

JOOBY Outdoor Gateway LoRaWAN 300 EU

Manual



INTRODUCTION

This data sheet contains information on the purpose, structure, operation and key technical characteristics of the Jooby Indoor/Outdoor Gateway LoRaWAN (hereinafter—Gateway or Device).

This manual will guide you through the installation, operation, and maintenance of the Gateway.

The model description can be found in Table 1.

Model Description

Table 1

JOOBY Outdoor Gateway LoRaWAN 300 EU	
Data transmission technology	LoRaWAN, LTE
LoRaWAN radio frequency band, MHz / LoRaWAN standard	863–873 / EU 868
LoRaWAN transmitter's radiated power, max mW	25
LTE transmitter's radiated power, max mW	Class 4 (33 dBm ±2 dB) for EGSM900 Class 1 (30 dBm ±2 dB) for DCS1800 Class E2 (27 dBm ±3 dB) for EGSM900 8-PSK Class E2 (26 dBm ±3 dB) for DCS1800 8-PSK Class 3 (23 dBm ±2 dB) for LTE-FDD bands
LTE frequency band, Upload/Download, MHz	TE-FDD upload = 1920-1980/1710-1785/2500-2570/ 880-915/832-862; LTE-FDD download = 2110-2170/1805-1880/2620-2690/925-960/791-821 GSM = 900/1800
Built-in LTE antenna gain, dBi	-3.1
External LoRaWAN antenna gain, dBi	8
Channels quantity	8
Connection type	Ethernet 10/100
Special features	RS-485 (optionally)
Operating temperature	from -40 °C to +60 °C
Case sealing class	IP67

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PURPOSE AND TECHNICAL CHARACTERISTICS

The Gateway can perform the following functions, depending on its model:

- The Gateway is an autonomous device, powered via Ethernet (PoE 802.3 af/at, class 4). The Gateway can also be powered by an internal battery in absence of external power (optionally). The battery, in turn, can be charged with a built-in charger (optionally).
- The Gateway communicates with radio modules using the LoRaWAN interface over 8 (optionally 16) communication channels with SF5-SF12 modulation at 868 Mhz frequency.
- Connection with the LoRaWAN Network server can be established via Ethernet, LTE-FDD, EDGE, or GPRS networks (optionally WiFi), depending on the model.
- The Gateway has a USB port to install software from a flash drive if its existing software is malfunctioning.
- The Gateway is designed in a rectangular plastic case. The control module is located inside. Its LED-pcb board indicates the status of the Device's power supply and the operation of its interfaces (see Table 2.1 and Fig. 1).
- Time precision is ensured by the built-in GNSS module and NTP servers within the network, complemented by RTC (real-time clock) error compensation based on environmental temperature. In absence of external power, the Gateway's clock is powered by a lithium battery.
- Automatic software updates from the update server if a new version or settings are available.
- The Gateway has a web UI for remote setup and device management.

Gateway indicators guide

Table 2.1

LED name	Color	Description and purpose
POWER/DC_IN	green	Connected to 15V power source
SYSTEM/STATUS	green red	CPU mode —active mode —power-saving mode
LoRaWAN/1	blue	1. Off—LoRa1 module offline 2. On—LoRa1 module online 3. Flashing—LoRa1 module is active
LoRaWAN/NET	green	LoRa server connection established
LAN/LINK	green	Connected to Ethernet
LAN/ACT	yellow	Ethernet activity
LTE_STATUS	green	On if the module operates as intended
LTE_NET	yellow	GSM modem activity: 1. Off—GSM modem offline 2. On for 200 ms, off for 1,800 ms—looking for network 3. On for 1,800 ms, off for 200 ms—idle 4. Flashing (eight flashes per second)—receiving and sending data
1PPS	green	1. Off—inactive 2. Flashing once per second—active
RS 485	green red	—Receiving data via RS485 —sending data via RS485 —off—RS485 is offline
LoRaWAN/2*	blue	1. Off—LoRa2 module offline 2. On—LoRa2 module online 3. Flashing—LoRa2 module is active
POWER/PoE*	green	Powered via Ethernet
GPS*	green	1. Off—inactive 2. On—active
WLAN*	green	1. Flashing once per second—connection terminated 2. On—connected successfully 3. Flashing rapidly—receiving and sending data
POWER/BAT*	green red	Battery charge: —battery charged —battery charging
SYSTEM/ALARM*	red	Unauthorized case opening

*optional

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See Table 2.2 for the Gateway's technical characteristics

Table 2.2

Attribute	UOM	Value
PoE voltage range	V	42...57
Active power consumption, less or equal	W	10
Total power consumption, less or equal	V•A	10
Absolute clock error per day, less or equal	s	2
Standard clock deviation per day at 25 °C	s	± 0.5
Lithium battery service life (normal operation / no power)	year / hour	10 / 20 000
Dimensions	mm	242 x 166 x 66
Weight, less or equal	kg	1.5

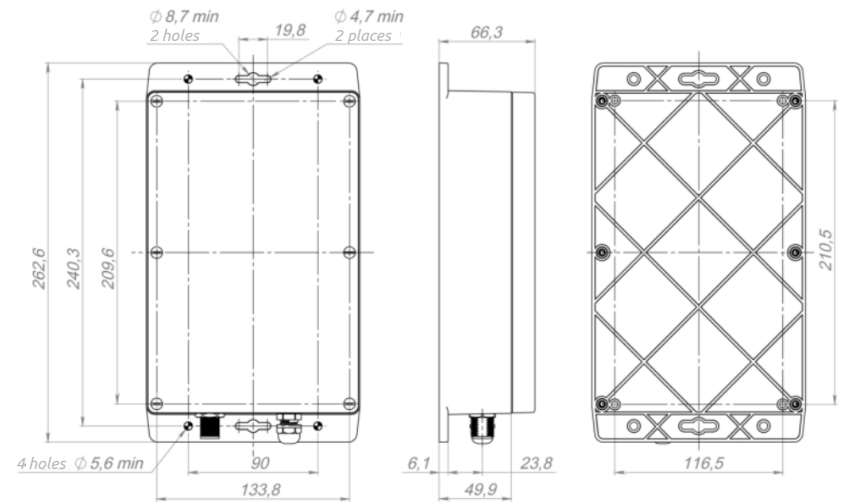
- Users can read the following main parameters from the Dashboard: Gateway external panel indicators; CPU temperature and Gateway internal temperature; tamper and charging statuses; LoRaWAN network analytics; status of other network interfaces.
- Gateway access can be configured via a web UI or SSL for either a single network interface or all of them.
- Users can check the system error log.
- Gateway settings can be saved and restored.
- Vandalism prevention—custom factory settings prevent theft and further operation of the device.
- Gateway settings can be reset to custom or general factory settings, depending on the device. In addition, users can apply custom settings (user passwords, network parameters, etc.).

The Gateway is intended for continuous 24/7 operation both indoors and outdoors.

If operating conditions are met, the device is resistant to environmental temperatures ranging from -40 °C to +60 °C and relative humidity of 90% at 25 °C. Mean time to failure with a failure probability of 0.8—at least 24 000 hours.

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Figure 1—Gateway appearance, overall dimensions, and installation dimensions



PARTS LIST

Name	Quantity
Gateway	1 pcs
Manual	1 copy
Mounting bracket	4 pcs
Packaging	1 pcs

Note. Can be shipped in multi-piece transport packaging

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