HOBOlink® User's Guide

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Chapter 1: Introduction to HOBOlink

HOBOlink is web-based software that works with the HOBO Remote Monitoring System. With HOBOlink, you can:

- Access current and historical data, provided in either text or HOBOware format,
- Set and view alarms, and
- Manage and control your devices.

Supported Devices

HOBOlink works with the following devices:

- HOBO U30/GSM (requires HOBOlink Communication Plan)
- HOBO U30/Wi-Fi
- HOBO U30/Ethernet

The device type you are connected to is indicated in the **Device Info** panel of the **Device Page**.

Security

HOBOlink provides users with password-protected accounts and 108-bit encrypted connection so you can keep your data entirely private or make it accessible to others through the Public Access feature.

Alarms

HOBOlink can automatically notify you via cell phone text message or email when conditions exceed user-defined limits, giving you peace of mind knowing that your system is functioning properly.

Supported Browsers

HOBOlink supports the following browsers with cookies and JavaScript enabled:

- Internet Explorer 8 and higher
- Firefox 15 or higher
- Safari 5 and higher
- Chrome 22 or higher

What You Need

To begin using HOBOlink, you must have the following:

- A HOBO U30 Station with Remote Communication capabilities (GSM, Wi-Fi, Ethernet),
- Compatible Smart Sensors and/or Analog Sensors,
- HOBOware Pro software and a USB cable for configuring sensors,
- Cellular service at the deployment location if you are using the HOBO U30/GSM.

An Overview of the HOBOlink User Interface

The first time you log in to HOBOlink, the **Devices** page opens with a list of all the devices you have registered to this user account. To see details on a particular device, click the device nickname. To register a device click *Register a Device* at the bottom of the page.

The Devices page opens in either List or My Summary view depending on which view you were using that last time you logged in to HOBOlink.

List View

The List view presents a list of all devices registered to the user account plus key information about each device, including the last connection time and current status.

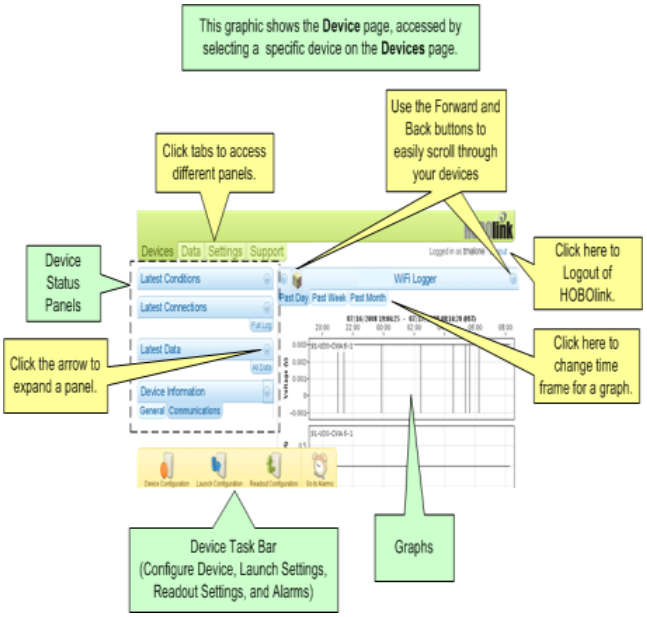
My Summary View

The My Summary view is a customizable page that allows you to show a snapshot of each device with sensor measurements. See My Summary View for more information.

Device Page

When you select a specific device, you are taken to that device's page, shown below.

NOTE: To change the image that appears in the device icon (above the Past Day tab), go to Device Configuration and click **Edit** in the Image section.



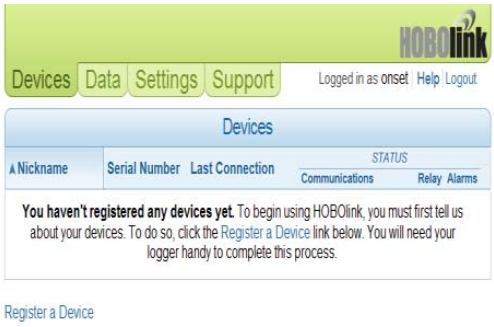
Creating a HOBOlink Account

To create a HOBOlink account:

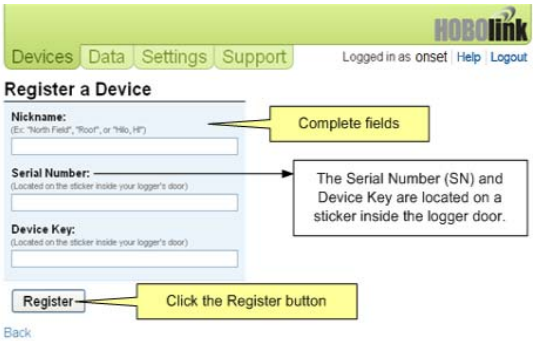
1. Go to the HOBOlink website at www.hobolink.com.
2. Click the Create an Account button.
3. Enter the following information in the fields:
   - Your first and last name.
   - An email address for HOBOlink to send account information as necessary, including the email message that you will need to activate your account.
   - A username from 3 to 100 characters (not case-sensitive). Once you create a username, you cannot change it. The only way to create a new username is to delete the existing account and create new one.
   - A password from 4 to 30 characters. Passwords are case-sensitive. Enter it again to confirm that you typed it correctly.
4. Read the Terms of Use and click I agree.
5. Click Create Account. HOBOlink will send an email to the address you provided to activate your account.
6. Open the email and click the activation link, which will automatically log you into HOBOlink where you can register your device.

Registering a Device

1. After you log in to HOBOlink, click the **Register a Device** link.



The *Register a Device* page appears.



2. Complete the fields as described below:

   Nickname - A name to identify the logger (up to 30 characters).

   Serial Number - The Serial number of the logger, located on a sticker inside the logger door.

   Device Key - The Device key of the logger, located on a sticker inside the logger door.

3. Click the **Register** button.
4. Click on the device Nickname to open the Device page.

Communications Plan Overview

If you are using a U30 with Remote Communication (GSM, WiFi, Ethernet), you must have a HOBOlink Communications Plan. There are a number of plan options depending on your model and your connection needs. Contact Onset Sales for details.

Plan Information

Your plan information is displayed in the Communications section of the **Device Information** panel. This includes:

- Plan number
- Plan start and end date
- For GSM only, the monthly cellular usage, which is the percentage of the communication plan used so far
- GSM or Wi-Fi Signal Strength. (Signal Strength is also indicated in the Latest Connections panel.

Plan Expiration

If your plan is nearing expiration, you will receive an email notification as well as a warning at the top of the Device Page, as shown below.

Changing Plans Prior to Expiration

If you change your existing plan prior to its expiration, follow these steps:

NOTE: Changing plans prior to expiration will result in an additional fee.

1. Unregister the Device.
2. Cycle power on the device to force it to connect to HOBOlink. Allow the device to make one full connection to HOBOlink.
3. Re-register the Device.

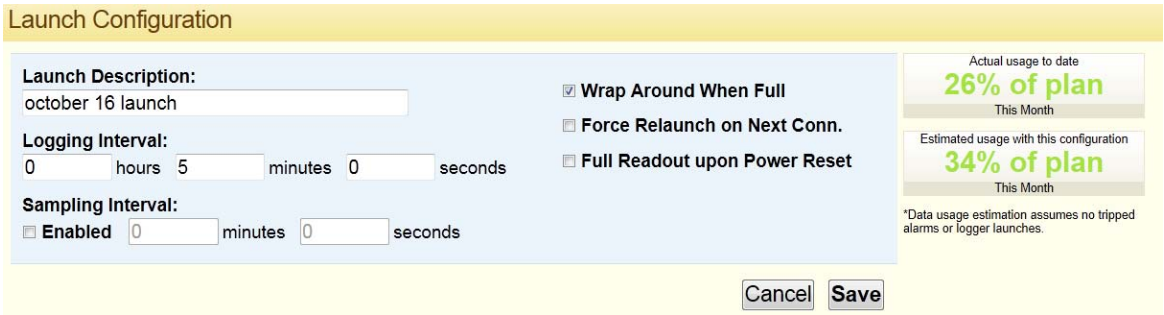
The device is now registered to your account with the new Communications Plan. Note that the minimum values for your plan are automatically applied for the *Launch Configuration* and *Readout Configuration*.

GSM Communications Plan Banners

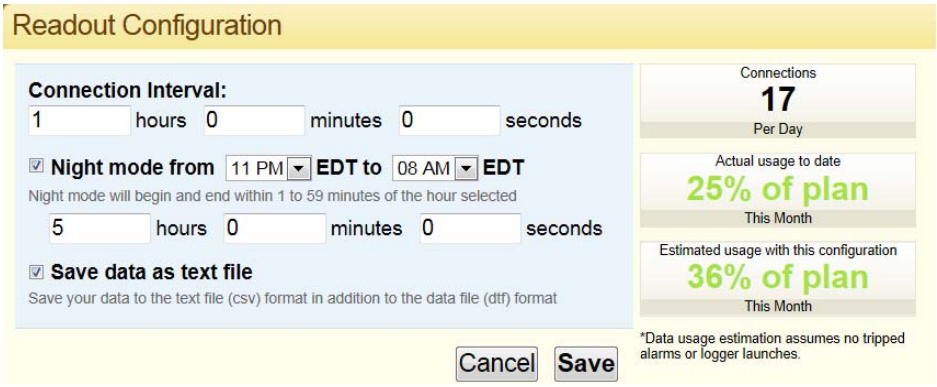
If you have a GSM Communication Plan, the *Launch Configuration Panel* and the *Readout Configuration Panel* include banners to help you track your data usage. There are two banners on both panels. One banner displays the percentage of the plan used to date. The other banner displays the estimated, or projected, usage with the current configuration. As you change the logging interval in the Launch Configuration panel or the connection interval in the Readout Configuration panel, the estimated usage will automatically update so you can determine whether your communication plan can support the revised settings.

Note: The estimated usage assumes the device is not relaunched and there are no tripped alarms. A tripped alarm uses approximately 7k of communications data (depending on your configuration and number of sensors). Factor in the number of alarms you expect to receive when determining your data usage and requirements.

Banners in the Launch Configuration panel:

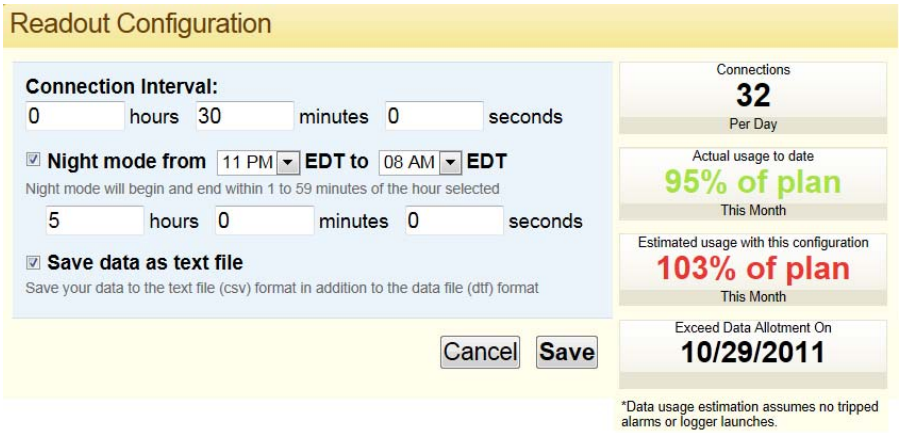


Banners in the Readout Configuration panel:



Exceed Byte Total

The Exceed Byte Total banner will appear in these panels if you are in danger of exceeding or have exceeded the byte allocation for your current plan. This banner displays the date on which the byte allocation will reach 100 percent if you keep the current settings. It is recommended that you adjust the logging and/or connection interval if you are in danger of exceeding the byte limit on your plan.



GSM Communications Plan Notifications

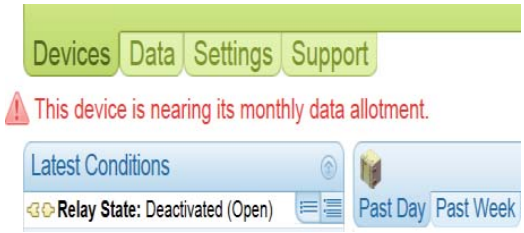
This topic describes the notifications you may receive related to your Communications Plan data usage.

Data Limit Caution

If your current Connection Interval and Logging Interval settings put you in danger of exceeding your data limit, you will be notified by email. If you receive this warning, you should adjust the settings to ensure that you do not exceed your limit. This condition will also be indicated by the Communications Plan Banners.

Data Limit Warning

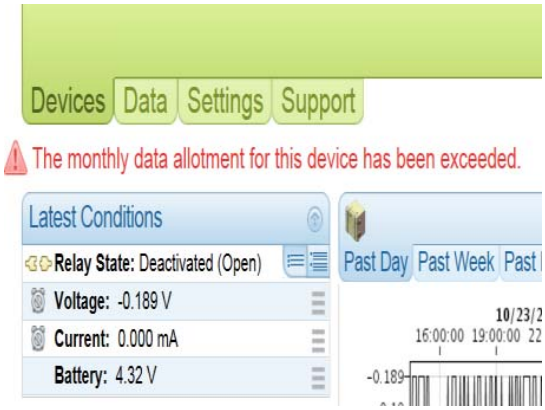
If you have used most of your data allocation for the period, you will be notified by email and a warning will appear at the top of the Device Page, as shown below. You should adjust your Connection Interval and Logging Interval settings immediately to avoid suspension of service.



This condition will also be indicated by the Communications Plan Banners.

Data Limit Exceeded

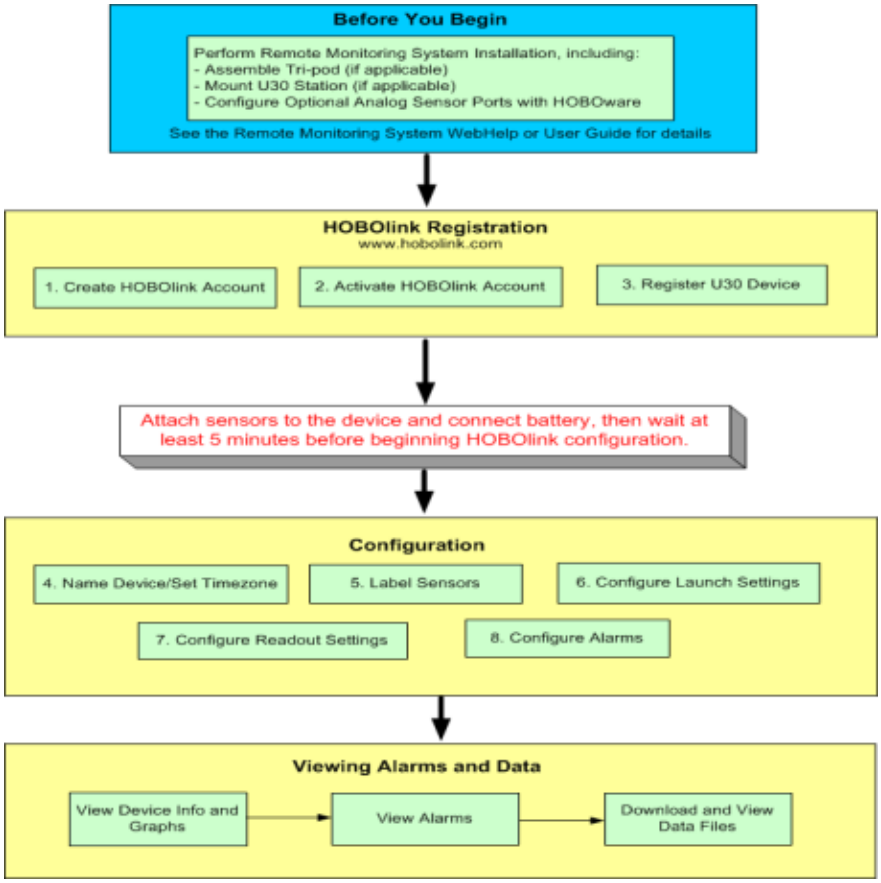
If a device exceeds its data allocation for the month, you will receive an email notification, alarms will be disabled, and the device will not connect to HOBOlink until the first day of the next month. The status will change to indicate the monthly byte usage has been exceeded and a message will also appear at the top of the Device page as shown below.



This condition will also be indicated by the Communications Plan Banners.

A Summary of HOBOlink Tasks

The diagram below shows the major tasks you perform with HOBOlink.



Chapter 2:
Basic Configuration

Refer to these topics in this chapter for the basics about configuring your device with HOBOlink.

- Configuring a Device
- Configuring Launch Settings
- Configuring Readout Settings
- Unregistering a Device
- Labeling Sensors
- Allowing Public Access to your Data

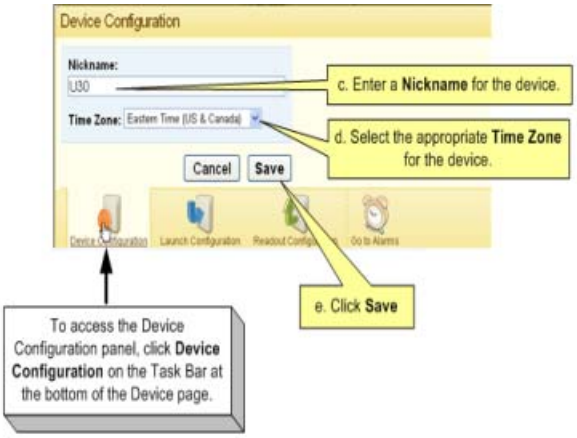
Configuring a Device

Use the Device Configuration panel to assign a "nickname" to a device and to set the time zone.

Accessing the Device Configuration Panel

To access the Device Configuration panel, go to the Device page and click the Device Configuration icon at the bottom of the page.

Device Configuration Panel



A **Nickname** of up to 30 characters that identifies the device.

If you will be setting up more than one device, it is helpful to select a meaningful name so that you can easily identify it from the list of all your devices in HOBOlink.

This will take effect as soon as you click **Save**.

The appropriate **Time Zone** setting for the device ensures that the time stamps for your data are displayed properly for your region.

If Daylight Saving Time is in effect for your time zone, the time will be adjusted accordingly.

Changes to the time zone will not be reflected in the graphs until after the next connection with HOBOlink.

Configuring Launch Settings

Overview

Because this system is designed to allow continuous logging and transmission of data, once you launch the U30 Station it will always use the schedule you have selected for logging. Any changes you make to the launch configuration will take effect the next time the U30 Station connects to HOBOlink.

You should minimize changes to the Launch Configuration as each change causes a re-launch, which uses Communications Data and creates a new data file.

Important: Although you can launch the U30 Station with HOBOware Pro, it is strongly recommended that launching be done exclusively through HOBOlink. Any launch parameters that you have set up with HOBOlink will override the launch parameters set in HOBOware Pro.

NOTE: The Delayed Launch feature in HOBOware is not supported with HOBOlink. The device will launch at the next scheduled launch time as configured in HOBOlink.

NOTE: The data shown in the Past Month graph is limited by the maximum data file size of 512k, which may be less than one month in some cases. The amount of days included in a data file depends on your logging interval and the number of sensors.

Steps

1. Access the Launch Configuration panel

   Go to the Device page and click the Launch Configuration icon at the bottom of the page.

2. Enter Launch Description

   Enter a description of up to 30 characters for the launch. The Launch Description is used as the file name for data readouts. Note that changing this field after it has been configured will cause the device to be re-launched the next time it connects to HOBOlink.

3. Enter Logging Interval

   Choose the rate at which you want the logger to record data. The minimum logging interval is one minute, and the maximum for most loggers is 18 hours. The shorter the logging interval, the more quickly the memory fills and battery power is consumed.

   Changing this field after it has been configured will cause the device to be re-launched the next time it connects to HOBOlink.

   NOTE: If you launch the logger in HOBOware with a shorter logging interval, HOBOlink will re-launch the logger with the interval you configured the next time it connects.

4. Enter Sampling Interval (Optional)

   The sampling interval is optional, and is valid only for sensors that support measurement averaging. Refer to the sensor's user manual to determine whether your sensor supports measurement averaging.

   The sampling interval allows you to take multiple measurements within the logging interval, then average them together to create a single logged measurement. The Sampling Interval must be less than or equal to the Logging Interval.

   If you have at least one sensor that supports measurement averaging, check the box to enable measurement averaging, then set the sampling interval at less than or equal to the logging interval (up to four minutes). Rapid sampling (faster than one minute) will reduce the logger's battery life.

If you do not have any sensors that support measurement averaging, uncheck the box to disable the sampling interval and avoid unnecessary strain on the logger's battery.

Changing this field after it has been configured will cause the device to be re-launched the next time it connects to HOBOlink.

5. Enable Optional Features.

Wrap Around When Full

You can allow the logger to wrap and continue logging after the memory has filled up. The newly logged information will overwrite the oldest logged information. Check this box if you want the logger to continue logging, overwriting the older data, instead of stopping when it is full. Onset recommends that you enable wrapping for most applications.

Changing this field after it has been configured will cause the device to be re-launched the next time it connects to HOBOlink.

Force Relaunch on Next Connection

Check this box if you want to re-launch the logger without changing any of the other settings on this pane. For example, you might need to re-launch a logger that has filled up (without wrap enabled) and stopped, or to begin logging with new/changed sensors. After the relaunch this feature will be disabled.

Full Readout upon Power Reset

Check this box to have the logger do a full readout in the case of a power rest. This will take a significant amount of time. **Onset recommends that you do not enable this feature**.

If you are concerned about losing important data, you can configure a frequent Connection Interval (Readout Configuration), or if you lose power, you can use HOBOware to manually retrieve data from the logger.

6. When finished click **SAVE**. Changes will go into effect at the next launch.

Configuring Readout Settings

The Readout Configuration panel allows you to configure the readout/connection schedule for your logger. Changing Readout Configuration will not force a relaunch of the device.

NOTE: You can manually readout the U30 using HOBOware. Connect the HOBO U30 to a computer running HOBOware. From the main menu, select **Readout**. When the readout is complete, disconnect the U30 from the computer. While the U30 is connected to HOBOware, it will not will connect to HOBOlink at the next scheduled Connection Interval.

Steps

1. Access the Readout Configuration panel

   Go to the Devices window and click the Readout Configuration icon at the bottom of the page.

2. Enter a Connection Interval

   The Connection Interval is the rate at which the logger will contact HOBOlink and be read out. At each interval, the data file is updated on the HOBOlink website, and the details are updated on the device info page. The shortest possible interval is ten minutes or twice the **Logging Interval**, whichever is greater.

NOTE: If you are performing a pre-deployment test set-up, you may want to configure a frequent Connection Interval so that you can verify proper operation without having to wait as long for updates. For the U30/GSM, this will be limited by the Fastest Connection Allowed by your Communication Plan. To bypass your GSM Communication Plan restrictions for testing see below.

Once you confirm the readouts are occurring as they should, you can change the Connection Interval to your desired ongoing schedule for deployment.

To bypass GSM Communication Plan restrictions for testing, you can manually connect to HOBOlink for a test using HOBOware. Connect the HOBO U30 to a computer running HOBOware. From the main menu, select **Status**, and then click the **Contact HOBOlink** button. After the test disconnect the U30 from the computer. The U30 will connect to HOBOlink at the next scheduled Connection Interval.

NOTE: If an alarm trips, the connection schedule will be re-started from that time (unless the device is in Night Mode). For example, if you have been connecting every hour (1:00, 2:00, 3:00) and then an alarm trips at 3:15, the logger will connect again at 4:15).

Keep in mind that frequent readouts will reduce battery life and increase the bandwidth needed by your device.

Changes to the connection interval take effect after the next connection.

3. Enable Night Mode (Optional)

   To preserve battery power and minimize connection charges, enable the Night Mode feature. This allows you to set up two readout schedules with more frequent connections during one period and less frequent connections during another.

   a. Check off the box to enable Night Mode.
   b. Select the Starting and Ending Time. Night mode will begin sometime between 1 minute to 59 minutes after the hour that you select.
   c. Enter the Connection Rate for the Night Mode time period.

4. Enable Save data as text file feature (Optional)

   Check this box to have data files saved in .txt format as well as .dtf format.

5. When finished, click **Save**. Your changes will go into effect at the next readout.

Troubleshooting

Changes I made to the Readout Configuration haven't taken effect

Any changes you make to the Readout Configurations will not take effect until the next time the HOBO U30 Station connects to the HOBOlink. If your connection interval was set to 2 hours, then changes won't take effect until the next connection on that 2-hour schedule.

Too many calls are being made to HOBOlink

- Select a slower connection interval in Readout Configuration.
- Consider enabling Night Mode, which allows you to set up a second, slower connection interval.

Unregistering a Device

To unregister a device:

Before You Begin: Download all the device's data files. Once you have removed a device, you will not be able to use HOBOlink to access the data files from that device.

1. Click the Devices tab to access the device list.
2. Click List if the Devices tab is currently displaying My Summary.
3. Click the icon in the row for the device to be removed.

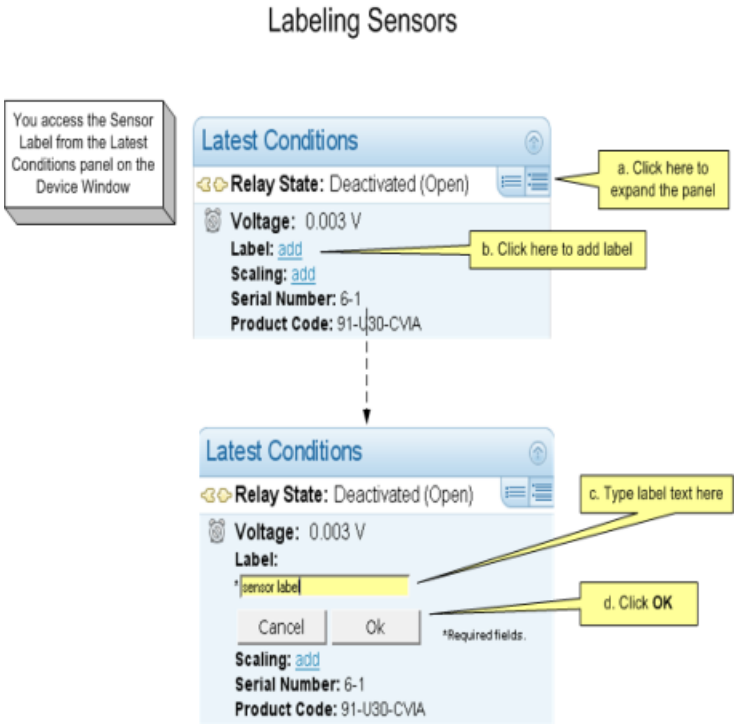
The device is no longer registered to your account and will no longer automatically connect to HOBOlink. To force the device to connect to HOBOlink, cycle the power.

The device can be registered to another account or re-registered on the same account.

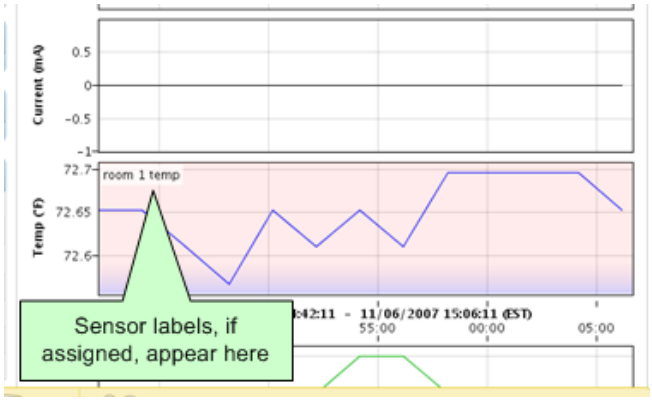
Labeling Sensors

You should label your sensors to identify them in HOBOlink, especially if you have more than once sensor of the same type. **Note:** Sensors are listed by default in ascending order by serial number.

Procedure



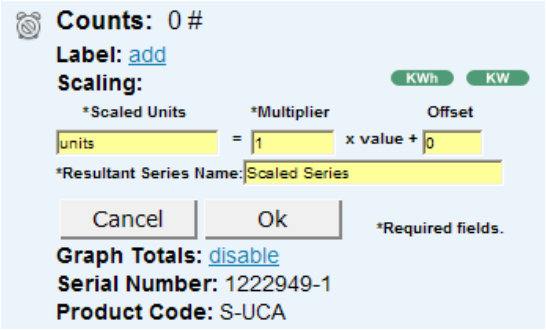
Label in Data Graph



Chapter 3: Scaling Data

The Scaling feature allows you to scale your data to a different engineering unit. This includes linear and pulse scaling, which allows scaling for kWh, kW, or for any device data that is output in electronic pulses, as well as analog inputs from the S-CIA and S-VIA analog input adapters and scaling for the E50B2 Power & Energy Meter.

You configure scaling in the **Latest Conditions** pane on the **Devices** page.



Graphs will be updated to reflect the new scaled data values the next time the device connects to HOBOlink and future data files will include scaled data.

IMPORTANT NOTE: Scaled channels will only appear in text (.txt) format, not in the raw .dtf files. To have scaled units appear in the text file, select *Save data as text file* in the **Readout Configuration** panel. See Downloading in Text Format for more information.

When you configure alarms, make sure you enter the values in the scaled units. If you configure scaling and have existing alarms, you must modify the alarms to use the scaled units.

If you unplug a scaled sensor, then plug it back in, you will lose your scaling configuration and must reenter it.

Steps

1. Go to the sensor you want to scale in the **Latest Conditions** panel.

   Make sure the panel is expanded to show all fields (see Latest Conditions Panel)

2. Next to the **Scaling** field, click *add*.

   The Scaling Configuration pane appears.

3. Enter the appropriate values in the fields.

   HOBOlink will convert the raw values to scaled values using the following equation:

   y = m * x + b

   Where:

   y = scaled units

m = multiplier, in scaled units

x = un-scaled value

b = offset, in scaled units

NOTE: HOBOlink requires you to enter a multiplier and offset. If you are not provided with multiplier and offset by the sensor specifications, you must calculate them using the raw output range and the corresponding measurement range. See Calculating Scaling Values.

4. Type a name for the scaled series. If you will be exporting .csv files to Microsoft Excel, then do not use quotation marks (") in the series name.
5. Click **ok** to save and apply changes (or click **cancel** to close the form without saving any changes).

Upon saving, the measurement type in the display will change to the name you entered in the *Resultant Series Name* field, followed by the Scaled Units. The next time the device connects to HOBOlink, the scaled units will appear in graphs, labels, and exported text files.

Calculating Multiplier and Offset

NOTE: Multiplier and Offset are sometimes referred to as "slope and intercept".

If you are not provided with multiplier and offset by the sensor specifications, you must calculate them using the sensor's specifications for raw output range (raw values) and the corresponding measurement range (scaled values).

To calculate the multiplier and offset you will need 2 raw values and their corresponding scaled values.

raw1 -> scaled1

raw2 -> scaled2

NOTE: Third-party sensors

- WattNode:

  If you are using a WattNode kWh sensor, see WattNode Sensor Scale Factors for Energy or WattNode Sensor Scaling Factors for Power.

- Veris Industries:

  Veris Industries h8051 / H8053 kWh transducers provide a choice of "kWh per pulse" rate, selectable with dip switches located on the transducer/CT. Make sure the scaling factor you are putting into HOBOlink matches your choice.

  If you are using the E50B2 Power & Energy Meter, there are different scaling factor you should use. See Scaling for the E50B2 Power & Energy Meter.

Multiplier

To calculate the multiplier (m) use the following equation:

m = (scaled2-scaled1)/(raw2-raw1)

NOTE: If both raw1 and scaled1 are zero, calculate the multiplier using the following equation: m = scaled2/raw2. In this case you do not need to enter an offset in the scaling configuration pane.

Offset

Once you have determined the multiplier, you can determine the offset (b) using the following equation:

b = scaled1 - (m * raw1)

Example

Assume you have a water level sensor that measures 0-10 feet, output as 4-20mA to the HOBO U30 Station.

In this case:

raw1 = 4 mA

raw2 = 20 mA

scaled1 = 0 feet

scaled2 = 10 feet

1. Determine the Multiplier

   m = (scaled2-scaled1)/(raw2-raw1)

   m = (10-0)/(20-4)

   m = 0.625

2. Determine Offset

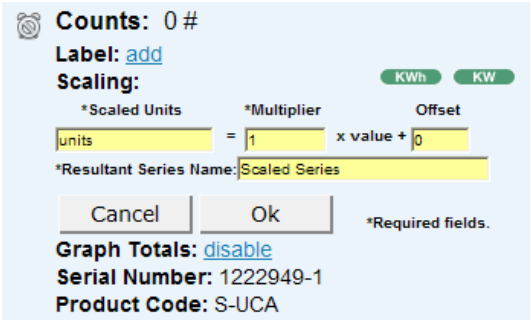
   b = scaled1 - (m * raw1)

   b = 0 - 0.625 * 4

   b = -2.5

Scaling Configuration Pane

Use the Scaling Configuration Pane to scale your data to a different engineering unit.



Field Definitions

* Required Field

Scaled Units *

Enter text to indicate the units to be scaled to, such as "KWh" (max: 20 characters).

Multiplier *

"m" in the equation y = m x + b

Enter the numerical value used to scale the units (max: 10 digits). If this value is not provided in the sensor specifications, see Calculating Scaling Values.

NOTE: See WattNode Sensor Scale Factors for Energy, WattNode Sensor Scaling Factors for Power, or Scaling for E50B2 Power & Energy Meter for scaling factors for those devices.

Offset

"b" in the equation y = m x + b

Enter an offset if applicable, in the scaled units (max: 10 digits). The default is 0.

NOTE: Some manufacturers give their offsets in raw units so you must convert the value to scaled units (multiply by multiplier), using the following formula:

b (offset in scaled units) = m (slope) * offset in raw units

Resultant Series Name *

max: 30 characters

For example, *Energy Used*.

If you will be exporting .csv files to Microsoft Excel, then do not use quotation marks (") in the series name.

Scaling Example: Counts to Liters

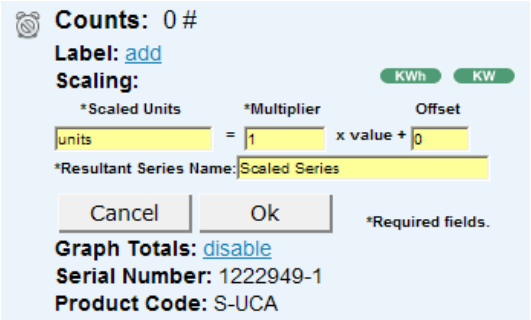
In this example you are converting counts to liters to measure water usage during peak hours.

Calculating Multiplier

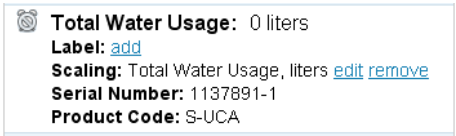
Given a ratio of 1 count = 5 liters: multiplier = 5 / 1 = 5

Configuring Scaling

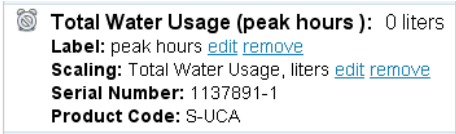
1. Next to **Scaling** click **Add**.
2. Enter the Scaled Units (liters), the Multiplier (5) and the Resultant Series Name ("Total Water Usage").
3. Click **OK**.



The series name is now "Total Water Usage" and the scaling entry indicates "liters".



You can optionally add a label to further identify the series. Next to **Label**, click **Add** and enter the label name (in this example "peak hours").



Scaling Example: Current (mA) to Inches of Water Column (in WC)

In this example you are converting mA to inches of Water Column (in WC) to measure air duct pressure.

Calculating Multiplier and Offset

Assuming the following values:

raw1 = 4 mA

raw2 = 20 mA

scaled1 = 0 in WC

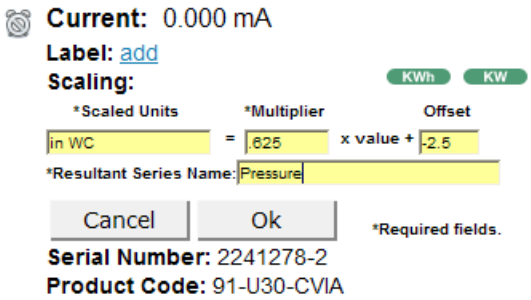
scaled2 = 10 in WC

Then the multiplier is m = (10.0 - 0.0) / (20 - 4) = .625

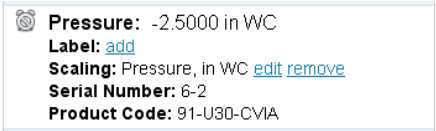
And the offset is b = 0 - (.625 *4) = -2.5

Configuring Scaling

1. Next to **Scaling** click **Add**.
2. Enter the Scaled Units ("in WC"), the Multiplier (.625) and the Resultant Series Name ("Pressure").
3. Click **OK**.



The series name is now "Pressure" and the scaling entry indicates "in WC".



You can optionally add a label to further identify the series. Next to **Label**, click **Add** and enter the label name (in this example, "air duct bldg 3").

Calculating Power in Kilowatts

Power in kilowatts is calculated by multiplying the multiplier by the pulse count. You need to calculate the multiplier and enter it in the Scaling Configuration pane. **Note:** See Scaling for the E50B2 Power & Energy Meter for different scaling factors for that device.

To calculate the multiplier, use the following equation:

(3600 ÷ *Logging Interval* in seconds) ÷ pulses per kWh

To determine Pulses per kilowatt-hour:

if you are using a WattNode sensor, refer to WattNode Scale Factors for Power.

For other manufacturers, refer to the documentation that came with the sensor.

Enter the result in the **Multiplier** field in the **Scaling Configuration** pane. Enter 0 for the Offset.

IMPORTANT: If you change your device's *Logging Interval* you will need to recalculate the scale factor.

Example 1

Configuration

WattNode Transducer Model WNB-3Y-208-P with 50 Amp CT

Logging Interval = 1 minute (60 seconds)

Values

samples per hour = 3600 ÷ 60 = 60

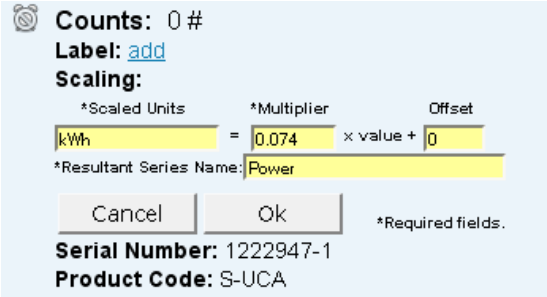
pulses per kWh (from WattNode Scale Factors for Power table) = 800

offset = 0

Equation

(60 ÷ 800) = 0.075

Enter *0.075* into the **Multiplier** field in the Scaling Configuration pane.



Example 2

Configuration

WattNode Transducer Model WNB-3D-240-P with 100 Amp CT

Logging Interval = 15 minute (900 seconds)

Values

samples per hour = 3600 ÷ 900 = 4

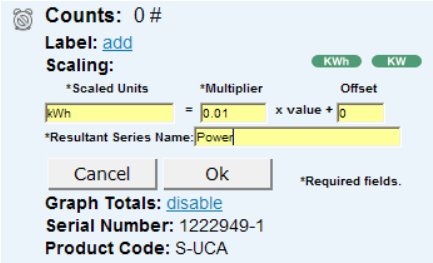
pulses per kWh (from WattNode Scale Factors for Power table) = 400

offset = 0

Equation

4 ÷ 400 = 0.01

Enter *0.01* into the **Multiplier** field in the Scaling Configuration pane.



WattNode Scale Factors for Power

NOTE: To find the value for other manufacturers, refer to the documentation that came with the sensor.

Related Topic: Calculating Power in kilowatts

	Pulses per kilowatt hour	
CT Size (amps)	**Model #: 3Y-208 / 3D-240**	**Model #: 3D-480**
5	8000.00	3465.70
15	2666.67	1155.24
20	2000.00	866.450
30	1333.33	577.617
50	800.000	346.570
60	666.667	288.809
70	571.429	247.550
100	400.000	173.285
150	266.667	115.523
200	200.000	86.643
250	160.000	69.314
300	133.333	57.762
400	100.000	43.321
600	66.667	28.881
800	50.000	21.661
1000	40.000	17.329
1200	33.333	14.440
1500	26.667	11.552
2000	20.000	8.6643
3000	13.333	5.7762

Calculating Energy in Kilowatt-Hours

To calculate energy in kilowatt-hours, enter the *Kilowatt-hours per Pulse* into the multiplier field in the **Scaling Configuration** pane. Enter 0 for the Offset.

If you are using a WattNode sensor, refer to WattNode Sensor Scale Factors for Energy and find the Kilowatt-hours per pulse value for your CT Size and WattNode model.

If you are using another sensor, refer to the documentation that came with the sensor. See Scaling for the E50B2 Power & Energy Meter for different scaling factors for that device.

WattNode Sensor Scale Factors for Energy

To calculate energy in kilowatt-hours, find the Kilowatt-hours per pulse for your CT Size and WattNode model and enter it in the multiplier field in the scaling configuration pane. Enter 0 for the Offset.

NOTE: To find the value for other manufacturers, refer to the documentation that came with the sensor.

Related Topic: Calculating Energy in Kilowatt-Hours

	Kilowatt-hours per pulse	
CT Size (amps)	**Model #: 3Y-208 / 3D-240**	**Model #: 3D-480**
5	0.000125	0.0002885
15	0.000375	0.0008656
20	0.0005	0.0011541
30	0.00075	0.0017313
50	0.00125	0.0028854
60	0.0015	0.0034625
70	0.00175	0.0040396
100	0.0025	0.0057708
150	0.00375	0.0086563
200	0.005	0.011542
250	0.00625	0.014427
300	0.0075	0.017313
400	0.01	0.023083
600	0.015	0.034625
800	0.02	0.046167
1000	0.025	0.057708
1200	0.03	0.06925
1500	0.0375	0.086563
2000	0.05	0.11542
3000	0.075	0.17313

Scaling for the E50B2 Power & Energy Meter

If you are using the E50B2 Power & Energy Meter (T-VER-E50B2), you can apply scaling to the Counts channel. The following table lists the names and values you should enter in the Scaling fields. The default settings for the three native E50B2 data outputs are listed as well as all supported scaling values.

For Scaled Units, enter this:	Choose a Multiplier to enter:	For Resultant Series Name, enter this:
VARh	1 VARh per pulse (Default)	Reactive Energy
	10 VARh per pulse	
	100 VARh per pulse	
	1,000 VARh per pulse	
	10,000 VARh per pulse	
Wh	1 Wh per pulse (Default)	Real Energy
	10 Wh per pulse	
	100 Wh per pulse	
	1,000 Wh per pulse	
	10,000 Wh per pulse	
Ah	0.001 Ah per pulse	Amp Hours
	0.01 Ah per pulse (Default)	
	0.1 Ah per pulse	
	1 Ah per pulse	
	10 Ah per pulse	

In addition to the three native data outputs (VARh, Wh, and Ah), you can also calculate other types of data outputs. To do this, download the .csv datafile and follow the instructions in the Microsoft Excel file located here:

http://www.onsetcomp.com/files/manual_pdfs/Derived-Channels.zip

That file uses the following calculations for each additional type of data output:

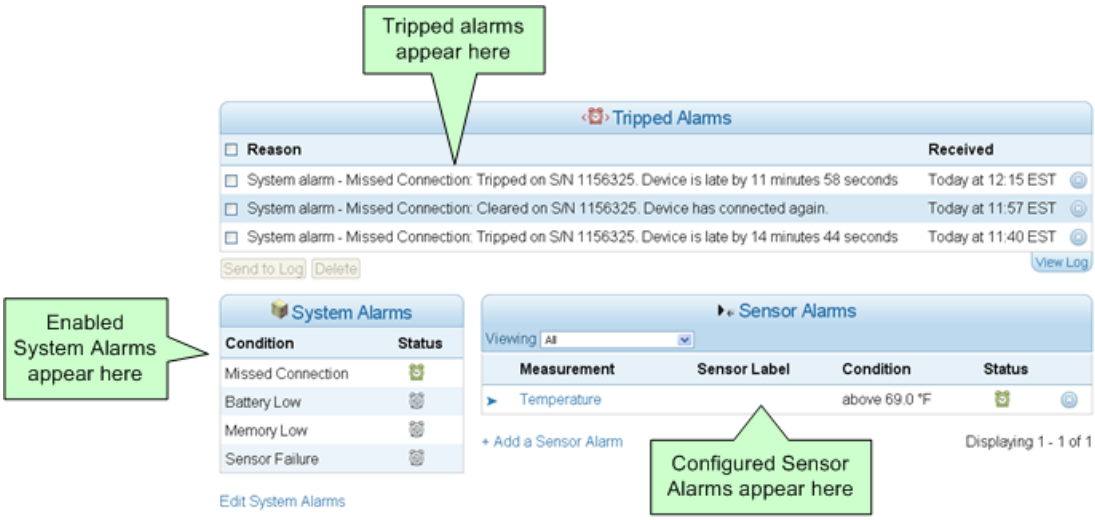
Data Output	Unit	Calculation
Reactive Power	VAR	VARh/h
Volt-Amps	VA	SQRT(Wh^2 + VARh^2)/h
Volts	V	SQRT(Wh^2 + VARh^2)/Ah
Power Factor	PF	Wh/SQRT(Wh^2 + VARh^2)
True Power	W	Wh/h
True Power	KW	W/1000
Kilowatt Hours	KWh	Wh/1000
Amp	A	Ah/h

(where 'h' is hours = Logging Interval/3600)

Chapter 4: Configuring Alarms

You can set two types of alarms in HOBOlink: system alarms and sensor alarms. From the Alarms page, you can:

- Access Sensor Alarm Configuration
- Access System Alarm Configuration
- View System Alarm Status
- View Tripped alarms
- View Alarm Log



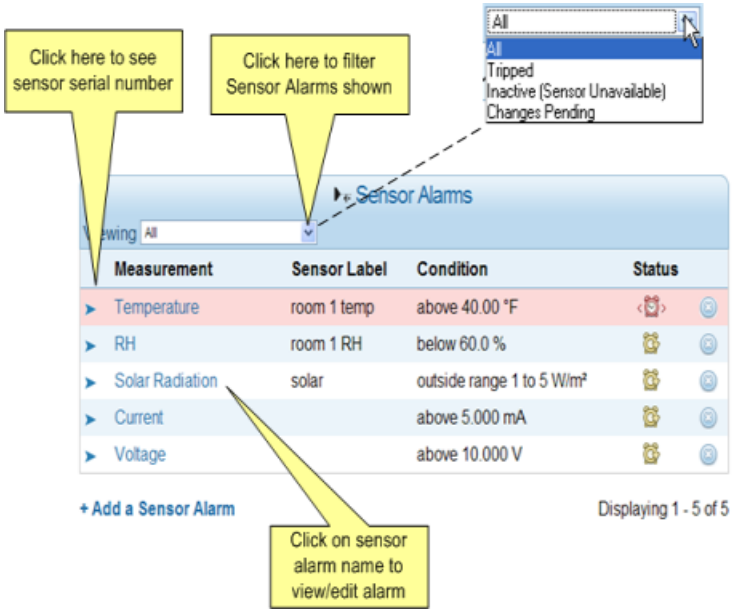
Sensor Alarms

You can set an alarm to trip when a reading is above or below a level you select, or outside a normal operating range that you set for a specific number of readings.

When the alarm is tripped, HOBOlink can:

- Send you an email
- Send you a text message
- Activate the relay
- Deactivate the relay
- Pulse the relay

Note: The default Relay Contact setting for the U30 Station is normally open. You can only change this setting in HOBOware Pro. See Configuring Relay Alarms.



When the sensor reading is over the configured threshold, the graph background will be red.

System Alarms

There are two types of System Alarms.

- Device Alarms - allow you to monitor the state of the physical device.
- Communication Alarms - alert you when your device is not communicating properly with HOBOlink.

In the **Edit System Alarms** page, you can enable both Device and Communication alarms and set the notification method if the alarm is tripped. Upon receiving any system alarm notification, you should verify your device's state to see if any action is required.

Alarm Types

Missed Connection

This alarm indicates that your U30 missed a scheduled connection. When you enable the Missed Connection alarm, you set the amount of time elapsed after a missed connection to trigger the alarm (Minimum: 10 minutes , Maximum: 10 days)

Every 5 minutes, HOBOlink checks to see if your device has surpassed its specified late time. If it has, the alarm is tripped and the notification action is initiated (text, email or both). You will be notified when the device successfully connects if you have checked the **Send on clear also** box.

The Missed Connection alarm is reset when your device is launched or you edit the Missed Connection alarm settings on the system alarms page. If your Missed Connection alarm is reset, you will not receive a clear notification unless the device continues to be late and trips the Missed Connection alarm again.

Battery Low

This alarm indicates that the battery level has dropped below 4.05 volts.

Memory Low

This alarm indicates that there is less than 12.5 % memory remaining.

Sensor Failure

This alarm indicates that a sensor has failed. This alarm is automatically enabled when you enable a Sensor Alarm.

If any Device Alarm trips, all other Device Alarms are automatically disabled. After you resolve the problem, you must re-enable any Device Alarms that you wish to have enabled.

Clearing an Alarm

When a Device Alarm trips you can either re-enable it or leave it disabled and clear the tripped alarm manually.

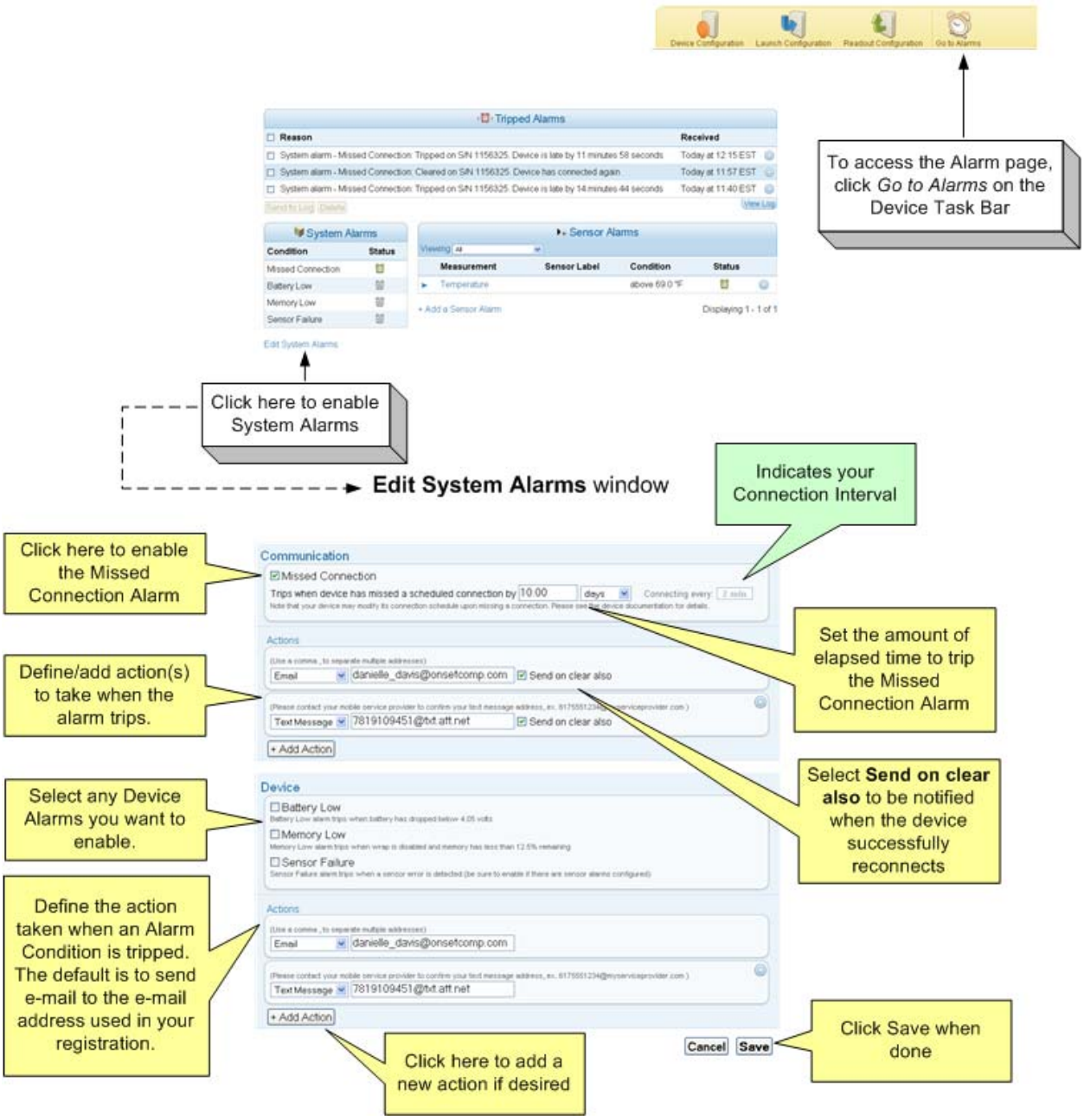
To clear an alarm without re-enabling it, select the **Clear** box and then click **Save.** The Clear box only appears when the alarm is in a tripped state.

If you re-enable an alarm, all tripped alarms are automatically cleared.

IMPORTANT: When you re-enable the Memory Low or Sensor Failure alarms the logger automatically re-launches.

Enabling System Alarms

You can enable/edit system alarms by clicking **Edit System Alarms** on the **Alarms** page.



System Alarm Conditions

Select which conditions you want to initiate an action if the condition is tripped.

Select **Clear** to clear a tripped Device Alarm.

System Alarm Actions

Defines what actions are taken by HOBOlink when an Alarm is tripped.

See Configuring Alarm Actions for more information.

Configuring a Sensor Alarm

By adding Sensor Alarms you can initiate certain actions, including notification, when an alarm is tripped.

Once you have created a sensor alarm for a device, you can copy that alarm to any other device that has a sensor of the same type installed. See Copying a Sensor Alarm.

When you add a sensor alarm, the System Alarm for Sensor Failure is automatically enabled.

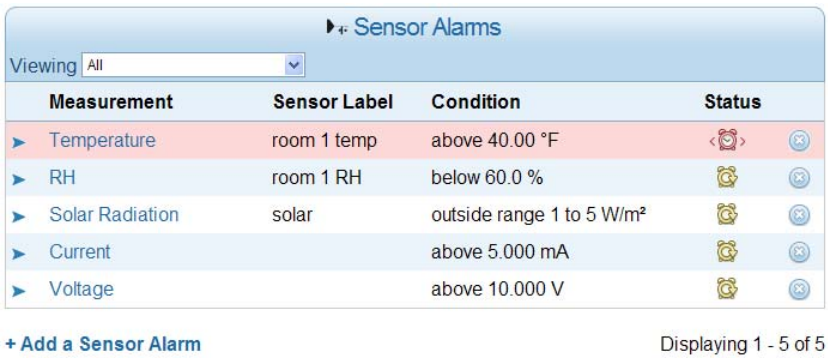
A Note on Scaled Units

If you have configured scaling, make sure you enter the alarm values in the scaled units. If you configure scaling and have existing alarms, you must modify the alarms to use the scaled units.

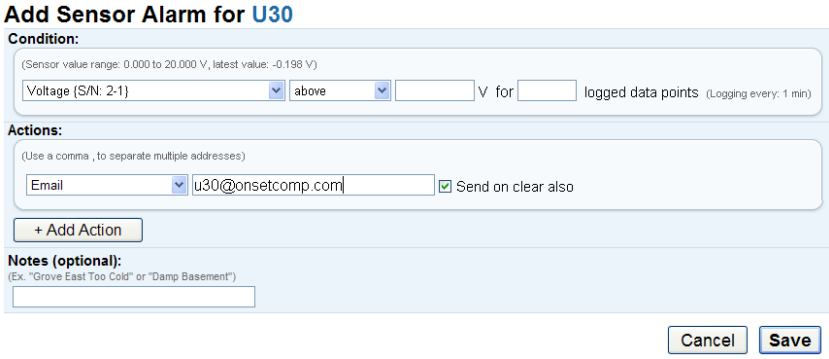
Steps

To add a sensor alarm:

1. From the **Device** page, click *Go To Alarms* icon.
2. At the bottom of the **Alarms** page, click *+ Add a Sensor Alarm***.**



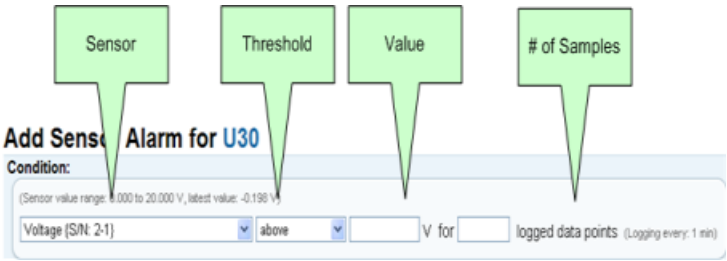
The **Add Sensor Alarm** page appears.



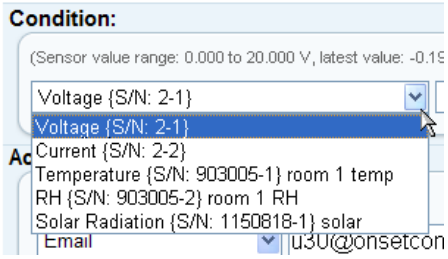
3. Configure Sensor Alarm Conditions
4. Configure Sensor Alarm Actions
5. Click Save.

Configuring Sensor Alarm Conditions

The Conditions section of the Add Sensor Alarm page is shown below.



1. Select a sensor from the drop-down list. This list is populated with all the sensors connected to the device.

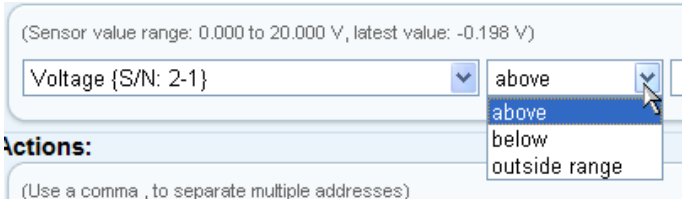


2. Select the threshold for the alarm to trip:

   Above - The alarm will trip if the actual value exceeds the value configured.

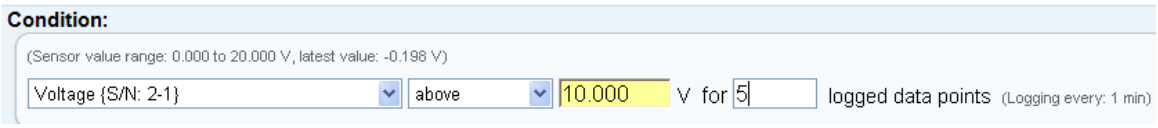
   Below - The alarm will trip if the actual value falls below the value configured.

   Outside range - The alarm will trip if the actual value falls outside the range configured.



3. Select the value to define the threshold. If you selected an outside range for the threshold, two values boxes will appear.

4. Enter the number of samples you want to be used to determine if an alarm is tripped.

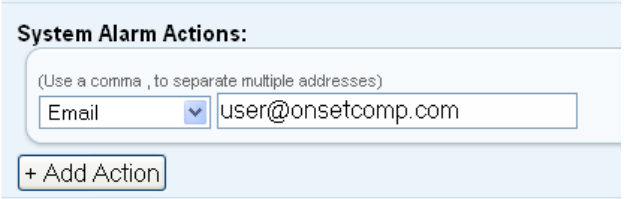


5. Proceed to Configuring Alarm Actions.

Configuring Sensor Alarm Actions

By configuring an Alarm Action, you can define what actions are taken by HOBOlink when an Alarm Condition is triggered.

The *Actions* section of the **Add Alarm Sensor** page is shown below.



Default Sensor Alarm Action

The default **Action** is to send an email to the address associated with your account. You can change this action, but there must be at least one action configured for each sensor alarm.

To edit the default action simply change the email address, or select a new **Action** from the drop-down list and enter values if required. See a description of Action Options below.

Adding Sensor Alarm Actions

To add additional actions

1. Click **+ Add Action**.

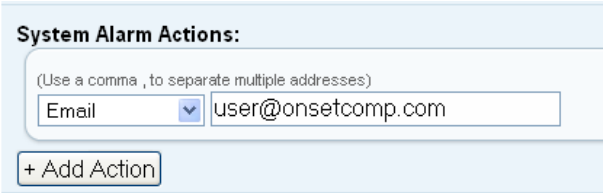
A new Action section will appear.

2. Select the desired *Option* from the drop-down list and enter values if required. The *Action* options are described below.

   - Email
   - Text Message
   - Activate Relay
   - Deactivate Relay
   - Pulse Relay (at any given time, only one sensor can be set to Pulse Relay)

Email

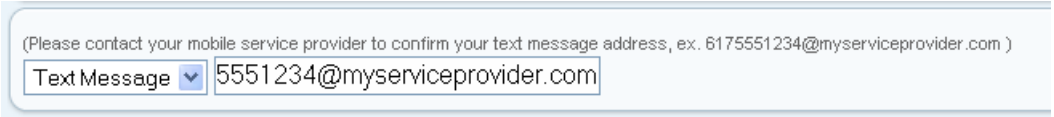
If you configure this option, an email will be sent to all configured addresses when an alarm condition is triggered.



1. Enter the address(es) to which email(s) will be sent when an alarm condition is triggered. Separate multiple addresses by a comma.
2. Check **Send on clear also** if you want to send an email when the alarm condition clears.

Text Message

If you configure this option, a text message will be sent when an alarm condition is triggered.



1. Contact your mobile service provider to confirm your text message address.
2. Enter your text message address.

   Example: 6175551234@myserviceprovider.com.

3. Check **Send on clear also** if you want to send an email when the alarm condition clears.

Activate Relay/Deactivate Relay

See "An Overview of the U30 Relay Contact".

Pulse Relay

If you have an alarm configured with an **Action** of *Pulse Relay*, the relay will close briefly to activate a piece of external equipment and then open again. For example, you could use this to take a water sample when a water level reaches a certain amount. To use Pulse Relay, the **Deactivated State** must be set to *Open*.

Copying a Sensor Alarm

Once you have created a sensor alarm for a device, you can copy that alarm to any other device that has a sensor of the same type installed.

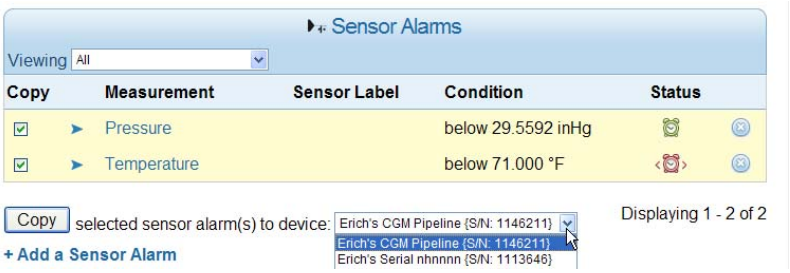
If you have more than one device registered in your HOBOlink account, the Copy option will appear in the Sensor Alarm page.

Steps

To copy a senor alarm to another device:

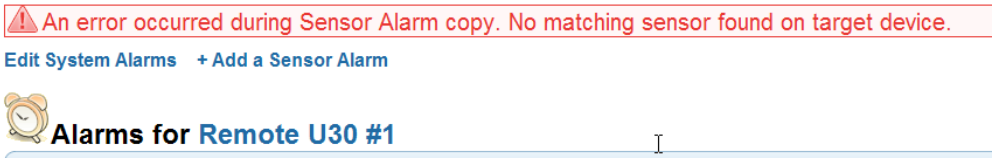
1. Check the Copy box for the alarm(s) you want to copy.
2. In the *Copy selected alarm(s) to device:* drop-down list, select the device you wish to copy the alarms to.
3. Click the **Copy** button.

The sensor alarm is now configured for the selected device.



Error

If you attempt to copy a sensor alarm to a device that does not have a matching sensor, you will see the following error message.



Deleting a Sensor Alarm

To delete a Sensor Alarm:

1. Click the icon to the right of the alarm entry in the **Sensor Alarms** page.

You will be prompted to make sure you want to delete the alarm.

2. Click **OK** to delete the alarm, or **Cancel** to keep alarm.

NOTE: If you are deleting a Sensor Alarm that is set to control the U30 Relay, the relay will remain in whatever state it is in when you deleted the alarm. You can change the relay state using HOBOware Pro.

Viewing the Alarm Log

Description

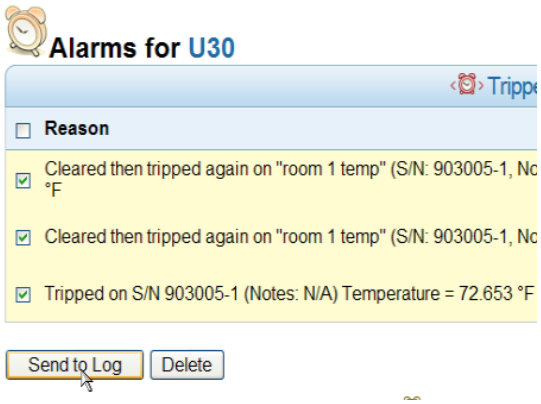
The Alarm Log includes all alarms that you have sent to the log.

Sending Alarms to the Alarm Log

To have an alarm saved to the Alarm Log, you must send it to the log.

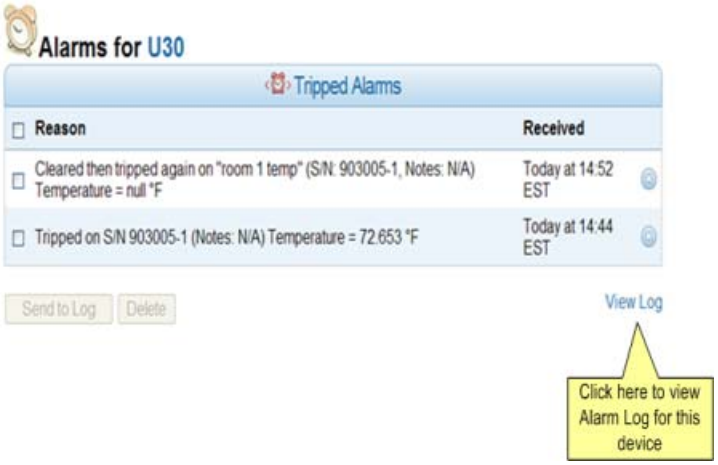
Check the box next to the alarm in the **Tripped Alarms** pane and then click the **Send to Log** button.

After you send an alarm to the log, it no longer appears in the **Tripped Alarms** pane.

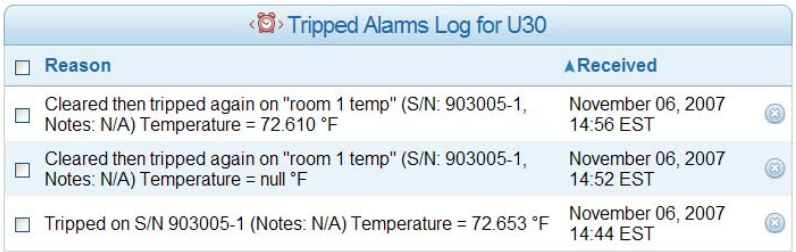


Accessing Alarm Logs

To view Alarm Logs, click the **View Log** link in the Alarm Window.



The *Alarm Log* window appears showing all alarms that you have sent to the log.

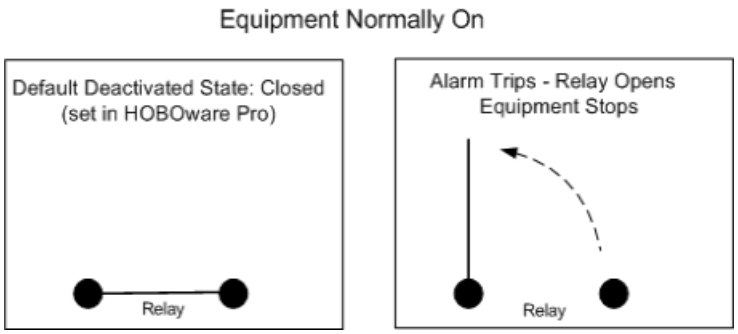


An Overview of the U30 Relay Contact

Upon an alarm condition, the relay contact on the HOBO U30 can be opened, closed, or pulsed to control the operation of an external device such as an irrigation system or fountain.

To Stop a Device

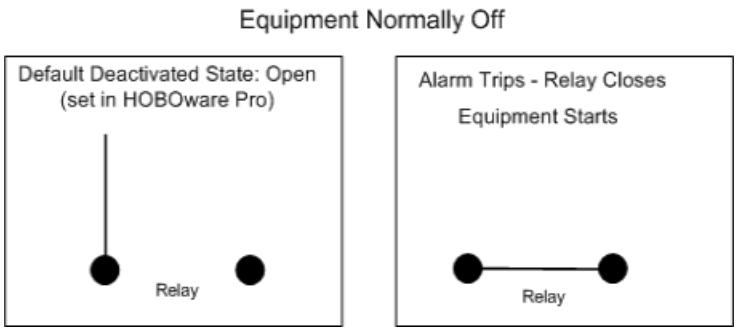
If you have external equipment that you normally want running, you would set the **Deactivated State** of the relay to be *Closed*. You would set an alarm that, if tripped, would change the relay to the *Active State (open)* and the equipment would stop.



See Relay Example - Stop Device.

To Start a Device

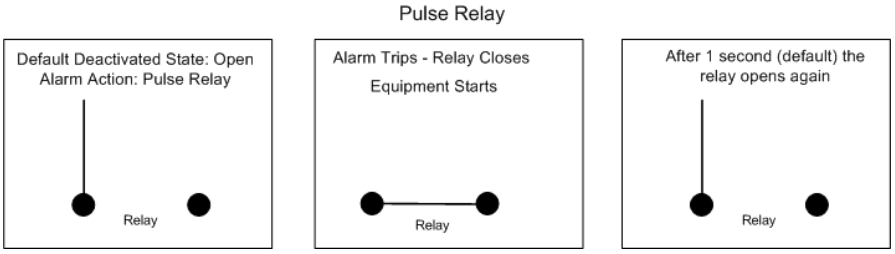
If you have external equipment that you normally want off, you would set the **Deactivated State** of the relay to be *Open*. You would set an alarm that, if tripped, would change the relay to the *Active State (Closed)* and the equipment would start running.



See Relay Example - Start Device.

Pulse Relay

If you have an alarm configured with an **Action** of *Pulse Relay*, the relay will close briefly to activate a piece of external equipment and then open. For example, you would use this to take a water sample when water level reaches a certain amount. To use *Pulse Relay* the **Deactivated State** must be set to *Open*. The default duration is 1 second.



Power Rating

The relay on the HOBO U30 Station is rated for a maximum of 30 V, 1 Amp. If you need to switch higher power devices you will need to use an appropriate external relay that is controlled by the U30.

Configuration

Deactivated State

The **Deactivated State** is the normal state of the relay when no alarm has been tripped to activate the relay. You change the **Deactivated State** using HOBOware.

Alarm Action

For the HOBO U30/NRC, you use HOBOware to configure an alarm to trigger the relay.

For the HOBO U30/RC, you use HOBOlink to configure an alarm to trigger the relay.

Configuring Relay Alarms for the U30/RC

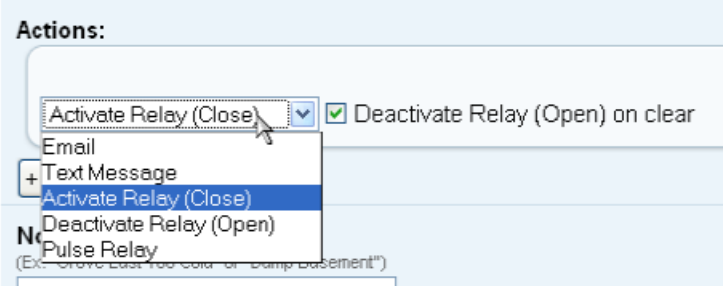
This procedure details the steps to configure an alarm to open or close the relay contact.

Before You Begin

- Make sure the default deactivated state is configured as required for your application and verify proper operation. See An Overview of the U30 Relay Contact.
- Make sure the sensor is connected to the U30 Station.

Closing a Normally Open Relay

1. Configure a sensor alarm for the desired sensor with required settings.
2. In the **Actions** section, select *Activate Relay (Close).*



3. Test that an alarm activates the relay.

   Force the sensor into an alarm condition (for example, place a temperature sensor in an ice bath) and verify that:

   - E-mail and/or Text Messages are received for alarm
   - Relay closes or opens as expected
   - Relay State is properly reported in HOBOlink (after the U30 has connected to HOBOlink).

Opening a Normally Closed Relay

If you have an application where you want the relay opened if an alarm trips (for example, to stop an irrigation system when rainfall is detected):

1. Using HOBOware Pro, change the **default (deactivated) state** to *Closed.* From the Device menu, select Control Relay > Set default (deactivated) state > Closed.
2. Using HOBOlink, configure a sensor alarm with an **Action** of *Activate Relay (Open)*. To have the relay deactivated as soon as the alarm is cleared, check the Deactivate Relay (Close) on clear box.

Viewing the Relay State

You can view the current relay state in HOBOlink in the **Latest Conditions** pane of the **Device** window.

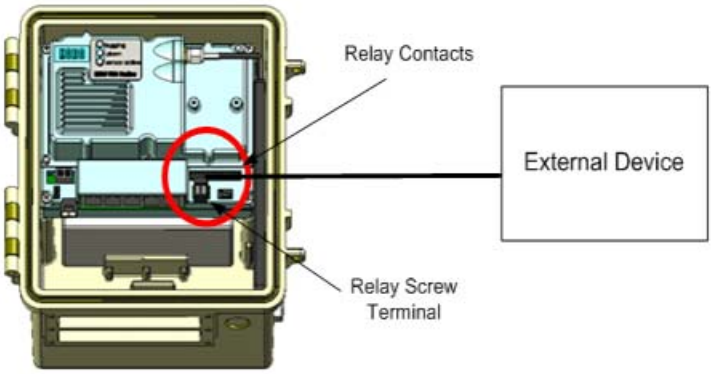
Connecting Equipment to the Relay Contact

Make sure any wire you use is routed through the cable access opening.

The diameter of the wire should be 4.0mm (0.159 inches) if you are running it through a smart sensor opening, or 6.4 mm (0.25 inches) if running it though one of the larger cable openings, which will require having the 10 sensor input option.

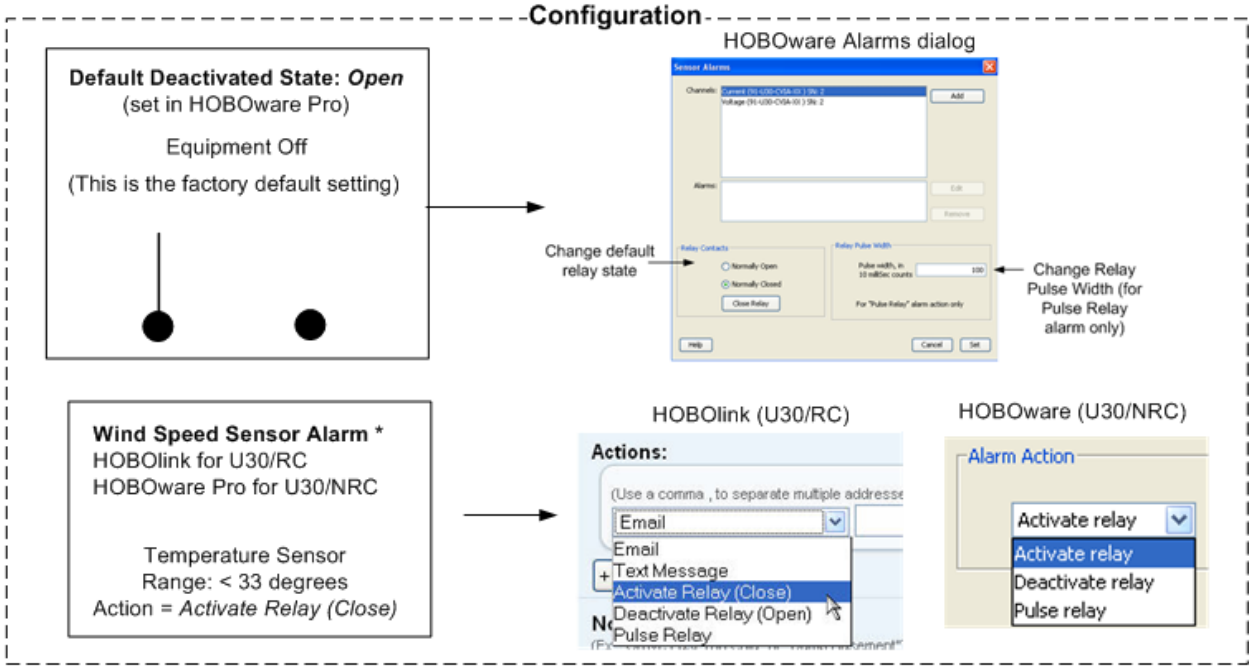
For details on configuring alarms to activate the relay, see in the HOBOlink Help.

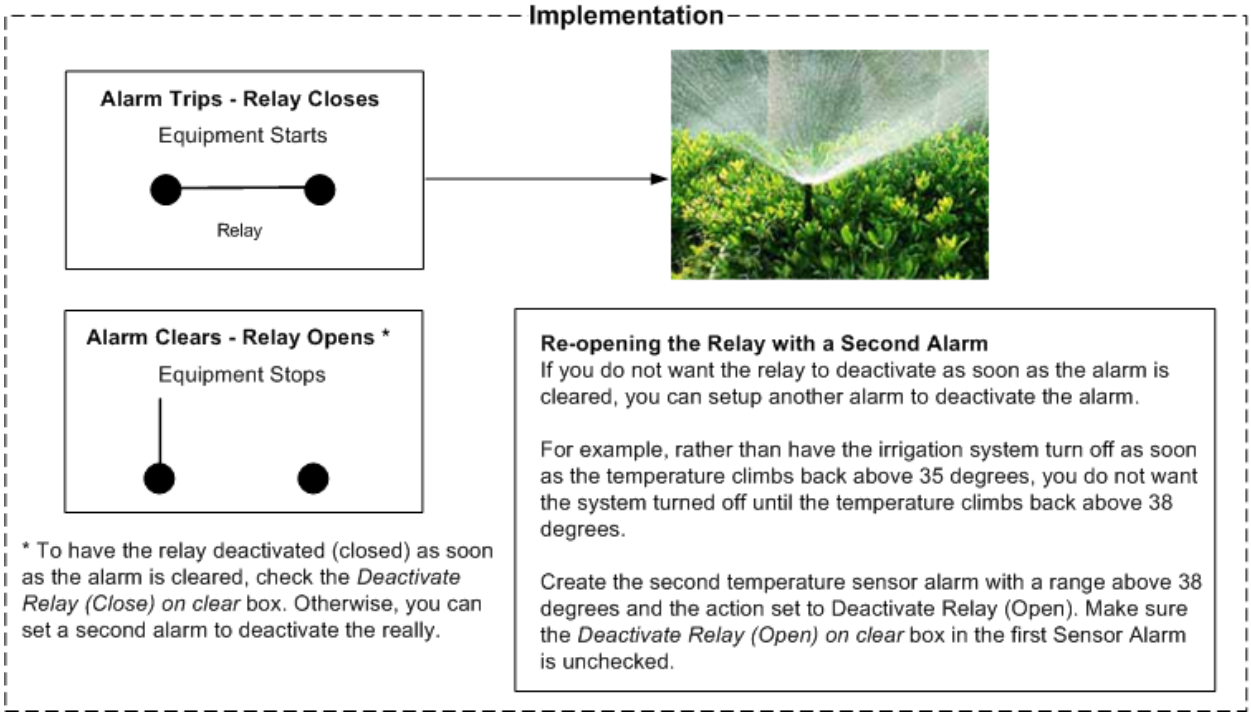
NOTE: These relays are only for low power switching (see specification for rating). To switch higher power, use an appropriately rated relay and use the U30 relay to switch the external relay on and off.



Relay Example - Start Device

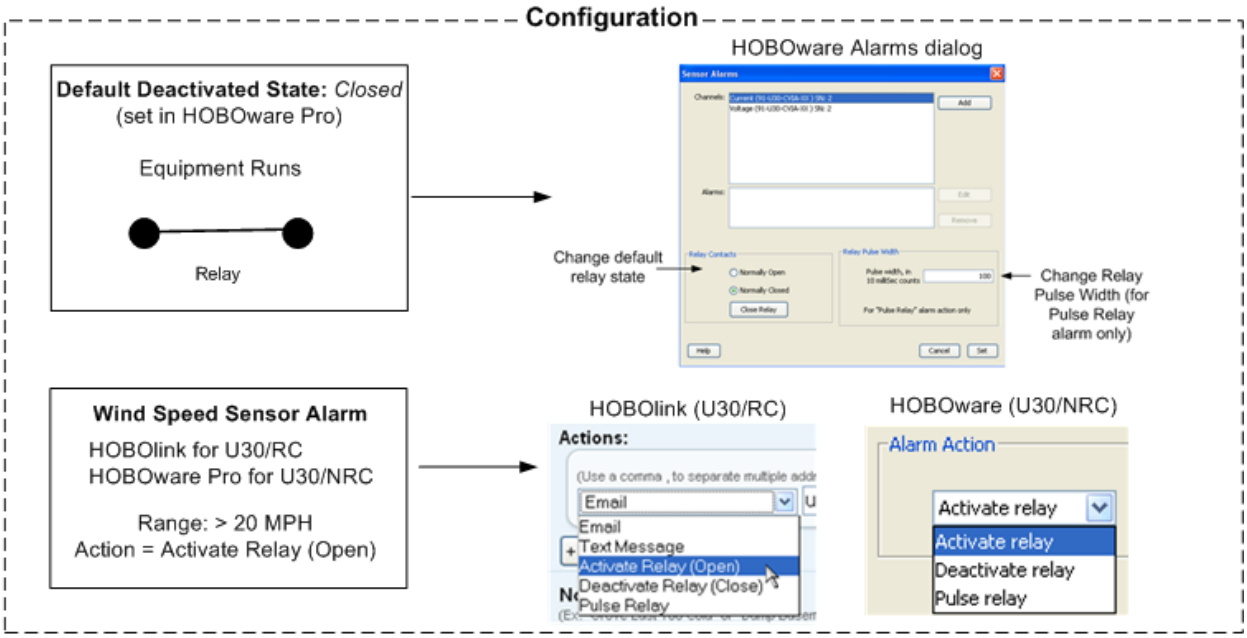
This example shows how you would configure the relay and alarms if you have an application where you have equipment you want turned on in response to an event. For example, if you wanted to activate an irrigation system on a cranberry bog or orchard if the temperature drops below a certain temperature to avoid frost damage.

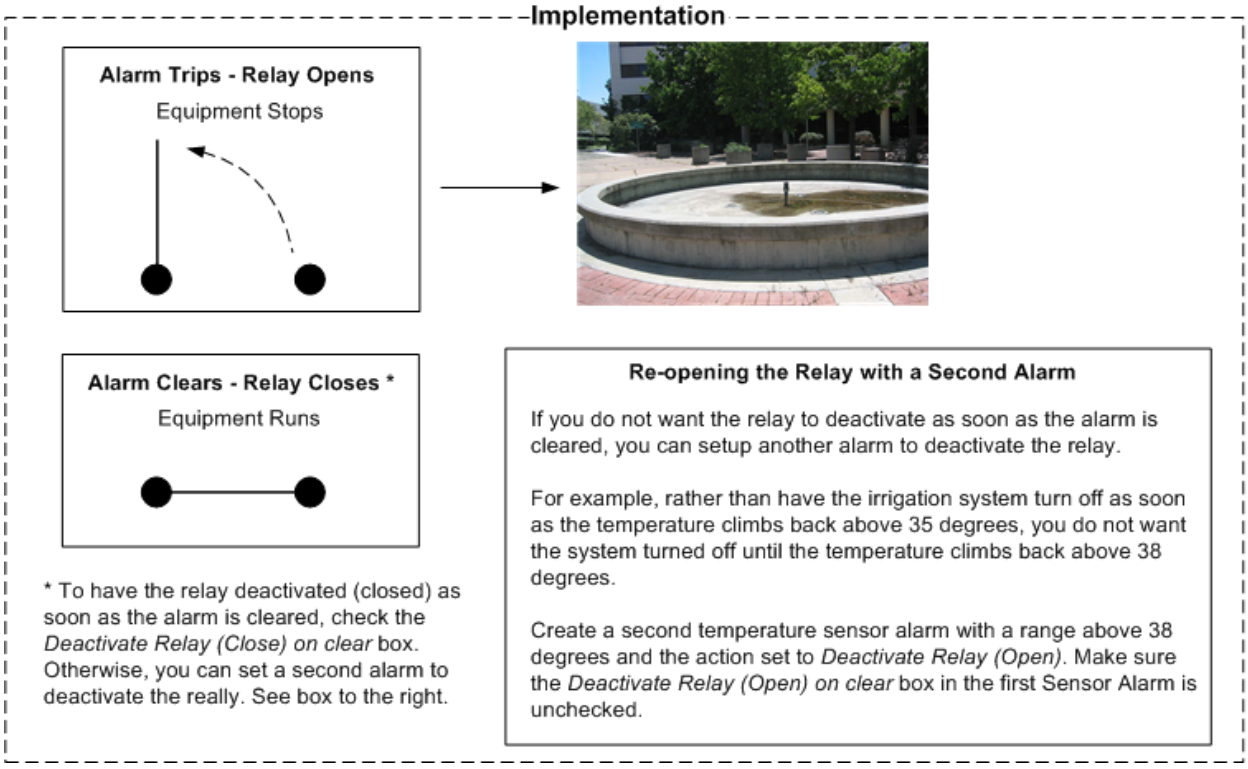




Relay Contact Example - Stop Device

This example shows how you would configure the relay contact and alarms if you have an application where you have equipment that is normally on. For example, if you have a fountain that normally runs continuously, but you want it to turn off if the wind speed exceeds 20 MPH.





Chapter 5: Monitoring Your Devices

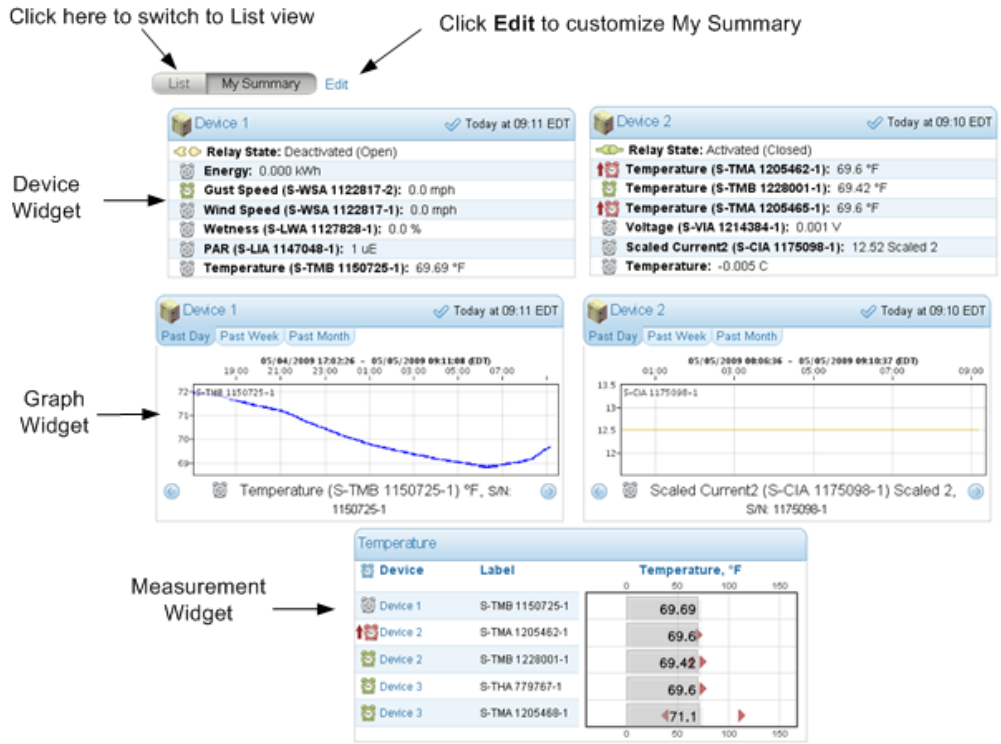
Refer to the topics in this chapter for information on how to monitor U30 devices with HOBOlink.

- My Summary Page
- My Summary Widgets
- Adding a Device Widget to the My Summary Page
- Adding a Measurement Widget to the My Summary Page
- Viewing Device Status
- Viewing Alarms
- View Connections Log

My Summary Page

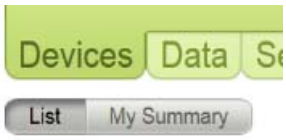
The *My Summary* page allows you to create a customized page that displays key conditions for one or more devices at multiple locations. You create a *My Summary* page by adding widgets that show selected devices, conditions, measurements, and graphs.

The following illustration shows an example of a *My Summary* page. The number of widgets displayed on a page depends on their size and position. You may need to scroll to see some widgets.



Going to the My Summary page

To switch to *My Summary*, click **My Summary** on the **Devices** page.



The first time you click on My Summary you are taken to the **Edit** page, where you can add and customize widgets. Thereafter, anytime you click **My Summary** you will go directly to the main *My Summary* page.

When you log in to HOBOlink, you will be taken to the last view you were in, List view or My Summary.

If you leave HOBOlink and log back in, you will be directed to whichever view you were last in, *My Summary* or List view.

Public Access

You can allow public access to your Summary View from the Settings page. If you enable public access, all devices are automatically marked as public. When viewing a public *My Summary*, a user can get to the public device page for a device by clicking on the device name in the title bar of the device widget.

NOTE: When you mark a *My Summary* page as public, all devices will be marked as public.

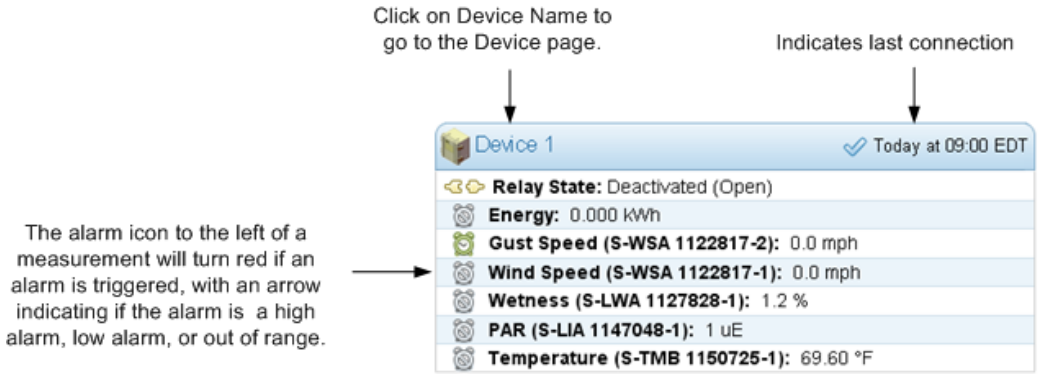
My Summary Widgets

This topic describes the widgets that you can add to your *My Summary* page:

- Device Widget
- Graph Widget
- Measurement Widget

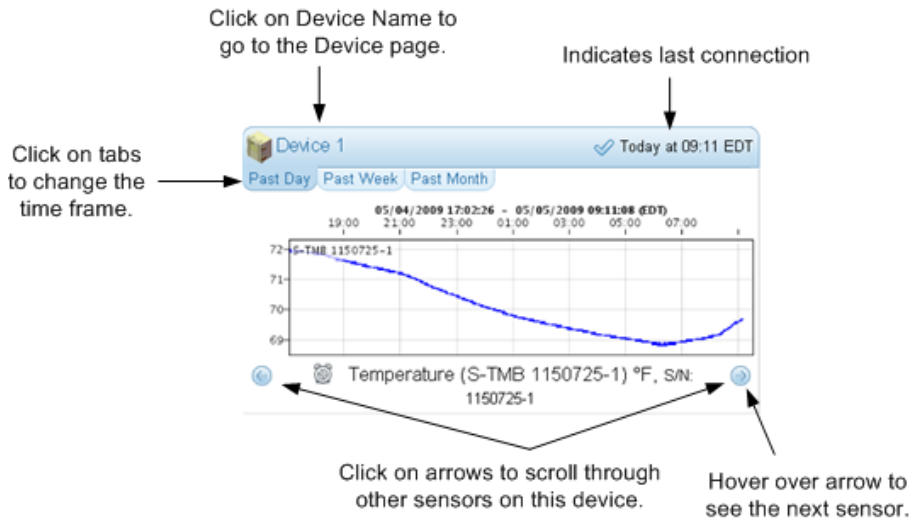
Device Widget

A device widget displays, according to your selections when you create the widget, the sensors connected to a device, as well as other components such as Relay State and Battery State.



Graph Widget

A graph widget displays the graph for a sensor.



Measurement Widget

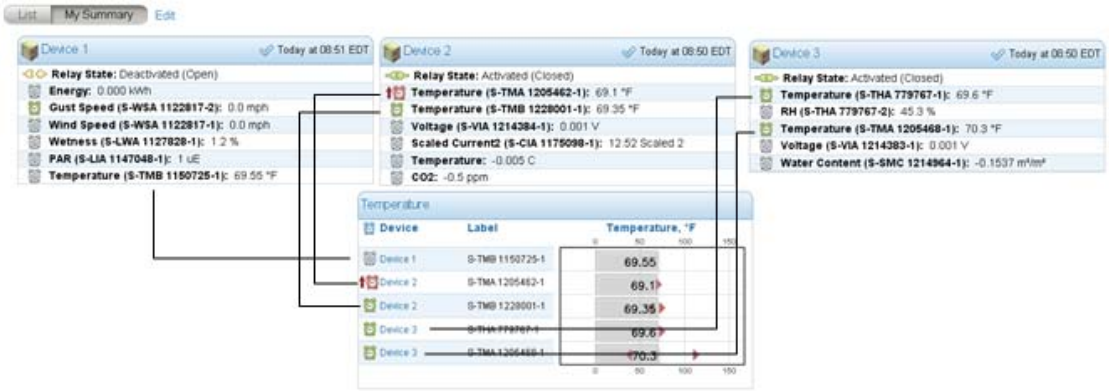
A measurement widget displays sensors of a certain type (for example, Temperature or Voltage). You can create a widget showing all of the sensors of a certain type in your system, including sensors from multiples devices or sites.

Columns are sortable.

Any rows that have sensor alarms or are connected to a device in a warning state will be dispalyed below the bar chart.

Example

The following diagram shows a measurement widget that includes temperature sensor readings from three different devices.



Moving a Widget

To move a widget, "grab" it by the handle located in the top right corner.

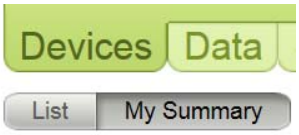
When you drag a widget it will be sized as it will appear when it is displayed on the My Summary page. Hidden sensors will not be displayed.

Adding a Device Widget to the My Summary Page

This topic covers adding a device widget to your *My Summary* page.

To add a device widget:

1. From the **Devices** page, click on *My Summary*.



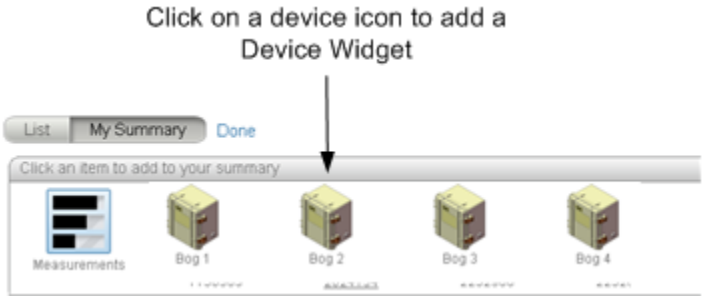
2. Click **Edit**.

NOTE: The first time you click on *My Summary*, you are automatically taken to the **Edit** page.

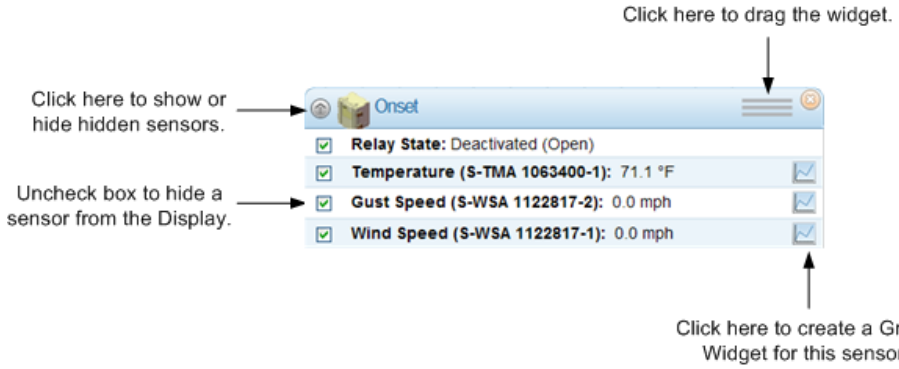
All your registered devices appear in the banner at the top of the page.

3. Click a device icon on the banner.

NOTE: You can customize the device icons with your own images in the Device Configuration Panel.



A device widget appears in the grid.



4. Uncheck any sensors that you do not want to display on the *My Summary* page. The sensors will disappear from the widget, but you can see them (in Edit mode only) by clicking on the arrow at the top left corner. To display a sensor on the *My Summary* page, re-check the box.
5. Create graph widgets as desired by clicking on the graph icon next to each sensor.
6. Return to step 3 to create other widgets, or click **Done** to return the *My Summary* page.

Changing the Order of Measurements

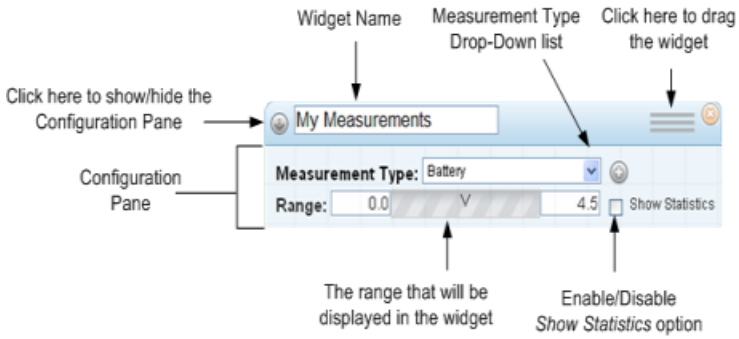
To change the order of the measurements in a device widget, you must change the order in the Latest Conditions pane of the **Device** page by dragging the measurement to the desired location.

Adding a Measurement Widget to the My Summary Page

This topic describes how to add a measurement widget to the *My Summary* page.

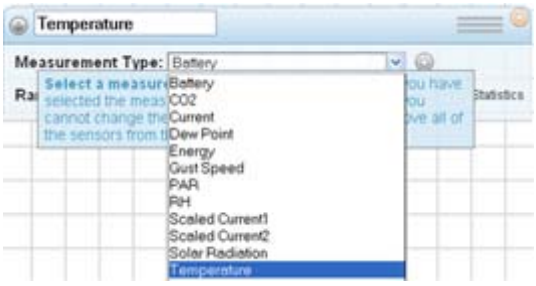
1. From the banner, click on the Measurement widget icon.

A Measurement widget appears on the page.



2. Customize the Widget Name (for example, "Temperature")

3. Select the desired measurement from the **Measurement Type** drop-down list, which includes only Measurement Types supported by the sensors you have connected to your devices.

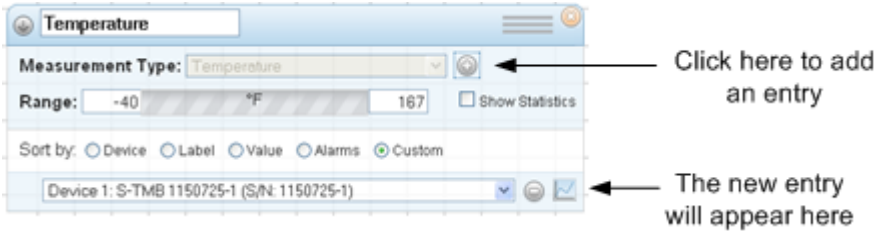


4. Set the range by typing values in the text boxes.

   The default values are the minimum and maximum for the selected Measurement Type. If you attempt to enter a value outside of the default range, a warning will be displayed.

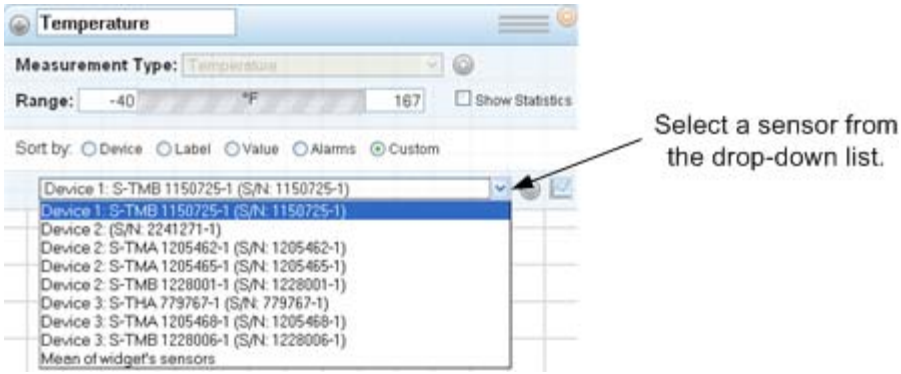
5. Add an entry to the widget.

   Note that once you add an entry, you cannot change the Measurement Type of the widget without deleting all entries.



6. Select a sensor from the drop-down list.

   To display an average of all the entries in the widget, select *Average of widget's sensors*.



7. Repeat steps 3 through 7 for each sensor you want to add to the widget.
8. Select a Sort by option.

   Device - sorts all sensors alphabetically by device description/nickname. Within a device group, sensors are sorted by sensor label.

Label - sorts alphabetically by user-entered sensor label.

Value - sorts by sensor reading (for example, highest temperature to lowest)

Alarms - sorts by alarm status in the order: Tripped, Active, Inactive (secondary sort by device description)

Custom - allows you to drag the sensors into the order you choose.

9. Enable Show Statistics if desired.

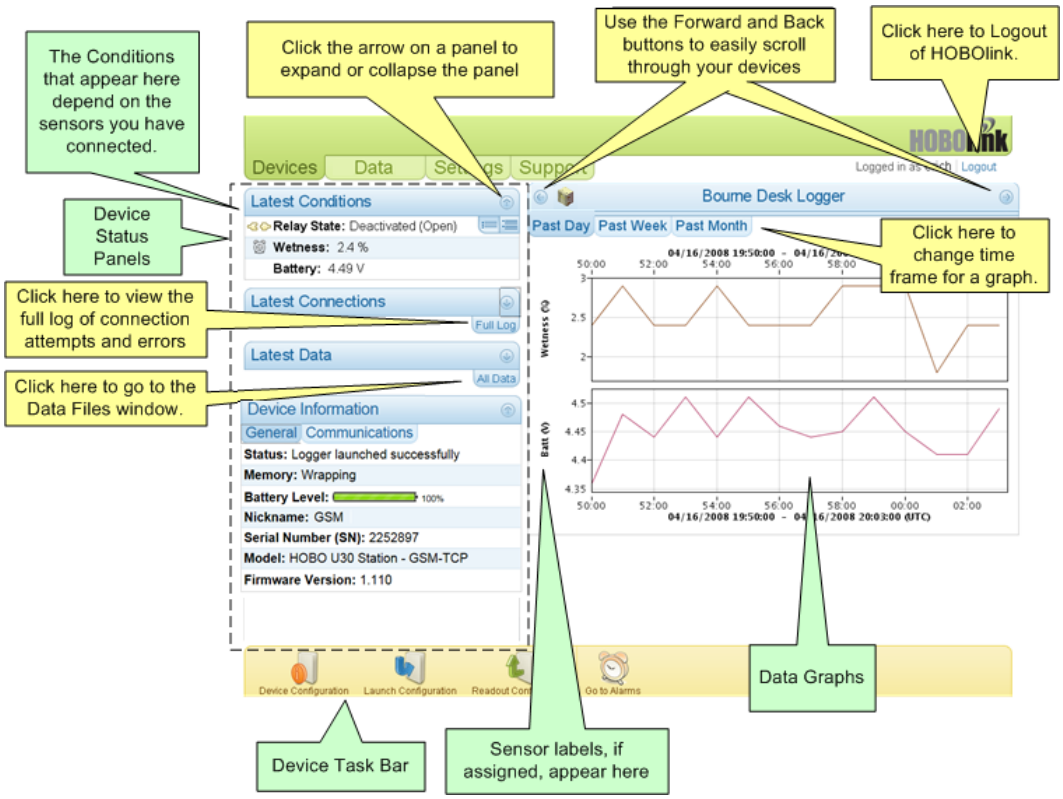
   When Show Statistics is enabled, the measurement widget includes a Statistics Sidebar on the right side. The sidebar shows Minimum, Maximum, Standard Deviation, and Mean calcualted for the snesors in the widget.

10. Return to Step 1 to add more widgets, or click **Done** at the top of the page to return to the *My Summary* page.

Viewing Device Status

From the Device page, you can view the following:

- Latest Conditions
- Latest Connections
- Latest Data
- Device Information



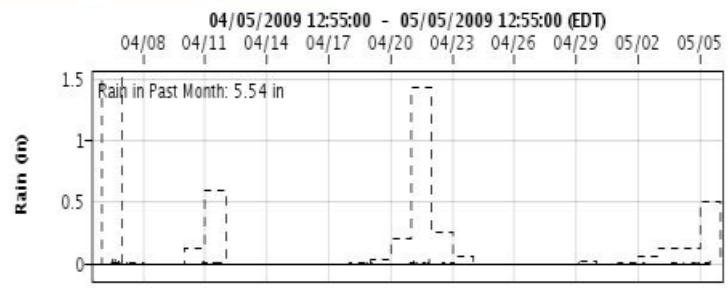
NOTES

- The data shown in the Past Month graph is limited by the maximum data file size of 512k, which may be less than a month in some cases. The amount of days included in a data file depends on your logging interval and the number of sensors.
- For Rain Gauge sensors, daily graphs show a series containing hourly rainfall totals, while weekly and monthly graphs show daily totals.

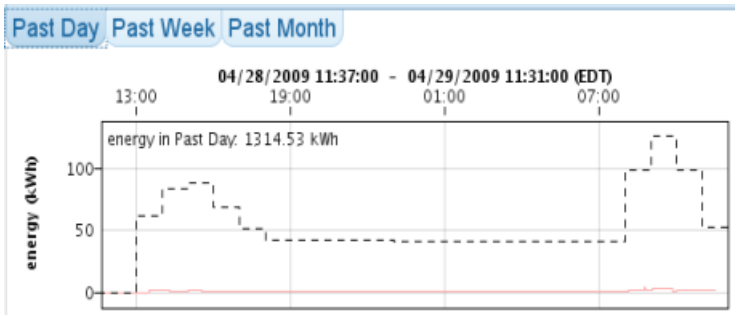
Pulse Totalization

Graphs for Rain Gauge sensors and sensors that are connected to a Pulse Input Adapter will also include a dashed line for filtered totals.

Example: Rain



Example: Energy (kWh)



To hide filtered totals, click disable next to Graph Totals in the Device Status Panel. The graphs will reflect the enable/disable change at the next device connection.

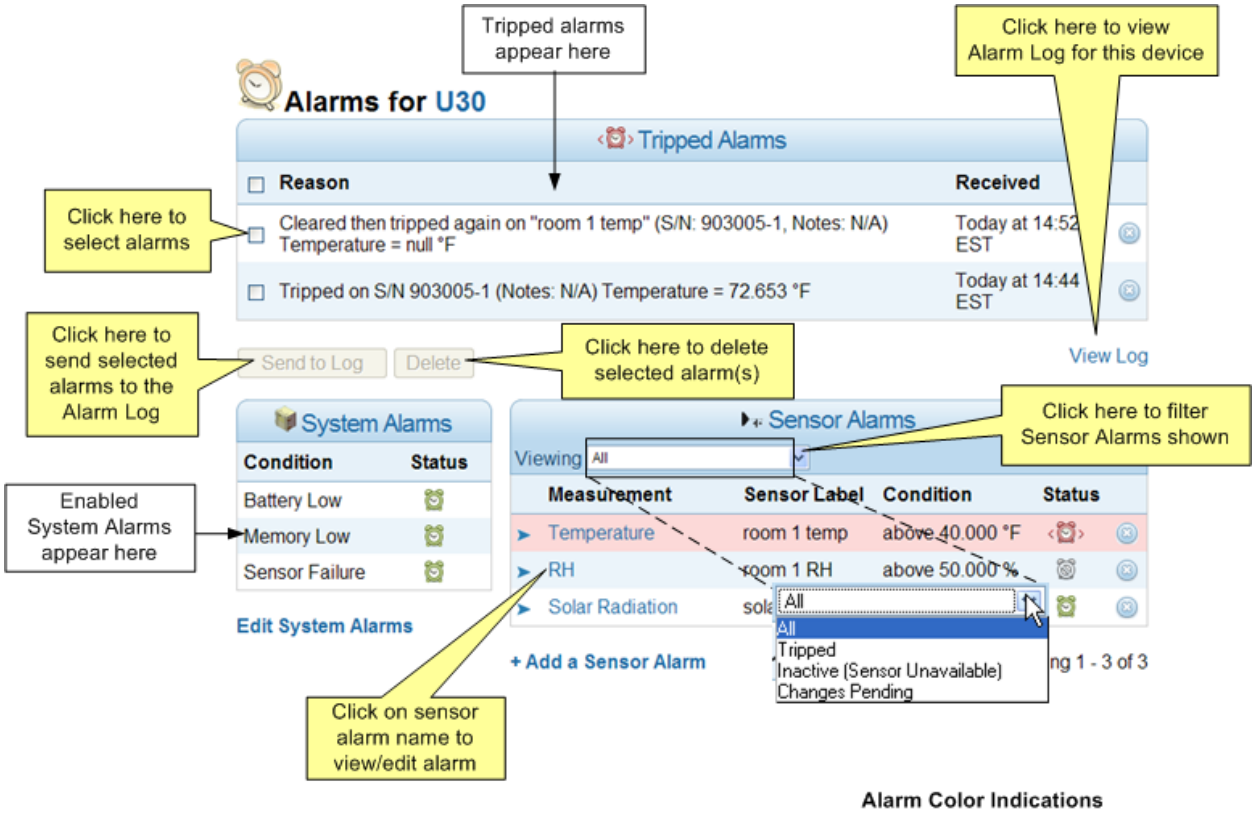
Viewing Alarms

From the Alarms page you can:

- View Configured Alarms
- View Tripped Alarms
- View System Alarm Status
- Send Tripped Alarms to the Alarm Log

- Access the Alarm Log

Alarm Page



Alarm Status Icons

This applies to alarm icons in the Alarm Window only. For alarm icon indications in the Devices window or Device window, see the HOBOlink WebHelp.

Red: Alarm is Tripped

Green: Alarm is Active (an alarm has been defined, but has not been tripped)

Yellow: this device has alarm changes pending.

Grey: Alarm is Inactive
There is no sensor attached corresponding to this alarm. Reconnect the sensor or delete the alarm by clicking the delete icon () to the right of the Status icon.

Viewing the Connections Log

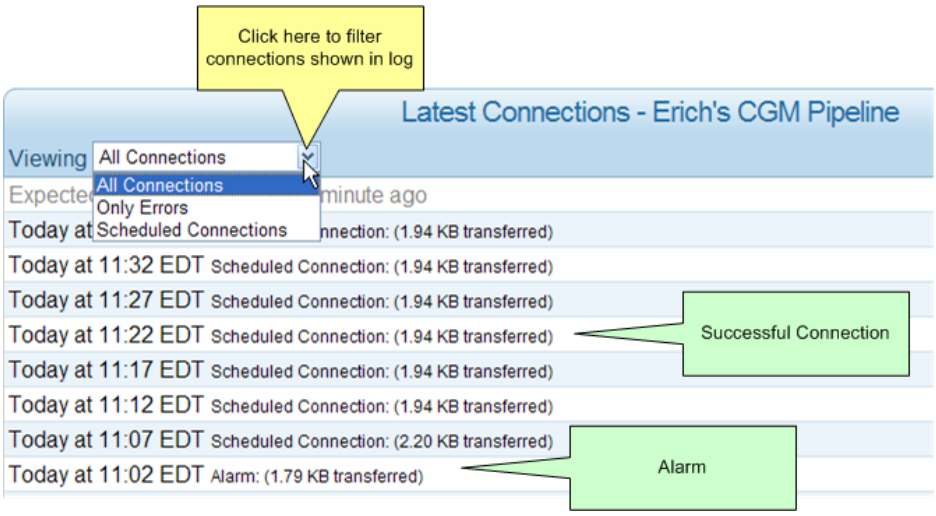
Description

This connections log shows all connection attempts between the device and HOBOlink. You can filter the results to show scheduled connections only, errors only, or both.

Accessing the Log

You access the Connections Log by clicking on the **Full Log** button on the Latest Connections panel in the Device page.

Latest Connections Log



Chapter 6: Managing Data

Sensor data is recorded at each logging interval as defined in the Launch Configuration panel. The data is stored on the device and then uploaded to HOBOlink at each connection interval as defined in the Readout Configuration panel.

You can view the latest data on the Device page, which shows the most recent sensor data that was last uploaded to HOBOlink in the Latest Conditions panel. It also shows graphs of data from the past day, week, or month. You can also view latest conditions and graphs on the My Summary page (if configured).

Data Files

All data uploaded to HOBOlink is saved in HOBOware-compatible files (.dtf) and optional text files (.csv). You can download these files from HOBOlink as needed from the Device page or the Data > Data Files page and open them in HOBOware or another software program for further analysis. These data files include all sensor data for the entire deployment. For more information on these files, see Downloading Data files.

Custom Data

You can also export custom data in which you select the devices, sensors, and timeframe that you want to include in the file. Exported files can be created as needed or generated automatically for delivery via FTP or email on a schedule you specify. For more information on these files, see Exporting Custom Data.

Downloading Data Files

At each readout interval, the logger uploads the new data it has received from the sensors. After the first readout, HOBOlink creates a data file. At each subsequent readout, the new data is added to the data file until that file reaches 512 KB, then a new data file is created. You can download the .dtf data file to open in HOBOware Pro or the .csv to open in another program.

The data file name consists of the launch description that you configured followed by a sequence number. The sequence number identifies the order in which the files were created. HOBOlink creates a new data file each time the logger wraps or is re-launched.

Notes:

- To download data files in .txt format, you first must check the **Save data as text file** box in the Readout Configuration panel to have data files saved in .csv format. See Sample Text Data File for the syntax of text files.
- For information on creating exported files, see Exporting Custom Data.

Downloading a Single Data File

1. On the Data page, click the Data Files button.
2. Click the desired file name from the list. An orange dot to the left of the file name indicates that the file has not been downloaded or it is new data since the last time it was downloaded. **Note:** You can change the files available from the list by changing the selections at the top of the page (Showing <all> files from <device name> in the last <time period>.

3. Select an open option.

   Open with - The default setting for a .dtf file (OnsetDTFFile) will launch the data file in HOBOware Pro. The default setting for a .csv file is generally Microsoft Excel.

   Save to Disk - The file will be saved to the location determined by your browser settings.

Downloading Multiple Data Files

1. Check the box next to all of the files you want to download.
2. Click **Download as Zip.**

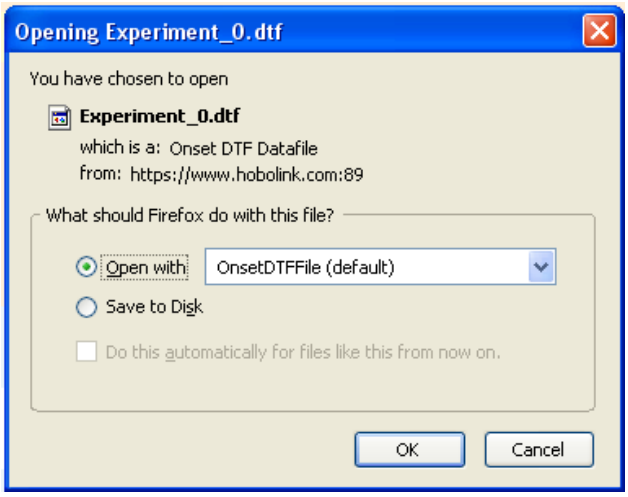
A zip file is created in the default location determined by your browser settings.

If you are prompted with an Open dialog, you can choose to open the zip file or save it.

Opening Data Files

When you download data files, the **Opening** dialog appears.

- If you are opening a .dtf file and you select **Open with**, the data file will automatically open in HOBOware Pro (Box Car Pro if installed).
- If you are opening a .csv file and you select **Open with**, the data file will automatically open in Microsoft Excel or similar program.
- If you click **Save to Disk**, the file will be saved to the default location controlled by your browser.
- If you are opening a zip file, the files will be extracted and saved in the default location controlled by your browser.



Sample Text Data File

The following is a sample of a data file downloaded in text format that you can view in MicroSoft Excel or another program.

The Header is formatted using YAML (Yet Another Markup Language). See YAML.ORG.

The Data section is in comma delimited format.

TIP: When you open the file in MicroSoft Excel, the Text Import Wizard gives you the option to "Start Import at Row x". Enter the first row of the Data section to remove the Header information from the file.

For more detail see Data Format and Data Section.

.txt Data File - General Format

Header

```
Data Format:
  dateTimeDelimiter: " "
  decimalSeparator: "."
  dataDelimiter: ","
  dateFormat: M/d/yy
  timeFormat: HH:mm:ss a
  gmtOffset: "-5"
  daylightSavings: false

Logger Info:
 - &1
   launchDescription: "Sample Text File"
   model: U30-001
   vendor: Onset Computer Corporation
   serialNumber: 1156303
   memorySize: 512
   firmwareVersion: 0.953
   firmwareVersionRaw: 0
   deploymentNumber: 48
Series Info:
 - name: "Voltage"
   type: value
   unitName: "V"
   OMClassName: OMeasurementH21
   OMPartNumber: 91-U30-CVIA-XX
   OMUnitIndex: 0
   OMChannelType: 4
   OMValuePattern: "#,##0.000;-#,##0.000"
   logger: *1
 - name: "Current"
   type: value
   unitName: "mA"
   OMClassName: OMeasurementH21
   OMPartNumber: 91-U30-CVIA-XX
   OMUnitIndex: 0
   OMChannelType: 4
   OMValuePattern: "#,##0.000;-#,##0.000"
   logger: *1
 - name: "Temp"
   type: value
   unitName: "*C"
   OMClassName: OMTemp12bit_HWS
   OMPartNumber: S-TMB-XXXX
   OMUnitIndex: 0
   OMChannelType: 1
   OMValuePattern: "#,##0.00;-#,##0.00"
   logger: *1
 - name: "Batt"
   type: value
   unitName: "V"
   OMClassName: OMVoltage_PipeBattery
   OMPartNumber: U30 BATTERY
   OMUnitIndex: 0
   OMChannelType: 5
   OMValuePattern: "#,##0.00;-#,##0.00"
   logger: *1
----------
```

The **Data Format** section includes detailed information about the way a text file is formatted.

The **Logger Info** section contains information about the logger that has data in this file.

The **Series Info** section lists each column in the file, excluding the first column ("#") and date/time column. There is one subsection for each series. Series are listed in the same order as their columns within the data.

Data is separated from the file header by a row of hyphens.

Data

```
"#","Time, Eastern Daylight Time","Voltage, V","Current, mA","Temp, *C","Batt, V"
1,11/30/07 15:32:07 PM,-0.193,0.000,20.91,4.48
2,11/30/07 15:32:08 PM,-0.193,0.000,20.91,4.48
3,11/30/07 15:32:09 PM,-0.193,0.000,20.91,4.47
4,11/30/07 15:32:10 PM,-0.193,0.000,20.91,4.47
5,11/30/07 15:32:11 PM,-0.193,0.000,20.91,4.46
6,11/30/07 15:32:12 PM,-0.193,0.000,20.91,4.46
7,11/30/07 15:32:13 PM,-0.193,0.000,20.91,4.46
8,11/30/07 15:32:14 PM,-0.193,0.000,20.91,4.46
9,11/30/07 15:32:15 PM,-0.193,0.000,20.91,4.46
10,11/30/07 15:32:16 PM,-0.193,0.000,20.91,4.48
11,11/30/07 15:32:17 PM,-0.193,0.000,20.91,4.48

(data continued in actual file)
.
.
.
```

See "Data Section of Data File" for more details.

Data Format Section of Data File

Header

```
Data Format:
  dateTimeDelimiter: " "
  decimalSeparator: "."
  dataDelimiter: ","
  dateFormat: M/d/yy
  timeFormat: HH:mm:ss a
  gmtOffset: "-5"
  daylightSavings: false
Logger Info:
  - &1
    launchDescription: "Sample Text File"
    model: U30-001
    vendor: Onset Computer Corporation
    serialNumber: 1156303
    memorySize: 512
    firmwareVersion: 0.953
    firmwareVersionRaw: 0
    deploymentNumber: 48
Series Info:
  - name: "Voltage"
    type: value
    unitName: "V"
    OMClassName: OMeasurementH21
    OMPartNumber: 91-U30-CVIA-XX
    OMUnitIndex: 0
    OMChannelType: 4
    OMValuePattern: "#,##0.000;-#,##0.000"
    logger: *1
  - name: "Current"
    type: value
    unitName: "mA"
    OMClassName: OMeasurementH21
    OMPartNumber: 91-U30-CVIA-XX
    OMUnitIndex: 0
    OMChannelType: 4
    OMValuePattern: "#,##0.000;-#,##0.000"
    logger: *1
  - name: "Temp"
    type: value
    unitName: "°C"
    OMClassName: OMTemp12bit_HWS
    OMPartNumber: S-TMB-XXXX
    OMUnitIndex: 0
    OMChannelType: 1
    OMValuePattern: "#,##0.00;-#,##0.00"
    logger: *1
  - name: "Batt"
    type: value
    unitName: "V"
    OMClassName: OMVoltage_PipeBattery
    OMPartNumber: U30 BATTERY
    OMUnitIndex: 0
    OMChannelType: 5
    OMValuePattern: "#,##0.00;-#,##0.00"
    logger: *1
```

The **Data Format** section includes detailed information about the way a text file is formatted.

dateTimeDelimiter
dataDelimiter
decimalSeparator

These entries identify (between double-quotes) the character used to separate date and time; the character used to separate data values from one another; ad the character that is used as a decimal.

---

dateFormat
timeFormat

These entries describe the way dates and times are formatted within the file.

These formats are determined by the preference settings in HOBOware Pro and the regional
format settings of your operating system.

For example, 07/31/06 would be represented as
MM/dd/yy. (Single-digit values have leading zeros.)

Syntax

HH = 24-hour time (e.g., 15:00:00)
hh = 12-hour time (e.g., 3:00:00 PM). This time format should be followed with "a" to denote an AM/PM indicator (hh:mm:ss a).
ss = seconds
SS = milliseconds
mm = minutes
MM = months

---

gmtOffset
daylightSavings

These entries indicate the offset, in hours, from GMT on the computer that launched the logger, and whether the computer was in Daylight Saving Time when the logger was launched (true or false).

Data Section of Data File

.txt Data File - Data Section

The first row of data consists of the column headings.

Each column heading is enclosed in double quotation marks ("") and separated by a comma.

The first column header is "#"; the second column header is "Time".

Data is separated from the header by a row of hyphens.

Data

```
---------
"#","Time, Eastern Daylight Time","Voltage, V","Current, mA","Temp, °C","Batt, V"
1,11/30/07 15:32:07 PM,-0.193,0.000,20.91,4.48
2,11/30/07 15:32:08 PM,-0.193,0.000,20.91,4.48
3,11/30/07 15:32:09 PM,-0.193,0.000,20.91,4.47
4,11/30/07 15:32:10 PM,-0.193,0.000,20.91,4.47
5,11/30/07 15:32:11 PM,-0.193,0.000,20.91,4.46
6,11/30/07 15:32:12 PM,-0.193,0.000,20.91,4.46
7,11/30/07 15:32:13 PM,-0.193,0.000,20.91,4.46
8,11/30/07 15:32:14 PM,-0.193,0.000,20.91,4.46
9,11/30/07 15:32:15 PM,-0.193,0.000,20.91,4.46
10,11/30/07 15:32:16 PM,-0.193,0.000,20.91,4.48
11,11/30/07 15:32:17 PM,-0.193,0.000,20.91,4.48

(data continued in actual file)
.
.
.
```

The remaining columns identify each series name and unit type, if applicable, in the format "Series Name, Unit" (enclosed in double quotation marks).

Each series has its own column.

The first column is the point number.

The date and time are separated by the dateTimeDelimiter character.

No zeros or spaces are used for fields that do not contain values.

Rows of data are separated with a paragraph return.

Thousands separators are not used. Two thousand (2,000) is expressed as 2000.

Effect of Time Zone Change on Data File

Before Time Zone Change

The *Offset from GMT* is automatically set based on the time of your computer's operating system when the logger is first launched (in this example, Eastern Daylight Time or -4 GMT)

Event recorded at 10:17 AM EDT

HOBOlink

File opened in HOBOware

Times in Data Files viewed in **HOBOware** are converted to default GMT offset (in this case - 4:00) and show the correct time (with a slight delay of a few minutes).

#	Time, GMT-04:00	Rain,...	Temp, °F (...
1	10/22/07 10:19:27 AM	0.000	72.826
2	10/22/07 10:19:42 AM	0.000	73.213
3	10/22/07 10:19:57 AM	0.000	73.040

After Time Zone Change

Event recorded at 2:14 AM EST

HOBOlink

File opened in HOBOware

Times in Data Files viewed in **HOBOware** are still converted to the original GMT offset of your computer (-4:00) and so will be ahead one hour from actual time.

#	Time, GMT-04:00	Rain...	Temp, °...
1	11/05/07 03:16:27 AM	0.000	28.789
2	11/05/07 03:17:27 AM	0.000	28.789
3	11/05/07 03:18:27 AM	0.000	28.789

NOTE: Graphs viewed in **HOBOlink** will show correct current time

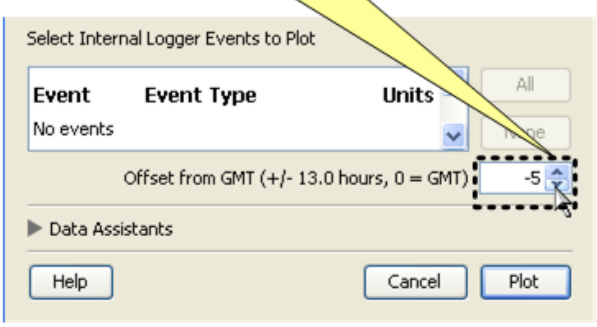
Adjusting Time Shown in Data File

When you open the data file in HOBOware, the **Plot Setup** dialog appears.

To adjust the time shown in the data files, change the *Offset from GMT* to the actual current offset (in this example, to -5 for EST) and then click **Plot**.

You must adjust the *Offset from GMT* individually for each file for which you want to adjust the time (there is no global adjustment).

NOTE: If you re-launch the logger, the *Offset from GMT* will be adjusted to actual time and subsequent data files will show the actual time (until there is another time zone change).



Converted time

#	Time, GMT-05:00	Rain...	Temp, °F ...
1	11/05/07 02:16:27 AM	0.000	28.789
2	11/05/07 02:17:27 AM	0.000	28.789
3	11/05/07 02:18:27 AM	0.000	28.789

Conversion Chart for US Time Zones

Time Zone	EDT	CDT or EST	CST or MDT	MST or PDT	PST
GMT Offset	-4	-5	-6	-7	-8

GMT/UTC Conversion Reference

US Time Zones

Time Zone	EDT	CDT or EST	CST or MDT	MST or PDT	PST
Offset	-4	-5	-6	-7	-8

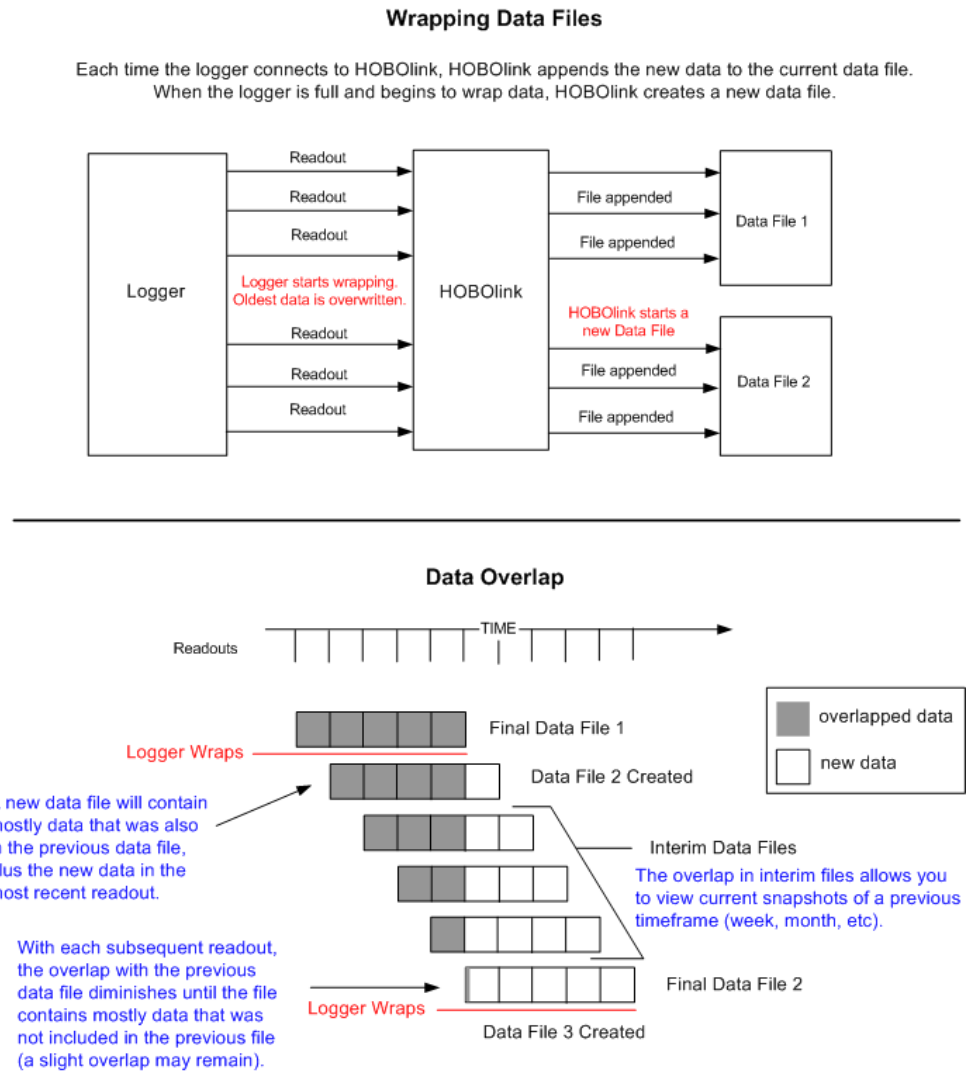
World Time Zones

Zone	City/Area
GMT-12	Eniwetok
GMT-11	Samoa
GMT-10	Hawaii
GMT-9	Alaska
GMT-8	PST, Pacific US
GMT-7	MST, Mountain US
GMT-6	CST, Central US
GMT-5	EST, Eastern US
GMT-4	Atlantic, Canada
GMT-3	Brazil, Buenos Aries
GMT-2	Mid-Atlantic
GMT-1	Cape Verdes
GMT	Greenwich Mean Time, Dublin
GMT+1	Berlin, Rome
GMT+2	Israel, Cairo
GMT+3	Moscow, Kuwait
GMT+4	Abu Dhabi, Muscat
GMT+5	Islamabad, Karachi
GMT+6	Almaty, Dhaka
GMT+7	Bangkok, Jakarta
GMT+8	Hong Kong, Beijing
GMT+9	Tokyo, Osaka
GMT+10	Sydney, Melbourne, Guam
GMT+11	Magadan, Soloman Is.
GMT+12	Fiji, Wellington, Auckland

Wrapped Data in Data Files

The following diagram illustrates how data will appear in data files when the *Wrap Around When Full* feature is enabled in the Launch Configuration Panel.

Also see Configuring Launch Settings.



Exporting Custom Data

You can export sensor data from a device to a text or Microsoft Excel file for analysis in other programs. Exported files can either be downloaded when needed or scheduled for automatic delivery via FTP or email. To export data, you must first specify the timeframe for the data (all data from the last week or all data between specific dates, for example) and select which devices and sensors you want to include in the exported file. Then you can choose whether to export the data immediately, save the settings for a future export, and set up a schedule for delivering the exported data. For details on exporting custom data, see:

- Creating New Export Settings
- Working with Existing Export Settings
- Scheduling Exports for Data Delivery

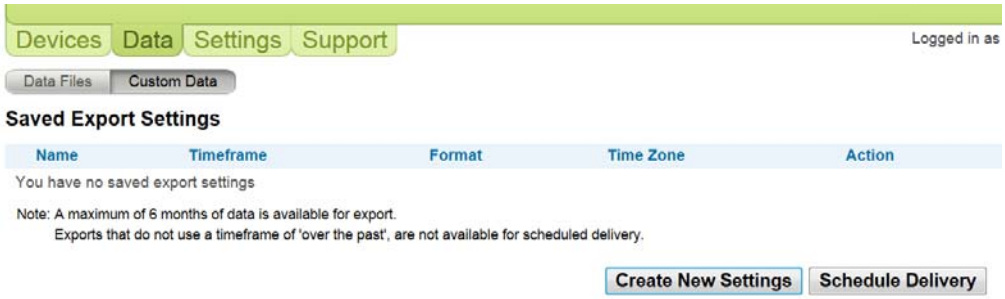
- Changing Export File Format, Default FTP, and Default Email Settings

Creating New Export Settings

Before you can export data, you must first define the timeframe, device, and sensors to be included in the exported file. You can then export the data to a file immediately or set up a data delivery schedule in which exported files are created and delivered via email or FTP on a regular basis. A maximum of six months of data is available for export. In addition, only exports that use a timeframe of "over the past" are available for scheduled delivery (details are in the steps below).

To create new export settings:

1. Click the Data tab.
2. Click the Custom Data button.
3. Click the Create New Settings button.



4. In section 1, type a name for the export and a file type (Text, Excel, or HOBOware), and a time zone. Choose one of the following timeframes for exporting data:

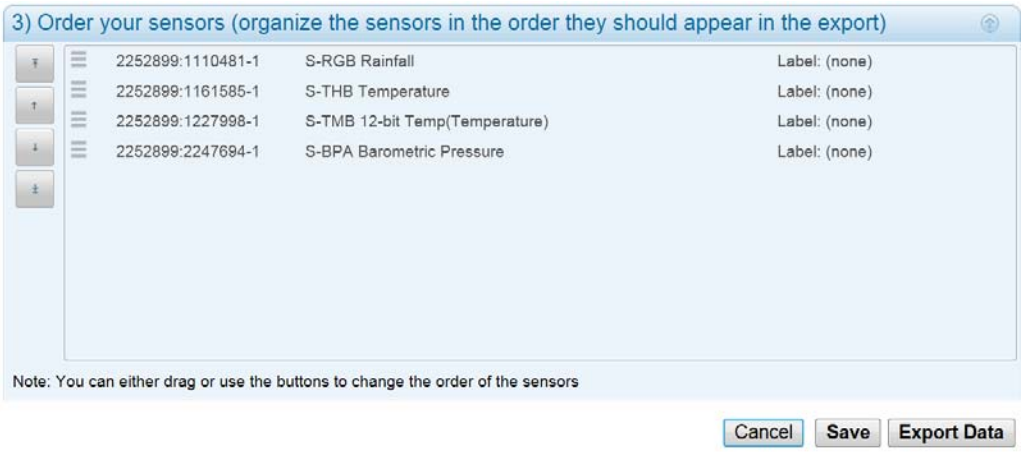
   - **Between two date/times.** Select "between" from the drop-down list and then click the two blank fields to select the date/time on each calendar.
   - **Before a specific date/time.** Select "before" from the drop-down list and then click the blank field to select the date/time on the calendar.
   - **After a specific date/time.** Select "after" from the drop-down list and then click the blank filed to select the date/time on the calendar.
   - **Over the past <x> days, hours, or minutes.** Select "over the past" from the drop-down list. Type the number in the field and then select days, hours, or minutes. This example export will generate a week's worth of data by entering 7 days. *You must choose this timeframe if you are planning on setting up a schedule to have the exported file delivered via email or FTP.*

     Important: Make sure the selected timeframe accounts for the night mode schedule if applicable. This timeframe should be at least as long the night mode interval. For example, if the normal readout schedule is every 2 hours and the night mode readout schedule is every 6 hours, then the export timeframe should be at least 6 hours. If you choose a shorter timeframe (such as every 4 hours), then some of your export files may not have any data if they are generated during night mode.

5. In section 2, select the device and the sensors you want to include in the export. Click the arrow to the left of the device checkbox to open the list of available sensors. Select each sensor you want to include in the export. The serial number, product part number and name, measurement type, and any custom labels are listed for each sensor to help you identify the ones you want to include.

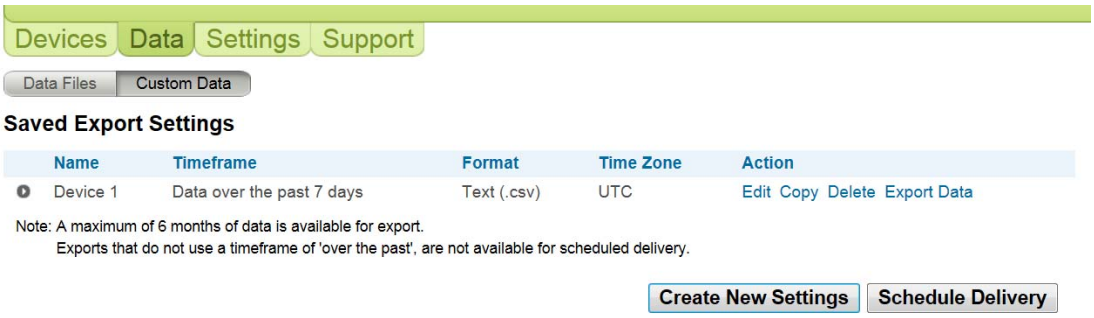
   To quickly select all sensors in the export, click the checkbox next to the device name. This will automatically select all the sensors for that device. Note that this list shows all active sensors (in black) as well as all inactive sensors that were previously used with this device (in gray). You can select either active or inactive sensors, or a combination of both to include in the export. For this example, only active sensors were selected.

6. The sensors will be listed in the order they appear in section 3 in the exported file. To change this order, use the arrow buttons or drag the sensor.



7. Click the Save button to save this export configuration. To export the data immediately, click the Export Data button. A file will be generated that you can download and save to a directory of your choice. **Important:** The settings will not be saved if you only click the Export Data button and do not click the Save button.

8. After saving the settings, the new export settings will be listed on the Custom Data page. There you can edit, copy, delete, or export data as described in Working with Existing Export Settings. If the new export settings use a timeframe of "over the past," you can click the Schedule Delivery button to set up a data delivery schedule that automatically creates and delivers exported files via email or FTP (see Scheduling Exports for Data Delivery). For details on changing the time and number format in exported files, see Changing Export File Format, Default FTP, and Default Email Settings.



Working with Existing Export Settings

You can edit, copy, or delete any existing export settings available on the Data > Custom Data page. You can also export data immediately using any available export settings.

To access saved export settings:

1. Click the Data tab.
2. Click the Custom Data button.
3. Any saved export settings are listed. Click the arrow to the left of the export settings name to see the devices included in this export. Click the arrow to the left of a device to see which sensors are included in the export.

4. Select an export. Choose one of the following Actions:

   - **Edit.** Click Edit to change the settings name, file type, timeframe, devices, and sensors for this export. You can also click Edit if you need to change the order of the sensors listed. Make the changes and then click Save.
   - **Copy.** Click Copy to create another export that has the same settings as an existing one. Select the copied export settings entry and click Edit as described in the previous step to make any changes. This is a quick way to create a new export that is similar to an existing export.
   - **Delete.** Click Delete to permanently remove the export from the list.
   - **Export Data.** Click Export Data to immediately generate a file with data as defined by these settings. You can download and save the file to a directory of your choice.

If the export uses a timeframe of "over the past," you can click the Schedule Delivery button to set up a data delivery schedule that automatically creates and delivers exported files via email or FTP.

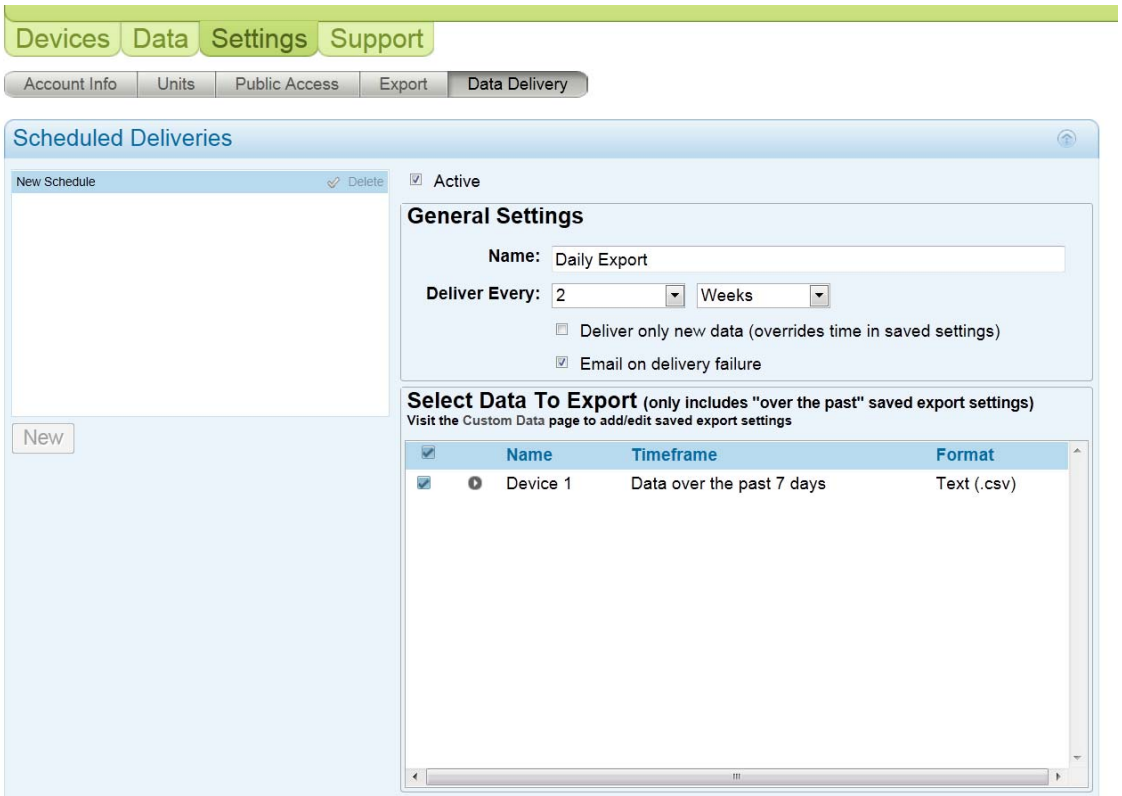
Scheduling Exports for Data Delivery

You can configure HOBOlink to automatically deliver exported data files to an email address or FTP site on a schedule that you specify. First, make sure you have selected the device and sensor data you want to include in the export as described in Creating New Export Settings. Then, follow these steps to set up a new scheduled delivery:

1. Click the Settings tab.
2. Click the Data Delivery button.
3. Click the New button under Scheduled Deliveries.
4. Ensure that the Active checkbox is selected. If the box is not selected, then the data will not be delivered.
5. Under General Settings, type a name for the new delivery schedule in the Name field.
6. Select how often you want the exported file to be delivered (every "x" minutes, hours, days, or weeks). The interval you select can be up to twice as often as the timeframe saved in the export

settings (see Creating New Export Settings for setting the timeframe, which should also be at least as long as the night mode readout schedule, if applicable).

7. Select the "Deliver only new data" checkbox if you want the file to contain only the latest data since the last delivered file. This will override the timeframe selected in the saved export settings.
8. Select the "Email on delivery failure" checkbox if you want to be notified when the exported file is unable to be delivered.
9. Under Select Data to Export, select the checkbox(es) next to the data you wish to export (or click the checkbox in the column header row to quickly select all data listed). If there are no options in this list, make sure you have selected the device and sensor data to include in an export as described in Creating New Export Settings. Note that only ongoing exports (those configured to occur over the past "x" number of days, hours, or minutes) will display in this list. If you have set up an export to occur before or after a specific date or between two dates, then the export will not display in this list.

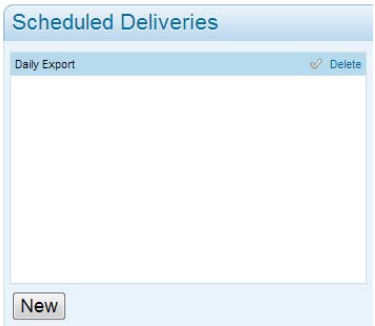


10. Under Data Destination, select the FTP checkbox if you want the exported data file to be delivered to an FTP address. Enter the following information for the FTP server where you want exported files to be delivered:
    - **FTP server**. Type the name of the FTP server (e.g. ftp.companyname.com). Note that secure FTP (SFTP) is not supported.
    - **FTP port.** Type the port number used for the FTP server or leave the field blank if the server uses the default port.
    - **Remote folder.** Type the name of the folder on the FTP server where you want the exported files to be delivered.
    - **Username.** Type the username for the account used to access the FTP server.
    - **Password.** Type the password to access the FTP server.

- **Compress FTP'd files.** Select this option if you want to compress the file before delivering it to the FTP server.
- **Use passive mode.** Select this option if the FTP server runs in passive mode (necessary if the server is running behind a firewall).

Click the Test FTP Connection to make sure HOBOlink can connect to the FTP server using the settings entered.

11. Select the Email checkbox if you want the exported data file to be sent to an email address. Change the default email address listed if necessary. Select the "Compress email file attachments" checkbox if you want the export file size to be as small as possible.
12. Click Save when done. The new scheduled delivery will be displayed in the list as shown below. Delivery of the exported file will begin automatically using the settings you specified. Hover the mouse over the checkmark icon to view the status of the delivery.



Working with Scheduled Deliveries

Use the Schedule Deliveries list on the Data Delivery page to manage existing scheduled deliveries.

- To make changes to a scheduled delivery, select the delivery from the list, enter the changes, and click Save.
- To create a new delivery based on an existing delivery, select the delivery from the list and click Save As. Type in the new delivery name and then make any other changes and click Save.
- To delete a scheduled delivery, select the delivery from the list, and click Delete.
- To activate or deactivate a scheduled delivery, select the delivery from the list and click the Active checkbox. Click Save.
- If there is a problem with the delivery, that export will be flagged in this Scheduled Deliveries list. Click the delivery name and revise any settings as necessary.

- If the delivered file has no data, check the timeframe you selected in the Export Settings and make sure it is at least as long as the night mode readout schedule.
- If the delivered file is missing data, it may be because the device connection interval is similar to the timeframe selected in the export saved settings. Increase the export settings timeframe to avoid this.

Changing Export File Format, Default FTP, and Default Email Settings

Exported data files are saved in the format specified in the Settings > Export page. This page also defines the default FTP and email addresses used for delivering exported files when Data Delivery is configured. Follow these instructions to change the default file format, FTP, and email settings. To change the settings involving the timeframe, device, and sensors included in an exported file, see Working with Existing Export Settings.

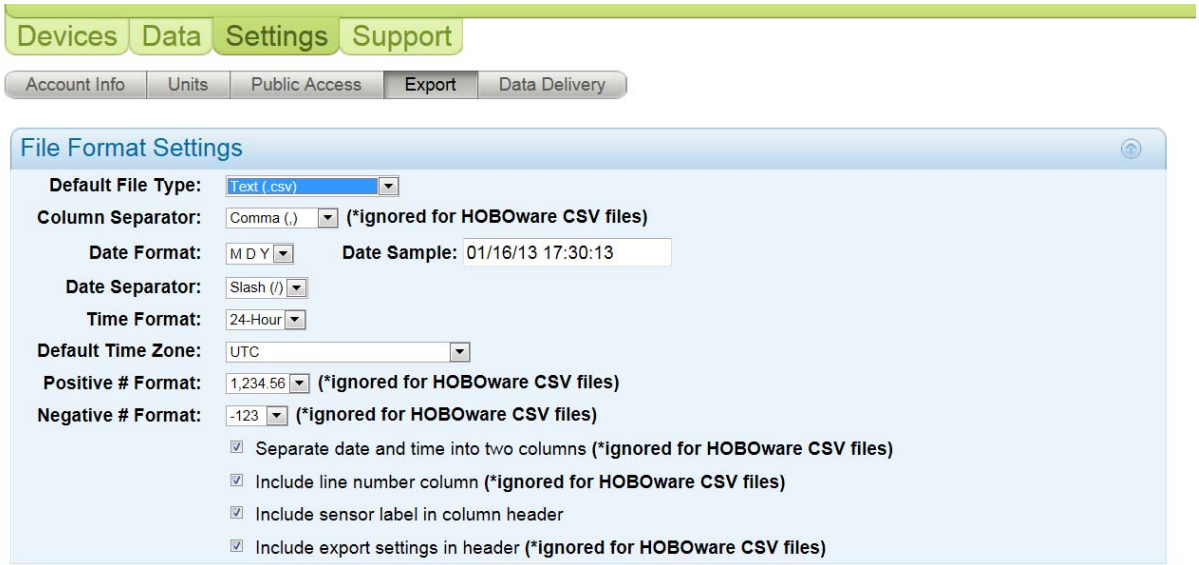
File Format Settings

To change the export file format settings:

1. Click the Settings tab.
2. Click the Exports button.
3. In the File Format Settings pane, change the following settings as desired. **Note:** You can preview changes made to the date and time format in the "Date sample" field.

    - **Default File Type.** Choose one of three ways for the exported data to be saved: Text (.csv), Excel (.xlsx), or HOBOware CSV (.csv). The "HOBOware CSV" file type will set up the exported file with the preferred settings for importing into HOBOware (settings that are ignored when selecting "HOBOware CSV" are marked).
    - **Column Separator.** Choose whether the data in the file should be separated by tabs, commas, or semi-colons.
    - **Date Format.** Choose how the date will be listed in the exported file: Month Day Year, Day Month Year, or Year, Month, Day.
    - **Date Separator.** Select the character that will separate the date in the exported file: Slash (/) or Dash (-).
    - **Time Format.** Select how the time will be listed in the exported file: in 24-hour format or 12-hour format.
    - **Default Time Zone.** Select which time zone should be used for the exported file.
    - **Positive # Format.** Select how positive numbers will be formatted in the exported file based on these examples: 1,234.56; 1 234,56; 1.234,56; or 1.234 56.
    - **Negative # Format.** Select how negative numbers will be formatted in the exported file based on these examples: -123; 123-; or (123).
    - **Separate date and time into two columns.** Select this option if you want the date and time to be in two columns instead of combined into one in the exported file.
    - **Include line number column.** Select this option if you want the exported file to contain a separate column to the left of the data that lists a line number for each data point.
    - **Include sensor label in column header.** Select this option to add any sensor labels (as created in the Latest Conditions pane of the Device page) to the sensor column header in the exported file.
    - **Include export settings in header.** Select this option if you want to include the export name and timeframe as defined in the Data > Custom Data page in the exported file.

4. Click Save when done.



Default FTP Settings

To change the default FTP settings used with exported files:

1. Click the Settings tab.
2. Click the Exports button.
3. In the Default FTP Settings pane, enter the following information for the FTP server where you want exported files to be delivered:

   - **FTP server.** Type the name of the FTP server (e.g. ftp.companyname.com). Note that secure FTP (SFTP) is not supported.
   - **FTP port.** Type the port number used for the FTP server or leave the field blank if the server uses the default port.
   - **Remote folder.** Type the name of the folder on the FTP server where you want the exported files to be delivered.
   - **Username.** Type the username for the account used to access the FTP server.
   - **Password.** Type the password to access the FTP server.
   - **Compress FTP'd files.** Select this option if you want to compress the file before delivering it to the FTP server.
   - **Use passive mode.** Select this option if the FTP server runs in passive mode (necessary if the server is running behind a firewall).

4. Click the Test FTP Connection button to make sure HOBOlink can connect to the FTP server using the settings entered.
5. Click Save when done.

These FTP settings will automatically be available for exports on the Data Delivery page. You can override these default settings on that page as needed.

Default Email Settings

To change the default email settings used with exported files:

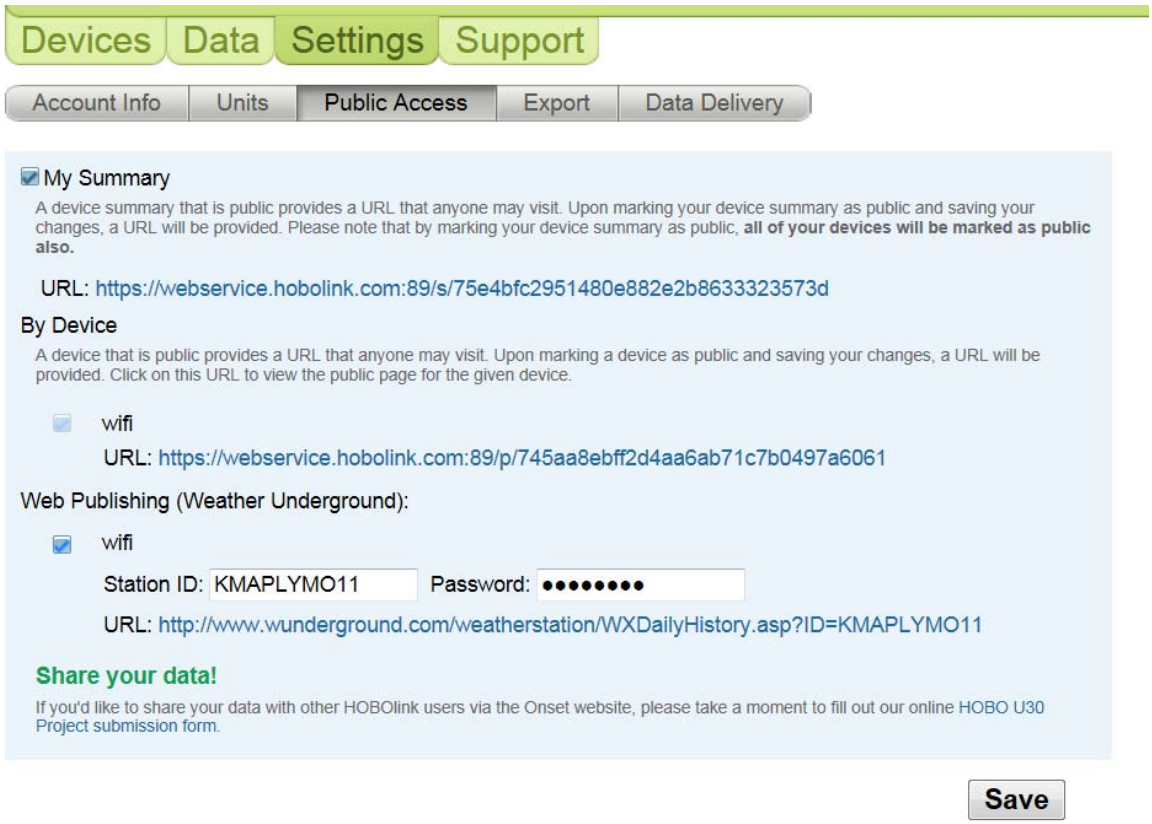
1. Click the Settings tab.
2. Click the Exports button.
3. In the Default Email Settings pane, type the email address to be used for delivering exported files. **Note:** This email address is associated with exported files only. To change the email address for your HOBOlink account, click the Account Info button at the top of the Settings page.
4. Select "Compress email file attachments" if you want to minimize the size of the exported file before emailing it.
5. Click Save when done.

These email settings will automatically be available for exports on the Data Delivery page. You can override these default settings on that page as needed.

Allowing Public Access to your Data

By default, HOBOlink device pages are only viewable when logging into HOBOlink. If you would like to make your device pages public, you can change the Public Access settings and create URL(s) that you can share with others. To allow public access to your data:

1. Click the Settings tab.
2. Click the Public Access button.
3. Select the My Summary checkbox to create a URL for the My Summary page, which will automatically make each of your devices public. If you do not want all devices public, then select each individual device checkbox you wish to make public instead.
4. Click Save. The URLs will now be available on the Public Access page. Click a URL to preview the public page. Share this URL with anyone you wish to view the public page.



If you have linked your U30 to Weather Underground, you can also create a URL for your Weather Underground page. To do this:

1. Click the Settings tab.
2. Click the Public Access button.
3. Select the device(s) under Web Publishing (Weather Underground). If you have not already linked your U30 to Weather Underground, see Publishing your Data to Weather Underground.
4. Click Save. Click the URL to preview the public page. Share the URL with anyone you wish to view the public page.

Sharing Your Data on the Onset Website

If you'd like to share your data with other HOBOlink users on the Onset website, fill out the form located at: http://www.onsetcomp.com/share.

See live data feeds here: http://www.onsetcomp.com/live_systems.

Publishing Your Data to Weather Underground

This feature allows you to publish your U30 Station data to Weather Underground (wunderground.com).

1. If you do not have an account with Weather Underground, go to the following link and create an account.

   http://www.wunderground.com/wxstation/signup.html

2. To register your weather station, click the Local Weather tab and seelct Weather Stations.
3. Click the **Register my Personal Weather Stations** link under Upload Your Data to Weather Undergound. Sign in if necessary.

4. Click the **New Weather Station** button.
5. Enter your information as required in the fields.

   For information on setting up a weather station, see the Weather Underground Wiki at:

   http://wiki.wunderground.com/index.php/PWS_-_Personal_Weather_Stations
6. After you register the U30 with Weather Underground, write down the Station ID.

   IMPORTANT: When registering a new station with Weather Underground, there is a wait time up to 30 minutes before the Station ID/Password can be validated by HOBOlink due to constraints on the Weather Underground system. Wait at least 30 minutes before continuing to step 7.
7. Return to HOBOlink and click the **Settings** tab.
8. Click the **Public Access** button.
9. Under Web Publishing (Weather Underground), check the box next to the device name.
10. Enter the Station ID you received from Weather Underground and your Weather Underground password.
11. Click **Save**. A URL will appear that links to your Weather Underground Station History page.
12. If you have Public Access enabled for the device, you can include this link on your Weather Underground page. Return to your Weather Underground account and click the Manage my Personal Weather Stations link under Upload Your Data to Weather Underground.
13. Click the **Edit** button for the station.
14. Paste the HOBOlink URL into the **Link URL** field.
15. Add a title for the link in the **Link Text** field and click Submit.

Data from the U30 Station will begin appearing in Weather Underground within 5 minutes after the latest connection to HOBOlink.

Notes:

- If you see a message that the Weather Underground Station ID and Password are incorrect when attempting to enable Web Publishing in HOBOlink, you may not have waited long enough after registering the U30 Station with Weather Underground. Newly registered stations in Weather Underground will not be detected by HOBOlink for at least 30 minutes due to constraints on the Weather Underground system. If you're certain you've entered the Station ID and Password correctly, wait at least 30 minutes and then try enabling Web Publishing again.
- When the U30 Station connects to HOBOlink, data from HOBOlink is automatically "pushed" to Weather Underground. This happens at every connection interval (readout time). There may be up to a 15-minute delay from the time the device calls in until the data appears in Weather Underground.
- HOBOlink pushes information from the device datafiles to the Weather Underground Tabular Data only. HOBOlink does not control the Weather Underground Summaries or Stickers. If you are using Summaries or Stickers, be aware that there may be instances where the values do not match the HOBOlink data due to limitations in Weather Underground.
- If the Weather Underground push service becomes temporarily unavailable, data that was uploaded to HOBOlink while that service is unavailable will not appear in Weather Underground immediately. Any data offloaded to HOBOlink while the connection to Weather Underground is unavailable will be pushed when the service comes back online.

- Do not use the same station ID for multiple U30 Stations because Weather Underground is only able to display one data record per logging sample time. Instead, register each of your U30 Stations in Weather Underground separately creating individual station IDs for use in HOBOlink.

Chapter 7:
A Tour of HOBOlink

Refer to the topics in this chapter for details on the main pages and panels in HOBOlink.

- The Devices Page
- The Device Page
- The Device Task Bar
- The Device Configuration Panel
- The Launch Configuration Panel
- The Readout Configuration Panel
- The Latest Conditions Panel
- The Latest Connections Panel
- The Latest Data Panel
- The Device Information Panel
- The Alarm Page
- The Data Page
- The Settings Page
- The Support Page
- A Map of HOBOlink

The Devices Page

The Devices page is shown below. This is the main page you see when you first log in to HOBOlink. The page will open in either List View (shown below) or My Summary, depending on what page was open when you last opened HOBOlink.

From the Devices page you can:

- Register a device

- Remove a device
- Access the Device page for a registered device
- View Alarm Status icons and access the Alarm page.
- View Last Connection
- View Serial Number
- View Communication Status
- View Relay State

Communication Status

(WARNING STATE) - Hover over the warning icon for details.

A device can be in a warning state if any of the following is true.

- Device has missed its last connection by 10 or more minutes.
- A device has exceeded the limit of its Communications Plan.
- The device is in an error status as indicated by the status listed in the Device Information on the device page.
- The device's Communications Plan has expired.

(More Details) - Hover over the warning icon for details.

A device can be in a details state if any of the following is true:

- Device is approaching the limit of the Communications Plan.
- Device is approaching the expiration of its Communications Plan.
- Device has not yet called in.
- The device's status is stopped.

(OK) - Device is operating normally and within the normal calling schedule.

Relay Status

(Relay Open) - The Relay Contact on the U30 Station is open.

(Relay Closed) - The Relay Contact on the U30 Station is closed.

Alarms Status

Click on the icon to go to the Alarms page.

(Red) - This device has tripped alarm(s).

(Green) - This device has active alarm(s).

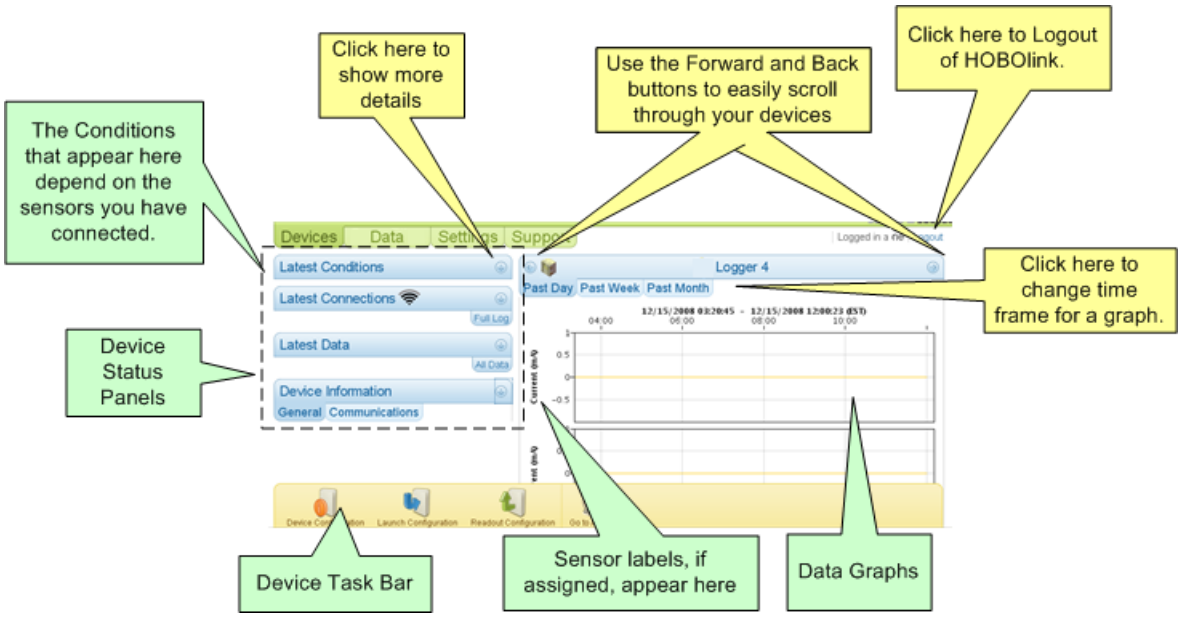
(Yellow) - this device has alarm changes bending.

(Grey) - All alarm(s) for this device are inactive or this device has no alarm(s) configured.

The Device Page

The **Device** page shows information for the selected device. From here you can view information and data plots for the device.

From the Device Task Bar at the bottom of the page you can configure the device, the launch settings, and the readout settings, and access the Alarm page.



For more details see Viewing Device Status.

The Device Task Bar

The Device Task Bar is located at the bottom of the Device Configuration page.

Device Configuration

In the Device Configuration panel you can assign a nickname to a device and set the time zone.

Launch Configuration

The Launch Configuration panel allows you to configure how often data from sensors is downloaded to the device.

NOTE: Any changes you make on this pane will cause the logger to relaunch at the next connection time.

Readout Configuration

The Readout Configuration panel allows you to adjust the readout/connection schedule for a logger.

Go to Alarms

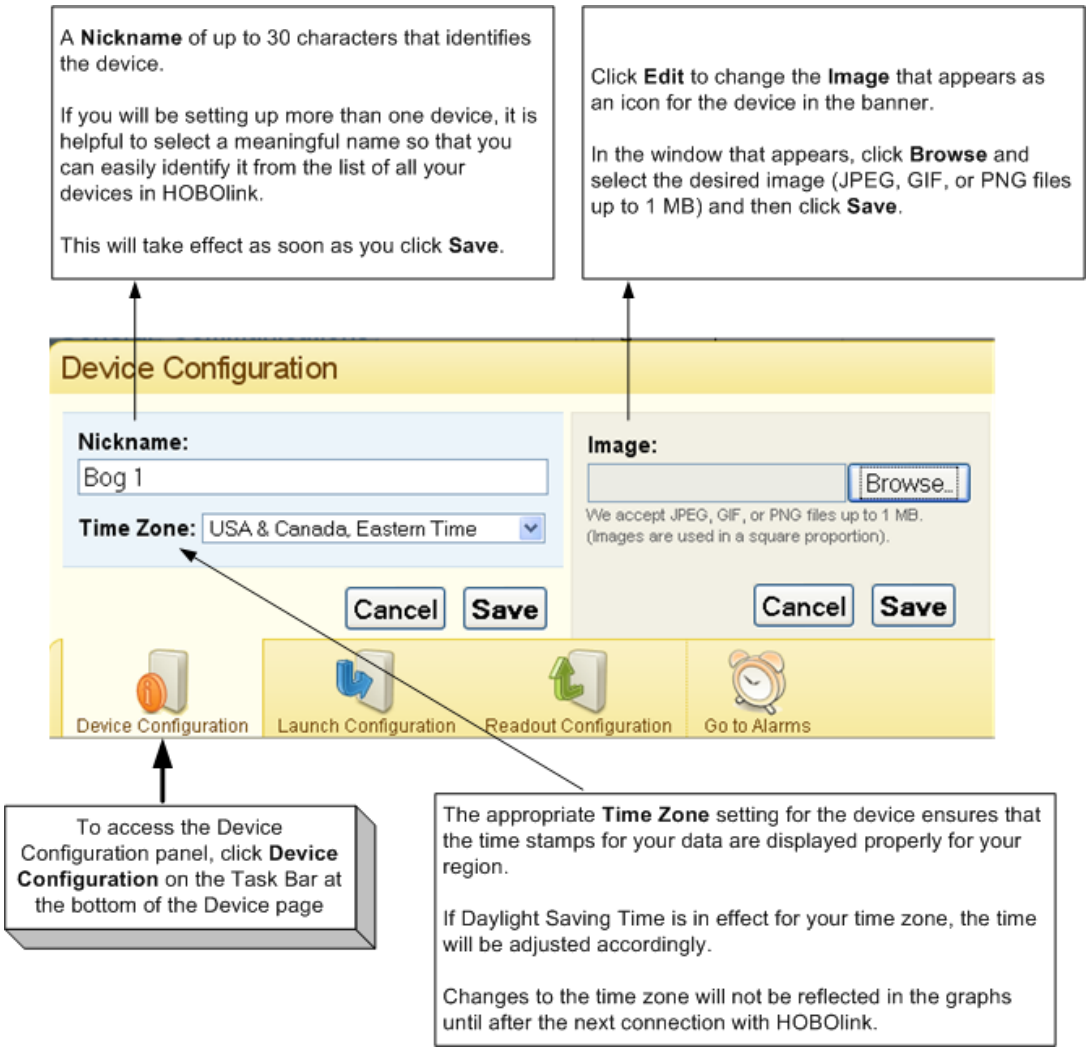
This icon will take you to the Alarm page, where you can configure alarm settings and view alarm logs.

The Device Configuration Panel

Use the **Device Configuration** panel to assign a "nickname" to a device, set the time zone, and upload an image for the device icon.

Accessing the Device Configuration Panel

To access the Device Configuration panel, go to the Device page and click the Device Configuration icon at the bottom of the page.

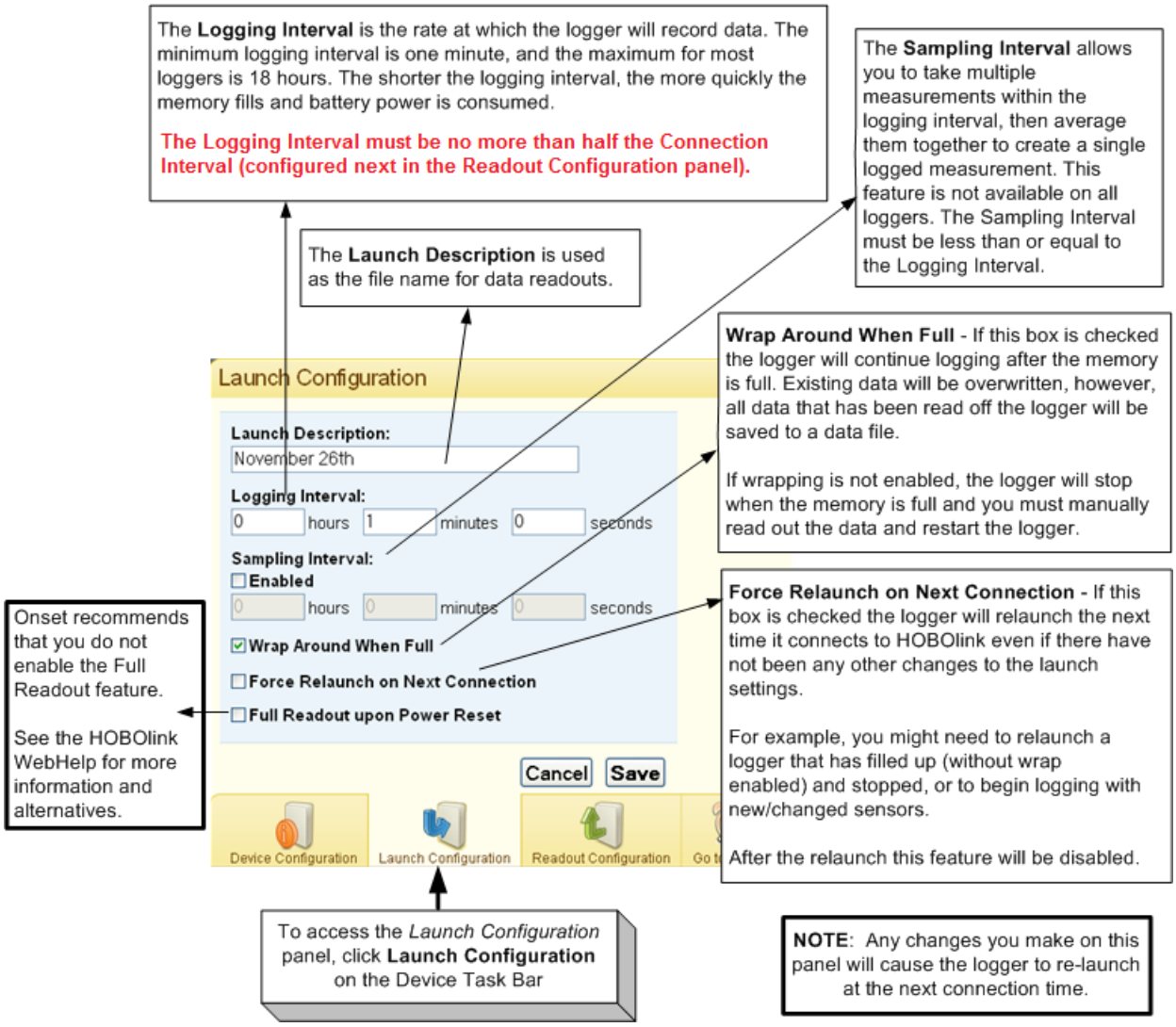


The Launch Configuration Panel

The Launch Configuration panel allows you to adjust details of your logger's current deployment. Any changes you make on this panel will cause the logger to re-launch at the next connection time.

To access the Launch Configuration panel, go to the Device page and click the Launch Configuration icon at the bottom of the page.

For more information, see Configuring Launch Settings.



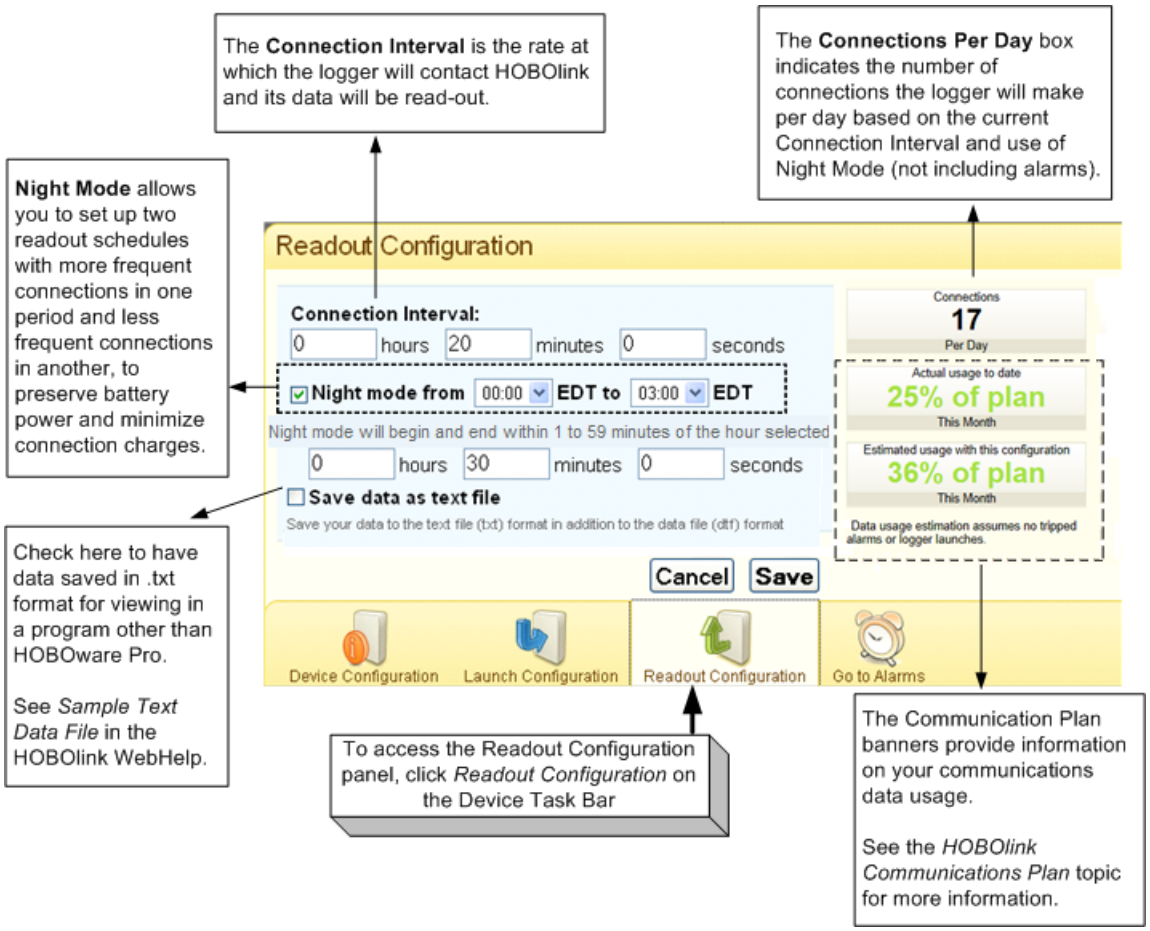
The Readout Configuration Panel

The Readout Configuration panel allows you to configure the readout/connection schedule for your logger. Changing Readout Configuration will not force a relaunch of the device.

The HOBO U30 Station connects to HOBOlink at a regular interval that you select (for example, every 2 hours) and reads out the most recent data recorded. The data is saved in a file and displayed as graphs in HOBOlink. You can also download data files and view them in HOBOware Pro for further data plotting and analysis.

To access the Readout Configuration panel, go to the Devices window and click the Readout Configuration icon at the bottom of the page.

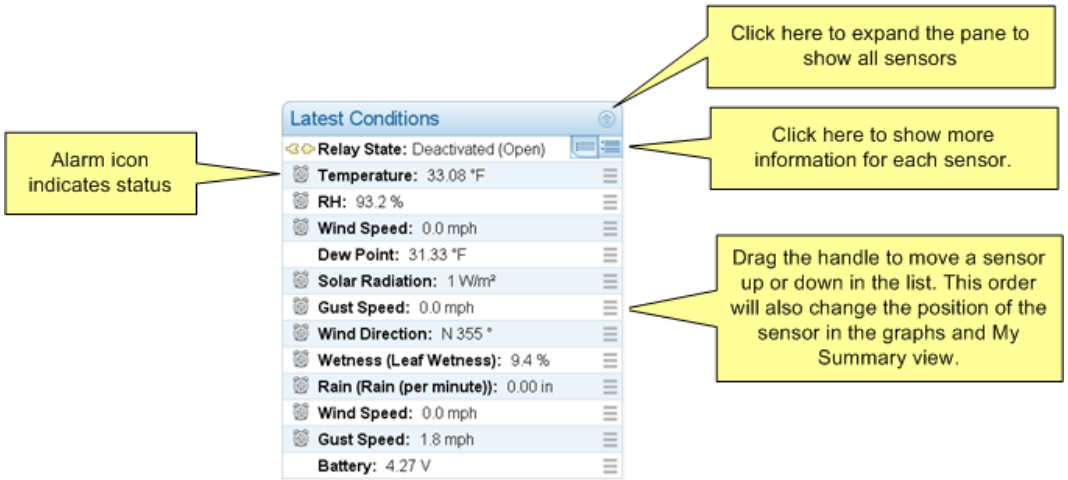
For more details, see Configuring Readout Settings.



Latest Conditions Panel

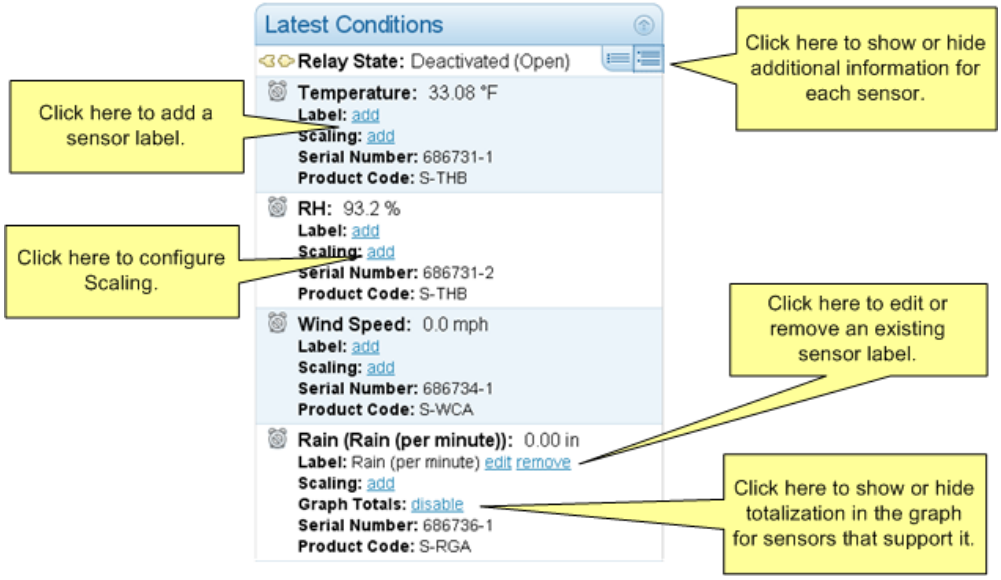
You access the **Latest Conditions** panel from the Device page.

This panel shows the current readings for all attached sensors, as well as the Relay State and Battery State. To re-order the sensors, grasp the sensor name and drag up or down. This order will also be reflected in graphs and My Summary View.



Expanded View

Click on the arrow next to Relay State to see more information about each sensor.



Alarm Icons in Latest Conditions Pane

 (Red) - Alarm is Tripped: indicates an alarm condition has been tripped. Click the icon to see all tripped alarms.

 (Green) - Alarm is Active: indicates that an alarm has been defined and is not currently tripped. Click the icon to see all tripped alarms.

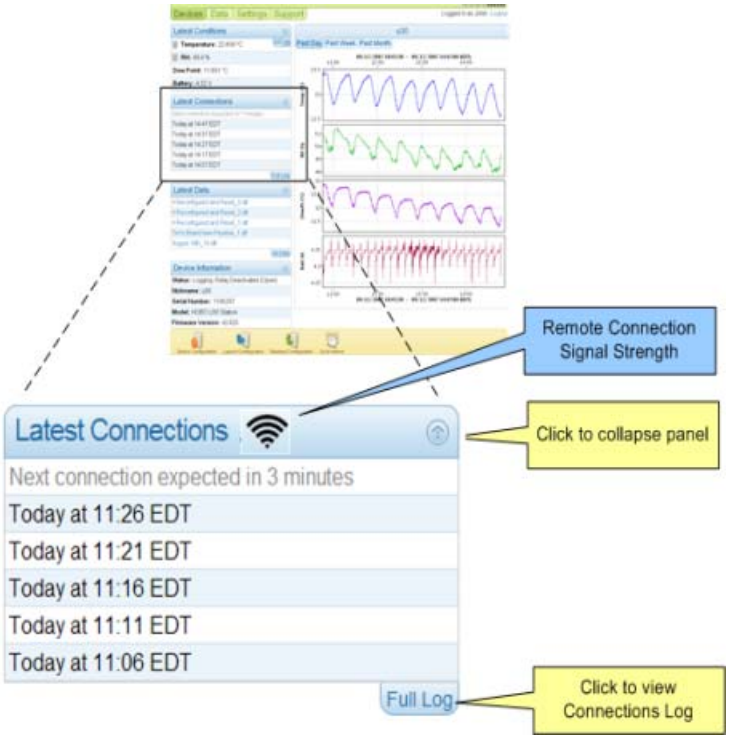
(Yellow) Pending: This device has alarm changes pending.

(Grey) - This sensor has no alarms: Indicates that no alarm conditions have been defined for the sensor. Click the icon to add an alarm condition.

Latest Connections Panel

You access the Latest Connections panel from the Device page.

This panel shows all of the connection attempts between the device and HOBOlink and when the next connection is scheduled. For Remote Communication models, the Signal Strength is shown in the banner.



Full Log

Click on the Full Log button to view the complete log of connection attempts. You can filter the results to show all connection attempts, connections only, or errors only.

You should review this log occasionally to confirm that the logger is connecting as often as you expect.

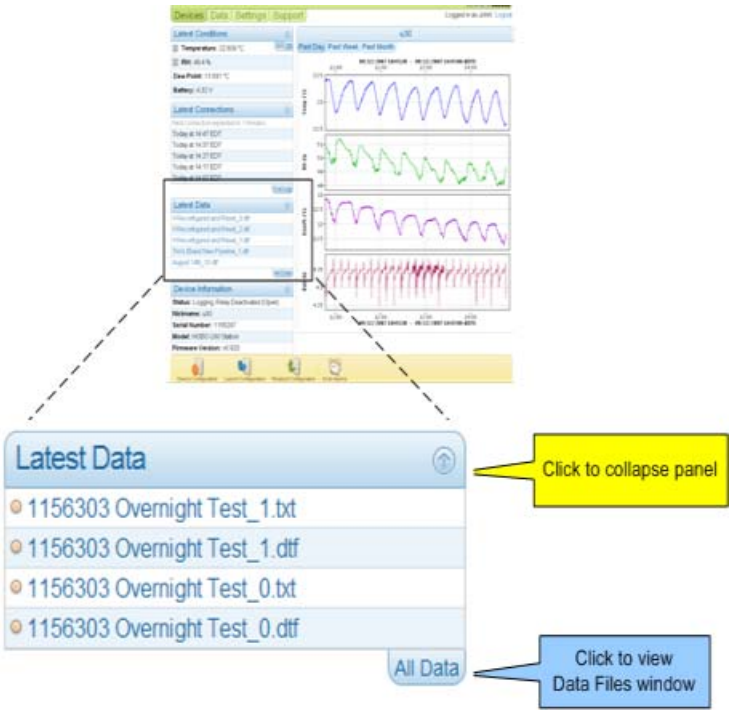
See Viewing Connections Log.

Latest Data Panel

You access the Latest Data panel from the Device page.

This panel shows you the latest data files that have been readout of the logger.

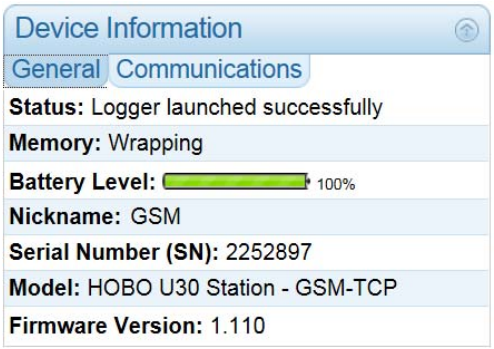
An orange dot next to the file name indicates the file has not been downloaded. Click on the file to download. See Downloading Data Files for more information.



Device Information Panel

You access the Device Information panel from the Device page. Use the tabs to access the **General Information** or **Communications Information** panes.

General



Status

The Status of the device: Normally this will indicate **Logging**, unless the device has filled, in which case it stops logging and this status is **Stopped**. If the logger is stopped you need to relaunch it in order to acquire new data. This information is updated every 2 minutes.

Memory

Shows the amount of memory used if it is not in Wrap mode. If the logger is in Wrap Mode then there will be no memory bar and **Wrapping** will be displayed. This information is updated every 2 minutes.

Battery Level

The amount of power remaining in the battery connected to the device. This information is updated every 2 minutes. The battery gauge is scaled linearly between 3.9 and 4.3V.

Nickname

The Nickname assigned to the device upon registration.

Serial Number

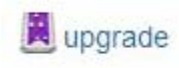
The serial number of the device.

Model

The model name of the device.

Firmware Version

The version of the Firmware installed on the device.



- If there is a firmware upgrade available, the upgrade icon and a link will appear next to the firmware version.

For details see Firmware Upgrades.

Communications

Plan Number

Indicates the type of Communications Plan you have.

Plan Start Date

The start date of your HOBOlink Plan for access to your device(s).

Plan End date

The end date of your HOBOlink Plan for access to your device(s).

Monthly Cell Usage (GSM Plans Only)

The percentage of your allocated data you have used for the current month.

See Communications Plan Overview for more information.

If you hover the cursor over the **Monthly Cell Use** bar, pop-up text will indicate if your current configuration is within your monthly data allocation, or if you will exceed your monthly data allotment (by what percent).

The Alarm Page

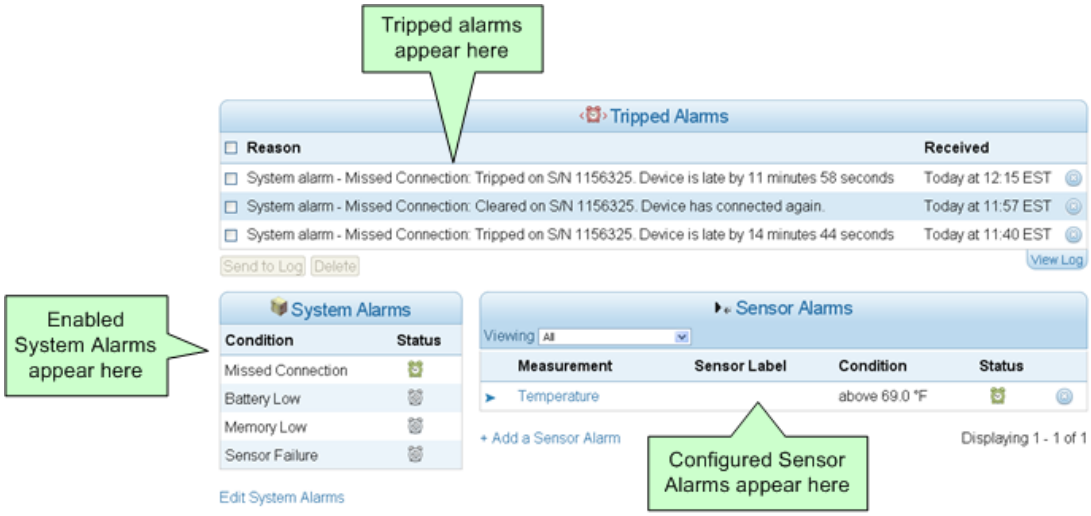
From the Alarm page you can:

- Add Sensor Alarms
- Edit System Alarms
- View Tripped Alarms
- View Alarm Logs

Note on U30 GSM

If you have a Communications Plan for the U30 GSM, note that alarms can have a significant impact on the communications data usage. The amount of allocated data you have with your service plan should be considered when you configure alarms. See Communications Plan Overview for more information.

Alarm Page



Alarm Status Icons

 (Red) - Alarm is Tripped: indicates an alarm condition has been tripped.

 (Green) - Alarm is Active: indicates that an alarm has been defined and is not currently tripped.

 (Yellow) - Pending: this device has alarm changes pending.

 (Grey) - Alarm is Inactive: there is no sensor attached corresponding to this alarm. Reconnect the sensor and relaunch the device, or delete the alarm by clicking the delete icon () to the right of the Status icon.

The Data Page

From the Data page, you have access to the data files created each time the logger connects to HOBOlink. Click the Data Files button to see a list of all files and to select individual files for download.

You can also view any custom data files that you have created through export settings. Click the Custom Data button to view and manage the files generated through export.

Troubleshooting

Data file contains errors

If you are missing data for a particular sensor, check that it was properly installed and configured. Remove and reconnect the sensor and check the status in HOBOware Pro to verify that it can report accurate readings. If you find that it is not communicating, it may be damaged. Contact your Onset Authorized Dealer or Onset Technical Support.

Data file cannot be opened

In rare circumstances, the data file may have become corrupted. Contact your Onset Authorized Dealer or Onset Technical Support.

The Settings Page

Click the Settings tab to access:

- Account info, where you can change the name, email address, or password associated with your HOBOlink account.
- Units, where you can switch between US and SI units
- Public Access, where you can create URLs for your devices to share with others
- Export, where you can set the preferences used with exporting datafiles
- Data Delivery, where you can set up automatic delivery of datafiles via email or FTP.

The Support Page

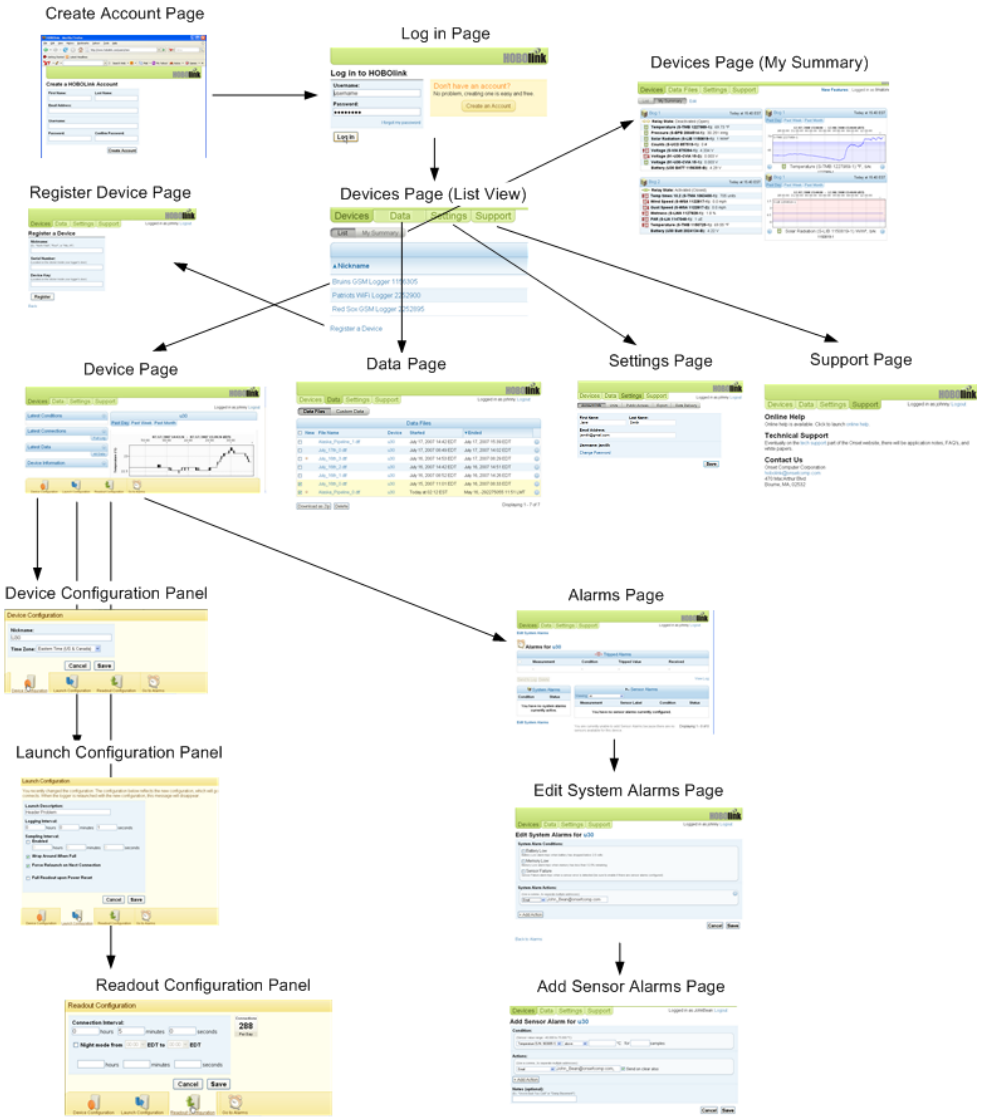
From the **Support** page you can:

- Access the online Help and other documentation
- Access FAQs
- Access the Data Logger Resources Library
- Send an e-mail with feedback on HOBOlink
- View *Terms of Use*
- View *Data Uploading Terms*

A Map of HOBOlink

The diagram below shows all of the HOBOlink pages and their relation to each other.

To see the pages organized according to task, see A Summary of HOBOlink Tasks.



Chapter 8: Maintenance & Troubleshooting

Refer to these topics for help with maintaining and troubleshooting issues with the U30 Station or HOBOlink.

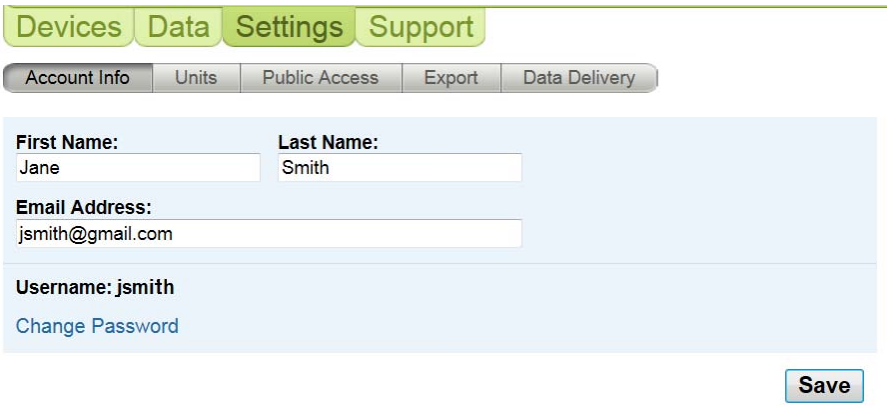
- Firmware Upgrades
- U30 Troubleshooting
- Launch Configuration Troubleshooting
- FAQs

Changing Your Account Information

To change the first name, last name, or email address associated with your HOBOlink account:

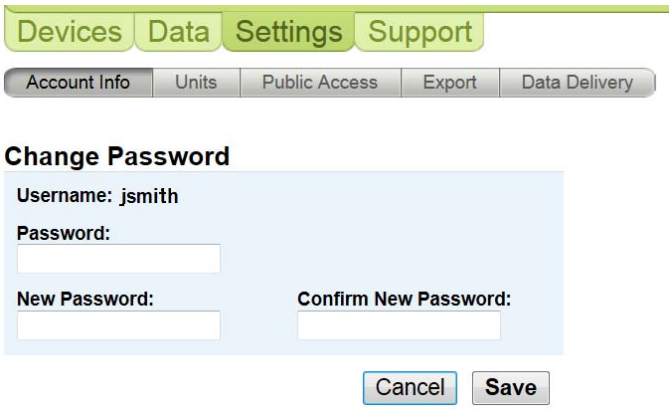
1. Click the Settings tab.
2. Click the Account Info button.
3. Make changes in the First Name, Last Name, and Email Address fields as desired.
4. Click Save.

Note: The username is the name you established when you created your HOBOlink account and cannot be changed.



To change your password:

1. Click the Settings tab.
2. Click the Account Info button.
3. Click the Change Password link.
4. Type the old password then type the new password in twice. Click Save.

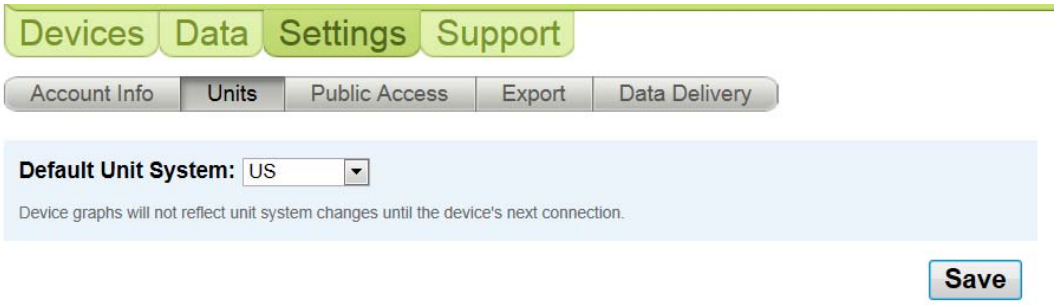


Changing the Default Units

To switch the US and SI units in device data and graphs:

1. Click the Settings tab.
2. Click the Units button.
3. Select either US or SI.
4. Click Save.

Note: The graphs will not be updated with the unit change until the device's next connection.



Firmware Upgrades

You can install HOBO U30 firmware upgrades remotely via HOBOlink.

Performing a firmware upgrade will not cause the device to be launched. The device will resume readouts on the connection following the upgrade. The upgrade may take several minutes, but the byte usage will not be charged to your HOBOlink Communication account.

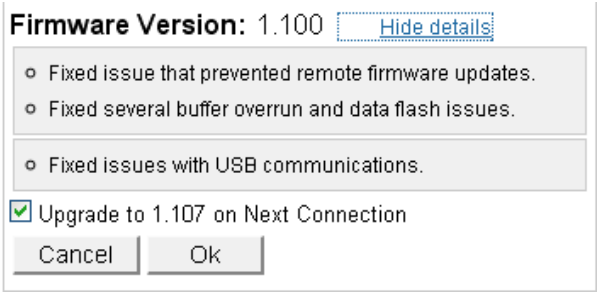
If there is a firmware upgrade available, the upgrade icon [] will appear next to the firmware version.

Steps

1. Click **upgrade** to expand the pane.

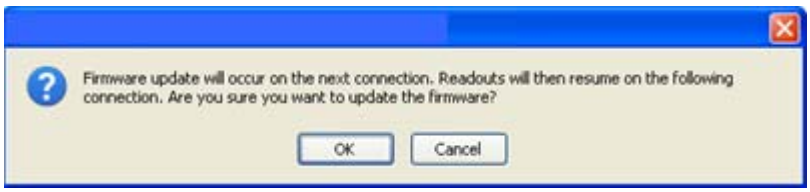
2. To schedule the upgrade, check the *Upgrade to ... on Next Connection* box and then click **OK**.

   To see what changes are in this new version before you schedule the upgrade, click **Show details**.



3. When you click OK you will see the following message. Click **OK** to confirm the upgrade, or click **Cancel** to cancel it.

   IMPORTANT: Do not unplug the HOBO U30 while it is being upgraded.



Troubleshooting

These are some common problems you may encounter with the HOBO U30 Station.

There are no status indicators blinking

- The indicators are very faint under direct sunlight. If no indicators appear to be blinking, shield the logger from the light and check the indicators again.

- Check the status in HOBOlink. Make sure the battery power is not too low. There needs to be at least 3.5 volts for logging to continue and 3.9 volts for GSM communication.
- If you have not enabled Wrapping, the memory may be full. Read out the logger and relaunch.
- The logger may not have been launched.

Changes I made to the Launch Configuration or Readout Configuration haven't taken effect

Any changes you make to the Launch Configuration or Readout Configurations will not take effect until the next time the HOBO U30 Station connects to the HOBOlink. If your connection interval was set to 2 hours, then changes won't take effect until the next connection on that 2-hour schedule.

Too many calls are being made to HOBOlink

- Select a slower connection interval in Readout Configuration
- Consider enabling Night Mode, which allows you to set up a second, slower connection interval.

Too much battery power is being used

- Make sure the solar panel is installed properly and functioning. That should provide enough power to recharge the battery during the day.
- Use the AC adapter to recharge the battery.

The power has run out

- Recharge the battery for 12 hours with AC adapter.
- If the battery cannot be recharged, you will need to replace the battery. Contact your Onset Authorized Dealer or Onset Technical Support.

  Important: The logger uses very durable, high-capacity Flash memory. With this memory, data is retained even when the battery runs out of charge. Do not relaunch the logger until the data has been recovered. If the battery cannot be recharged and you are still unable to read out the HOBO U30 Station, contact the vendor that sold it to you. It may be possible to retrieve the logged data.

Only some of the installed sensors are logging

- Check for a loose connection.
- If using the Smart Sensor Expander board, make sure it is connected to the built-in Smart Sensor board with the expander cable.
- Make sure you have not exceeded 100 meters (328 ft) of network cable for all Smart Sensors.
- Make sure you have not exceeded 15 data channels.

  Use HOBOware Pro to see a list of all installed sensors and Analog Sensor Ports in the Launch page. The Smart Sensors are listed in ascending order by serial number. If more than 15 data channels are connected, the devices with the higher serial numbers will be ignored and their data will not be recorded.

Data file contains errors

If you are missing data for a particular sensor, check that it was properly installed and configured. Remove and reconnect the sensor and check the status in HOBOware Pro to verify that it can report

accurate readings. If you find that it is not communicating, it may be damaged. Contact your Onset Authorized Dealer or Onset Technical Support.

Data file cannot be opened

In rare circumstances, the data file may have become corrupted. Contact your Onset Authorized Dealer or Onset Technical Support.

Device is not found when connected to HOBOware Pro

- Check USB cable connections.
- Check the computer's COM port/USB settings.

I launched the HOBO U30 Station in HOBOware, but my settings are not being logged

Launches attempted with HOBOware Pro will be overridden by the Launch Configuration set up in HOBOlink the next time a connection made. If the HOBO U30 Station is communicating with HOBOlink, then it most likely has been relaunched with the settings saved in HOBOlink.

I set the Launch Configurations, but the logger is not logging

- If it is the first launch, make sure you have entered a Readout Configuration.
- If it is not the first launch and the HOBO U30 Station is connecting but still not launching, then select "Force Relaunch on Next Connection" and wait for the next connection.

Launch Configuration Troubleshooting

I set the Launch Configurations, but the logger is not logging

- If it is the first launch, make sure you have entered a Readout Configuration.
- If it is not the first launch and the HOBO U30 Station is connecting but still not launching, then select "Force Relaunch on Next Connection" and wait for the next connection.

I launched the HOBO U30 Station in HOBOware, but my settings are not being logged

Launches attempted with HOBOware Pro will be overridden by the Launch Configuration set up in HOBOlink the next time a connection made. If the HOBO U30 Station is communicating with HOBOlink, then it most likely has been relaunched with the settings saved in HOBOlink.

There are no status indicators blinking

The logger may not have been launched.

Changes I made to the Launch Configuration haven't taken effect

Any changes you make to the Launch Configuration will not take effect until the next time the HOBO U30 Station connects to the HOBOlink. If your connection interval was set to 2 hours, then changes won't take effect until the next connection on that 2-hour schedule.

Frequently Asked Questions

Why don't my graphs update when I switch from US to Metric (SI)?

In order to allow graphs to be viewed with no delay, they are created at the time the device contacts HOBOlink. Therefore, graphs in the new units will be available after the next time the device connects.

Why don't my sensor labels show up immediately on the HOBOlink graphs?

Since graphs are created at the time the device connects, the new labels will not appear on the graphs until after the next time the device connects.

Where do I find my device Serial Number and Device Key?

The Serial Number and Device Key are found inside the door of your U30 enclosure. Please keep track of these values since you will need them to register your device in your HOBOlink account.

How do I configure Analog Sensor Ports on the U30 Station?

Analog Sensor Ports are configured using HOBOware. Channels configured in HOBOware will appear in HOBOlink.

How do I toggle my relay or set the default state of the relay?

Setting the state of default state of the relay in real time must be done in HOBOware through the USB interface. HOBOlink will show you the state and default state, and will also allow you to set up alarm conditions that will trip the relay. HOBOlink does not allow real-time control of the relay.

I launched my logger in HOBOware, and then it was re-launched by HOBOlink. Why did this happen ?

HOBOlink is designed to be the primary controller of the U30 Station. If you have launched your logger in HOBOware with different settings (such as logging interval, sampling interval, launch description, wrapping state) than you specified in HOBOlink, then HOBOlink will re-launch the U30 Station to ensure it is configured to match the settings in the HOBOlink account.

Why don't the labels I added to my Battery and Dew Point Sensor show up in HOBOware?

Since Battery and Dew Point are what are referred to as "derived channels," they do not have a presence in the header of the .dtf file. Therefore, there is no place to store those values for use in HOBOware. You can still view the labels in HOBOlink. Labels from all others channels will be displayed in HOBOware when opening the downloaded .dtf file.

How do I stop the U30 Station using HOBOlink?

You cannot stop your U30 Station from logging or connecting. The U30 and HOBOlink are designed to run continuously, without any user interaction. When you connect the battery, it starts connecting and starts logging data automatically. To stop logging and/or connecting data, simply unplug the battery.

How do I stop my logger from connecting to HOBOlink?

You cannot stop regular connections to HOBOlink. There is no limit to how slowly the U30 Station will connect to HOBOlink.

How do I stop logging?

Connect to the HOBO U30 Station to a USB cable and stop logging with HOBOware Pro.

Or, unplug the battery.

You will likely need to select "Force Relaunch on Next Connection" under Launch Configuration in HOBOlink to resume logging again.

How do I stop logging and stop remote communications?

Unplug the battery.

How did my system alarms become disabled?

When you enable any or all system alarms (Battery Low, Memory Low, Sensor Failure), as soon as one of these alarms trips, all system alarms are disabled. Upon receiving a system alarm notification, you should verify your device's state to see if any action is required. See Troubleshooting.

Once you have resolved any problems, go to the Edit System Alarms page for your device and re-enable any system alarms for which you would like to receive notifications.

Which Launch Configuration fields will cause my device to re-launch if they are modified?

Changing the following fields in the Launch Configuration panel will cause your device to re-launch the next time it connects to HOBOlink:

- Launch Description
- Logging Interval
- Sampling Interval
- Wrap Around When Full checkbox

Can I set the order that my graphs are displayed?

You can change the order that graphs are displayed by moving the sensors in the Latest Conditions panel.

Why does Rainfall show as zero in Latest Conditions even thought it has been raining?

The **Latest Conditions** pane shows the rain that fell in the last logging interval only. If the Logging Interval is 1 minute and there wasn't a rain gauge tip during that minute, then the rain shows as zero.

How can I set one alarm action when an alarm trips and a different action when the alarm clears ?

If, for example, you wanted to send a message to "turn on pumps" when the temperature goes below 35 degrees F, and another message "turn off pumps" when the temperature goes above 35 degrees F, you should create two sensors alarms:

- one that triggers when the conditions go below 35 degrees F
- one that triggers when the conditions go above 35 degrees F

Each of these can be set up to send the appropriate text message. Be sure not to check the box for sending a text message when the alarm condition clears.

Why are old entries missing from my connection and alarm log?

In order to keep our database to a reasonable size, we remove connection log entries over 30 days old. We also remove all but the last 750 alarm log entries, which corresponds to 3 months of alarm logs. Doing this allows us to keep HOBOlink more responsive.

Why is there a gap between subsequent datafiles?

If your logger fills in a time that is less than your configured readout interval, some of the data will have been overwritten in the logger. This can happen on loggers that have a full suite of sensors, are logging at the fastest (1 minute) logging intervals, and have a readout interval of over 1 day. To avoid this problem, Onset recommends that you set your Connection Interval to a value of less than 1 day, or increase your Logging Interval.