



HOBOWare®



Getting Started

Using HOBOWare with HOBOWare data loggers

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Introduction

This guide is intended to help you become familiar with the basic functionality of using HOBOWare[®] with HOBOWare[®] data loggers, including:

- Installing HOBOWare on Windows[®] and Macintosh[®];
- Connecting devices; and
- Working with devices, including launching, reading out, and analyzing data.

This guide is for both HOBOWare and HOBOWare Pro and for Windows and Macintosh. Any differences in functionality are noted.

For detailed information on all HOBOWare features, use the online help or refer to the *HOBOWare User's Guide* at http://www.onsetcomp.com/support/manuals/bhw-pro-cd_12730.

This guide covers HOBOWare data loggers. See www.onsetcomp.com for details on setting up a HOBOWare ZW Series Wireless System.

An Overview of HOBOWare

HOBOWare software is used for launching, reading out, and plotting data from HOBOWare[®] data loggers. With HOBOWare, you can also check logger status, filter and export data, save changes to graphs in project files, and scale data with the Linear Scaling and Pulse Scaling data assistants. There are two versions of HOBOWare: HOBOWare and HOBOWare Pro. HOBOWare Pro offers the following additional features:

- Support for Conductivity, Dissolved Oxygen, and Water Level loggers, which use HOBOWare Pro Data Assistants
- Support for HOBOWare U-Shuttle and Waterproof Shuttle

- HOBOnode Manager and support for wireless HOBOnode data nodes
- Launch and readout time-saving options
- Additional data assistants (Barometric Compensation, Conductivity, Dissolved Oxygen, Grains Per Pound, Growing Degree Days, and kWh)
- Importing of text data
- Bulk Export Tool
- Pie charts for UX90 series loggers
- Additional plot preferences (font type, style, and color, and series and value axis rules)
- Subset statistics tool for graphing a subset of data
- Series cropping on plots
- 21 CFR Part 11 Compliance

To upgrade from HOBOWare to HOBOWare Pro, call 1-800-564-4377 and ask for Onset Customer Service.

Note: HOBOWare supports the following languages: English, Chinese, French, German, Japanese, Spanish, and Portuguese. The HOBOWare user interface can display all of these languages as configured by your computer (see the HOBOWare Help for details). HOBOWare documentation is available in English only.

Installing HOBOWare

You can download and install HOBOWare from the Onset website. HOBOWare Pro is available from the Onset website or a software CD and requires a license key, which is located in the email confirmation or online receipt you received when purchasing the software or on the back of the CD case.

To upgrade from HOBOWare to HOBOWare Pro, call 1-800-564-4377 and ask for Onset Customer Service.

Installing HOBOWare or HOBOWare Pro from the Onset Website

To download HOBOWare from the Onset website, go to the following URL and follow the instructions for downloading and installing HOBOWare:

<http://www.onsetcomp.com/products/software>

Installing HOBOWare Pro from the Installation CD

Windows

You must be an administrator to install HOBOWare (you do not need to be an administrator to run HOBOWare once it is installed).

1. Insert the CD into the appropriate drive. The installation program should start automatically. If it does not, navigate to the CD drive in My Computer or Windows Explorer and double-click HOBOWare_Setup.exe to launch the HOBOWare installer.

Note: HOBOWare for Windows requires the Java™ Runtime Environment. If the correct Java Runtime Environment version is not already installed on your computer, the HOBOWare Setup program will ask if you want to install it now. Click **Yes** and follow

the prompts. After the Java Runtime Environment is installed, the HOBOWare installation will continue.

2. Follow the prompts to install HOBOWare.
3. To start HOBOWare, double-click the HOBOWare icon on your desktop or select **Programs > Onset Applications > HOBOWare** from the **Start** menu.

Macintosh

1. Insert the CD into the appropriate drive.
2. Double-click the CD icon in Finder and then double-click the HOBOWare.pkg to launch the HOBOWare installer.
3. Follow the instructions on the screen.
4. Click **Restart** in the last screen so that the operating system is prepared to work with Onset devices. HOBOWare will not recognize your loggers until you have restarted.
5. After restarting, open HOBOWare by double-clicking the HOBOWare icon in your computer's Applications folder.

Activating HOBOWare Pro

The first time you open HOBOWare Pro, you will be prompted to enter your license key from the email confirmation, online receipt, or the CD case. Type the license key in the License Key Manager and click OK. You will need to reopen HOBOWare after entering the license key. Note that you will not be required to enter the license key when upgrading to subsequent versions of HOBOWare.

Running the Setup Assistant

The HOBOWare Setup Assistant appears the first time you open HOBOWare to help you quickly select key settings for device types and

serial ports, units of measurement, and data assistants. To run the Setup Assistant, click **Start** and follow the prompts.

Note: The Setup Assistant is optional. If you click **Cancel**, you will be able to use HOBOWare with its default settings listed below.

- Device Types: Default is USB. If you enable serial devices, you can select the port to use.
- Unit System: Default is US units.
- Data Assistants: Default is to enable all installed data assistants.

Other Preferences

To see all the preferences you can configure in HOBOWare, including those configured with the Setup Assistant, go to:

Windows: File > Preferences

Macintosh: HOBOWare > Preferences

Connecting Devices

Connecting a USB Device

You can connect most devices to the USB port by using an Onset-supplied USB interface cable.

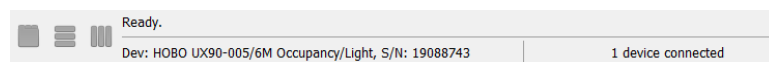
HOBOWare Pro: For instructions on connecting HOBOWare shuttles or using the HOBOWare Waterproof Shuttle as a base station, refer to the shuttle's user guide.

Steps

1. Open HOBOWare.
2. Plug the large end of the USB interface cable into a USB port on the computer.
3. Plug the small end of the USB interface cable into the port on the device. Refer to the diagram and instructions that came with the device if you need help finding the port.

Windows: If the device has never been connected to the computer before, it may take several seconds to detect the new hardware and report that it has connected successfully. One or more messages will appear indicating that new hardware has been found. You may also hear a chime. A message may display indicating that you need to reboot before you can use the device. This is optional; you do not need to reboot at this time.

Once the device is recognized by HOBOWare, the device name will appear in the status bar at the bottom of the HOBOWare window as shown below. The status bar also lists the total number of devices connected. At this point, you can access the device from HOBOWare.



To disconnect the device, unplug it from the USB cable.

Connecting a Base Station/Coupler

Some loggers require an optic USB base station/coupler to connect to the computer. Consult the manual that came with the device for specific information about required base stations/couplers.

Steps

1. Open HOBOWare.
2. Plug the base station/coupler cable into a USB port on the computer.

Important: Make sure the base station/coupler is the correct model for the logger you want to use. Consult the logger/device user manual if you are unsure.
3. Attach the logger to the base station/coupler as described in the in the logger/device manual, paying close attention to proper alignment.

Windows: If the base station/coupler or logger has never been connected to the computer before, it may take several seconds for the computer to detect the new hardware and report that it has connected successfully. A message may display indicating that you need to reboot before you can use the device. This is optional; you do not need to reboot at this time.

The status bar at the bottom of the HOBOWare window will update to reflect that the logger is connected. At this point, you can begin using the device.

To disconnect the logger, simply unplug it from the base station/coupler. Wait for the status bar to update the number of devices before continuing.

To attach another logger via a base station/coupler, remove the logger, leaving the base station/coupler connected, and then connect the next logger.

To disconnect the base station/coupler, unplug it from the USB port.

Connecting a Device Using a Serial Cable

Some loggers use a serial cable to connect to the computer. If your computer does not have a serial port and you are using a device that requires a serial cable, you can use a Keyspan™ adapter as described in this section.

Steps

1. Open HOBOWare.
2. Plug the 9-pin end of the serial interface cable into a serial port on the computer or into a Keyspan adapter that is plugged into a USB port.
3. Plug the other end of the serial interface cable into the communications port on the device. Refer to the diagram and instructions that came with the device if you need help finding the port.
4. **Windows:** If you are using a serial port other than COM1, you will need to configure HOBOWare to use another port. To change the setting, go to File > Preferences > Communications > Serial Ports. Note that checking multiple serial ports can take some time, even when no devices are attached.
5. Select the logger from the Select Device window and click **OK**.

The status bar at the bottom of the HOBOWare window will update to reflect that the device is connected and selected. At this point, you can begin using the device.

To disconnect the device, simply unplug it from the serial cable.

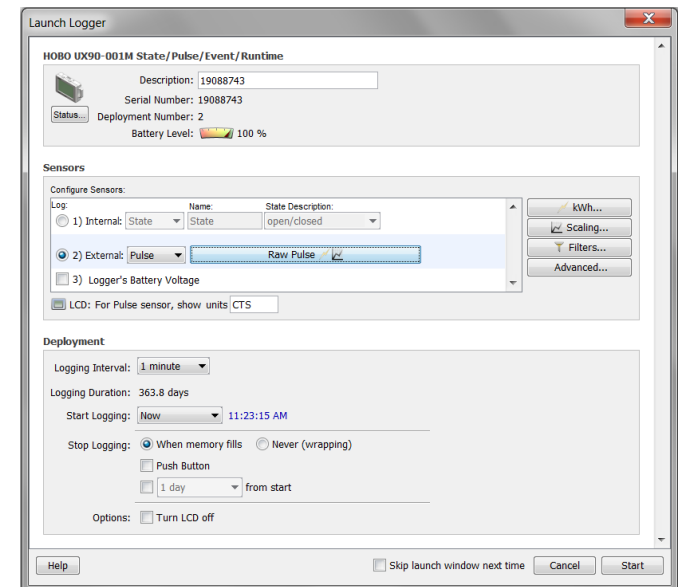
Working with Devices

This section covers the basics of working with loggers, including launching, checking status, reading out, and plotting data. It is recommended that you perform a trial launch and readout as described in this section to familiarize yourself with the procedures before deploying your loggers.

Launching the Logger

To launch the logger, click the Launch icon  on the toolbar.

The Launch window opens. This window is separated into three panes, which vary slightly for each type of logger and are described on the next page.



- **Logger Information.** The name of the logger currently selected appears at the top of this pane, which also includes the serial number, deployment number, and current battery level.

Use the Description field to type up to a 40-character name for the logger deployment. This description will be used as the default file name when you read out the logger and save the data. It will also be the default title on the plot.

Click the Status button in this pane to see the current status of the logger and the settings used on the previous launch.

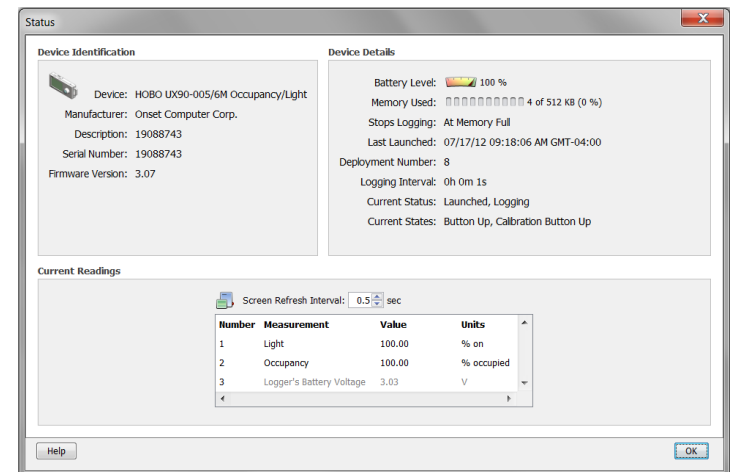
- **Sensors.** This pane displays a list of the sensors available for the logger. Choose the sensors, or channels, that you wish to log in this deployment, and select any external sensors you may be using, if applicable. This pane also displays any utilities available for your logger, such as Alarms, Scaling, and Filters.
- **Deployment.** Use this pane to set the logging interval, which is the rate at which you want the logger to record data, and to select when you want the logger to start logging. This pane also displays the logging duration, which is the approximate time it will take to fill the logger memory based on the logging interval, sensors, and other settings currently selected. For some loggers, you can also set a sampling interval, choose when to stop logging, and select other options in this pane.

To configure a test launch, set **Start Logging** to **Now**, choose a fast logging interval (such as 30 seconds), change any other settings as desired, and then click **Start**. HOBOWare displays the progress of the launch and warns you not to unplug the logger while it is being configured. Normally, when the launch is finished, you can unplug the logger and deploy it. For this test, leave the logger plugged in so you can become familiar with checking the status, reading it out, and plotting data.

Checking Logger Status

To check the status, click the Status icon on the toolbar. 

The Status window appears, displaying information about the device as described below.



- **Device Identification.** This pane displays identifying information for the device currently connected, including the device type, description entered at launch time, serial number, and firmware version.
- **Device Details.** This pane displays specifics about the device, including battery level, memory used, when it is scheduled to stop logging (if applicable), when it was last launched, the deployment number, logging interval, current status and current state (if applicable).
- **Current Readings.** This pane shows the latest readings for configured sensors and derived series (if applicable).

Testing the Logger and Sensors

To verify that your logger and sensors are working and recording data properly, perform the following tests. When you plot the data later, you should see the results of these tests in the graph.

Change Sensor Reading:

1. Force a change in the condition you are measuring. For example, if you are measuring temperature, change the temperature reading by holding the logger or sensor in your hands for a minute or two.
2. Watch the Current Readings in the Status window change as the conditions fluctuate.

Change Current State:

1. If you are using a U-Series logger that has a button, hold the button down for several seconds.
2. Watch the Current State field in the Status window change to "Button Down."
3. Release the button. The Current State field changes back to "Button Up."

Click **OK** to close the Status window when the tests are complete.


Reading Out the Logger

To retrieve data recorded by a logger, you must read out the logger.

Reading out the logger copies data from the logger to your computer, allowing you to save the data in a datafile and view the plot.

During readout, the logger continues to record data unless you have stopped the logger or the logger is full.

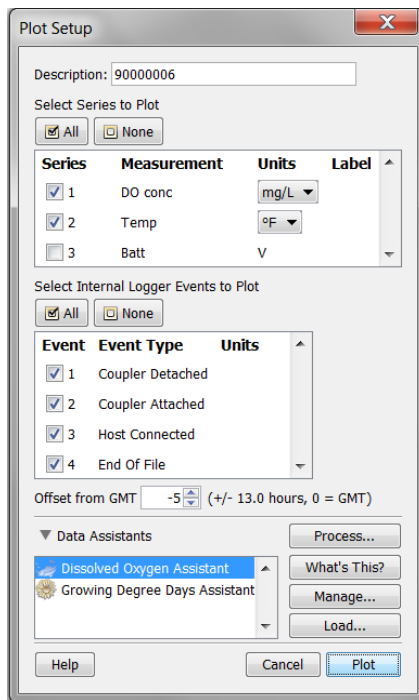
To read out the logger:

1. Click the Readout icon  on the toolbar.
2. A warning message appears indicating the logger is currently logging. Click **Don't Stop** to continue logging or **Stop** to end logging before reading out.
3. After reading out the logger, you are prompted to save the datafile. Type a name and select a location for the file and click **Save**.

The Plot Setup window appears, which is described in the next section.

Plotting and Analyzing Data

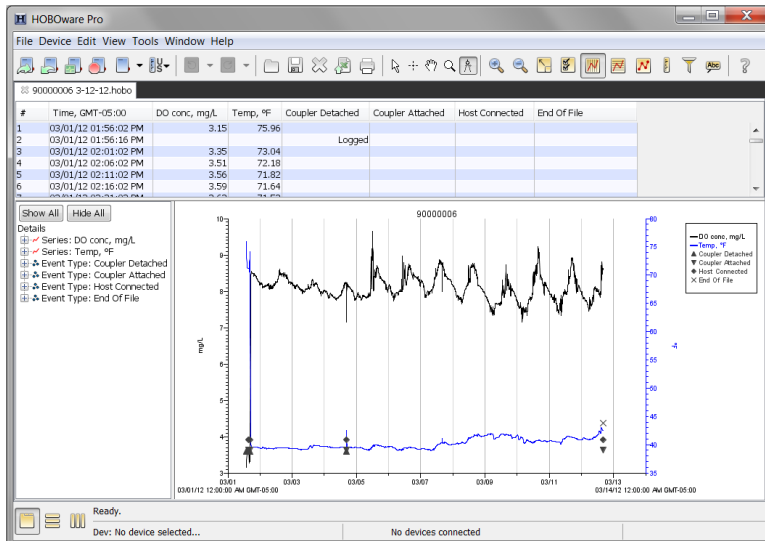
After you read out a logger and save the datafile, or any time you open an existing file, the Plot Setup window appears. Even if you only intend to export the data to another format, you must plot the data first.



The Plot Setup window contains the following information:

- **Description.** This field shows the description you entered at launch time. Keep this description or type a new one. The description will be the title of the plot.
- **Select Series to Plot.** Select the series you want to appear on the graph and the units, if applicable. Some series will be selected automatically. Click the checkboxes to select other series or use the All and None buttons for selecting and deselecting all series.
- **Select Internal Logger Events to Plot.** Select any events you want to appear on the graph, if applicable. Use the All and None buttons to select or deselect all events.
- **Offset from GMT.** This field shows the offset from Greenwich Mean Time (GMT), also known as UTC, used at launch. Keep the offset shown or change it to a different one.
- **Data Assistants.** You can create new data series by converting logged data to other useful formats with Data Assistants. Only the Data Assistants supported by that logger type will be available in this window. See the *HOBOWare User's Guide* for more information about using Data Assistants.
- **Plot Button.** Click **Plot** to display the selected sensor data on a graph.

After you click the **Plot** button in the Plot Setup window, the data appears in a graph along with other information described below.



- **Legend.** The legend to the right of the plot displays the keys for each sensor, state, and event series as well as any internal events.

Click the icons on the toolbar to experiment with the export, print, viewing, and customization tools available within HOBOWare. Hover the mouse cursor over each icon on the toolbar for a description of each tool.

IMPORTANT: Make sure you change any test launch settings to your preferred launch settings before deploying the logger.

See the *HOBOWare User's Guide* or the HOBOWare Help for more information on features described in this guide and additional details about the software.

- **Points Table.** Data points, including any internal events if they were selected in the plot setup window, are listed in a table above the plot.
- **Details Pane.** The pane on the left shows detailed information about the series and events currently displayed, including device information, deployment information, and series statistics.
- **Graph.** The plot displays the series and (if applicable) events selected in the Plot Setup window. If you ran the test described in *Testing the Logger and Sensors*, you should see the variances in sensor readings and changes in internal state on the plot.