

GDO31X outdoor gateway User Manual

1. Product Introduction

1.1 Product Description

GDO31X is an outdoor multi-channel high-performance gateway designed by Manthink for LoRaWAN system. It is not only applicable to the construction of various low-power networks such as cities, factories and parks, but also applicable to data collection and transmission in

harsh environments such as deserts, grasslands and Gobi. Due to its strong processing capability and flexible secondary development environment, it can also play an important role in the new generation of technology times such as edge computing, AI and big data.

1.2 Application fields

GDO31X is mainly applicable to applications with long distance and ultra-low power consumption, such as wireless meter reading, sensor network and other IOT applications.

1.3 Main Characteristics

- The shell adopts die-cast aluminum structure, which is simple and thick, with strong oxidation resistance and good waterproof and dustproof performance.
- The external antenna adopts RF N-type connector, which has high reliability, strong vibration resistance and excellent mechanical and electrical properties.
- POE interface adopts customized RJ-45 waterproof connector, giving consideration to reliability and convenience.
- Up to -142dBm receiving sensitivity
- Supports up to 8 upstream channels and 1 downstream channels
- Support LoRaWAN ISM Band in major countries and regions around the world
- Supports all protocol modes (ClassA, B, and C) at the LoRaWAN mac layer.
- High-performance MCU and high-speed memory
- Secure and reliable data transmission through SSL and MD5
- Seamlessly connect to the world's mainstream LoRaWAN Server
- Flexible and customized development based on linux operating system

2. Product parameters

2.1 Exterior



GDO31X shell adopts die-cast aluminum structure, which is simple and thick, with strong oxidation resistance and good waterproof and dustproof performance. The external antenna adopts RF N-type connector, which has high reliability, strong vibration resistance and excellent mechanical and electrical properties. POE interface adopts customized RJ-45 waterproof connector, giving consideration to reliability and convenience.

2.2 Dimension

SOC · LS1012A 64-bit ARM Cortex-A53 800MHz 2W

Memory Support DDR3L 1066 MHz · Memory:512MB

Storage · 4GB EMMC

Ma	LoRa · working band [1]: EU868 863M~870MHz US 902M~928MHz ·
Ma	Communication Rate: 292bps ~ 5.4kbps, SF7 ~ SF12 supported ·
Ma	Transmit power: 25dBm Max ·
Ma	Antenna type: omnidirectional
Ma	Antenna gain: 6.09dBi
	Channel and operating mode [2]: only 8 channels and half duplex are supported ·
	Single channel bandwidth: 125KHz
	BackHaul · Ethernet: 1000M/100M/10M ·
	Configure port · USB · Ethernet
Ma	Power supply · POE(48V)
	Power consumption of the whole machine · 5W
	Environmental parameters · working temperature:-40°C ~ 65°C
	Working humidity: 0% ~ 95% RH ·
	Waterproof and dustproof: IP67 ·
	Lightning protection: GB50343-2004 Class B
Ma	Weight 1.9KG
	Size · 221x182x75mm

[1]:AS923 includes multiple countries with slightly different frequency bands and is not listed in detail.

3. Instructions

3.1 equipment preparation

- (1) 1 GDO31X Gateway
- (2) a 64-bit Windows 7 PC is pre-installed

3.2 Gateway DevEUI

The Gateway DevEUI can be read on the Gateway side label.

3.2 Connection mode

The connection method of the Gateway is as follows:



Note:

- The long white antenna on the lower side is LORA antenna.
- One end of the network cable is connected to the POE interface of the Gateway, and the other end is connected to the OUT port of the POE power supply.

3.3 Environment preparation

- Ensure that nodes are working within the Gateway coverage.

3.4 Start using

By default, the Gateway uses DHCP to obtain the network address.

If there are no special requirements (such as using an internal fixed IP address), the gateway enters the normal operation mode when it is powered on. The method for verifying whether the gateway is working properly is as follows.

- (1) Turn on POE power supply
- (2) Add a gateway to the NMS platform to view the gateway status and upstream data. For more information about how to use the NMS platform, see the link below. [《UG_SW01-NMS platform instructions》](#)

4. Ordering information

4.1 precautions

GDO31X is an outdoor gateway . Please read the [《Purchase Note》](#) carefully.

5. Default gateway frequency

For more information, see the documentation: [《Default Frequency of ManThink's products》](#)

6. Contact us

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FCC STATEMENT :

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.

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

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 Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.