



HT-M02_V2

LoRa Gateway





document version

Version	Time	Description
Rev. 1.0	2022-11-16	Preliminary version

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1. Description

1.1 Overview

In practice, the working environment of the equipment may not be as good as expected, on the contrary, it may be very bad ... For example, in the industrial environment, the site may have tremendous vibration, noise, dust, high temperature, and other issues. In the city environment, sunshine and rain, low temperature in winter and high temperature in summer are always unavoidable.....

HT-M02 considers and solves all the above problems and design strictly with industrial standards, Integrated Linux Operating System (4.19 Kernel, Debian Stretch 10). IP66 waterproofing, no fan or motor heat dissipation structure, ROCKCHIP Cortex-A55 quad-core 64-bit processor, 2G DDR4 RAM, 32G eMMC 5.1 ROM, support Micro TF card expansion. Support DC power supply and PoE power supply, support 4G(cat.1, cat.4), WiFi / Bluetooth, it is convenient for users to apply in different scenarios.

HT-M02_V2 are available in three product variants:

Table 1.1 Product model list

No.	Model	Description
1	HT-M02_V2-470T510	470~510MHz working LoRa frequency, used for China mainland (CN470) LPW band.
2	HT-M02_V2 -863T870	863~870MHz working LoRa frequency, used for EU868, IN865 LPW bands.
3	HT-M02_V2-902T923	902~923MHz working frequency, used for AS923, US915, AU915, KR920 LPW bands.

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1.2 Product features

- CE & FCC Certificate
- CPU: ROCKCHIP architecture A55 quad-core 64 - bit processors
 - ✧ Standard 2G DDR4 RAM + 32G eMMC 5.1 ROM. Customizable RAM:2G/4G; ROM: 8G/16G/32G/64G/128G.
 - ✧ Pre-loaded with Linux (4.19.219 Kernel, aarch 64) Debian 10 operating system
 - ✧ Pre-installed Docker and can be easily according to the actual demand of deployment of TTS V3, ChripStack, a variety of applications such as database;
- LoRa: SX1303 + SX1250 chipsets, support 433 ~ 510 MHZ, 863 ~ 928 MHZ
 - ✧ Maximum output: 433 ~ 510:21 + 1 DBM; 863 ~ 928:26 + 1 DBM
 - ✧ Receiving sensitivity: - 139dbm
 - ✧ Support standard LoRaWAN CLASS A, CLASS C
- Ethernet: 10M/100M
- Matching
 - ✧ 4G(CAT.1/CAT.4)
 - ✧ WiFi & Bluetooth
 - ✧ PoE
- Heat dissipation: adopting cooling fan and the motor structure, through unique thermal conductive device transfer heat to aluminum shell, strengthen heat dissipation, commissioning more stable
- Waterproof and dustproof: IP66
- Working temperature: - 20~70 ° C

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- Interface
 - ✧ Ethernet interface
 - ✧ 4.5~17V DC input interface (standard 12V power adapter)
 - ✧ Debug serial port
 - ✧ USB Type - C interface
 - ✧ SIM card interface (equipped with 4 g version only)
 - ✧ SD card interface
 - ✧ Upgrade button
 - ✧ SMA antenna interface: LoRa antenna interface*1, 4G antenna interface*1
(equipped with 4G version only), WiFi & Bluetooth antenna interface
(equipped with WiFi & Bluetooth version only)
- Size: 125 (+40) * 125 * 52 mm
- Encryption chip

2. Specifications

2.1 General specification

Table 2.1 General specification

Parameters	Description
Master Chip	ROCKCHIP architecture A55 quad-core 64 - bit processors
RAM	2G DDR4
ROM	32G eMMC 5.1
LoRa Chipset	SX1303+SX1250
Frequency	433~510 MHz, 863~928 MHz
Max. TX Power	433~510: 21 ± 1 dBm, 863~928: 26 ± 1 dBm
Max. Receiving sensitivity	-139 dBm
Wi-Fi/ Bluetooth (Optional)	802.11 b/g/n, 2.4, BT V4.0(HS)
4G(Optional)	CAT.1, CAT.4
Interface	4.5~17V DC interface; ETH interface; SIM card slot; Micro TF card slot; SMA antenna socket*3(LoRa, 4G, WiFi/Bluetooth); Type-C USB; UART Header; Recovery key.
Protection Level	IP66
Operating temperature	-20 ~ 70 °C
Dimensions	125(+40) x 125 x 52 mm

2.2 Operating conditions

2.2.1 Power supply range

Table 2.2: Power supply range

Power supply mode	Minimum	Typical	Maximum	Company
DC powered (≥500mA)	4.5	12	17	V
PoE powered (≥500mA)		51		V

*Note: When PoE and DC interfaces are connected at the same time, DC power supply is preferred.



2.2.2 Power consumption

Table 2.3: Working current

Condition	Min. ^①	Typical	Max. ^②
8 Channel Listening (Receive mode)			
LoRa 14dB Output			
LoRa 17dB Output			
LoRa 22dB Output			
LoRa 27dB Output			

2.3 LoRa RF characteristics

2.3.1 Transmit power

Table 2.3.1: Transmit power

Operating frequency band	Maximum power value/[dBm]
470~510	21 ± 1
867~870	26 ± 1
902~928	26 ± 1

2.3.2 Receiving sensitivity

The following table gives typically sensitivity level of the HT-M02_V2 LoRa gateway.

Table 2.3.2: LoRa RF characteristics

Signal Bandwidth/[KHz]	Spreading Factor	Sensitivity/[dBm]
125	SF12	-139
125	SF10	-130
125	SF7	-124

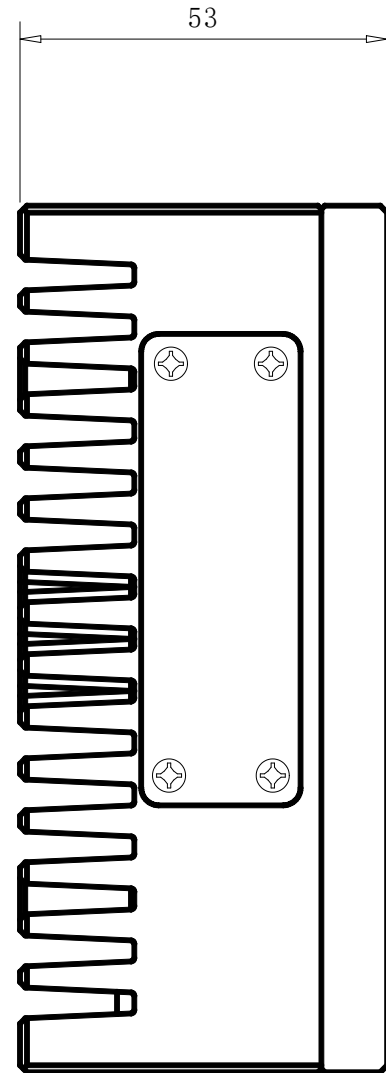
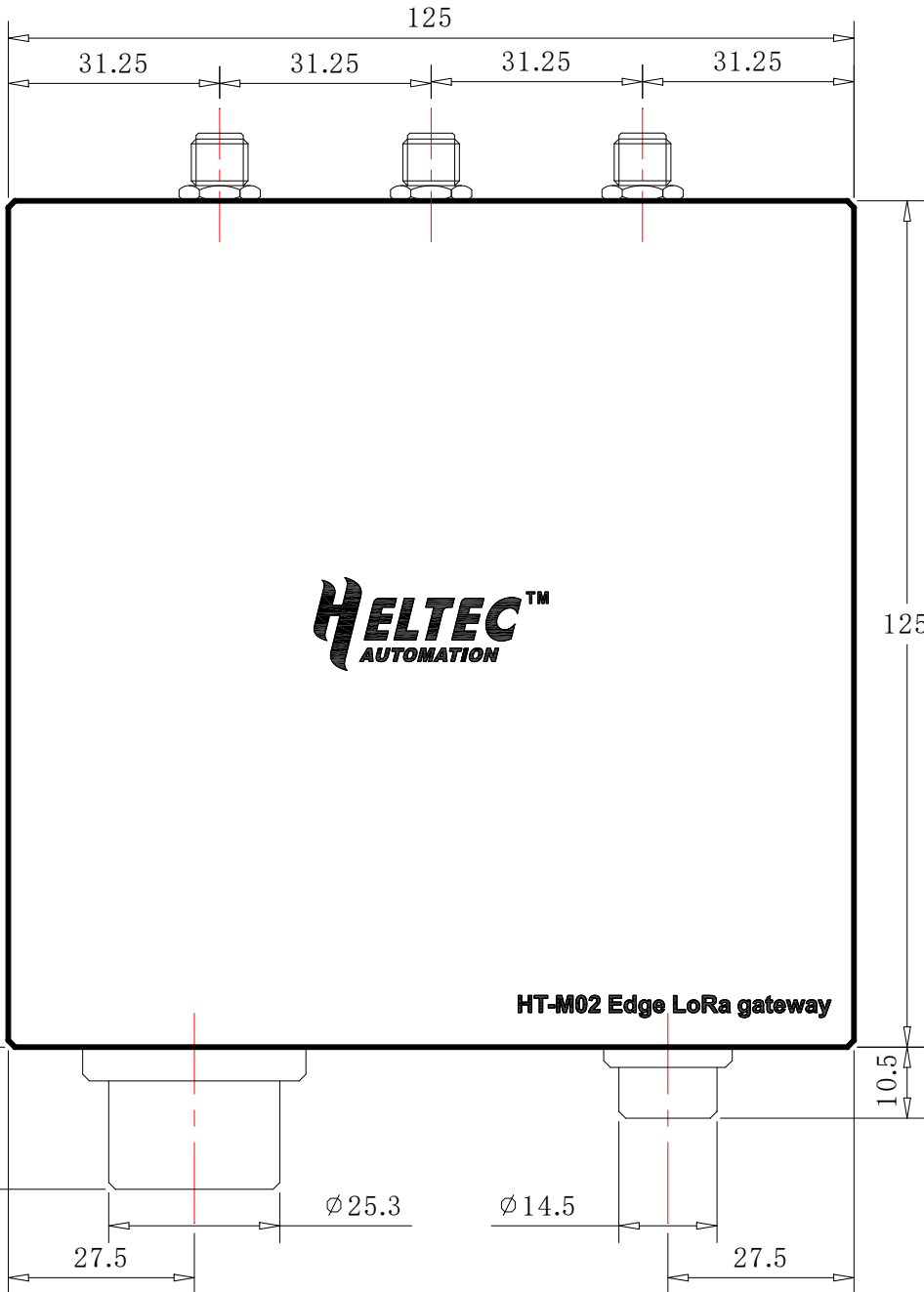
① Measured when connected to the Internet via Wi-Fi mode.

② Measured when connected to the Internet via ethernet mode.



3. Typical hardware connections

3.1 Physical dimensions





4. Resource

4.1 Relevant resource

- Operation user manual:
- Downloadable Resources:

4.2 Heltec Contact Information

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