

WisMesh Station Datasheet

Overview

Description

WisMesh Station is a Raspberry Pi 4B-based Meshtastic platform available in standard and high-power variants. It combines the RAK6421 WisMesh Pi HAT, RAK12501 GNSS module, and a LoRa transceiver module to provide long-range wireless communication and location tracking.

The following sections provide hardware, electrical, and mechanical specifications for the device.

Model Variants

Feature	RAK8622 (WisMesh Station)	RAK8623 (WisMesh Station High Power)
Platform	Raspberry Pi 4B	Raspberry Pi 4B
WisMesh Pi HAT	RAK6421	RAK6421
GNSS Module	RAK12501	RAK12501
LoRa Module	RAK13300	RAK13302
Maximum TX Power	22 dBm	30 dBm

Specifications

Parameter	Value
Platform	Raspberry Pi 4B
RAM	2 GB
LoRa Module Options	RAK13300 / RAK13302
Frequency Bands	Depends on LoRa module variant
Maximum TX Power	22 dBm / 30 dBm
GNSS	RAK12501
Power Input	5 V _{DC}
Recommended Current	>3 A
HAT Compatibility	Raspberry Pi HAT+

Device Overview

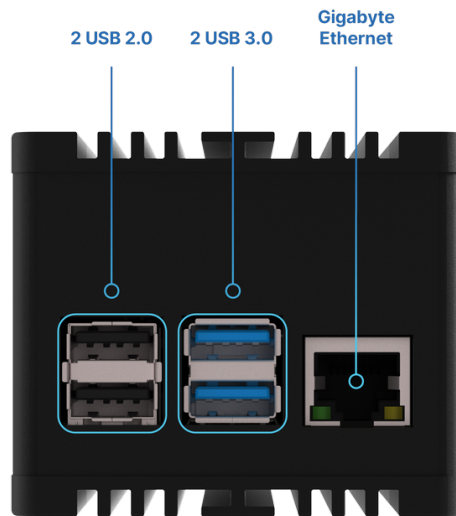


Figure 1: WisMesh Station front view

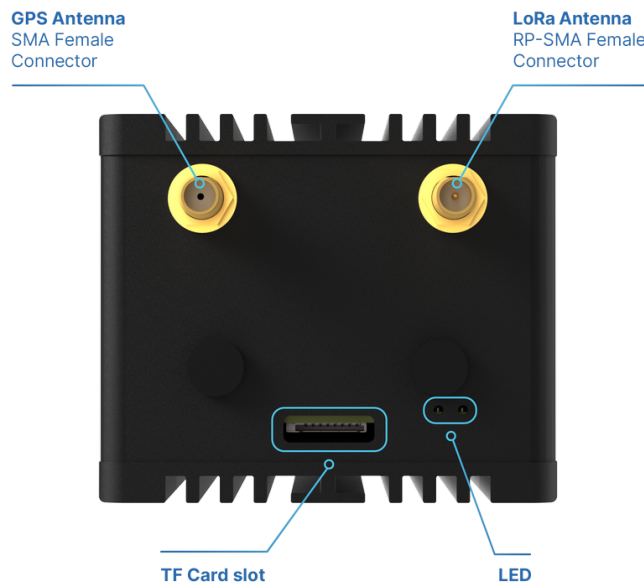


Figure 2: WisMesh Station back view

Hardware

Raspberry Pi 4B

The Raspberry Pi 4 Model B is the fourth-generation flagship single-board computer from the Raspberry Pi Foundation. Both the RAK8622 and RAK8623 use the **2 GB RAM** version.

[Raspberry Pi 4 Model B – Raspberry Pi](#)**RAK6421**

RAK6421 is a powerful Raspberry Pi HAT that lets you connect WisBlock modules directly to any Pi. It is compatible with the HAT+ specification by using an independent EEPROM for metadata and device tree information.

[Modular Raspberry Pi Hat Adapter Board | RAK6421](#)**RAK12501**

RAK12501 is a GNSS module based on the Quectel L76K.

[RAK12501 GNSS Module – Compact Location Tracker UART](#)**RAK13300**

RAK13300 is based on the Semtech SX1262 module for LoRa and LoRaWAN applications.

[RAK13300 WisBlock LoRaWAN Module with Semtech LoRa Chip - SX1262 Arduino](#)**RAK13302**

The RAK13302 LoRa module is a 1 W LoRa Transceiver module. It is built on the Semtech SX1262 module for LoRa, and adds a SKY66122 booster LoRa front-end connectivity.

[RAK13302 1W Module for LoRa® | SX1262 + SKY66122 Booster | Raspberry Pi Compatible](#)**Electrical Characteristics****Recommended Operating Conditions**

Use the adapter that comes with the device to power it. If an alternative power adapter is used, ensure the following:

- **Input voltage:** 5 V
- **Output current capability:** greater than 3 A

Mechanical Characteristics

The device uses a metal enclosure with the following dimensions:

Dimension	Value
Length	92 mm
Width	68.3 mm
Height	57.5 mm

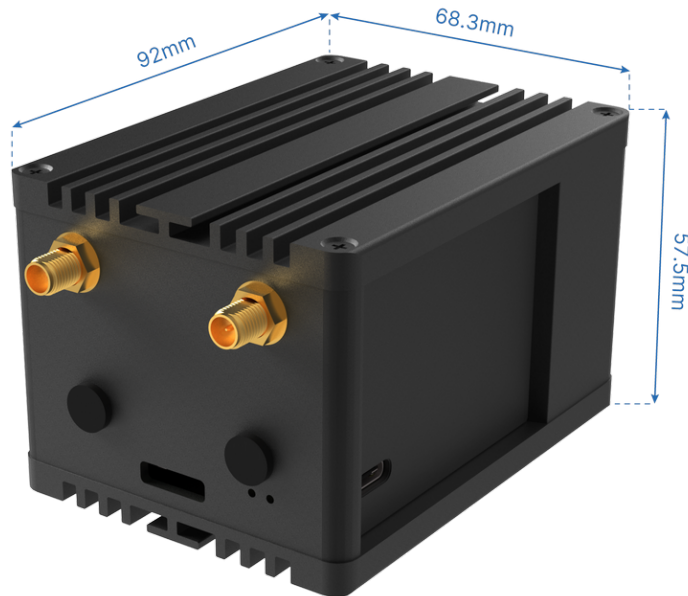


Figure 3: WisMesh Station mechanical dimensions

Environmental Characteristics

Parameter	Value
Operating Temperature	-10 °C to +55 °C
Storage Temperature	-40 °C to +85 °C