

HOBObconnect[®] User's Guide

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Getting Started




HOBObconnect is software designed to work with Bluetooth® Low Energy-enabled HOBOb® MX devices.

HOBObconnect:	Supports the following:
Mobile Device Requirements	Android 7.0 or later, Bluetooth 4.0 or later
Compatible Devices	MX100, MX1101, MX1102A, MX1104, MX1105, MX2200, MX2300, MX Gateway

For specifications and detailed information about your MX device, refer to the product manual at www.onsetcomp.com/support/manuals.

Download the app from Google Play™ to your phone or tablet. When installing the app, you must allow access to both the phone or tablet's location and to files on your device.

All the features within HOBObconnect are accessed through the three icons at the bottom of the screen.

Tap this icon:	To do this:
	View and connect to loggers and gateways within range of your phone or tablet. Configure loggers, check status, view live data, read out logger data, set up gateways, and more.
	View logger readouts in a graph, export the files, and share them with others.
	Change the app settings and access information about the app.

Viewing Devices

HOBObconnect uses Bluetooth Low Energy to communicate with all loggers and gateways within broadcast range of your phone or tablet (refer to the device manual for range specifications). Loggers that are awake and gateways will “advertise” or regularly send out a Bluetooth signal for the app to find. Tap Devices at the bottom of the screen to view the devices within range.

Information about each logger or gateway is shown in a tile, which can change color and may also have a bar on the left side depending on the logger state as detailed below.

Tap to filter the devices shown

Tap to change the device order




Tap to view the list of Devices

Bar color:	What it means:
Red	An alarm has tripped for the logger (also indicated by the alarm icon).
Orange	The device is in a recovery state, most likely because a firmware update was not completed.

Tile color:	What it means:
Green	A button was pressed on the logger to bring it to the top of the list (not available for all logger models).
White	Normal state; advertisements are being received regularly.
Gray	“Stale” state; no advertisements have been received recently.

Loggers with tripped alarms are listed first. If you've pressed a button on a logger to wake it up (not available on all logger models), then that logger will be at the top of the list. By default, all other loggers are listed in ascending order by name.


To change the order of the devices:

Tap  at the top right of the Devices screen, select one of the following, and tap Ok.

Select this:	To order devices by:
Name	Device name in ascending or alphabetical order. Serial numbers are used if the device was not configured with a name.
Group	Group name in alphabetical order. Devices not assigned to a group are listed after all devices in groups.
Serial #	Device serial number in ascending order. Even if the device was configured with a name, it will still be sorted by serial number.
Model	Device model number in ascending order (e.g. MX1101, MX2301, etc.).
Discovery time	When the app first received a Bluetooth advertisement from a device. The devices are ordered from the first discovered by the app to the last.

Note that the order selected can change slightly if a logger alarm trips or if no Bluetooth advertisements have been received.

To filter the devices shown:

Tap  at the top left of the Devices screen, select All or one or more of the following, and tap Ok.

Select this:	To display the following devices within range:
All	All loggers and gateways.
Gateways	Only gateways.
Loggers	Only loggers.
Favorite	Loggers that have been marked as favorite (see <i>Logger Details and Actions</i> for details on favorites).
My Devices	Loggers and gateways that you have connected to with your phone or tablet. Note: You can clear this list by selecting Clear My Devices List in the app settings.
Ungrouped	All loggers that are not assigned to groups.
<Group Name>	Only loggers that have been configured with the selected group name (see <i>Configuring a Logger</i> for details on groups).

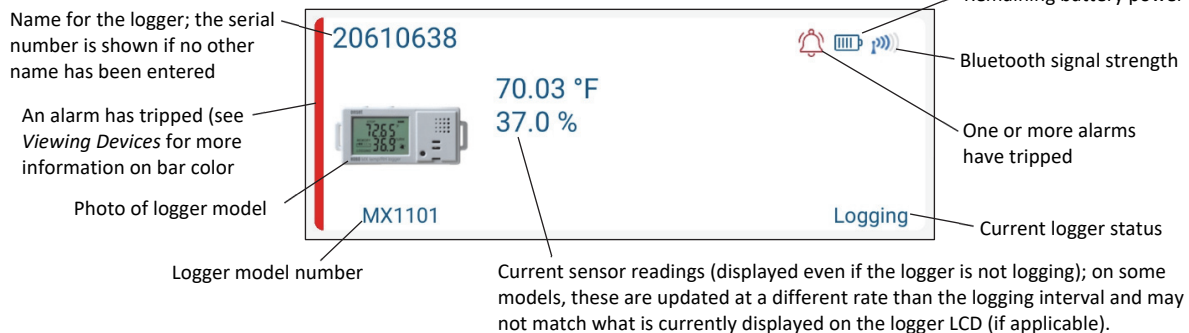
To search for a device:

Tap in the search field at the top of the Devices screen and enter one or more characters. You can search by serial number, logger or group name, or model number. The list will automatically be refined as each character is entered. Click X in the search field to cancel a search.

Checking Device Information

Loggers

Each tile includes the following information about the logger:

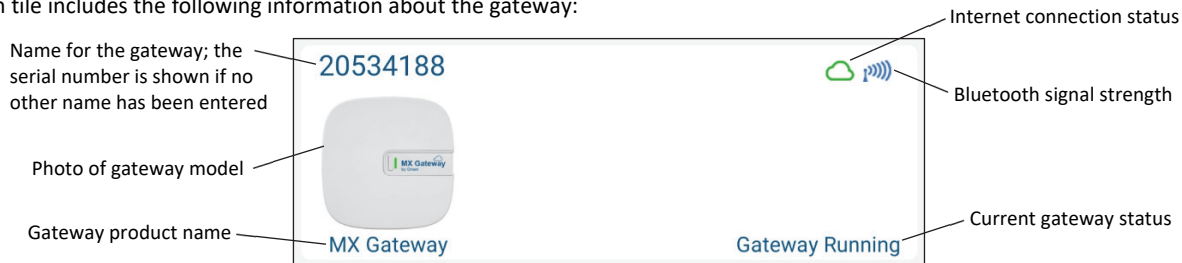


Note:

- **MX1104 and MX1105 loggers:** If the external sensor channel is disabled, the sensor reading is displayed as “- -”. Values from previously connected external sensors may display until the new sensors are configured and logging begins.

Gateways

Each tile includes the following information about the gateway:



Connecting to a Device

To connect to a device:

1. Tap Devices at the bottom of the screen.
2. Find the logger or gateway to connect to by searching or scrolling through the tiles. Press a button on the logger to wake it up (if applicable).
3. Tap the tile to connect to the logger or gateway. Enter your password if prompted.

Tips for connecting to a device:

- Make sure Bluetooth is enabled for your phone or tablet.
- **MX100, MX1104, MX1105, MX2200, and MX2300 loggers:** If the logger is in Bluetooth power saving mode, press the button on the logger to wake it up or remove the MX2203 or MX2204 logger from the water if it is configured with Bluetooth Off Water Detect.
- A logger or gateway must be within range of the phone or tablet to connect to it (refer to the product manual for range specifications). Check the signal strength for the device if the phone or tablet is having trouble connecting to it. If the signal strength shows only one or two blue bars, move the phone or tablet closer to device.
- Check the batteries in the logger. Make sure the batteries are installed properly in new loggers and replace batteries in old loggers if battery voltage is low.
- Change the orientation of your phone or tablet to ensure the antenna is pointed toward the logger or gateway (refer to your phone or tablet's manual for the antenna location). Obstacles between the antenna in phone or tablet and the logger or gateway may result in intermittent connections.

- If the phone or tablet will not connect to a device that appears in the list or if devices are not appearing in the list as expected, close the app and power cycle the phone or tablet to force the Bluetooth connection to reset.
- **MX1102A loggers:** A mobile device cannot connect to an MX1102A logger while a live USB session with HOBOWare® is underway. Disconnect the USB cable if you want to use the app to connect to the logger.
- **Gateways:** If the gateway is currently undergoing an automatic firmware update, then the phone or tablet will not be able to connect to it. The LED on the gateway will blink yellow during a firmware update and then resume normal operation after a few minutes.

Working with a Connected Logger

When the logger is connected to the phone or tablet, a screen similar to this example displays.

The image shows three screenshots of the HOBOnnect app interface with annotations:










- Configuration Screen:**
 - Top left: Tap this arrow to disconnect and return to the list of devices.
 - Top right: Tap to view more details about the logger and access logger password, stop logging, and other features (see *Logger Details and Actions*).
 - Deployment Information:
 - Name: 10844892
 - Group: None
 - Deployment Number: 1
 - Deployment Date: 12/17/2019 12:56:19 PM EST
 - Logger Setup:
 - Logging Interval: 1 minute 0 second
 - Logging Duration: ~27.1 days
 - Start Logging: Now (Current Time Above)
 - Stop Logging
 - When Memory Fills
 - Logging Mode: Fixed - Normal
 - Audible Alarm: Off
 - Bottom left: Tap this icon to read out the logger (see *Reading out a Logger* for details).
 - Bottom right: Tap this icon to configure the logger (see *Configuring a Logger* for details).
- Live Data Screen:**
 - Top: Tap to view a graph of live data updated every 10 seconds. Press and hold anywhere within the axes to view specific points. Note that these may differ from the logged data points; view the graph from a HOBO file to see logged data.
 - Graph: Shows multiple data series (Temperature, Humidity, etc.) over time.
- Logger Details Screen:**
 - Top: Shows logger status and sensor readings. On some models, current readings are updated at a different rate than the logging interval and may not match what is currently displayed on the logger LCD (if applicable).
 - Bottom: Shows logger status and sensor readings. On some models, current readings are updated at a different rate than the logging interval and may not match what is currently displayed on the logger LCD (if applicable).

Logger Details and Actions

When connected to a logger, tap this icon in the upper right corner to view the following:



- Logger serial number, model number, and firmware version
- Percentage of memory used (if applicable, not available for all loggers)
- Remaining battery power
- Bluetooth signal strength

You can also access the following features described in this table.


Tap this icon:	To do this:
	Make the logger beep one time to help you locate it (MX1101, MX1102A, MX1104, and MX1105).
	Illuminate the logger LEDs for several seconds (MX100, MX2200, and MX2300).
	Stop a beeping alarm when it trips on the logger (MX1101, MX1102A, MX1104, and MX1105). See <i>Configuring a Logger</i> for details on the Audible Alarm configuration setting.
	Update the firmware on the logger (only appears when new firmware is available). A logger readout will be completed automatically at the beginning of the firmware update process. Note that if there is a communication failure during the firmware update process, some loggers may revert to the previous firmware.
<div style="border: 1px solid black; padding: 5px;"> <p>Important: Before updating the firmware on the logger, check the remaining battery level and make sure it is no less than 30%. Make sure you have the time to complete the entire update, which requires that your device remains within range of the logger during the update process. Do not switch to another app, turn off Bluetooth, or disturb the logger while the update is underway.</p> </div>	
	Set a password for the logger so that it is not mistakenly stopped or reconfigured. Tap the icon, enter a password, and then tap Set. Once a password is entered on phone or tablet, that mobile device will be the only one to “remember” it. This means you can connect to the logger without entering a password on that mobile device, but you will be required to enter a password on all other mobile devices. For example, if you set the password for the logger with your tablet and then try to connect to the device later with your phone, you will be required to enter the password on the phone but not with your tablet. Similarly, if others attempt to connect to the logger with different devices, then they would also be required to enter the password. To reset a password: <ul style="list-style-type: none"> • Simultaneously press both the Start/Stop button and the Alarm/Stats button (MX1101), the Start/Stop button and the Next/Clear button (MX1102A), or the top and bottom buttons (MX1104 and MX1105) on the logger for 3 seconds; • Press the button on the MX100, MX2200, or MX2300 for 10 seconds; or • Tap this icon and then tap Reset.
	Mark the logger as a favorite. You can then filter the list of devices to only show loggers marked as favorites. Tap this icon  to unmark the logger as a favorite.
	Start or resume logging. This is available if the logger was configured to start logging On Button Push or if the logger was configured to stop logging On Button Push and to Allow Button Restart (see <i>Configuring a Logger</i>).
	Stop logging.

Configuring a Logger


To configure a logger:



1. Tap Devices at the bottom of the screen.
2. Find the logger by searching or scrolling through the tiles. Press a button on the logger to wake it up (if applicable).
3. Tap the tile to connect to the logger and then tap  towards the bottom of the screen. Read out the logger if prompted.
4. Make changes to the configuration settings by tapping a row (see the tables in this section for details on each setting).
5. Tap  to save the new configuration settings to the logger.

Deployment Information

Deployment Information Setting	Description
Name	Type a name for the logger, which will also be used as the default data file name. If no name is entered, the logger serial number will be used as the name.
Group	<p>Assign a logger to a group to help identify it. For example, if you have loggers deployed on three floors of a building, you can create a group for each of the three floors and then add each of the loggers to the appropriate group. Tap Group and then select an existing group or type a new group and tap Add. Tap Save.</p> <p>To delete a group: Tap Group, press and hold the group you want to delete, and tap .</p> <p>To remove a logger from a group: tap Group, select None, and then tap Save.</p>
Deployment Number	This is how many times the logger has been configured; it cannot be edited.
Deployment Date	This is the date and time the logger was last configured; it cannot be edited. If you need to change the time zone for your next deployment, change the settings on your phone or tablet.

Logger Setup

Logger Setup Setting	Description
Logging Interval	<p>Select the rate at which the logger will take measurements in hours, minutes, and seconds. Note that the faster the logging interval, the greater the impact on battery life and the shorter the logging duration. Note: If the logger is in burst logging mode, then measurements are taken at the burst logging interval (described later in this section).</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Important note for MX1102A loggers: Battery life for MX1102A loggers is less than 6 months when logging CO₂ and selecting a logging or sampling interval faster than 5 minutes. Select logging and sampling intervals of 5 minutes or slower when the carbon dioxide sensor is enabled to prolong battery life. If you select intervals faster than 5 minutes, you will need to replace the batteries more frequently.</p> </div> <p>MX1104, MX1105, MX2200, and MX2300 loggers: If you configure an alarm, the logger will use the logging interval you selected as the rate to check for alarm conditions. If burst logging is configured, however, the logger will use the burst logging interval as the rate to check for burst trigger conditions instead of the logging interval.</p>
Logging Duration	This is the approximate time it will take to fill the logger memory based on the logging interval and other factors, such as logging mode and sensors currently selected (if applicable). This is an estimate only and cannot be edited; battery life and other factors, such as the number of readouts performed, audible alarms (if applicable), and paging (if applicable) will also affect the deployment.
Start Logging	<p>Tap Start Logging, choose one of the following and then tap Save:</p> <ul style="list-style-type: none"> • Now. Logging will begin immediately after saving the configuration settings. • On Next Logging Interval. Logging will begin at the next even interval as determined by the selected logging interval. This is useful if you want the logger to start and then subsequently log data on an even minute. • On Button Push. Logging will begin once you tap  in the app or you press the applicable button on the logger. • On Date/Time. Logging will begin on the date and time you specify. Select the date and time. Note that if you need to change the selected time zone, you must change your phone or tablet's time zone settings and restart the app.

Logger Setup Setting	Description
Stop Logging	<p>Tap Stop Logging, choose your options described below, and then tap Save. Note: Regardless of the options you select, you can stop the logger at any time by connecting to it, tapping  in the upper right corner, and then tapping .</p> <p>Memory Options</p> <ul style="list-style-type: none"> • When Memory Fills. The logger will continue recording data until the memory is full. • Never (Wrap When Full). The logger will continue recording data indefinitely, with newest data overwriting the oldest. This option is not available for loggers in which the logging mode is set to Burst. <p>Button Options</p> <ul style="list-style-type: none"> • Select On Button Push if you want to be able to stop logging by pressing the Start button on the logger for 3 or 4 seconds. • MX1101, MX1104, and MX1105 loggers: If you select the On Button Push setting for Stop Logging, then you also have the option to select Allow Button Restart. This allows you to pause and resume logging by pushing the Start/Stop button on the MX1101 logger or the top button on the MX1104 or MX1105 logger for 3 seconds. <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>Important: When Allow Button Restart is selected and you press the button, logging will restart on the next even logging interval. For example, a logger started logging at 7:00 AM with a logging interval set to 1 hour. If you press the button to stop the logger at 8:45 AM and then press the button again at 10:15 AM, logging will not begin immediately at 10:15 AM. Instead, logging will begin again at 11:00 AM, which is the next even interval time based on your 1-hour logging interval. Therefore, depending on the logging interval, the gap between the time you press the button to resume logging and the time actual logging begins could be significant. The faster the logging interval, the less time will elapse before logging resumes.</p> </div> <p>Time Options</p> <ul style="list-style-type: none"> • Never. Select this if you do not want the logger to stop at any predetermined time frame. • On Date/Time. Select this to set the date and time you want the logger to stop logging. Note that if you need to change the selected time zone, you must change your phone or tablet's time zone settings and restart the app. • After. Select this to set how long the logger should continue logging once it starts in days, hours, minutes, and/or seconds. For example, select 30 days if you want the logger to stop logging after for 30 days.
Logging Mode	<p>Tap Logging Mode, select Fixed or Burst Logging Mode and choose any applicable setting, and tap Save (all models except MX100).</p> <p>Fixed Logging Mode</p> <p>The logger records data for enabled sensors and/or selected statistics at the logging interval selected. Any selected statistics are calculated at a sampling rate you specify with the results recorded at each logging interval.</p> <ol style="list-style-type: none"> 1. Select Normal to record the current reading for each enabled sensor at each logging interval. Do not select this if you <i>only</i> want to log statistics. 2. Select the statistics you want the logger to record for all enabled sensors at each logging interval: <ul style="list-style-type: none"> • Maximum, the highest value from the sampling period • Minimum, the lowest value from the sampling period

Logger Setup Setting	Description
	<ul style="list-style-type: none"> • Average, the mean of all values during the sampling period • Standard deviation from the average for all sampled values (requires average). <p>3. Set the Statistics Sampling Interval, which is the rate used for calculating statistics and must be a factor of the logging interval. For example, if the logging interval is 1 minute and you select 5 seconds for the sampling rate, then the logger will take 12 sample readings between each logging interval (one sample every 5 seconds for a minute) and use the 12 samples to record the resulting statistics at each 1-minute logging interval. Note that the more frequent the sampling rate, the greater the impact on battery life.</p>

Important note for MX1102A loggers: Battery life for MX1102A loggers is less than 6 months when logging CO₂ and selecting a logging or sampling interval faster than 5 minutes. Select logging and sampling intervals of 5 minutes or slower when the carbon dioxide sensor is enabled to prolong battery life. If you select intervals faster than 5 minutes, you will need to replace the batteries more frequently.



Burst Logging Mode

The logger records data for enabled sensors at the normal logging interval until the readings rise above or fall below specific limits, at which time the logger switches to a faster burst logging rate until the readings return to normal. For example, the logger is configured with a logging interval of 5 minutes and burst logging is configured to log every 30 seconds when the temperature rises above 85°F (the high limit) or falls below 32°F (the low limit). This means the logger will record data every 5 minutes as long as the temperature remains between 32°F and 85°F. Once the temperature rises above 85°F, for example, the logger will switch to the faster logging rate and record data every 30 seconds until the temperature falls back to 85°F. At that time, logging then resumes every minute at the normal logging interval. Similarly, if the temperature falls below 32°F, for example, then the logger would switch to burst logging mode again and record data every 30 seconds. Once the temperature rises back to 32°F, the logger will then return to normal mode, logging every 5 minutes.

1. Select the burst logging interval, which must be faster than the logging interval.
2. Select Low and/or High for each sensor and either type or drag the slider to set the low and/or high values.

Notes:

- Sensor alarms, statistics, and the Stop Logging option Wrap When Full are not available in burst logging mode.
- The actual values for the high and low burst limits are set to the closest value supported by the logger.
- **MX1101, MX1102A, and MX2001 loggers:** Once the logger is configured, the high and low burst logging limits are only checked once every 15 seconds. Therefore, if you set the logging interval to less than 15 seconds and the sensor reading falls outside the limits, the burst logging will not begin until the next 15-second cycle.
- **MX1104, MX1105, MX2200, and MX2300 loggers:** The high and low burst limits are checked at the burst logging interval rate whether the logger is in normal or burst mode. For example, if the logging interval is set to 1 hour and the burst logging interval is set to 10 minutes, the logger will always check for burst limits every 10 minutes.
- Once the high or low condition clears, the logging interval time will be calculated using the last recorded data point in burst logging mode, not the last data point recorded in normal mode. For example, a logger has a 10-minute logging interval and logged a data point at 9:05. Then, the high level was surpassed and burst logging began at 9:06. Burst logging then continued until 9:12 when the sensor reading fell back below the high level. Now back in normal mode, the next logging

Logger Setup Setting	Description
	<p>interval will be 10 minutes from the last burst logging point, or 9:22 in this case. If burst logging had not occurred, the next data point would have been at 9:15.</p> <ul style="list-style-type: none"> If the logger is stopped with a button push while in burst logging mode, then a New Interval event is automatically logged and the burst condition is cleared, even if the actual high or low condition has not cleared. The logger will check the high and low conditions when logging resumes (if the logger was configured with Allow Button Restart selected; MX1101, MX1104, and MX1105 loggers only).
Audible Alarm	<p>Tap the toggle to turn the audible alarm for the logger off or on (MX1101, MX1102A, MX1104, and MX1105 loggers only). If the audible alarm is on, then the logger will beep once every 30 seconds when an alarm trips until one of the following happens (whichever occurs first):</p> <ul style="list-style-type: none"> The alarm is cleared from app (connect to the logger, tap  in the upper right corner, and then tap ). One of the buttons on the logger is pressed. Seven days have passed. <p>Notes:</p> <ul style="list-style-type: none"> Once cleared, an audible alarm will start beeping again if the sensor values go out of the normal range. Even if an audible alarm is cleared, a visual alarm may remain on the logger LCD and in the app depending on the settings selected for maintaining visual alarms or because the alarm condition may still be in effect. In addition, an audible alarm will continue beeping when the sensor values have returned to the normal range until it is cleared. It is recommended that you only enable this feature if you have regular access to the logger so that you can easily turn off the beeping. Note that battery life will be slightly reduced each time the audible alarm sounds.
Maintain Visual Alarms Until	<p>Select one of the following options and tap Save to determine how long the alarm icon will remain visible in the app (and illuminated on the logger LCD screen if applicable) after an alarm trips:</p> <ul style="list-style-type: none"> Logger Reconfigured (all models except MX100). The alarm icon will remain visible until the next time the logger is reconfigured. Sensor in Limits (all models except MX100). The alarm icon will remain visible until the sensor reading returns to the normal range between any configured high and low alarm limits. Alarm Button Pressed (MX1101, MX1102A, MX1104, and MX1105 loggers). The alarm icon will remain visible until you press the Alarm/Stats button (MX1101), the Clear/Next button (MX1102A), or the bottom button (MX1104 and MX1105) on the logger. <p>Notes:</p> <ul style="list-style-type: none"> MX100 loggers: The Maintain Visual Alarms Until setting is selected automatically when an alarm is configured. When an alarm trips, the logger alarm LED blinks every 4 seconds (unless Show LED is disabled), an alarm icon appears in the app, and an Alarm Out of Range event is logged. Even if the temperature reading returns to a normal range, the alarm indicator will not clear in the app and the alarm LED will continue to blink. MX1101, MX1102A, MX1104, and MX1105 loggers: Although an audible alarm and a visual alarm can occur at the same time when a sensor alarm is tripped, they are cleared in different ways. The audible alarm can be cleared as described under the Audible Alarms section. Meanwhile, a visual alarm is cleared as determined by the three settings above. You may clear a beeping audible alarm, but the visual alarm remains on the LCD (if applicable) and in the app until the logger is reconfigured, the sensor is in limits, or the button is pressed (if applicable)--whichever setting you selected. If the logger was configured to stop

Logger Setup Setting	Description
	logging with a button push, any tripped alarms will be cleared automatically when logging is stopped and no Alarm Cleared event will be logged in the data file. This ensures that the logger will start checking for alarm conditions when logging resumes (if the logger was configured with Allow Button Restart selected; MX1101, MX1104, and MX1105 loggers only).
Show LCD	Tap the toggle to control whether the LCD on the logger will remain illuminated during logging (MX1101, MX1102A, MX1104, and MX1105 loggers). When Show LCD is set to off, the LCD on the logger will not show the current reading, status, or other information during logging. You can temporarily turn the LCD screen on by pressing the button on the logger for 1 second. The LCD will then remain on for 10 minutes. In addition, you can view the status of any in-range logger on your phone or tablet regardless of the logger's LCD setting.
Show LED	Tap the toggle to control whether the LEDs on the logger are visible during logging (MX100, MX2200, MX2300 models). When Show LED is set to off, the alarm and status LEDs on the logger will not be illuminated during logging (the alarm LED will not blink if an alarm trips). You can temporarily turn on LEDs by pressing the button on the logger for 1 second.
Bluetooth Always On	<p>Tap the toggle to control whether the logger will “advertise” or regularly send out a Bluetooth signal for the app to receive (MX100, MX1104, MX1105, MX2201, MX2202, and MX2300 loggers). When Bluetooth Always On is set to off, the logger will only advertise when you press the button on the logger to wake it up, thereby preserving as much logger battery power as possible.</p> <p>Note: If you are using an MX Gateway, Bluetooth is automatically enabled to ensure regular gateway uploads can occur.</p>
Power Saving Mode	<p>Select one of the following options and tap Save (MX2203 and MX2204 models):</p> <ul style="list-style-type: none"> • Bluetooth Always Off. The logger will only “advertise” or regularly send out a Bluetooth signal for the app to receive when you press the HOBOb button on the protective logger boot. This option uses the least logger battery power. • Bluetooth Off Water Detect. The logger will not advertise when the presence of water is detected. Once the logger is removed from the water, Bluetooth advertising will automatically resume. This option preserves some battery power. Note: The logger will check for the presence of water every 15 seconds when this option is selected. • Bluetooth Always On. The logger will always advertise. This option uses the most battery power.
Upload Data via	<p>Select how data from the logger is uploaded to HOBOblink (requires an active HOBOblink account; see <i>HOBObconnect Settings</i>):</p> <ul style="list-style-type: none"> • Gateway. The gateway will automatically upload data from the logger to HOBOblink on a regular basis (see <i>Configuring a Gateway</i> for details on setting up a gateway). Note: MX100 series loggers are not supported by the gateway. Contact Onset Technical Support for questions on MX100 logger compatibility with the gateway. • HOBObconnect. The app will upload data to HOBOblink every time you read out the logger with the app. <p>Note: If “Upload Data via” is grayed out, then the Upload Data setting in the app has been disabled. See <i>HOBObconnect Settings</i> for details.</p>

Sensors and Alarm Setup

Sensors & Alarm Setup Setting

Description

Follow these steps for general sensor and alarm setup. See the sections on MX1102A and MX1104/MX1105 sensor setup for additional instructions for those models.

1. Tap a sensor or channel. Tap the toggle to Enable Logging (if necessary).
2. Enter a name for the sensor or channel.
3. If you want to set an alarm for the sensor, select Low and/or High for each sensor and either type or drag the slider to set the low and/or high values.
4. Under Duration, select how many hours and/or minutes you want to elapse before the alarm is tripped and select one of the following:
 - Cumulative. The alarm will trip once the sensor reading is out of the acceptable range for the selected duration any time during logging. For example, if the high alarm is set to 85°F and the duration is set to 30 minutes, then the alarm will trip once the sensor readings have been above 85°F for a total of 30 minutes since the logger was configured.
 - Consecutive. The alarm will trip once the sensor reading is out of the acceptable range continuously for the selected duration. For example, the high alarm is set to 85°F and the duration is set to 30 minutes, then the alarm will only trip if all sensor readings are 85°F or above for a continuous 30-minute period.
5. Tap Save. Repeat the steps for another sensor if applicable.

Notes:

- If Temperature and RH measurements are being logged, then a dew point series will also be calculated and available in the data file upon readout or when viewing live data.
- The actual values for the high and low alarm limits are set to the closest value supported by the logger.
- For MX1101 loggers and for MX1102A loggers powered by USB, alarm limits are checked every 15 seconds. For MX1102A loggers powered by batteries, CO₂ alarm limits are checked every 5 minutes (temperature and RH alarm limits are still checked every 15 seconds). If you are configuring a CO₂ sensor alarm for a battery-powered logger, it is recommended that the duration you select is divisible by 5 and a minimum of 5 minutes.
- For MX1104, MX1105, MX2200, and MX2300 loggers, alarm limits are checked at each logging interval. If burst logging is configured, however, the logger will use the burst logging interval as the rate to check for burst trigger conditions instead of the logging interval.
- The alarm icon will be illuminated on the logger LCD (if applicable) when the alarm trips. You can also press the Alarms/Stats button (MX1101), Clear/Next button (MX1102A), or the bottom button (MX1104 and MX1105) on the logger to view the value that triggered the alarm. The LCD (if applicable) displays the farthest out-of-range sample during the deployment.

MX1102A Sensor Setup

When configuring the CO₂ sensor for the MX1102A logger, these settings are also available:

- **Altitude Compensation.** If the logger will be deployed at a location above or below 305 meters (1,000 feet), select Enable Altitude Compensation. Enter the altitude above sea level in meters or feet. **Note:** In normal use, the CO₂ measurement will vary by approximately 0.135% of the reading for each mbar change in barometric pressure (the sensor is calibrated at 1,013 mbar). Use altitude compensation when deploying the logger for the best CO₂ accuracy possible.
- **Manual Calibration.** Manual calibration is the best way to calibrate your logger. Use this option if you want to manually calibrate the logger to 400 ppm using the Calibrate

Sensors & Alarm Setup Setting

Description

button on the logger. This requires taking the logger outside in fresh air on a dry day or to an indoor location that is unoccupied and has no connection to a ventilation system for five minutes on a regular basis. This is recommended if the logger is deployed in a building that is always occupied, if you want the logger to be calibrated more frequently than every eight days (the normal auto calibration schedule), or if you want to calibrate the logger immediately after logging begins. **Note:** Every time the logger is started, auto calibration will occur after 24 hours and then again after eight days unless a manual calibration is performed first.

- **Auto Calibration.** Tap Automatic if you want the logger to automatically calibrate within the first 24 hours after logging begins and then every eight days thereafter. The logger will be calibrated based on the average of the three CO₂ measurements that follow the lowest CO₂ value identified during the 24-hour or 8-day time period as applicable.

Important: Accurate auto calibration requires the building or location where the logger is deployed to be empty at least once during the eight-day period (for example, an empty office building during the weekend or overnight will typically have background CO₂ levels of 400 to 450 ppm).

If the logger is deployed in an area where the CO₂ level does not go down to 400 ppm during the eight-day time period, then manual calibration should be performed regularly instead or inaccurate CO₂ readings will be reported. If you plan on using auto calibration but the building will be occupied during the first day after logging begins, then you can use the manual calibration option as well. You can manually calibrate the logger immediately after logging begins and use auto calibration thereafter. **Note:** Once a manual calibration is performed, the 24-hour auto calibration is canceled and an auto calibration will be performed eight days from the time the manual calibration occurred. (Restarting the logger resets the 24-hour/8-day auto calibration routine).

Refer to the logger manual at www.onsetcomp.com/support/manuals/22504-mx1102a-manual for additional details on calibrating the logger.

MX1104/MX1105 Sensor Setup

When configuring external sensors for the MX1104 and MX1105 loggers, follow the instructions and guidelines in this section.

- **For self-describing sensors:** The sensor type will automatically be detected when you plug it in (i.e. 200 Amp CT as in the example below).

Self-describing sensor plugged in, listed as "Connected: <sensor type>"

Tap this arrow

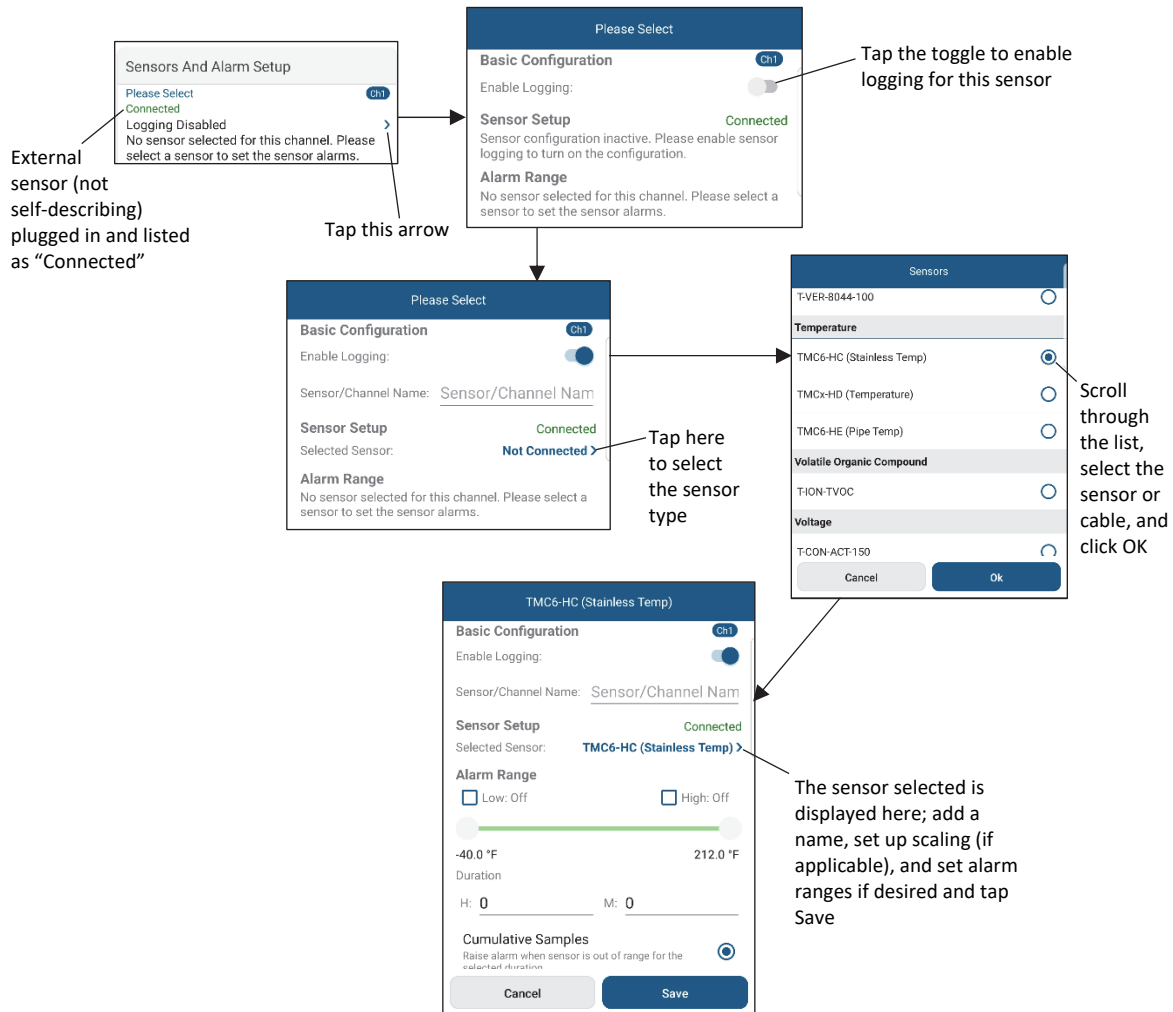
Tap the toggle to enable logging for this sensor

The selected sensor type is grayed out because it is automatically detected; add a name, set up scaling (if applicable), and set alarm ranges if desired and tap Save

Sensors & Alarm Setup Setting

Description

- **For other external sensors:** The app will detect that a sensor is connected when you plug it in, but it will not automatically detect the sensor. You must select the correct sensor or cable type as shown in the following example.



Notes on all external sensors:

- If custom scaling is available, enter the Series Name, Unit, and values for High and Low under the selected sensor.
- For MX1104 loggers, the external sensor is channel 1. For MX1105 loggers, the sensor channel number is listed above the analog sensor port where the external sensor is connected.
- The app will display "Connected" in green text if the sensor is plugged in correctly and "Disconnected" in red text if a sensor has been unplugged. If "Sensor Error" in red text is displayed, make sure the sensor or cable is fully seated and installed properly in the logger analog sensor port.
- If you plug in a self-describing sensor in a port that was previously configured for a different sensor, "Connected: <sensor type>" is displayed in orange text until you reconfigure that channel for the new sensor.

TMC6-HC (Stainless Temp) Ch2
 Connected : 200 Amp CT
 Logging Enabled
 High: 212.00 °F
 Low: Off
 Raise Alarm After : 0 minute cum. samples



Sensors & Alarm Setup Setting	Description
	<ul style="list-style-type: none"> • Make sure you select the correct sensor type in the app if you are not using self-describing sensors. If you select the wrong type, then incorrect data will be logged. In addition, if you unplug a sensor, the app will still display the last selected sensor type for that channel. If you plug in an external sensor other than a self-describing sensor, the previously selected sensor type will still be selected. Be sure to choose the correct sensor type for the new sensor that you plugged in. • If you disconnect a sensor or if it is not fully inserted into the analog sensor port while the logger is logging, a warning icon appears on the LCD for that channel and the logger will beep once. Use the top button on the logger to view the channel with the warning, which also displays dashes instead of a valid current reading. Erroneous readings will be displayed in the app and logged depending on the logging interval while the sensor is disconnected (e.g. if a sensor is disconnected for 5 minutes and the logging interval is set to 1 minute, then there will be 5 erroneous data points while the sensor was disconnected). When the sensor is reconnected, the warning icon will clear, the correct value will replace the dashes for the channel on the LCD, and the correct readings will be logged. • Be sure to disable logging for any channels without external sensors installed. If logging is enabled for a channel without a sensor, then a warning icon appears on the LCD for that channel and the logger will beep once. • Do not swap out sensors or move sensors to empty ports while the logger is logging. Stop the logger before making any physical changes to the sensors. • Refer to the product manual at www.onsetcomp.com/support/manuals/23968-mx1104-and-mx1105-manual for additional details on installing external sensors.

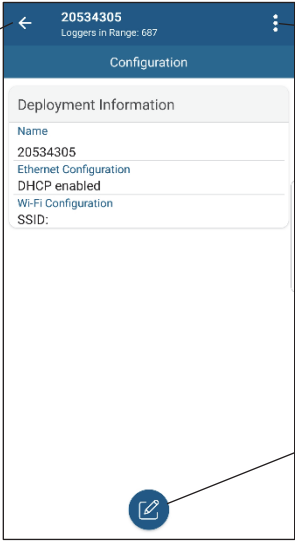
Configuring a Gateway

Note: These instructions require that the gateway is powered, completely booted up, and an Ethernet cable is already plugged in (if applicable). See the product manual at www.onsetcomp.com/support/manuals/23470-mxgtw1-gateway-manual for details on initial gateway setup.

To configure a gateway:

1. Tap Devices at the bottom of the screen.
2. Find the gateway by searching or scrolling through the tiles.
3. Tap the tile to connect to the gateway.

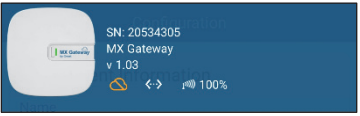
4. Once connected, tap  at the bottom of the screen as shown below to configure the gateway. You can also tap  in the upper right corner to view more information about the gateway.











Tap this arrow to disconnect and return to the list of devices

Tap here to view more details about the gateway, including the serial number, firmware version, and the information in the table at right

Tap this icon to configure the gateway




This icon:	Indicates:
	Connected via Ethernet
	Connected via Wi-Fi
	The network status is unknown
	The gateway is running
	The gateway is not configured
	There is a problem with the gateway; check the gateway settings
	The signal strength from the gateway to the phone or tablet

5. Enter a name for the gateway. If no name is entered, the gateway serial number will be used as the name.
6. If the Ethernet connection is using DHCP (dynamic IP addresses), then skip to step 7.
- To set up Ethernet with static IP addresses, tap Ethernet Configuration, tap DHCP toggle to disable DHCP. Fill in the networking fields and tap Save. Consult your Network Administrator as needed.
 - To set up Wi-Fi, tap Wi-Fi Configuration, tap Current Network or type a network name. Enter the password for the network and tap Save.
7. Tap  to save the new configuration settings to the gateway.

The gateway will regularly check loggers within range and upload data to HOBOLink (requires an active HOBOLink account; see *HOBObconnect Settings*). Loggers must be configured to upload data via the gateway (see *Configuring a Logger*). **Note:** MX100 series loggers are not supported by the gateway. Contact Onset Technical Support for questions on MX100 logger compatibility with the gateway.

Reading Out a Logger

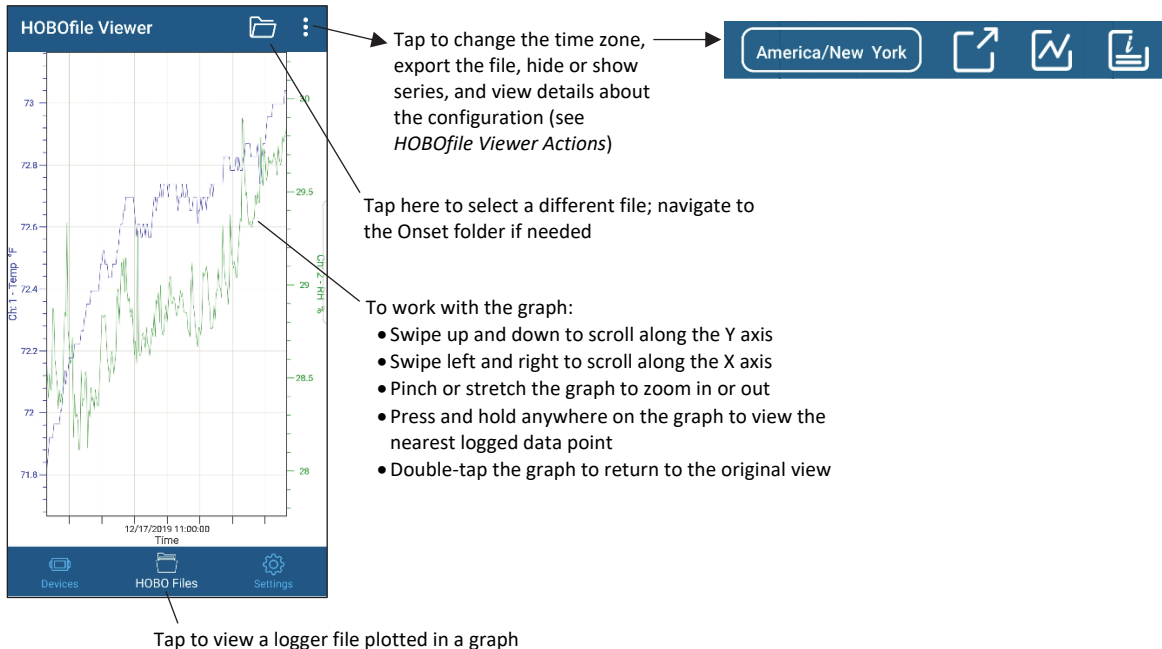
To read out or offload the data from a logger to a phone or tablet:

- Tap Devices and then tap a tile with the logger to connect to it. Press a button to wake up the logger if necessary or remove it from the water if applicable.
- Once the logger is connected, tap  towards the bottom of the screen. Wait until the readout completes.
- Tap HOBOb Files to view or export the data (see *Using the HOBObfile Viewer*).

Once the readout is complete, the data will be uploaded to HOBOLink automatically if the logger was configured to upload data via HOBObconnect (requires an active HOBOLink account; see *HOBObconnect Settings*). If the logger was configured to upload data via a gateway instead, then the gateway will continue uploading data regularly independently of this readout.

Using the HOBOfile Viewer

Use the HOBOfile Viewer to view and export data that has been offloaded from the logger. Tap HOBOf Files at the bottom of the screen and select a file to open.



HOBOfile Viewer and Actions

When connected to a logger, tap this icon  in the upper right corner to view the following:

Tap this icon:

To do this:



This is the time zone setting in place on the phone or tablet when the logger was configured. Tap the time zone, select a different one, and tap Save to change the time zone that is displayed on the graph and used when exporting the data to XLSX or CSV. Note that a change to the time zone only applies while the file is open in the HOBOfile Viewer. If you close the file and reopen it, it will revert to the original time zone used when the logger was configured.



Tap to export and share the file that is currently open in the HOBOfile Viewer. Select one of the following:

- **XLSX.** This generates an Excel file with data points from all series on one tab and logged events on a second tab.
- **CSV.** This generates a comma-separated values file with data points from all series and logged events on one spreadsheet.
- **HOBOf.** Share the .hobo file that you have opened in the HOBOfile Viewer.
- **PNG.** This generates an image of the graph as it currently appears in the HOBOfile Viewer. Note that if you export to PNG more than once from the same HOBOf file, the existing .png file will be overwritten with the latest one. Therefore, if you want to save multiple views of the graph (e.g. one default view and one zoomed in view), make sure you share the first PNG you export before exporting another.

Exported files are saved to the phone or tablet regardless of whether you share them immediately upon export. To access the files, navigate to your files on your phone or tablet, select Internal storage and then navigate to the Onset folder. HOBOf files downloaded from the logger are stored in the main Onset folder and any exported XLSX, CSV, and PNG (image) files are stored in subfolders.



Tap here to show or hide sensors, channels, and logger events and tap OK. By default, logger events (such as Alarm Tripped or Alarm Cleared), derived series (such as dew point), and statistics are not displayed on the graph.

Tap this icon:

To do this:



Tap here to view the configuration settings selected for the logger.

HOBObconnect Settings

Tap Settings at the bottom of the screen to change the following settings in HOBObconnect:

Setting	Description
HOBOblink	<p>Connect a HOBOblink account to the app so that logged data can be automatically uploaded to www.hoboblink.com, where you can further analyze the data, set up dashboards, and more.</p> <p>Tap Connect Account. Enter your HOBOblink username and password and tap Connect. (If you don't have a HOBOblink account, tap Create New Account first).</p> <p>Once your account is connected, the following additional options are available:</p> <ul style="list-style-type: none"> • Tap Log Out if you want to disconnect your HOBOblink account from the app. You can then connect another account or reconnect to the same one. • Tap the Upload Data toggle to enable or disable the ability to automatically upload logged data from the gateway or the app. When this option is disabled, then the option to upload data will be grayed out when configuring the logger. When this option is enabled, then you can select whether to upload the data via the gateway or HOBObconnect when configuring the logger. • Tap the Wi-Fi Only toggle to enable or disable whether the app uses Wi-Fi only to upload data. If Wi-Fi Only is enabled, then the app will only upload data when a Wi-Fi connection is available. If Wi-Fi Only is disabled, then the app will use a cellular connection to upload data when a Wi-Fi connection is unavailable. • Readout Queue Status indicates whether there are any HOBOb files that were read out from loggers waiting to be uploaded to HOBOblink (i.e. the app was unable to connect to the internet and will try again later). Tap the status to see a list of current and pending file uploads.
Units	Select either US or SI units. Any changes to units will take effect immediately throughout the app. The units displayed on the logger LCD (if applicable) will be updated the next time the logger is configured.
Devices	Clear My Devices List works in conjunction with the My Devices filter (see <i>Viewing Devices</i>) in which only the devices that your phone or tablet has connected to are shown in the Devices screen. Tap Clear My Devices List if you want to remove all the devices that you have connected to from the My Devices filtered view. You will then need to switch to a different filter to view any devices within range.
Diagnostics & Troubleshooting	<p>These settings control the information that is gathered and shared with Onset.</p> <ul style="list-style-type: none"> • Tap the Share Diagnostics with Onset toggle to enable or disabled sharing of information about the software for troubleshooting and for future enhancements. • Tap the Enable Logging toggle and enable this setting only when directed by Onset Technical Support. When you enable this setting, the Share Logs with Onset option appears. Use this as directed by Onset Technical Support.

Frequently Asked Questions

The following questions can help with troubleshooting issues with the app. For additional help, tap About HOBObconnect in the settings to view a list of resources, or contact Onset Technical Support at 1-800-LOGGERS, 508-759-9500, or www.onsetcomp.com/support/contact.

Why isn't my logger appearing in the list of devices?

- The logger may need new batteries (if applicable). Symbols will appear on the logger LCD (if applicable) if the batteries have enough voltage remaining and are installed properly.
- The logger is not within range of the phone or tablet or something is obstructing the communication. Move closer to the logger. The range for successful wireless communication is approximately 30.5 m (100 ft) with full line-of-sight.
- The MX100, MX1104, MX1105, MX2200, or MX2300 logger may be asleep. Press the button on the logger to wake it up.

- Remove the MX2203 or MX2204 logger from the water if it was configured with Bluetooth Off Water Detect.
- Make sure Bluetooth is enabled in your phone or tablet's settings.
- Check the filter settings to make sure the logger isn't being filtered out of view.

Why isn't my gateway appearing in the list of devices?


- The gateway may not be finished powering up. When plugged in for the first time, the gateway will not be ready to configure—and will not appear in the app—for several minutes.
- The gateway is not within range of the phone or tablet or something is obstructing the communication. Move closer to the gateway. The range for successful wireless communication is approximately 30.5 m (100 ft) with full line-of-sight.
- Make sure Bluetooth is enabled in your phone or tablet's settings.
- Check the filter settings to make sure the gateway isn't being filtered out of view.

I see my logger in the list of devices, but I can't connect to it. What can I do?

- Close the app and then reopen it.
- Power cycle the mobile device (turn the power off and then back on) and try connecting again.



I was configuring my logger and then lost the connection. Will my configuration settings be saved?



If you did not tap  before the connection was lost, then the configuration settings were not saved to the logger. Connect to the logger again and re-enter your settings.



How do I lock my logger so that no one else can configure it?



Connect to the logger, tap  in the upper right corner, and tap . Enter a password and tap Set. The password will then be required any time another mobile device attempts to connect to the logger. The device that configured the logger, however, will automatically retain the password so you do not have to type in a password each time that device connects to the logger.

How do I reset the password on a logger?




Connect to the logger, tap  in the upper right corner, tap , and tap Reset. You can also simultaneously press both the Start/Stop button and the Alarm/Stats button (MX1101) or Next/Clear button (MX1102A) on the top of the logger, or both the top and bottom button (MX1104 and MX1105) for 3 seconds. Press the button on the MX100, MX2200, or MX2300 for 10 seconds.

An alarm was tripped on the logger. How do I clear it?


Visual alarms on the logger LCD (if applicable) and within the app (for MX1101, MX1102A, MX1104, MX1105, MX2001, MX2200, MX2300, and MX2501 loggers) are cleared based on the settings selected under "Maintain Visual Alarms Until" when configuring the logger. This means the visual alarm will clear when the logger is reconfigured, when the sensor is back within limits, or when the button on the logger is pressed (if applicable) depending on which option you selected. MX100 alarm indicators are only cleared when you reconfigure the logger.



If an audible alarm is sounding, press the button on the logger to stop it or connect to the logger and tap  (if applicable).

How do I offload my logger?



Connect to the logger and tap . Once the readout is complete, tap HOBOb files to view or export the offloaded data.



It is taking more than a minute to read out my logger. Is this normal?

A logger with a full memory should take a minute or less to read out (all models except the MX1104 and MX1105). If the readout is taking longer than a minute, move the mobile device closer to the logger, within a few feet if possible. The further away the mobile device is from the logger, the longer the readout can take. MX1104 and MX1105 loggers have a larger memory capacity than other models so it may take a few minutes to read them out.

I zoomed in on a graph in the HOBObfile Viewer. How do I return it to the original view?

Double-tap the graph to return to the original view.

How do I view the individual data points in a list instead of a graph?

Export the file from the HOBObfile Viewer. Tap  in the top right corner and then tap . Select either XLSX or CSV, which creates a spreadsheet with all the data points.


How do I add or remove series or events from the graph?

Tap  in the top right corner of the HOBObfile Viewer and then tap . Select or deselect the sensors, statistics, and events you wish to show or hide on the graph and tap OK.

Is there a way to copy all my data files to my computer?

Yes, connect the phone or tablet to your computer with a USB cable. Navigate to the Onset directory under your phone or tablet and copy the files. HOBOb files downloaded from the logger are stored in the main Onset folder and any exported XLSX, CSV, and PNG (image) files are stored in subfolders. **Note:** If you export a file while the phone or tablet is connected to the computer, there may be a delay before the exported file is visible on the computer due to Android processing.

My device is showing too many loggers. How can I view my devices only?

Tap  at the top left of the screen and select My Devices. Only the devices that your logger connected to will be shown in the list.

If my logger is configured to upload data to HOBOblink from a gateway, then will it also upload data to HOBOblink if I read it out with the app?

No. Data can only be uploaded to HOBOblink either by a gateway or by the app, not both. When you read out a logger that was configured to upload data from a gateway, then the file will be available in the app only and not uploaded to HOBOblink. The gateway will continue to monitor the logger and upload data regularly to HOBOblink regardless of when you read out the logger with app.

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