



X5 LoRa

Documentation

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Make your X5R compatible with Trimble SPS855 and other GNSS Base Stations through LoRa communication. The X5 LoRa radio is an adapter system working at a power of 1W for your X5 Receiver to get GNSS corrections for any GNSS Base Station that uses this protocol.

Version: 2.0

Main advantages:

- No need to open or modify your Base station
- Lightweight device: 80 grams
- Easy to transport and set up in remote locations

If you have any questions that are beyond the scope of this documentation, Please feel free to contact our [Mettatec X5 Support contact](#).

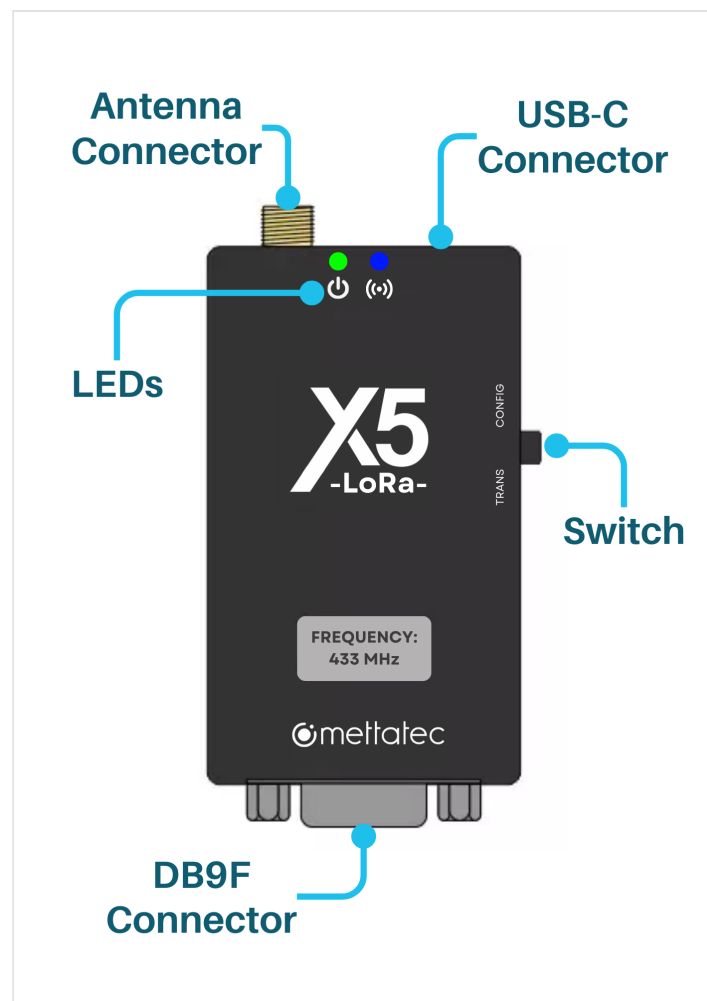
Included components

- X5 LoRa device
- LoRa antenna 433/915 MHz
- USB-C to DB9F adapter
- USB-A to DB9F adapter
- USB-A female to USB-C OTG connector
- USB-C to USB-A cable of 1.8 m

Technical specifications

Mechanical	<ul style="list-style-type: none">• Dimensions: 75 × 37 × 20 mm• Weight: 80 g• Operation temperature: -40 to 85 °C• Enclosed Design
Electrical	<ul style="list-style-type: none">• Input voltage: 2.3 - 5.5 V, ≥ 5.0 V ensures output power• Operating power: 1W• TX current consumption: 610 mA• RX current consumption: 17 mA• More than 15h autonomous work with a 10000 mAh power bank
Radio configuration	<ul style="list-style-type: none">• Available in ISM 433MHz and 915MHz frequency bands• Antenna gain: 3 dBi• Max distance: 10 km, in clear and open area and line of sight• Both modules (GNSS Base Station and X5 LoRa) parameters<ul style="list-style-type: none">◦ Channel: Determines the frequency band used for communication, it can be an integer from 0 to 80.◦ NET ID: Unique identifier used to distinguish the LoRa network, default 0, it can be an integer from 0 to 255.◦ Baud rate: Defines the amount of bits transmitted per second, it can range from 1200 to 115200 bps with a default of 9600 bps.◦ Air rate: Refers to the data rate at which information is transmitted over the air, from 0.3 to 62.5 kbps with a default of 2.4 kbps.◦ Packet size: Maximum amount of data that is transmitted in a single packet. It can be from 32, 64, 128 or 240 (default) bytes.◦ Transmission power: Strength of the transmitted signal. The default setting is 30 dBm, with options of 27, 24, and 21 dBm.

Ports and LEDs descriptions



- **USB-C connector:** Powering the device
- **Antenna connector:** SMA connector for 433/915MHz LoRa antenna
- **DB9F connector:** To receive corrections from the GNSS Base Station using the RS232 protocol
- **Power LED:** Solid green: Power on
- **Signal LED:** Blinking blue: Transmitting or receiving data (Rx/Tx)

Utilization

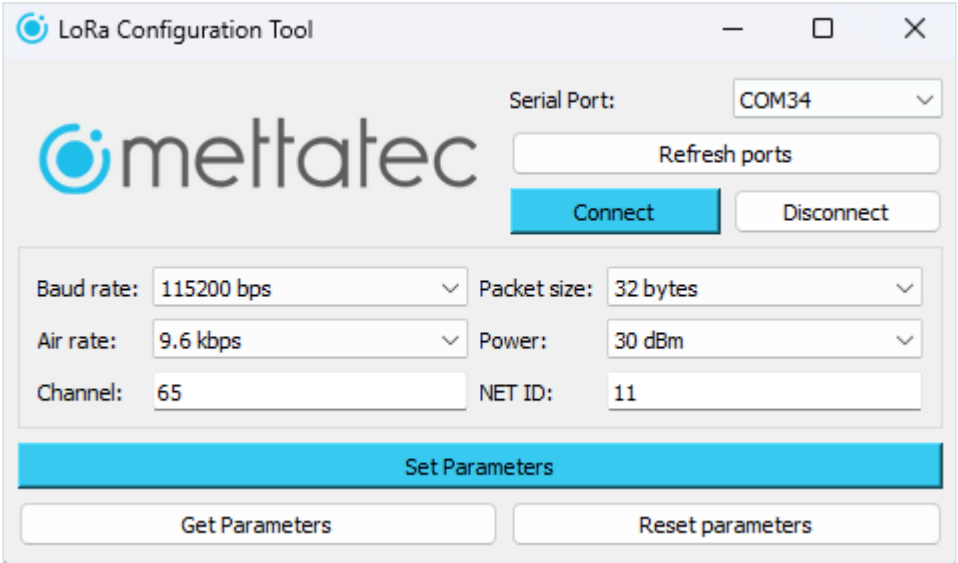
Operation modes

The device includes a switch for the different operation modes:

- **Configuration:** To change LoRa parameters with the executable application
- **Tx/Rx:** To transmit/receive the corrections from the Base Station to the Rover

Configuration

1. Connect the X5 LoRa to your computer (USB-C cable). Make sure the switch is on **Configuration mode**.
2. Open the LoRa Configuration Tool. Identify the port where you connected the device, and click the "Connect" button. If you do not find the Serial Port, click the "Refresh ports" button.

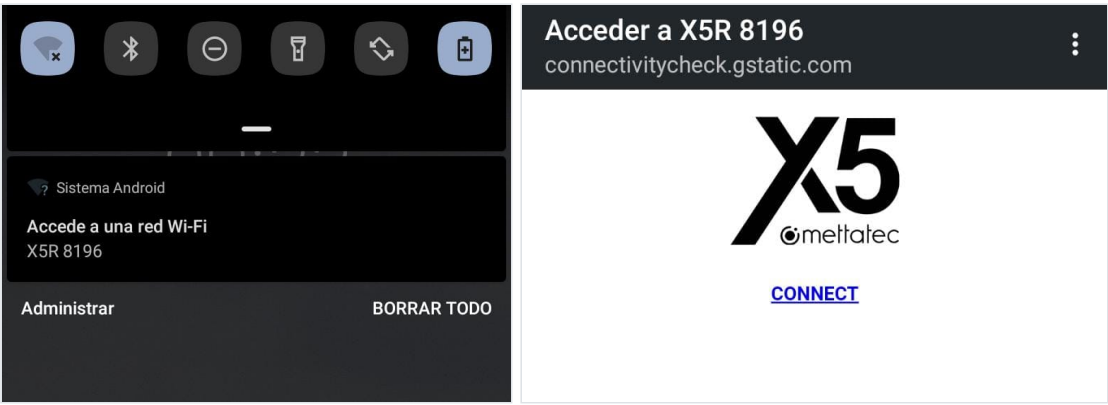


- 3. Set the parameters of your preference. Once you get the confirmation message, you can disconnect the device from your computer.
- 4. Switch to **Tx/Rx mode** of your X5 LoRa. Connect the module to your GNSS Base with the DB9F cable and power it with an external battery through the USB-C cable.
- 5. Turn on your GNSS Base and the X5 Receiver. Make sure that the LoRa configuration of your device is the same that you just set.

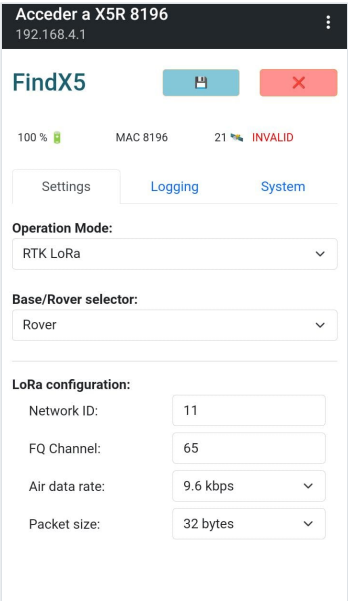
Connection with X5 Receiver

The LoRa radio parameters of this device are fixed on certain values, therefore the Metta X5 Receiver (ROVER) should have the same parameters to receive the corrections correctly.

- a. The Metta X5 Receiver should be in configuration mode.
- b. Connect your phone/tablet with the device through device's Wi-Fi using SSID and password.
- c. The app will display an alert message in your mobile device to access to the graphic interface.
- d. Make sure your phone is connected just to the device Wi-Fi, not mobile data activated.

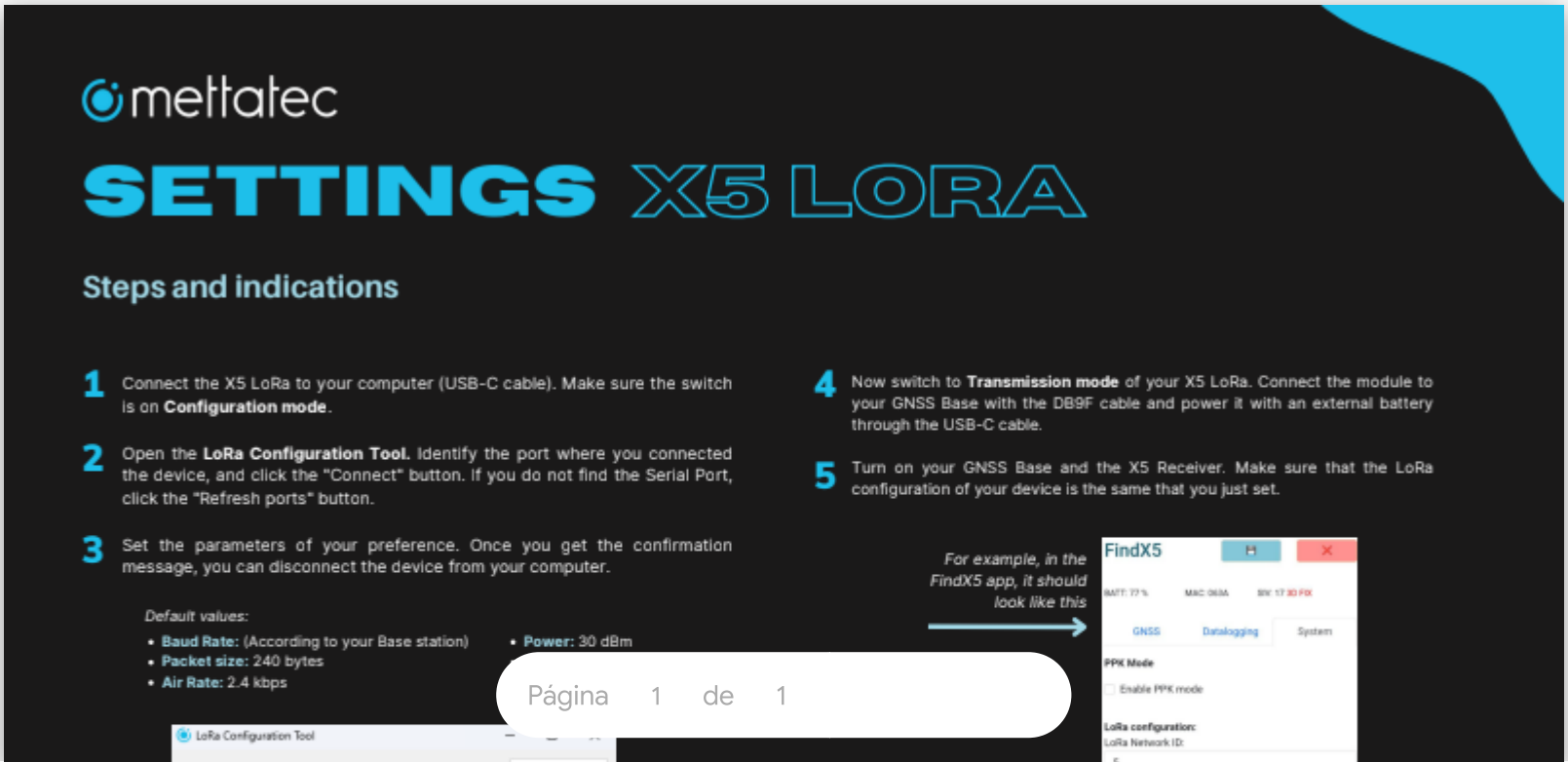


- e. Go to the "Settings" section, and select the RTK LoRa mode as Rover. Define the same parameters as selected in the X5 LoRa:



- f. Click the Save button in order to save all the modifications.
- g. Click the Exit button to return to the operating mode after saving the configuration.

Graphic manuals



Downloads

Download the necessary firmware updates and executable applications for your device.

- [X5 LoRa Configuration Tool](#)