

EDGE™

Wireless. Connected. Sensors.



LoRa Gateway Receiver

User Guide



temptimecorp.com

1 Notices and safety

1.1.1 Safety instructions

IMPORTANT NOTE: Do not use this product for protection or as part of an automated emergency system or as for any other application that involves protecting people and/or property. Customers and users of Temptime products are responsible for making sure that the product is fit for the intended usage. Do not open the product casing and do not disassemble or modify internal components in any manner. Temptime products do not contain any internal components that require user intervention or repair. If the device shows signs of improper operation, disconnect it immediately from its power source and contact Temptime technical services.

1.1.2 Certifications

EMC Compliance

US: FCC Part 15 Class B

EU: EN 55022 Class B, EN 55024

Canada: ICES-003

Radio Compliance

FCC Part 22,24,27

Safety

UL 60950-1 2nd Ed., cUL 60950-1 2nd Ed., IEC 60950-1 2nd Ed

Quality

MIL-STD-810G: High Temp, Low Temp, Random Vibration. SAE J1455: Transit Drop & Handling Drop, Random Vibration, Swept-Sine Vibration. IEC68-2-1: Cold Temp. IEC68-2-2: Dry Heat

Caution: Any changes or modifications not expressly approved by Temptime could void the user's authority to operate the equipment.

1.1.3 Environmental protection

Please respect local regulations concerning disposal of packaging, unused wireless devices and their accessories, and promote their recycling.

1.1.4 Disclaimer and limitation of liability

Temptime assumes no responsibility for any loss or claims by third parties which may arise through the use of this product. This document is non-contractual and subject to change without notice.

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2 Introduction

Congratulations and thank you for choosing the Temptime EDGE wireless monitoring solution.

This document describes how to set up and use the EDGE LoRa Gateway Receiver, a key component for collecting data in your EDGE W-200 LoRaWAN™ solution.

2.1 Product overview

Designed for use with Temptime EDGE W-200 wireless sensor modules, the Temptime EDGE LoRa Gateway Receiver is a wireless receiver that leverages new-generation LoRaWAN™ technology to offers exceptionally long-range wireless communication.

This receiver can be connected to your local network via either a wired Ethernet or a Wi-Fi connection.



Figure 1 – Temptime LoRa Gateway Receiver

2.2 Main features

2.2.1 Technical highlights

- Up to 9 miles (15 km) line-of-sight wireless range
- 2-way wireless communication
- Wired Ethernet or Wi-Fi network connection
- Available frequencies: 915 MHz, 868 MHz, 434 MHz

2.2.2 In the box:

- 1 EDGE LoRa Gateway Receiver
- 1 AC adapter (110-240 v)
- 1 Antenna
- 1 USB cable
- 1 USB key including this document and receiver configuration software

Optional and to be ordered separately

- 1 Wi-Fi adaptor

2.3 Architecture and technologies

Installed locally at your site, the Temptime EDGE LoRa Gateway Receiver collects data from EDGE W-200 sensor modules within wireless range.

The Receiver is connected permanently via the Internet to the Temptime EDGECloud service, where module data is pushed by the Receiver, and accessed using the EDGEConnect™ web application. The diagram below shows the overall solution organization.

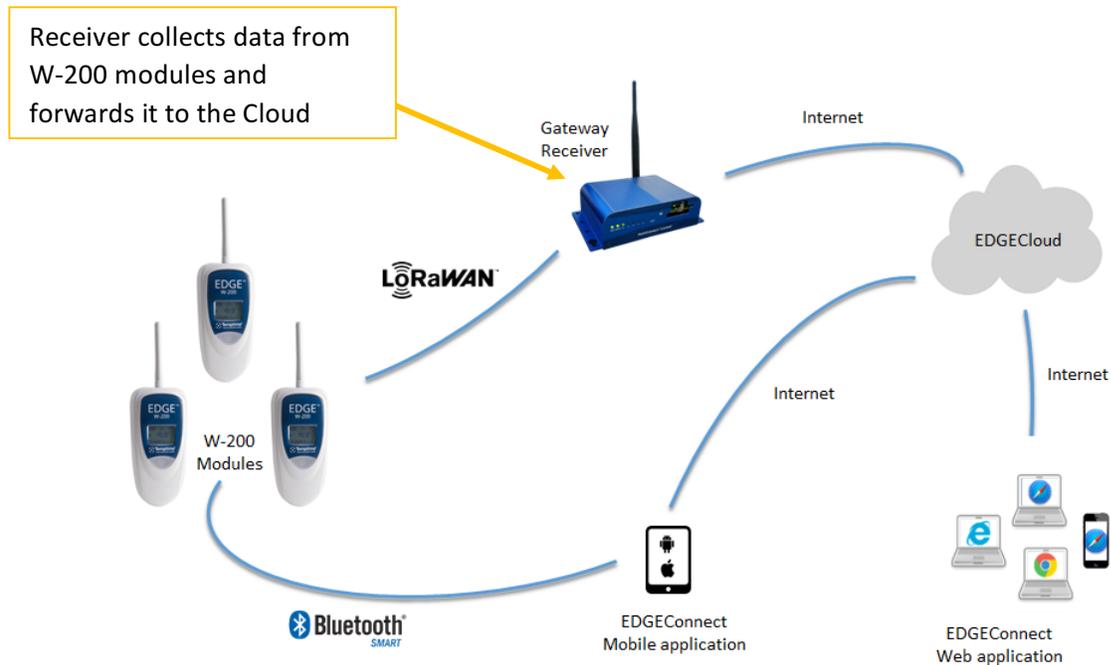


Figure 2 – EDGE LoRa Gateway Receiver role in connecting EDGE W-200 modules to the Cloud

3 Setting up your receiver

3.1 Installing the receiver configuration software

Before you can use your receiver, you must first configure it to connect to the Cloud via the Internet. For this, please copy the **EDGE Gateway Receiver Configuration** software delivered with the USB Key and install the software application on your Windows PC.

1. After copying the file to your computer, double-click on the provided **Setup (EDGEReceiverConfiguration).exe**.
2. Follow the instructions in the Setup wizard to install the software. This software installs the configuration application and specific drivers that your Windows computer might require to connect with the EDGE LoRa Gateway Receiver.

3.2 Receiver configuration

3.2.1 Ethernet configuration

This section describes how to connect your receiver to the Cloud server via a cabled Ethernet connection (wireless configuration is described below in section 3.2.2 *Wi-Fi configuration*). Follow these steps:

1. Plug the network Ethernet cable into your receiver

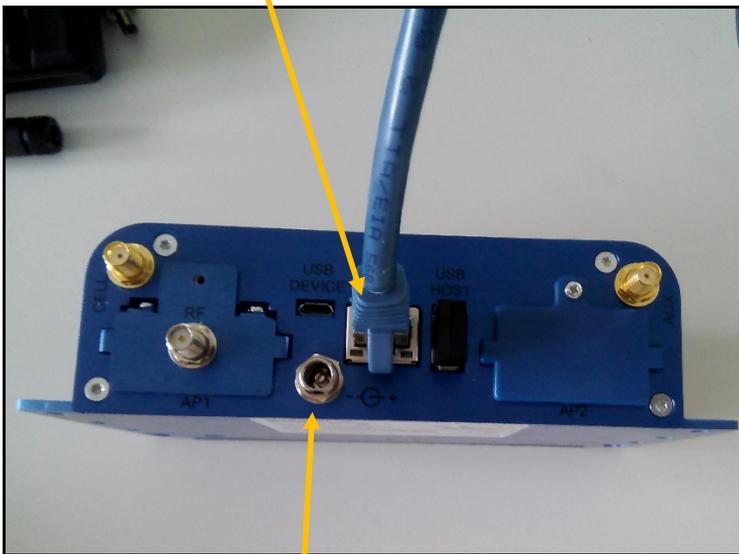


Figure 3 – Plugging the Ethernet cable and AC adapter

2. Plug the provided AC adapter into a wall socket and plug the other end into the power socket on the receiver. Wait about 30 seconds for the boot process to complete.

3. Plug the micro-USB cable into both the receiver and your PC. The setup program installs drivers for the receiver, so the device recognized automatically by Windows.



Figure 4 – Plugging the USB cable

4. Run **EDGEReceiverConfiguration** from the Windows Start menu. The **Select** field should show your gateway. If not, make sure the USB cable is plugged in and click on **Refresh**.

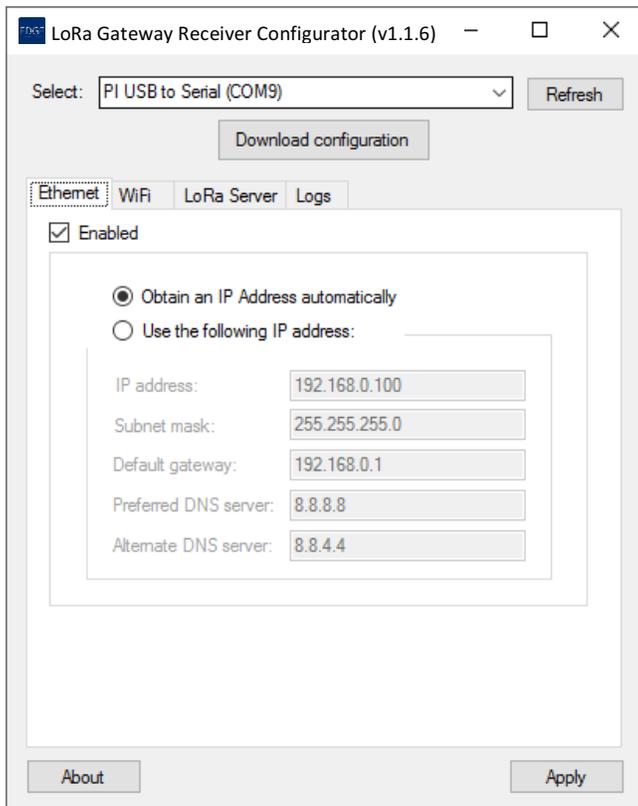


Figure 5 – Setting up an Ethernet connection

5. Click on the **Ethernet** tab and click to select **Enabled**.
6. Set the Ethernet parameters according to your needs:
 - **Obtain IP address automatically** is selected by default, and the receiver will try to obtain its IP address automatically from the network router using DHCP.
 - If you need to enter specific IP settings, click on **Use the following IP address** and fill in the fields as needed for your network.
7. Click on the **LoRa Server** tab to set the **IP address** and **Instance ID** of your LoRa server. If you are using the Temptime EDGECloud server, these settings are provided by Temptime.

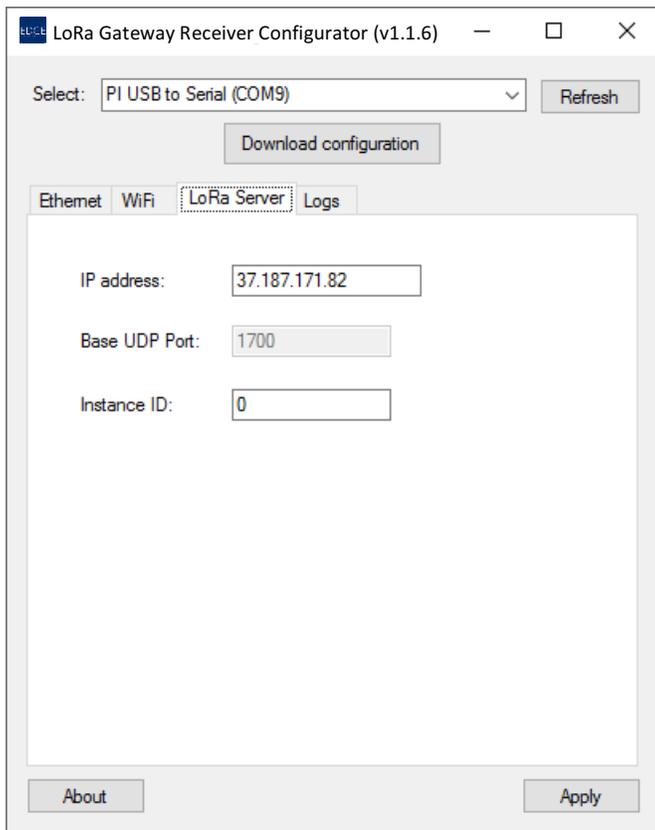


Figure 6 – Setting up the LoRa server connection

8. Click on **Apply** when done. The application switches to the **Logs** tab and the sequence of configuration events is displayed on the screen.

When the process is complete, after about 30 seconds, a message is displayed to indicate whether configuration was successful:

Command executed successfully

The receiver is now up and running.

Command failed

The application was unable to configure the receiver completely. In that case, you can have a look at the logs to identify the problem. Make sure the receiver has a working Internet connection and check your network settings then press **Apply** to try again.

3.2.2 Wi-Fi configuration (optional)

This section describes how to connect your receiver to the Cloud server via a wireless Wi-Fi connection. (Ethernet connection is described in the previous section)

1. Plug the optional Wi-Fi adaptor into the USB port on the back of your receiver. Wi-Fi adapter must be purchased separately.

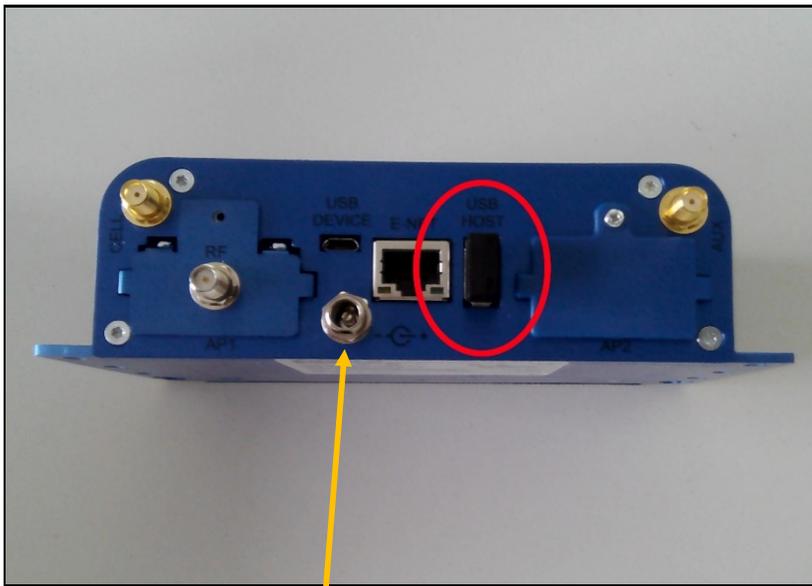


Figure 7 – Inserting the Wi-Fi adaptor

2. Plug the provided AC adaptor into a wall socket and plug the other end into the power socket on the receiver. Wait about 30 seconds for the startup process to complete.
3. Plug the micro-USB cable into both the receiver and your PC. The setup program installs drivers for the receiver so the device is recognized automatically by Windows.



Figure 8 – Plugging in the USB cable

- 4. Run **EDGEReceiverConfiguration** from the Windows Start menu. The **Select** field should show your gateway. If not, make sure the USB cable is plugged in and click on **Refresh**.

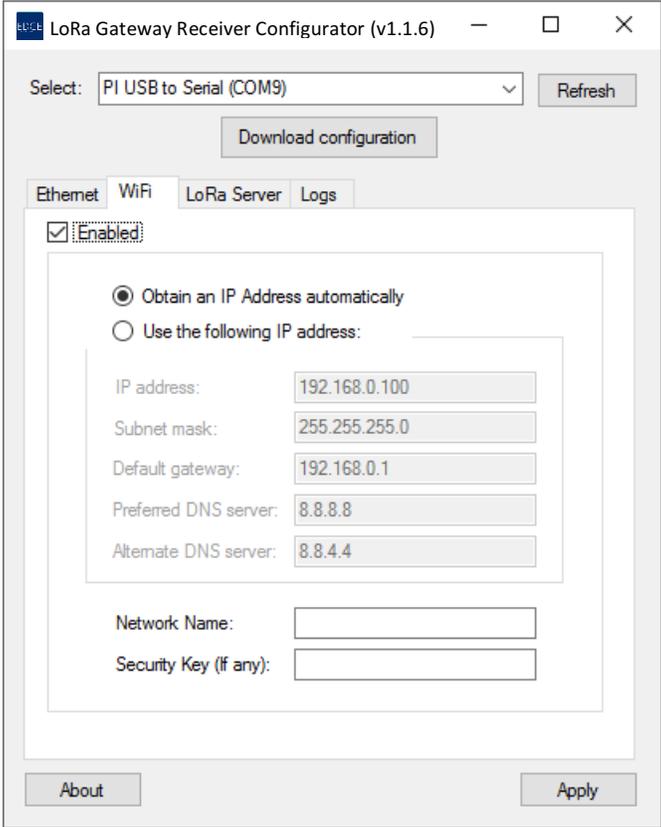


Figure 9 – Setting up a Wi-Fi connection

5. Click on the **Wi-Fi** tab and click to select **Enabled**.
6. Set the Wi-Fi parameters according to your needs:
 - **Obtain IP address automatically** is selected by default, and the receiver will try to obtain its IP address automatically from the network router using DHCP.
 - If you need to enter specific IP settings, click on **Use the following IP address** and fill in the fields as needed for your network.
7. Enter specific Wi-Fi parameters to connect to your Wi-Fi network. You may need to contact your system administrator to obtain this information:
 - Network name
 - Security key (Note: leave this field empty if you are connecting to an unsecured open network)
8. Click on the **LoRa Server** tab to set the **IP address** and **Instance ID** of your LoRa server. If you are using the EDGECloud server, these settings are provided by Temptime.

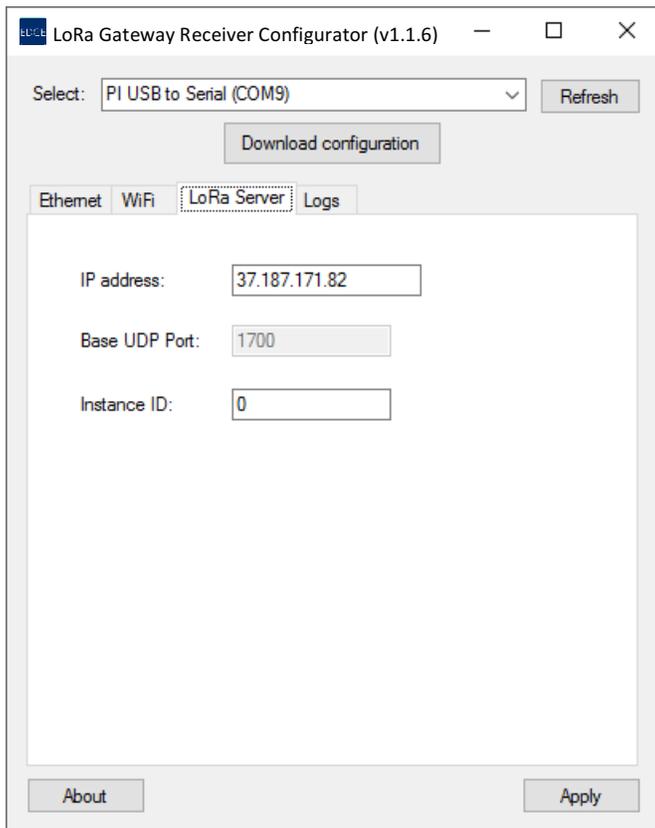


Figure 10 – Setting up the LoRa server connection

9. Click on **Apply** when done. The application switches to the **Logs** tab and the sequence of configuration events is displayed on the screen.

When the process is complete, after about 30 seconds, a message is displayed to indicate whether configuration was successful:

Command executed successfully

The receiver is now up and running.

Command failed

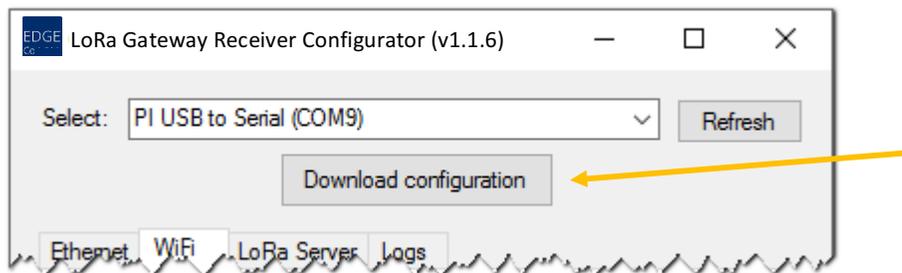
The application was unable to configure the receiver completely. In that case, you can have a look at the logs to identify the problem. Make sure the receiver has a working internet connection and check your network settings then press **Apply** to try again.

4 Appendix - Troubleshooting

If you are having difficulties with your configuration, look at these frequently asked questions before contacting technical support.

I need to troubleshoot my network connection. How can I check to see how my receiver is currently configured?

At the top of the application screen, you will find a “Download configuration” button. This function reads the receiver’s current network configuration and fills in the fields accordingly.



I’d like to see how well the LoRaWAN connection works at my site. Is there an easy way to perform tests?

Yes. You may test the wireless connection between your receiver and an EDGE W-200 sensor module as described in the EDGE W-200 User Guide. For more information, or to conduct a more complete site survey, please contact your Temptime representative.

My receiver is not displayed in the Select field. What should I do?

1. The USB cable might not be plugged in correctly: check the connections on both ends of the cable.
2. Is the AC adapter plugged in? Are the status lights turned on?
3. The driver might not be installed properly: check the status of your hardware and follow these instructions to install the driver manually on your computer:
 - Open Windows Explorer, right-click on **My Computer** → **Properties**.
 - In the **System Properties** window, click on **Device Manager**.
 - In the **Device Manager**, locate the LoRa Gateway Receiver device (“Gadget Serial”) in the **Other Devices** group.
 - Right-click on the LoRa Gateway Receiver device and select **Update Driver**.

- In the **Update Driver** window, select **Browse my computer for driver software**.
- In the dialog box, click on **Browse** and navigate to the directory that contains the driver “C:\Program Files (x86)\Temptime\EDGReceiverConfiguration\Drivers”. Click on **Open**.
- During the installation process, ignore the Windows security message about unverified publisher and choose **Install this driver software anyway** to complete the installation.
- After the successful installation, the LoRa Gateway Receiver device (“Gadget Serial”) appears in the category “**Ports (COM and LPT)**”.
- The **Select** field should now show your gateway.

I get the message: “Command failed” or “Serial port communication error”. What should I do?

If a problem occurs, the Logs tab gives precise error information in red.

1. There might be a network issue (i.e. the receiver could not connect to the Internet). Check the Ethernet cable or Wi-Fi configuration, and make sure there is no conflict with your firewall (if applicable), then click on **Apply** again.
2. If the error persists after trying the Apply button again, or if the log contains other lines written in red text, please save the log (using the **Save** button) and contact Temptime technical support.

5 Appendix – Product specifications

5.1 EDGE LoRa Gateway receiver features

- Internet of Things connectivity featuring LoRaWAN™ wireless connectivity
- Long asset management range – up to 9 miles/15 km line-of-sight; 1-3 miles/2 km within buildings. Note: This represents ideal network configuration and equipment set up. Results vary depending on various technical considerations, as well as RF interference and obstruction type (e.g., metal, cement, etc.)
- Ethernet: 1 RJ-45 Ethernet 10/100 port
- Wi-Fi (optional) via adaptor
- USB port (for cable to PC)
- Input voltage: 9V – 35 V
- Dimensions (L x W x H): 6.35" x 4.23" x 1.69" (161.3 mm x 107.4 mm x 42.8 mm)
- Weight: approximately 16.2 oz. (459 g)
- Chassis Type: Metal
- Operating Temperature: -30° to +70° C*
- Storage Temperature: -40° to +85° C
- Relative Humidity: 20% to 90%, non-condensing

5.2 EDGE LoRa Gateway companion products

- EDGEConnect sensor monitoring solution (web application)
- EDGE W-200 wireless sensor modules
- EDGEConnect Mobile configuration tool for EDGE W-200 modules (mobile application)

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