



HT-M7603

Indoor LoRa Gateway



Document version

| Version | Time | Description | Remark |
|----------|-----------|---------------------------|---------|
| Rev. 1.0 | 2023-5-16 | Preliminary version | Richard |
| Rev.1.1 | 2024-5-21 | Add a description of MQTT | Richard |

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1. Description

1.1 Overview

HT-M7603 is a high cost-effective indoor standard LoRaWAN gateway, which also support private MQTT protocols^①. It can be used independently or as a blind filling gateway. With simple configuration, it allows you to bridge LoRa wireless networks to IP networks and different network servers via Wi-Fi or Ethernet.

This gateway has a sleek, contemporary design. It is wall-mounted, can be easily placed anywhere indoor to ensure that it provides adequate signal coverage.

HT-M7603 are available in three product variants:

Table 1.1 Product model list

| No. | Model | Description |
|-----|-------------------------|--|
| 1 | HT-M7603-470T510 | 470~510MHz working LoRa frequency, used for China mainland (CN470) LPW band. |
| 2 | HT-M7603-863T870 | 863~870MHz working LoRa frequency, used for EU868, IN865 LPW bands. |
| 3 | HT-M7603-902T923 | 902~923MHz working frequency, used for AS923, US915, AU915, KR920 LPW bands. |

^① Nodes need to run the corresponding private MQTT protocol.

1.2 Product features

- MT7628 MCU, SX1303 + SX1250 Chipset.
- Wi-Fi and Ethernet supported.
- Maximum output: $27 \pm 2\text{dBm}$.
- The power supply voltage: 5V.
- Strong performance, good stability and long transmission distance.
- Easy to configuration on the Web UI by connecting to the device Wi-Fi or IP address.
- Light and fashionable, wall-mounted, simple to install.
- -20°C to 70°C maximum operating temperature range.
- Support **LoRaWAN Class A, Class C, custom MQTT** protocols.
- Working bands: Full band coverage corresponds to the working frequency option.

Table1.2: HT-M7603 setting page

| HT-M7603 | | Status | System | Logout |
|--|---|--------|--------|--------|
| Status | | | | |
| MAC_ETH |  1:5D | | | |
| MAC_WLAN |  1:5E | | | |
| Lora Status | Running | | | |
| Region | EU868 | | | |
| Switch Region | EU868 | | | |
| Gateway Mode | LoRaWan packet forwarder | | | |
| Server Address | lora.heltec.org | | | |
| Port Up | 1700 | | | |
| Port Down | 1700 | | | |
| Gateway ID | 2115D | | | |
| <input type="button" value="Set Gateway"/> | | | | |

<https://heltec.org>

2. Specifications

2.1 General specification

Table 2.1 General specification

| Parameters | Description |
|--|-------------------------------------|
| MCU | MTK7628 |
| LoRa Chipset | SX1303 + SX1250 |
| Multi-channel | Eight (8) uplink, one (1) downlink. |
| Frequency | 470~510/863~870/902~923MHz |
| Wi-Fi | IEEE 802.11 b/g/n 2.4GHz |
| Ethernet | 10/100M |
| Max. Receiving. sensitivity | -139dBm |
| Max. TX Power | +27 ± 2dBm |
| Supply voltage | 5V DC |
| Power consumption | See Table2.2.2 |
| Operating temperature | -20 ~ 70°C |
| Operating humidity | 10%～90%, no-condensing |
| Dimensions | 116*65*30 mm |

2.2 Operating conditions

2.2.1 Power supply range

Table 2.2.1: Power supply range

| Parameter | Min. | Typical | Max. | Unit |
|--------------------------------|------|---------|------|------|
| Device operating input voltage | 4.80 | 5.00 | 6.00 | V |

2.2.2 Power consumption

Table 2.2.2: Working current

| Mode | Condition | Min | Max |
|------------------|--------------------------------|-------|-------|
| Active-Mode (RX) | ETH | 170mA | 190mA |
| | Wi-Fi | 200mA | 250mA |
| Active-Mode (TX) | TX power is 27dBm @ 5V supply. | 400mA | 450mA |

2.3 RF characteristics

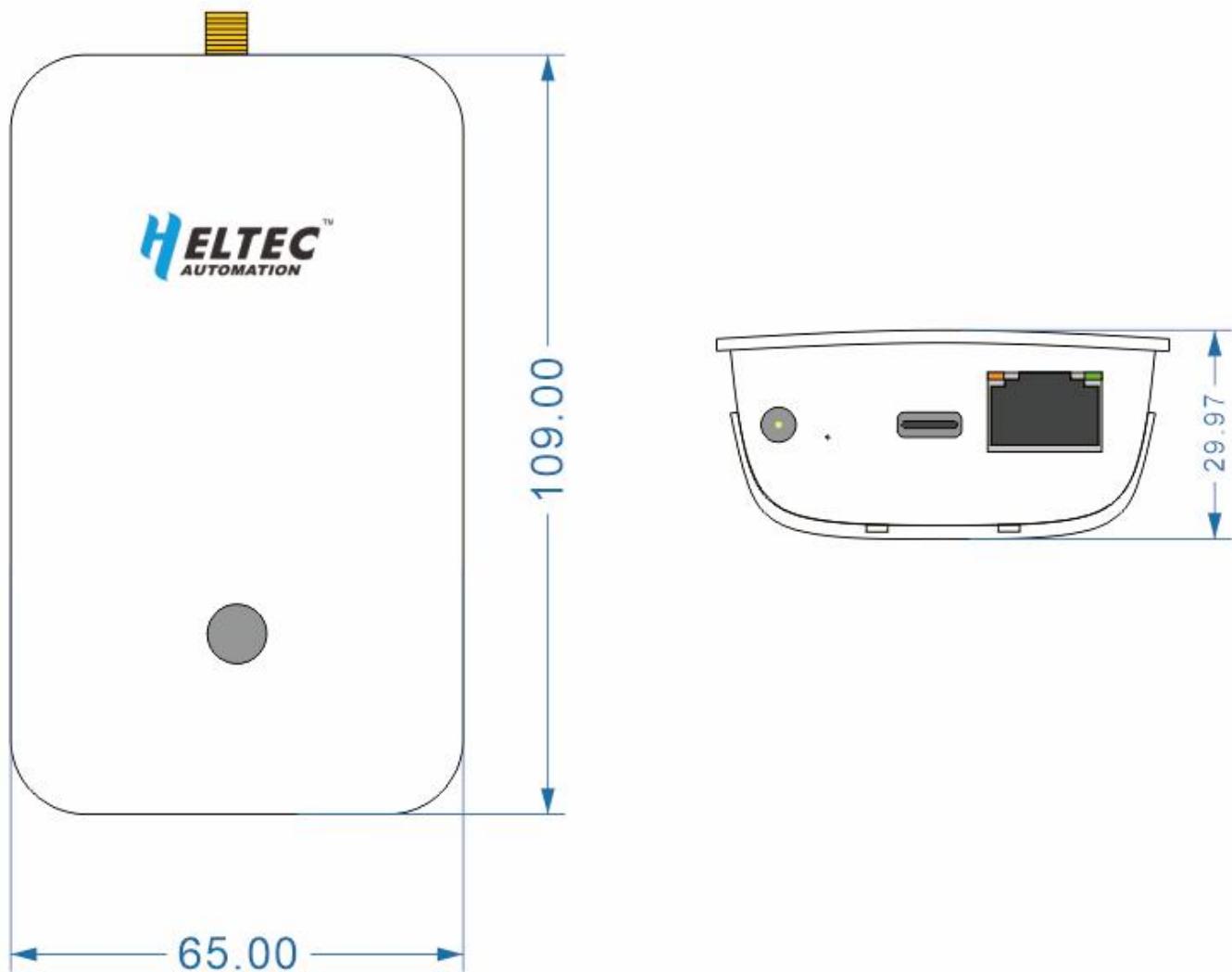
The following table gives typically sensitivity level of the HT-M7603 Indoor LoRa Gateway.

Table 2.4: LoRa RF characteristics

| Signal Bandwidth/[KHz] | Spreading Factor | Sensitivity/[dBm] |
|------------------------|------------------|-------------------|
| 125 | SF12 | -139 |
| 125 | SF10 | -134 |
| 125 | SF7 | -125 |
| 125 | SF5 | -121 |
| 250 | SF9 | -124 |

3. Typical hardware connections

3.1 Physical dimensions



4. Resource

4.1 Relevant resource

- Heltec LoRaWAN test server based on TTS V3:

<https://lora.heltec.org/>

- HT-M7603 Documents Page:

<https://docs.heltec.org/en/gateway/ht-m7603/index.html>

- HT-M7603 FAQ:

https://heltec-hotspot-docs.readthedocs.io/en/latest/hotspot_faq.html

4.2 Heltec Contact Information

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