ground                    | Metal enclosure ground                                      |
| 12  | SIM Card Slot             | 4G SIM tray, standard SIM card (2FF)                        |
| 13  | Factory Reset Button Hole | Press and hold for 3 s to restore factory settings          |

## LED Indicator Functions

| No. | Name      | Description                                                         |
|-----|-----------|---------------------------------------------------------------------|
| 1   | Power LED | Solid on: normal power; off: abnormal power                         |
| 2   | WiFi LED  | Blinking: starting; solid on: started; off: failed                  |
| 3   | 4G LED    | Slow blinking: network search/standby; fast blinking: data transfer |
| 4   | LoRa LED  | Off: not started/failed; solid on: started                          |

## Packing List

| No. | Name                   | Qty. | Description                                                                |
|-----|------------------------|------|----------------------------------------------------------------------------|
| 1   | Gateway Host           | 1    | Gateway host with DIN-rail bracket pre-installed                           |
| 2   | DC12V 2A Power Adapter | 1    | 3C-certified adapter, input AC100-240 V, output DC12 V/2 A                 |
| 3   | LoRa Antenna           | 1    | Stick antenna or magnetic-mount antenna                                    |
| 4   | WiFi Antenna           | 1    | Stick antenna or magnetic-mount antenna                                    |
| 5   | 4G Antenna             | 1    | Stick antenna or magnetic-mount antenna (not included for non-4G versions) |
| 6   | Wall-Mount Brackets    | 2    | Mounted on the back plate for wall installation                            |
| 7   | Expansion Screws       | 5    | Used with wall-mount brackets                                              |

## LoRa Specifications

| Item                 | Description                                                                                                                                      |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Output Power         | Up to 27 dBm                                                                                                                                     |
| Input Power          | Maximum input power < 10 dBm                                                                                                                     |
| Bandwidth            | 7.8~500kHz                                                                                                                                       |
| Spreading Factor     | SF7~SF12                                                                                                                                         |
| Receiver Sensitivity | -140 dBm @ SF12, BW125 kHz                                                                                                                       |
| Harmonics            | < -40 dBm @ 1 GHz                                                                                                                                |
| Frequency Range      | EU433, CN470, CN779, EU868, AS923, AU915, US915, KR920, etc.<br>Global LoRaWAN frequency plans (configured by order model and local regulations) |
| Channels             | G608: 8 LoRa RX channels, 1 LoRa TX channel<br>G616: 16 LoRa RX channels, 2 LoRa TX channels                                                     |

## WiFi

| Item                | Description                                    |
|---------------------|------------------------------------------------|
| Operating Mode      | AP+STA                                         |
| Operating Frequency | 2.4GHz                                         |
| Wireless Security   | 64/128/152-bit WEP, WPA-PSK/WPA2-PSK, WPA/WPA2 |
| Data Rate           | 150 Mbps                                       |
| WiFi Antenna        | Stick antenna or magnetic-mount antenna        |

## 4G Specifications

| Item      | Description (Common Cat 4 Version Example)        |
|-----------|---------------------------------------------------|
| BAND      | LTE FDD: B1/B3/B8; LTE TDD: B38/B39/B40/B41       |
|           | TD-SCDMA: B34/B39; WCDMA: B1/B8; CDMA1x/EVDO: BC0 |
|           | GSM: 900/1800                                     |
| Data Rate | Downlink: 150 Mbps                                |
|           | Uplink: 50 Mbps                                   |

## Electrical Specs

| Category          | Description                                       |
|-------------------|---------------------------------------------------|
| Power Supply      | DC9-28 V (typical DC12 V)                         |
| Current           | Max. 1.25 A (DC12 V supply)                       |
| Power Consumption | Average $\leq 5$ W, maximum $\leq 15$ W (@G616FP) |

## Mechanical Specs

| Item        | Description                                                |
|-------------|------------------------------------------------------------|
| Dimensions  | G608: 120.4 x 79.7 x 34 mm;<br>G616: 125.5 x 120.4 x 34 mm |
| Weight      | G608: approx. 1 kg<br>G616: approx. 1.5 kg                 |
| Temperature | -20 to +70°C (operating), -40 to +85°C (storage)           |
| Humidity    | 0-95% RH (non-condensing)                                  |

## Interfaces

| Category               | Description                        |
|------------------------|------------------------------------|
| Power Connector        | DC5.5 x 2.1 mm                     |
| Ethernet Port          | RJ45                               |
| LoRa Antenna Connector | SMA external-thread, female-center |
| 4G Connector           | SMA external-thread, female-center |
| WiFi Connector         | SMA external-thread, female-center |
| SIM Card               | Standard SIM card (2FF)            |

Revision History

| Ver.   | Date     | Description                                                            |
|--------|----------|------------------------------------------------------------------------|
| V1.0.0 | 20250715 | Initial release                                                        |
| V1.0.1 | 20250901 | Description corrections                                                |
| V2.0.0 | 20260630 | Document upgrade; product descriptions and parameter wording optimized |