Onset HOBOware™ Software

The HOBOware software is used to configure and download the Onset Computer Corporation U-series data loggers. The HOBO U-series loggers are either single or multichannel, 9 or 12-bit data loggers that use a direct USB computer interface.

Below are detailed instructions for launching and downloading the HOBO U12 Temp/RH/Light/External Channel (4-channel) data logger using the HOBOware software. These HOBO U-12 data loggers:

- have the capacity to store 43,000 12-bit measurements
- are approximately the size of a large matchbook
- are stand-alone loggers that do not require an external power source
- have non-volatile memory that retains data even if the battery fails

Figure 1: *Hobo U-12 four channel data logger*

Launching Procedure

1. **Before opening the Hoboware software check that the computer's clock is correct.** The Hobo will synchronize its clock with the computer's clock when launched.

2. **Connect the Hobo U-12 logger to the computer's USB port with the Hobo USB interface cable.**

3. **Open the HOBOware software by double clicking on the HOBOware icon**

4. **Begin the launch procedure by clicking the *Launch* icon on the toolbar or by selecting *Launch* from the *Logger* menu.**
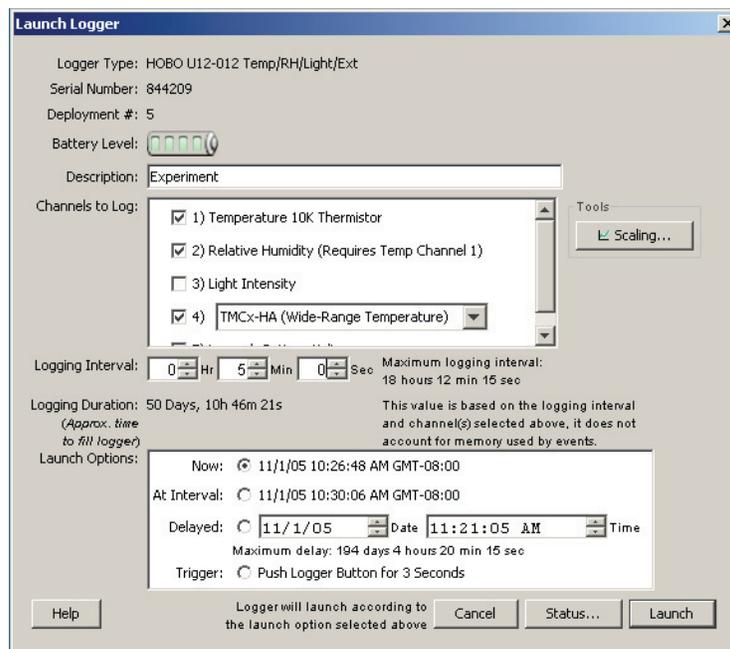
Figure 2 HOBOware Launch Screen

5. **Type a unique description of the data set (up to 40 characters) in the *Description* field.** This description will be the default title of the data set when it is downloaded.

6. **Select the data channels to record by clicking in the checkbox next to the channel in the *Channels to Log* dialogue box.**

   - **Channel 1** is the internal temperature sensor
   - **Channel 2** is the internal relative humidity sensor (channel 1 must also be selected to use channel 2)
   - **Channel 3** is the internal light intensity sensor
   - **Channel 4** is the external sensor**.** For this channel there is a drop-down menu with options for selecting a proprietary temperature thermistor, 2.5 Volt signal, current transducer, 4-20 mA signal or CO_2 sensor inputs.
   - **Channel 5** is the logger's battery voltage

   In *Figure 2* the logger is configured to log temperature on *channel 1*, relative humidity on *channel 2* and temperature with an external thermistor on *channel 4*.

7. **Set the *Logging Interval* using the drop down arrows in the *Logging Interval* time field or by highlighting the time and typing in the correct interval in the time field.** The logging interval is the frequency at which the logger records a reading.

8. **The duration period for the study is automatically determined by the logging interval chosen and the number of channels enabled.** The duration shown in the launch screen in *Figure 2*, with 3 channels enabled and a 5 minute logging interval is 50 days 10hrs 46 minutes.

9. **Choose the start mode for the launch. The options are:**
   - *Now:* the logger will begin logging immediately after the *Launch* button is clicked and the configuration is sent to the logger.
   - *At Interval:* the logger will begin logging at the next exact interval. The start time will depend on the *Logging Interval* chosen.
   - *Delayed:* the logger will begin logging at the chosen start date and time.
   - *Trigger:* the logger will begin logging when the black button on the front of the logger is pushed for 3 seconds.

10. **Launch the logger by clicking on the *Launch* button located in the lower right corner of the screen.** Verify that the logger is logging by checking that the red LED on the side of the logger is blinking.

Checking Logger Status

1. **The status window displays real-time information about the logger.** Use the real-time status display to check the state of the logger, time logging will begin, current readings, logger memory used, etc. **Note that the battery power is drained more rapidly when checking the logger status. The demand can be reduced by adjusting the screen refresh interval to 5 seconds or higher.*

2. **Connect the Hobo U-12 logger to the computer's USB port with the Hobo USB interface cable.**

3. **Click the *Status* icon on the toolbar, or choose *Status* from the Logger menu.** Sensor readings are updated in real-time. Readings are displayed for all logger channels, including channels that are not being logged. If a channel is not being logged, its name is dimmed in the display.
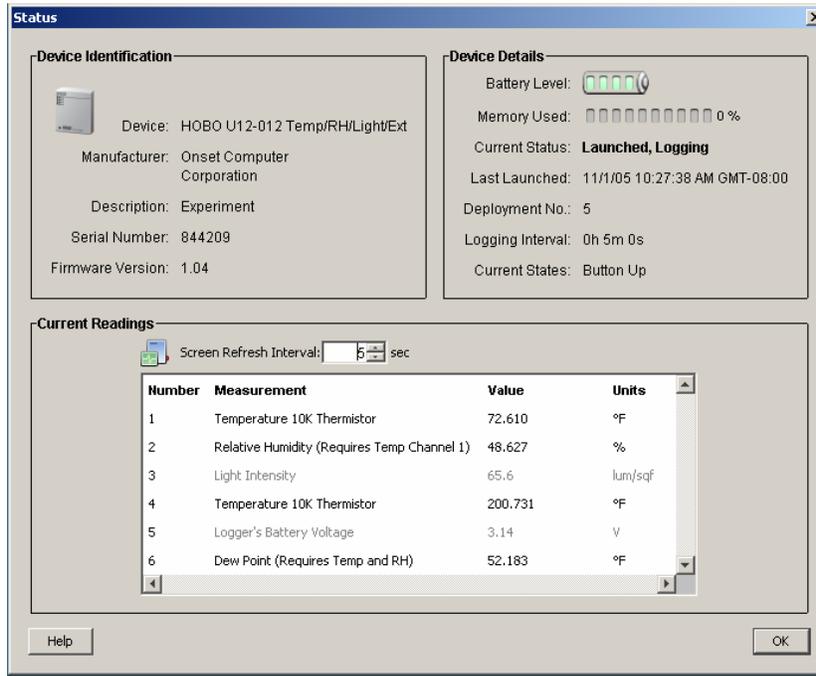
Figure 3 *HOBOware Status Screen*

Data Retrieval Procedure

1. **Connect the logger to the computer.**

2. **Retrieve the data recorded by the logger by clicking the** *Readout* **icon** **on the tool bar or by choosing** *Readout* **from the** *Logger* **menu.** During readout the logger will continue to record unless its memory is full or the logger is stopped *(Figure 4)*.
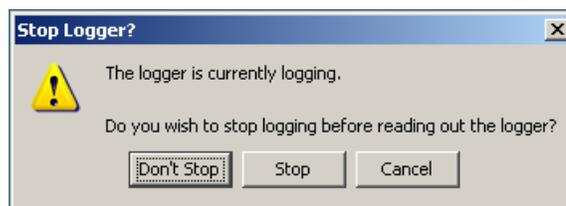

Figure 4 **Stop Logger Screen**

3. **When prompted to save the data, accept the default location and name, or enter a new name and location and click** *Save*. The file will be saved with a proprietary .HOBO file extension that can only be opened in the HOBOware software.

4. **In the Plot Setup dialog screen, click in the check boxes to select the measurement variables to view in the plot.** Click the *Plot* button.
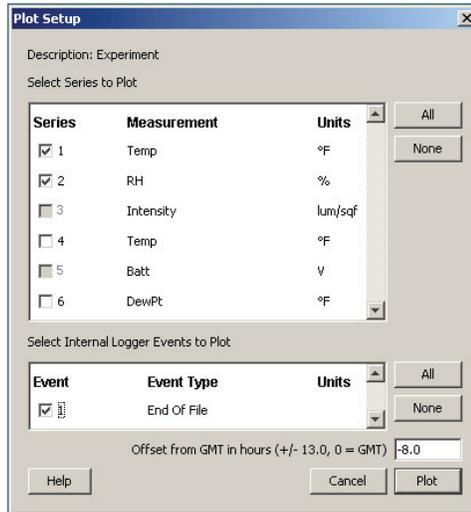
Figure 4 *Plot Setup Screen*

5. A graph of the data will be displayed. Tools on the toolbar can be used to customize the graph by zooming in and out, adding and removing data series, zeroing in on specific data points with the crosshair tool, etc. The time range for the data is displayed on the X-axis and the values for the sensor channels are displayed on the Y-axes. In ***figure 5,*** temperature is displayed on the left Y-axis and % relative humidity is displayed on the right Y-axis.
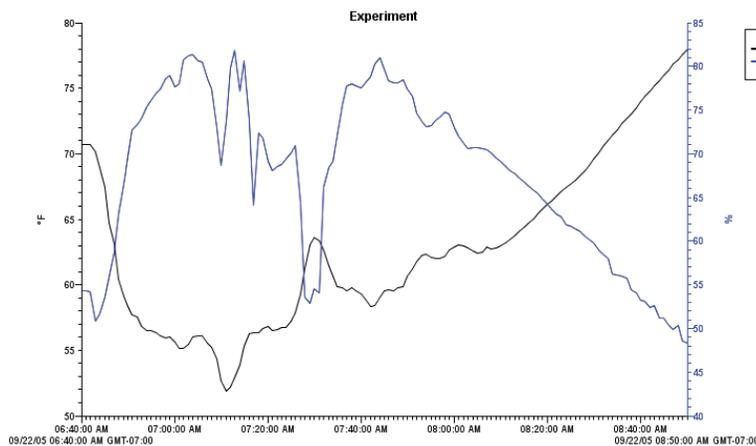

Figure 5 *HOBOware data graph*

Exporting Data to a Spreadsheet

1. The data can be exported as a text file that can be opened in EXCEL or another spreadsheet application. With the data graph open, click the *Export* icon on the toolbar, or choose ***Export*** as ***Excel Text*** from the ***File*** menu. Only the data for the measurement variables selected in the Plot Setup screen will be exported

2. Choose a file name and location to export the file to in the *Save* dialogue window. This will create a file with a .csv file extension that can be opened directly in EXCEL or another spreadsheet application.