OXTECH

CARBON^8 GATEWAY

INSTALLATION GUIDE

DESCRIPTION

The OxTech **Carbon 8 Gateway** is a highly scalable and customizable, 8-channel LoRaWAN compatible gateway used to construct public or private networks for capturing and analyzing critical data.

Box Contents

- **Carbon 8 Gateway**
- Power Supply
- Mounting Kit
- Cell Antenna
- LoRa Antenna
- Ethernet Cable
- Quick Start Guide
- SIM Card (optional)

Features & Functions

- Up to a 10-mile wireless range
- Designed for scale with FUOTA updates
- Multi-network compatibility
- LoRaWAN Class A/B/C
- Pre-configured for the **OxTech Portal**
- Built-in battery backup
- Indoor Class B option (with **Carbon GPS Relay**)
- Local integrated LoRa Network Server (LNS) available 2023
- Powered by the Semtech SX1303
- Integrated Chipset
- Integrated wall-mount installation

Quick Start Guide
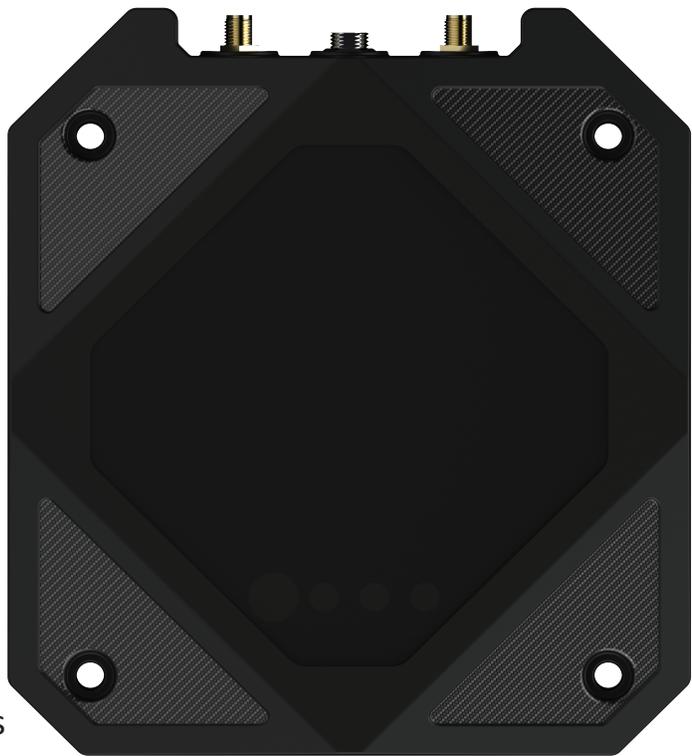
1 Assemble the Gateway

Connect the antennas, making sure the gateway is powered off. Connecting antennas to a powered device may cause permanent damage. Finger-tighten only; over-tightening with tools can cause damage.

2 Prepare Network Connection

The **Carbon 8 Gateway** allows you to connect to either Ethernet, WiFi, or Cellular.

For Ethernet: Choose a location near an outlet and router. Connect the ethernet cable to the WAN port on the back of the **Carbon 8 Gateway** and then connect the cable to your router. Do not power on the device until prompted by the app.

For Cellular: Open the door on the back of the gateway and insert the SIM card. **Note**: The guided in-app setup will require your provider's APN and other related account details.

For Wi-Fi: Proceed to step 3.

3 Download OxTech Carbon App

Download and open the **OxTech Carbon App.** Create an account or sign in if you already have an account. Ensure Wi-Fi and Bluetooth are enabled on your phone.

4 Add and Pair the Gateway

Click "Add Gateway" and follow the guided instructions within the app. Configure your settings for the app. When selecting Device Type choose "Oxtech Gateway."

Power on the **Carbon 8 Gateway** by plugging in the provided power adapter.

Pair the **Carbon 8 Gateway** to the **OxTech Carbon App**. Bluetooth is automatically enabled on the **Carbon 8 Gateway** for 5 minutes after it is powered on.

5 Connect Gateway to Wi-Fi
(For Wi-Fi Connection Only)

Follow the guided process in the app to scan for available Wi-Fi networks.

Select your preferred Wi-Fi network, and enter credentials as needed to connect.

Where to Place

Attempt to place your gateway near a window or at a high point within the building. Refrain from placing the gateway near other electronic devices. Ideally, keep several feet between the gateway and other electronic devices.

If placing your gateway inside and planning to use the Class B option, you will need to pair your gateway with a **Carbon GPS Relay**.

Mounting Instructions
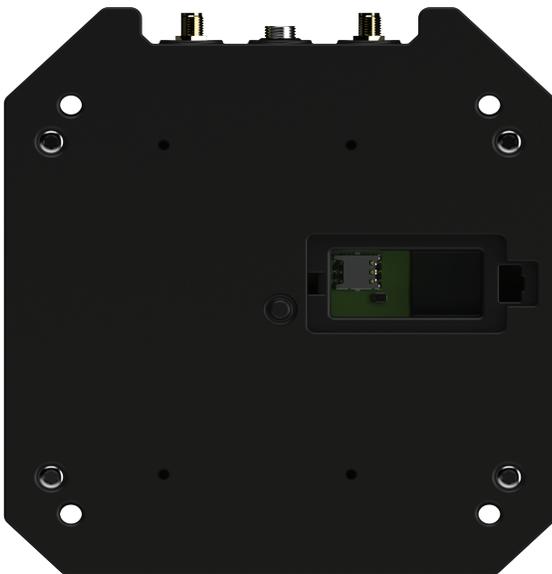
Hold the gateway up to the wall and mark the holes. Insert the screw anchors into the wall. Line the gateway up to the screw anchors and use the provided screws to attach it to the wall.

⏻ LED Light Indications

LED 1: Power
The Power LED indicates the power source. The **Carbon 8 Gateway** can be powered via 3 power sources. The following table shows the LED cues for each power source.

The Power LED indicator also functions as a capacitive touch button. Upon a 10-sec long press, this button turns on Bluetooth within the gateway, so that the mobile application can connect to perform any user configurations. A hard press on this button is not required as there is no tactile feeling. (Not supported in interim release)

LED 1 Cue — Indication

LED 1 Cue	Indication
Off	Gateway is powered off
Steady Green	Power via PoE
Steady Yellow	Power via external AC-DC adapter
Steady Red	Power via internal backup battery (Gateway cannot boot up from the battery. It only acts as a backup source in case PoE or External adapter fails.)
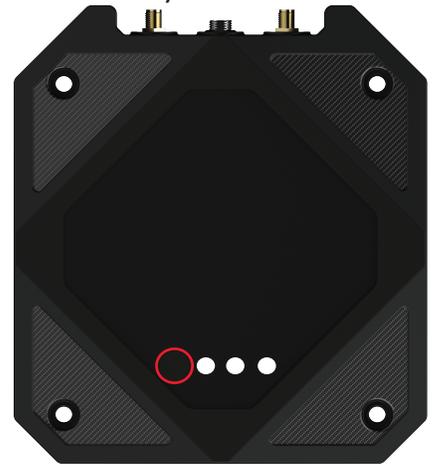
⤳ LED 2: Internet Connectivity

Carbon 8 Gateway can connect to the internet via 3 different mediums. The Gateway will choose the connectivity medium according to the order of preference set by the user. (Not supported in interim release)

LED 2 Cue — Indication

LED 2 Cue	Indication
Off	No internet connectivity
Steady Green	Connected to ethernet. (Ethernet is not included in interim release)
Steady Yellow	Connected to Wi-Fi. Wi-Fi credentials must be provided by the user during setup in the **OxTech Carbon App**.
Steady Red	Connected to cellular network. Cellular profile must be provided by the user during provisioning via mobile app
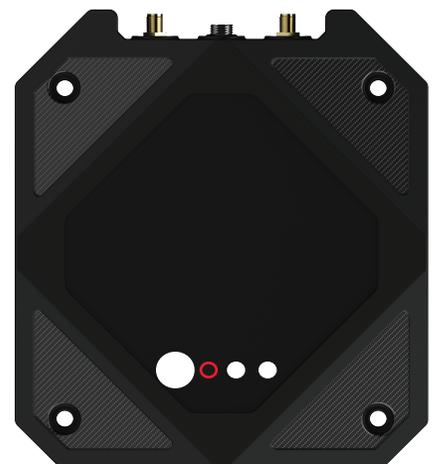
⚊LED 3: LoRa Network Server Connectivity

Upon successfully connecting to the internet, the **Carbon 8 Gateway** tries to establish the connection to a LoRaWAN Network Server (LNS). In order for the gateway to successfully connect to the LNS, it must be added to the LNS and the certificates must be flashed into the gateway beforehand.

LED 3 Cue	Indication
Off	No LNS connectivity
Blinking Green	Trying to connect to LNS.
Steady Green	Connected to LNS.
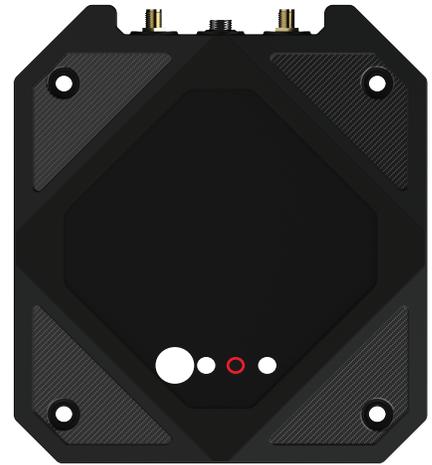
⟳LED 4: Uplink/Downlink/Gateway OTA

LED 4 indicates LoRaWAN data activity including LoRaWAN Uplink, Downlink, and Gateway OTA activity.

LED 4 Cue	Indication
Off	No LoRaWAN data activity
Flash of Green	Uplink detected from an end device.
Flash of Red	Downlink detected from LNS.
Steady Red	Gateway OTA firmware update is in progress.
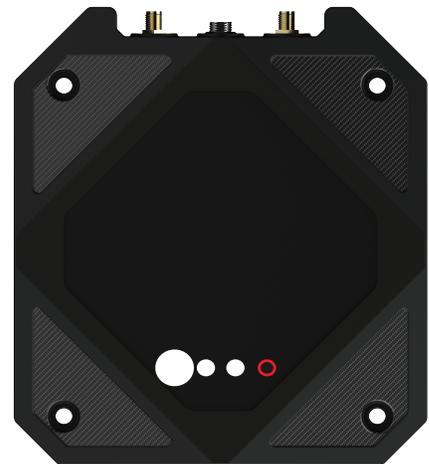
Buzzer Indications

Carbon 8 Gateway has a built-in buzzer that indicates the following events.

Buzzer Pattern	Indication
0.5 sec beep	Successfully connected with the mobile app via Bluetooth
3 x 0.5 sec beeps	Bluetooth disconnected
1.5 sec beep	Successfully connected to LNS
3 x 1.5 sec beeps	Disconnected from LNS

Factory Reset Button
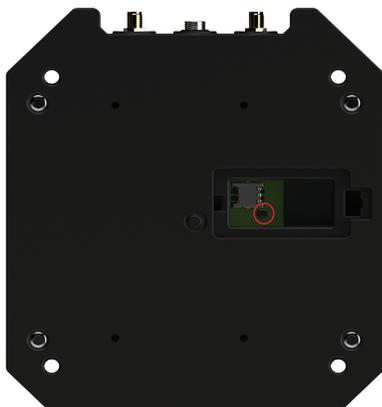
The factory reset button is located on the bottom side of the gateway. It can be accessed by sliding off the plastic cover over the SIM card. Pressing the factory reset button for 3 seconds. The gateway will reset itself and reboot with default settings.

All user settings including the Wi-Fi credentials and cellular profiles will be erased. Upon rebooting, all user settings will need to be reconfigured via the **OxTech Carbon App**.

This button should be used by authorized persons only.

Support & Warranty Information

The OxTech Support team is available to assist you with any questions or concerns you may have. Call **(844) 733-6322** or email **support@oxtech.com** for answers to your questions.

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