HOBO® MX Gateway (MXGTW1) Manual

HOBO MX Gateway

MXGTW1

Included Items:

- Mounting kit
- AC adapter

Required Items:

- HOBOlink account
- HOBOmobile app
- Device with iOS and Bluetooth Low Energy
- MX1101, MX1102, MX2001, MX2200, MX2300, or MX2500 series loggers

The HOBO MX Gateway provides near real-time data monitoring for most MX series loggers by automatically uploading logged data to the HOBOlink® website. You can easily set up the gateway with the HOBOmobile® app on your phone or tablet. Once configured, the gateway uses Bluetooth® Low Energy (BLE) to regularly check for measurements from up to 100 loggers within range. Logger measurements are then uploaded from the gateway via Ethernet or WiFi to HOBOlink, where you can set up automatic email or text alarm notifications, display your data in a dashboard, and export data for further analysis. **Note:** All MX loggers except the MX100 series are supported by the gateway. Contact Onset Technical Support for questions on MX100 logger compatibility with the gateway.

Specifications

Transmission Range	Approximately 30.5 m (100 ft) line-of-sight
Wireless Data Standard	Bluetooth 5.0 (BLE)
Connectivity	WiFi 802.11a/b/g/n 2.4/5 GHz or 10/100 Ethernet
Power Source	AC adapter or PoE
Dimensions	12.4 x 12.4 x 2.87 cm (4.88 x 4.88 x 1.13 inches)
Weight	137 g (4.83 oz)
CE	The CE Marking identifies this product as complying with all relevant directives in the European Union (EU).

Setting up the Gateway

Follow these steps to set up the gateway for the first time.

1. **Download the HOBOmobile app.**

    Go to the App Store® and download HOBOmobile to your phone or tablet. Open the app and enable Bluetooth in the device settings if prompted.

2. **Set up HOBOlink settings in HOBOmobile.**

    a. Tap the Devices icon and then tap Gateways at the top of the screen.

    b. If you do not already have a HOBOlink account, tap the link to create one or go to www.hobolink.com. You'll receive an email to activate the new account. Return to HOBOmobile when done.

    c. In HOBOmobile, tap Use MX Gateways (or go to Settings and then tap HOBOlink).

    d. Enter your HOBOlink username and password and tap Done. (Enable Upload Data if you are not prompted for the username and password.)

    e. Select "from a Gateway" for the default HOBOlink upload setting.

3. **Power up the gateway.**

    a. Insert the appropriate plug for your region into the AC adapter. Connect the AC adapter to the gateway and plug it in.

Plug in AC adapter here

Plug in Ethernet cable here

b. Plug in an Ethernet cable if the gateway will be using Ethernet network settings. **Note**: If you have a switch that supports PoE (Power over Ethernet), then you can use the Ethernet cable only without the AC adapter.

c. ***It will take several minutes for the gateway to completely power up and be ready for use.***

    Watch the LED on the gateway as you wait for this process to complete. The LED will be yellow-green for a few minutes. It will then blink slowly (once every two seconds) and then fast (twice every second) for another minute or two. Once the gateway is ready to use, the LED will stop blinking and change to bright green.
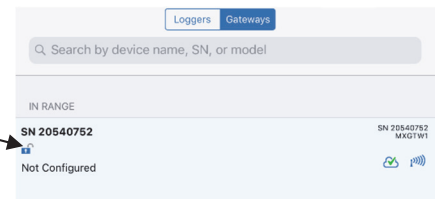

The LED will stop blinking and change to bright green when the gateway is ready to set up

4. **Set up gateway network settings.**

    a. In HOBOmobile, tap Devices and then tap Gateways at the top of the screen. Tap the gateway to connect to it.

Tap anywhere in the row to connect to the gateway

If the gateway does not appear, make sure it is completely powered up as described in step 3 and within range of your phone or tablet.

b. **To set up WiFi:**

   i. Tap Network Settings.

   ii. Tap WiFi and then the arrow to open WiFi Settings.

   iii. Select Use Current WiFi Network to use your phone or tablet's existing WiFI SSID and then type your password. Tap Save.

   iv. The gateway will automatically test the network connection after saving the settings. If the test is not successful, make sure all your settings are entered correctly and saved.

c. **To set up Ethernet:**

The network settings are automatically configured if your Ethernet connection is using DHCP (dynamic IP addresses). Check for this icon ☁ that indicates the gateway is connected to the internet as shown below. Continue to step 5.
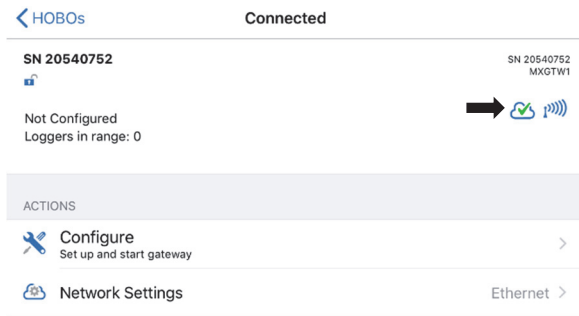

If your Ethernet uses static IP addresses:

   i. Tap Network Settings.

   ii. Tap Ethernet and then the arrow to open Ethernet Settings.

   iii. Disable DHCP.

   iv. Tap IP Address, Subnet Mask, and Router to edit the addresses (consult your Network Administrator).

   v. Tap Add DNS Server and enter an address. Repeat if necessary (the app can store up to three DNS server addresses).

   vi. Tap Save.

5. **Configure the gateway.**

a. If HOBOmobile is not already connected to the gateway, tap Devices and then tap the gateway to connect to it.

b. Tap Configure.
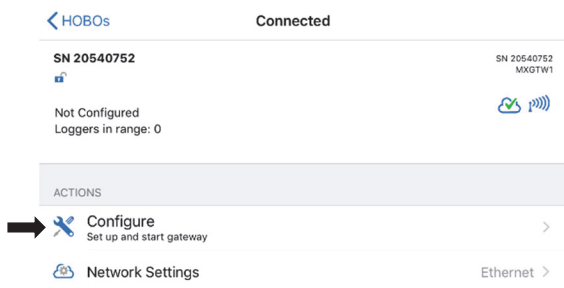
c. Enter a name for the gateway. The gateway serial number will be used if no name is entered.

d. Tap Start.

6. **Set up and start loggers.**

MX series loggers must be configured to use them with the gateway. If any of your loggers are already logging, you will need to reconfigure them as described in the following steps.

Note: MX100 series loggers are not supported by the gateway. Contact Onset Technical Support for questions on MX100 logger compatibility with the gateway.

To configure a logger for use with the gateway:

a. Tap Devices, and then Loggers at the top of the screen.

b. Tap the logger to connect to it and then tap Configure.

c. Make sure "from a Gateway" is checked under Upload Data to HOBOlink.

d. Choose other logger settings keeping in mind the following:

   • A logging interval of 5 minutes or slower is optimal for the gateway, although it can support a logging interval down to 1 minute (see *Viewing Data Uploaded from the Gateway* for details).

   • If you select a logging interval faster than 1 minute, the data logged at the faster rate will not be available for the gateway to upload. Use HOBOmobile to read out the logger and retrieve this data.

   • Burst logging and statistics are not supported by the gateway. Use HOBOmobile to read out the logger and retrieve this data.

   • Bluetooth needs to be enabled in certain logger models for regular gateway uploads to occur. For MX2201, MX2202, and MX2300 loggers, make sure Bluetooth Always Off is disabled. For MX2203, MX2204, and MX2501 loggers, make sure Bluetooth Always On or Bluetooth off Water Detect is selected.

   • The gateway uses Bluetooth Low Energy to communicate over the air with loggers within range. If MX2200 or MX2501 loggers or the top end of an MX2001 logger is deployed in water, the gateway will not be able to communicate with them.

   • MX2200 loggers deployed in water must be out of the water to communicate with

e. Tap Start. See the *HOBOmobile User's Guide* at www.onsetcomp.com/HOBOmobile for more details on using HOBOmobile.

The gateway will regularly check loggers within range and upload data to HOBOlink. See *Viewing Data Uploaded from the Gateway* for details on working with data.

Deployment and Mounting Guidelines

Follow these guidelines when selecting a location to place the gateway:

- The gateway requires AC power and an internet connection. Select a location for the gateway that is near an AC outlet and an Ethernet port (if using Ethernet) or within range of your WiFi router (if using WiFi).

- The range for successful wireless communication between the gateway and loggers is approximately 30.5 m (100 ft) with full line-of-sight. If there are obstacles between the gateway and the loggers, such as walls or metal objects, the connection may be intermittent and the range between loggers and the gateway will be decreased. Test the range by positioning your phone or tablet where you want to deploy the gateway. If the phone or tablet can connect to a logger with HOBOmobile from that location, then the gateway should be able to connect to the logger as well.

- If you are mounting the gateway on a wall or other flat surface, mount the face of the gateway towards the coverage area with the logo oriented horizontally as shown below for optimal signal strength. Also mount away from the corners where walls meet and above the tallest obstructions in the room.

For wall mounting, position the gateway facing the coverage area with the logo oriented as shown

- If you are mounting the gateway on a ceiling, place it on the lowest available mounting point facing downwards for optimal signal strength. Also mount away from HVAC ducts and below I-beams or support beams.

- Use the enclosed mounting kit to mount the gateway to a flat surface. Use the self-tapping screws and anchors to affix the gateway mounting plate to a wall or ceiling.

Gateway mounting plate

Self-tapping screws and anchors

One of four clips to attach to gateway
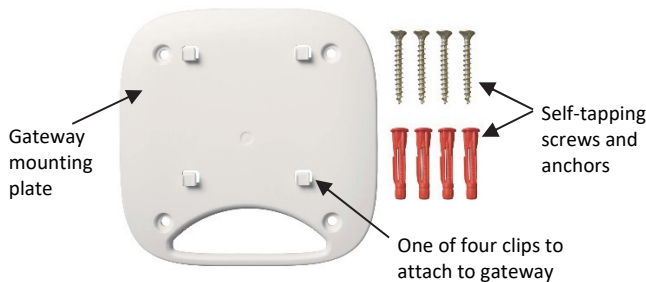
If you are mounting the gateway on a wooden surface, use both the gateway mounting plate and the mounting bracket shown below. Place the gateway mounting plate over the mounting bracket so the holes are aligned. Use the machine screws to affix it the surface (you may need to drill pilot holes in the surface first).

Mounting bracket; attach to mounting plate above

Machine screws

Once the gateway mounting plate is in place on the wall or other flat surface, use the four holes on the back of the gateway to attach it to the four clips on the mounting plate.

Use these holes to attach the gateway to the clips on the mounting plate
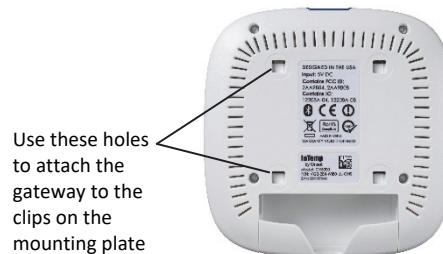
Connecting to the Gateway

To connect to the gateway with your phone or tablet:

1. In HOBOmobile, tap Devices and then tap Gateways at the top of the screen.

2. Tap the gateway in the list to connect to it.

If the gateway does not appear in the list or if it is having trouble connecting, follow these tips:

- Make sure the gateway is within range of your phone or tablet when connecting to it. If your mobile device can connect to the gateway intermittently or loses its connection, move closer to the gateway, within sight if possible. Check the gateway signal strength icon in the app to make sure there is a strong signal between the phone and the gateway. The more blue bars, the stronger the signal.

- Change the orientation of your phone or tablet to ensure the antenna in your device is pointed toward the gateway (refer to your device's manual for the antenna location). Obstacles between the antenna in the device and the gateway may result in intermittent connections.

- Wait a few minutes and then try to connect again. The gateway will not be displayed in HOBOmobile when it is booting or when an automatic firmware upgrade is underway.

- If you recently powered up the gateway and the LED is continuously flashing, but the gateway is not displayed in HOBOmobile, then disconnect the power from the gateway and plug it back in. The gateway should then appear in HOBOmobile after it powers back up.

Once your phone or tablet is connected to the gateway, you can check how many loggers are in range. You can also select one of the following actions:

- **Configure.** Enter a gateway name and tap Start.
- **Network Settings.** Change the Ethernet or WiFi settings.

When the gateway is configured, it is automatically locked to prevent unauthorized wireless access. Press the button next to the LED on the gateway for at least 10 seconds to reset or unlock the gateway.
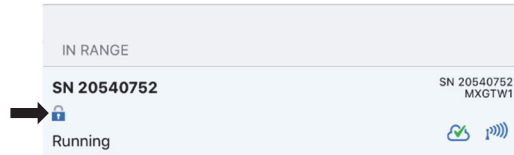
This icon indicates the gateway is connected to the internet. This icon indicates the gateway is currently not connected likely due to a temporary outage. If the problem persists or this icon appears, connect to the gateway and check your network settings to make sure no changes are necessary.

Monitoring the Gateway

A heartbeat is regularly sent from the gateway to HOBOlink to make sure the gateway is still active. If no heartbeat is sent after 15 minutes, then the gateway status will change from OK to missing. The gateway will continue downloading the loggers even if it is not able to connect to HOBOlink. The data will be stored temporarily in the gateway and uploaded the next time it is able to connect to HOBOlink.

To check the status of the gateway in HOBOlink, click Devices and then click MX Devices. Each gateway is listed by name and serial number with the status and the last time data was uploaded with the gateway.

You can also set up an alarm to notify you via text or email when a gateway is missing or when the loggers that are being monitored by the gateway are missing, tripped an alarm, or have low batteries.

To set up a gateway alarm:

1. In HOBOlink, click Devices and then click MX Devices.
2. Click Configure Gateway Alarms.
3. Click Add New Alarm.
3. Select a gateway.
4. Select the alarms you want to add for the gateway:
    - **Missing gateway.** A gateway has not sent a heartbeat to HOBOlink for 15 minutes.
    - **Missing logger.** A logger has not been found by the gateway for 30 minutes.
    - **Logger alarm.** A logger being monitored by the gateway has tripped or cleared a sensor alarm.
    - **Logger low battery.** A logger being monitored by the gateway has a low battery.
5. Select whether you want gateway alarm notifications sent via email or text.
6. Enter the email address or country code destination plus cell number.
7. Click Save Alarms.

Viewing Data Uploaded from the Gateway

A running gateway uses Bluetooth to regularly monitor loggers within range that have been configured for use with the gateway. New logger data received by the gateway is then uploaded via WiFi or Ethernet to HOBOlink every 5 minutes.

To check when the latest data was uploaded, click Devices and then MX Devices. In the MX Devices table, look for the logger (by name, serial number, and/or model number) and check the last sensor reading listed. You can also see the date and time the logger was configured and which gateway uploaded the data.

To view logger data uploaded to HOBOlink from the gateway:

- Set up a dashboard for real-time monitoring of the conditions where the logger is located.
- Export the data to a file.
- Set up a data delivery schedule so that uploaded data is automatically delivered to you via email or FTP on a schedule you specify.

See the HOBOlink Help for details on how to set up a dashboard, export data, or create a data delivery schedule.

Notes:

- A logging interval of 5 minutes or slower is optimal for the gateway, although it can support a logging interval down to 1 minute. If the logging interval is set from 1 minute up to 5 minutes, there may be occasional missing individual data points in exported files. Both the gateway and loggers regularly "advertise" or send out Bluetooth signals. The rate at which these signals are sent may differ between the gateway and the loggers and can result in occasional data points not being uploaded. Use HOBOmobile to read out the logger and generate a report with all data points for the current deployment.
- No data will be uploaded for loggers configured with logging intervals faster than 1 minute. If your deployment requires logging faster than 1 minute, use HOBOmobile to read out the logger and generate a report with this data.
- Burst logging and statistics are not supported by the gateway. If you configured the logger with these settings, use HOBOmobile to read out the logger and create a report with any burst logging data and statistics.

If no data is appearing in HOBOlink, do the following:

- Check the gateway status in HOBOlink. If the gateway is missing, check to make sure it is plugged in, the network settings are correct, and it is within range of the loggers.
- If you just set up a gateway and configured loggers, it may take a few minutes before data begins appearing in HOBOlink. Wait a few minutes and then check HOBOlink again.
- Make sure the logger was configured with "from a Gateway" selected under Upload Data to HOBOlink. If you selected "from HOBOlink" instead of "from a Gateway," then data will only be uploaded to HOBOlink when you read out the logger with your phone or tablet. The gateway will not monitor the logger and upload data when "from HOBOlink" is selected.

- Check that you are logged into the same HOBOlink account that you used to set up the gateway in HOBOmobile.

- Make sure the loggers have started logging and are not waiting for a delayed start or a push button start.

- In certain logger models, you can control whether the logger Bluetooth signal is on or off while logging. The gateway requires the Bluetooth signal to always be on in a logger to continuously upload data to HOBOlink. If you are working with MX2200, MX2300, and MX2501 loggers and no data is appearing in HOBOlink, check the Bluetooth logger configuration setting. For MX2201, MX2202, and MX2300 loggers, make sure Bluetooth Always Off is disabled. For MX2203, MX2204, and MX2501 loggers, make sure Bluetooth Always On or Bluetooth off Water Detect is selected.

- Make sure the logger is not deployed in water. The gateway cannot communicate with loggers while they are deployed in water.

Gateway Firmware Updates

Occasional automatic firmware updates may be necessary for the gateway. While the firmware update is taking place, devices will not be able to connect to the gateway and no data will be uploaded to HOBOlink. The LED on the gateway will blink yellow while the firmware update is underway. The update should only last a few minutes and then the gateway will resume normal operation.