RAK10701-P Field Tester for LoRaWAN Pro Datasheet

Overview

Description

The **RAK10701-P Field Tester for LoRaWAN** is a ready-to-use WisNode for evaluating deployed LoRaWAN network, which comes in a hard case and two different antenna types. It has a GNSS and a touchscreen LCD for the user interface, which displays the number of gateways the device can reach and other parameters like approximate distance, RSSI, and SNR. It is powered by a rechargeable battery and can be charged via USB Type-C interface.

> 📝 **NOTE**
>
> The device has to be charged first if it comes fresh from shipping. There is a possibility that the battery was drained during its transport.

Features

- Supports LoRaWAN regions: RU864, IN865, EU868, US915, AU915, KR920, & AS923-1/2/3/4
- Compatible with LoRaWAN 1.0.3
- Works with Helium Network, TheThingsNetwork, and with custom end-points with other LoRaWAN networks
- Protected by a hard case which is ideal for fieldwork
- Includes two different antenna types
- Shows the number of gateways/hotspots in the range
- Shows min and max RSSI levels
- Shows min and max distance to gateways/hotspots in range
- Compatible with WisToolBox and allows wireless configuration via BLE
- Powered by 3200 mAh battery
- Rechargeable over a USB Type-C connector
- 320x240 TFT touchscreen
- 2.3 dBi external antenna via RP-SMA connector
- Operating Temperature: -10° C ~ 60° C
- Storage Temperature: -40° C ~ 80° C

Specifications

Overview

RAK10701-P Field Tester for LoRaWAN with the external antenna.

Figure 1: RAK10701-P Field Tester for LoRaWAN

Hardware

The hardware specification is categorized into five (5) parts. It shows the interfacing of the tracker. It also covers the rf, antennas, electrical, environmental, and mechanical parameters that include the tabular data of the functionalities and standard values of the RAK10701-P Field Tester for LoRaWAN.

Interfaces

The RAK10701-P Field Tester for LoRaWAN has four interfaces which are the touch screen LCD, external button, antenna port, and USB connector.

Touchscreen TFT LCD

The touchscreen LCD is the main interface of the device. Most of the user interaction is done via the touchscreen LCD.

Figure 2: RAK10701-L front view with an LCD screen

You can interact with the device and check the data needed on your LoRaWAN network field testing. The icons highlighted in the red box are the areas responsive to touch. Other parts of the screen will not be responsive to any touch input.
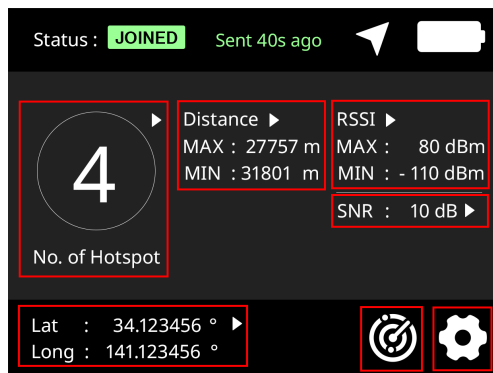
Figure 3: RAK10701-L home display

> 📝 **NOTE**
>
> The complete details on different pages of the screens are discussed in the RAK10701-L Quick Start Guide.

External Button

There is one external button on RAK10701 which can be used in various scenarios.

1. Turning on and off (holding for five seconds)
2. Forced uplink (double-click)
3. Sleep and wake-up (single click)

Figure 4: RAK10701-L useable button

Antenna RP-SMA Connector

On top of the RAK10701-P Field Tester for LoRaWAN is an RP-SMA port for the external antenna.

Figure 5: RAK10701-P RP-SMA antenna port

There are two antennas included in the RAK10701-P, one with 2.0 dBi gain:

Figure 6: 2.0 dBi antenna

Then, another one with 2.3 dBi gain.

Figure 7: 2.3 dBi antenna

> 📝 **NOTE**
>
> Detailed information about the LoRa antenna can be found on the datasheet:
>
> - 9xx MHz Antenna🗗
> - 8xx MHz Antenna🗗

USB Type-C for Charging and WisToolBox Configuration

There is also a USB interface on RAK10701. You can use WisToolBox🗗 software to configure the devices via USB connection. You also have the option to configure the device wirelessly via BLE connection using the WisToolBox Mobile App🗗 compatible with iOS and Android.

Figure 8: USB Type-C connector access

RF Characteristics

LoRaWAN Operating Frequencies

The RAK10701-L Field Tester for LoRaWAN supports the regional bands shown in the table below. When purchasing a RAK10701, pay attention to specifying the correct variant for your region.

Region	Frequency (MHz)	RAK10701-P Field Tester for LoRaWAN
Russia	RU864	8xx MHz version
India	IN865	8xx MHz version
Europe	EU868	8xx MHz version
North America	US915	9xx MHz version
Canada	US915	9xx MHz version
Australia	AU915	9xx MHz version
Korea	KR920	9xx MHz version
Asia	AS923-1/2/3/4	9xx MHz version

GPS Antenna

Items	Parameter
Frequency	1575.42 MHz

Electrical Characteristics

Working Mode

Mode	Condition	Power Consumption
Idle Mode	LCD On	120 mA
	LCD Off	60 mA

Battery Supply

The RAK10701-P Field Tester for LoRaWAN is equipped with a built-in rechargeable 3.7 V Li-ion battery with 3200 mAh capacity. This can be charged via a USB Type-C connector interface.

Environmental Characteristics

The table below lists the operation and storage temperature requirements.

Parameter	Min.	Typical	Max.
Storage Temp. Range	-40° C	+25° C	+80° C
Operation Temp. Range	-10° C	+25° C	+60° C

Mechanical Characteristics

- Dimensions: 100 mm x 75 mm x 38 mm
- Weight: approximately 8.6 oz (243.8 g) without battery

Software

Download the latest firmware version of RAK10701-P in the table provided below.

Model	Version	Firmware
RAK10701 - Field Tester for LoRaWAN	V1.0.6	Download

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