

## Product Description

The Indoor LoRaWAN Gateway is a next-generation LoRaWAN gateway device designed for wide application in LoRaWAN networks, offering advantages such as low cost, high reliability, and ease of operation. This series includes multiple models supporting half-duplex or full-duplex communication, 4G data transmission, 10/100M Ethernet, RS485 passive/active output, remote configuration/upgrade/management, and an embedded web interface for local configuration.

The device integrates an SX1302 baseband processing chip for parallel 8-channel LoRaWAN data reception and 1-channel downlink transmission. It also embeds NS AS server software, eliminating the need for an external LoRaWAN server and enabling direct user data output.



## Product Features

- Supports GWMP and MQTT for seamless connection to LoRaWAN servers like ChirpStack, TTN, TTS, Tencent IoT Hub.
- Supports LoRaWAN global frequency plans and user-defined frequencies.
- Complies with LoRaWAN 1.0.2/1.0.3/1.0.4 standard protocols.
- Supports LoRaWAN Class A/C.
- Supports LoRa half/full duplex with 8 uplink channels and 1 downlink channel.
- Transmit power up to 27dBm, receiver sensitivity reaches -140dBm@SF12 BW125kHz.
- Supports Ethernet and 4G data transmission with offline data caching.
- Supports embedded LoRaWAN server for passive/active data output via 4G, Ethernet, and RS485.
- Supports local web interface configuration, local and remote upgrades/configuration.
- Supports terminal packet inspection, statistics, and network connectivity testing.
- Supports 4G data traffic statistics and signal monitoring.
- LoRa wireless communication range: 12km (line-of-sight), 5km (urban environment).

## Hardware Specifications

### ■ Key Parameters:

CPU: MT7688

RAM:128MB DDR2

FLASH:64M NandFlash

Clock Speed: 580MHz

- LoRa Concentrator: 8 Rx channels, 1 Tx channel. Max Tx power: 27dBm, Rx sensitivity: -140dBm.

- 4G: Quectel EC20 supports CAT4 network with built-in GPS timing/positioning (customized).

- WiFi: Supports AP, STA, and AP+STA modes, compliant with 802.11 b/g/n/v (customizable).



## Software Support

### LoRa

- Supports Class A/C.
- LoRa packet forwarding.
- Frequency band and regional settings.
- Transmit power adjustment.
- Data display and statistics.
- Server address and port configuration.
- Built-in NSAS.

### Network

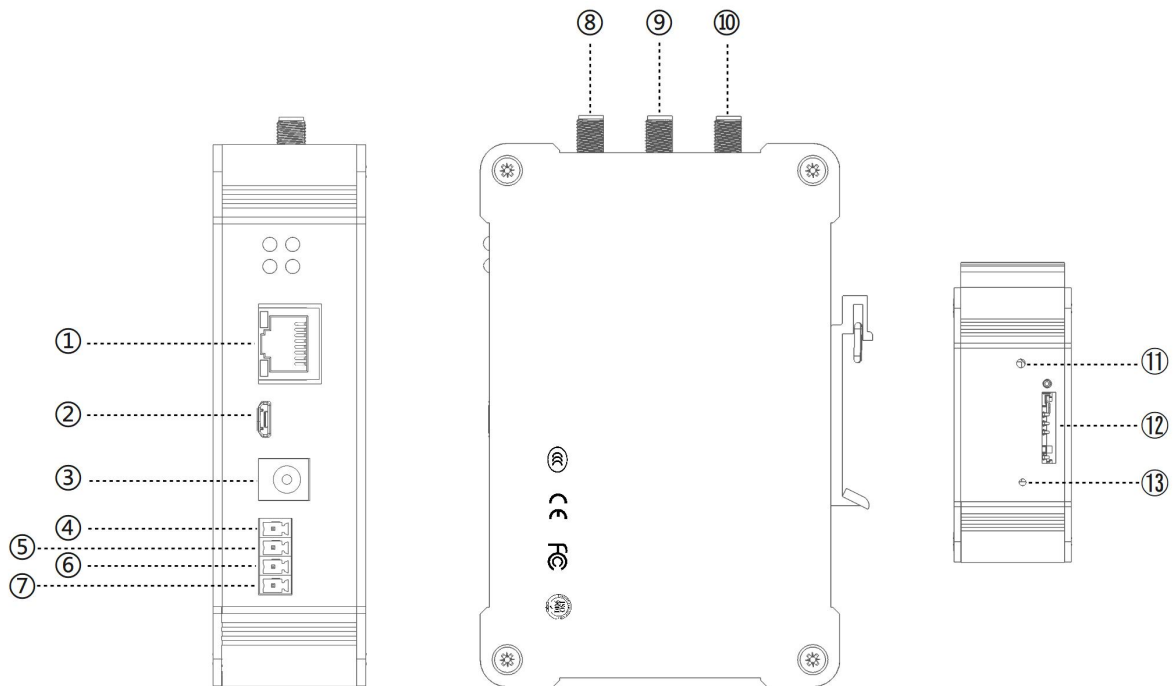
- Ethernet network.
- 4G network.
- WiFi network (customizable).
- Supports UDP transmission protocol.
- Supports MQTT transmission protocol (optional CA).
- Supports 4G traffic statistics and signal strength display.

### Device Management

- Web-based configuration and management interface.
- Supports local and remote upgrades.
- Supports local and remote configuration.

# Indoor LoRaWAN Gateway Specification

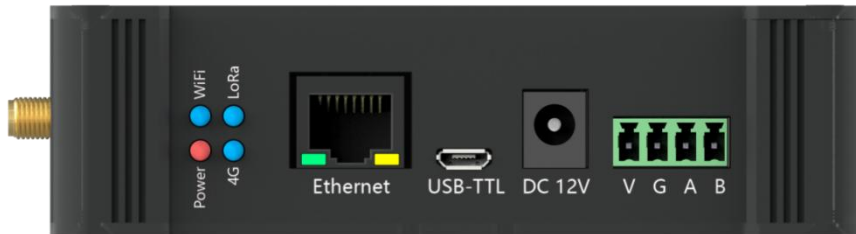
## Interface Description



No.	Name	Description
1	Ethernet Port	10/100M RJ45 interface.
2	Micro USB	USB-TTL interface for debugging or data logging.
3	Main Power Input	DC5.5×2.1mm, DC9–28V power input.
4	Positive Terminal	DC9–28V positive terminal, connected to main power positive.
5	Negative Terminal	DC9–28V negative terminal, connected to main power negative.
6	RS485_A	RS485_A
7	RS485_B	RS485_B
8	LoRa Antenna Port	SMA female connector for LoRa antenna.
9	WiFi Antenna Port	SMA female connector for WiFi antenna.
10	4G Antenna Port	SMA female connector for 4G antenna.
11	Ground	Metal casing grounding.
12	SIM Card Slot	Standard SIM card slot for 4G data card.
13	Reset Button	Factory reset (press and hold for 3 seconds).

# Indoor LoRaWAN Gateway Specification

## LED Indicator Functions



No.	Name	Description
1	Power LED	Solid on: Normal power supply. Off: Insufficient voltage or damage.
2	WiFi LED	Blinking: WiFi initializing. Solid on: WiFi active. Off: WiFi failure.
3	4G LED	Slow blink (200ms on/1800ms off): Searching network. Slow blink (1800ms on/200ms off): Standby. Fast blink: Data transmission.
4	LoRa LED	Off: LoRa starting or failed. Solid on: LoRa active.

## Accessories List

No.	Name	Qty	Description
1	Gateway Host	1	Pre-assembled with mounting bracket.
2	DC12V 2A Adapter	1	3C-certified adapter, input 100–240V/50–60Hz, output DC12V 2A.
3	LoRa Antenna	1	Blade or suction cup antenna.
4	WiFi Antenna	1	Blade or suction cup antenna.
5	4G Antenna	1	Blade or suction cup antenna (excluded in non-4G versions).
6	Wall-Mount Brackets	2	Mounted on the gateway backplate for wall installation.
7	Expansion Screws	5	For wall-mount bracket installation.

# Indoor LoRaWAN Gateway Specification

## LoRa Parameters

Parameter	Description
Tx Power	-1~27dBm
Rx Power	<10dBm
Bandwidth	7.8~500kHz
Spreading Factor	SF7~SF12
Rx Sensitivity	-140dBm@SF12 BW125kHz
Harmonics	<-40dBm @ 1GHz
Frequency Range	EU433 , CN470 , CN779 , EU868 , AS923 , AU915 , KR920
Channels	Half/Full Duplex, 8 Rx Channels, 1 Tx Channel

## WiFi Parameters

Parameter	Description
Operation Mode	STA/AP/STA+AP
WDS Function	Supports WDS Wireless Bridging
Wireless Security	64/128/152-bit WEP, WPA-PSK/WPA2-PSK, WPA/WPA2 Security
Speed	150Mbps
WiFi Antenna	Rod Antenna

## 4G

Parameter	Description
BAND	LTE FDD:B1/B3/B8 LTE TDD:B38/B39/B40/B41
	TDSCDMA:B34/B39 WCDMA:B1/B8 CDMA:1x/EVDO:BC0
	GSM:900/1800
Speed	Uplink: 150Mbps
	Downlink: 50Mbps

# Indoor LoRaWAN Gateway Specification

## Electrical Parameters

Parameter	Description
Power Supply	DC12V 2A
Current	Max . 1.2A
Power Consumption	Average ≤5W, Max 15W

## Physical Characteristics

Characteristic	Description
Dimensions	120.4×79.7×34mm
Weight	约1kg
TH	-20~70°C (Operating), -40~85°C (Storage) ;0~95% (Non-condensing)

## Interface

Category	Description
Power Interface	DC5.5*2.1mm
Ethernet Port	RJ45
LoRa Antenna Port	SMA
4G Port	SMA
WiFi Port	SMA
SIM Card	Standard Size
RS485	3.81mm × 4P Terminal