

Software for
HOBO
loggers

HOBOWare® Software – Pro and Lite versions

HOBOWare Pro is available for both for Windows and MAC and is Onset's most powerful software for logger management, data graphing, data analysis, and data export.

Data Assistants such as **Conductivity, Barometric Compensation, Linear Scaling, Pulse Scaling, kWh Assistant, Growing Degree Days, and Grains Per Pound** are supported by HOBOWare Pro software.

HOBOWare Pro software supports 21 CFR Part 11 compliance (see below).

Data Assistants and Alarm & Readout Tool provide advance data analysis and monitor/notify out-of-range conditions.

Lower-cost HOBOWare Lite software is available for applications that don't require all the features of HOBOWare Pro, but does not support HOBOWare Data Assistants.

A HOBO Base Station may be required to launch/download certain HOBO loggers.

HOBOWare Pro Software

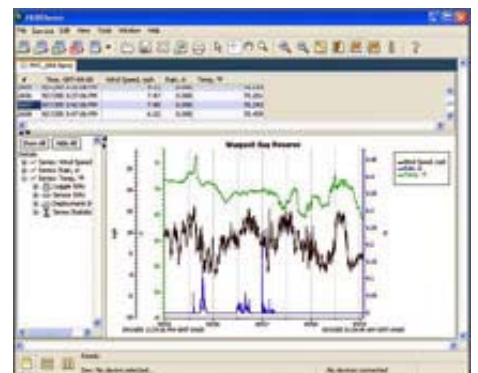
Setup & Status Checks

Launching a logger is easy with HOBOWare Pro software's launch screen. Launch parameters include:

- Which channels to record
- Logging interval (customizable from 1 second to over 18 hours)
- Immediate start, delayed start, start at interval, or triggered (push-button or coupler) start
- Set up linear scaling to user-defined units for 0–2.5V or 4–20mA inputs (U-series loggers only)
- Battery level indication
- Synchronizes logger's clock to computer's clock

Check Logger Status

- Verify logger set-up before launch
- Verify logger operation while logging
- Display real-time sensor readings
- Display memory used and battery voltage



MAC screen version shown



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HOBOWare specification continued

Graphing

HOBOWare Pro software's powerful graphing features let you plot and filter data.

- View multiple parameters from one or more loggers on one graph
- Combine data from multiple deployments on one graph
- Overlay data from different time periods to compare month-to-month, or before and after
- Copy and paste data from one plot onto another
- Save and recall graphs — saves all modifications including added data series and derived data such as barometrically compensated water levels
- Import text data files in BoxCar® Pro format
- Zoom and axis-control tools to focus on data of interest
- Use cursor to display specific plot value
- Display series data and details such as launch parameters and series statistics
- Add limit lines to the graph
- Control axes, series, legend, and title properties
- Optional display of recorded events such as button push/release, host computer connection, and/or low battery in graphs or file exports

Analysis

Analysis functions can be used to extract key information from logged data. These functions actually create new data series, which can be graphed or exported. These functions filter data over user-specified intervals that can be in seconds, minutes, hours or days. The Subset Statistics tool (included) calculates statistics over a user-defined interval.

Analysis functions for interval-based logger data:

- Min, max, and average values per interval
- Total rainfall or counts per interval

Analysis functions for On/Off and State logger data:

- Run-time and off-time (closed time and open time) in seconds
- Percent on and percent off (percent closed and percent open)
- Number of on's and off's (number of opens and closes)

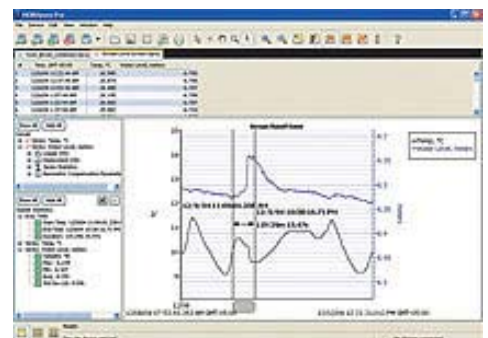
Analysis functions for Event logger data:

- Number of events
- Cumulative event totals

Subset Statistics Tool

(HOBOWare Pro only) – get basic statistics for any subset of data within a graph

The Subset Statistics Tool allows the user to select a range of data in a graph. The tool displays the maximum, minimum, average, and standard deviation for the measurements in that range.



HOBOWare Data Assistants

Onset is continuing to develop user-friendly Data Assistants to make analysis of your data even easier. Most Data Assistants are included with standard releases of HOBOWare Pro, such as [Conductivity](#), [Barometric Compensation](#), [Linear Scaling](#), [Pulse Scaling](#), [kWh Assistant](#), [Growing Degree Days](#), and [Grains Per Pound](#).



Conductivity

The Conductivity assistant provides easy conversion to specific conductance and salinity and enables start/end-point calibration to compensate for any fouling. Available for free download.



Growing Degree Days

Growing Degree Days is a measurement of growth potential given historical temperature data. It can be a measure of crop or pest maturity, given the input parameters. Available for free download



Grains per Pound

Also known as Humidity Ratio or Mixing Ratio, Grains Per Pound is a measure of the mass in grains of H₂O in otherwise dry air. Available for free download



Barometric Compensation

The Barometric Compensation Assistant compensates water level measurements for barometric pressure using HOBOWare or text barometric files. Available for free download



Linear Scaling

Linear scaling allows you to convert raw logger data to measurement units or to calibrate sensor readings. Two raw values and the corresponding measurement values are entered to obtain the linear scaling relationship. This is useful for third-party sensors that output voltage or current, as well as calibration of leaf wetness and soil moisture sensors. Available for free download



Pulse Scaling

Pulse scaling allows you to convert data recorded from a third-party pulse output sensor to the actual measurement units. This is useful for third-party rain gauges, flow meters, etc. Available for free download



kWh Assistant

The kWh Assistant uses a pulse series to produce one or more of the following: Energy used per interval (in kWh), Average Power per interval (in kW), and Usage Cost. The assistant requires knowledge of the type of Energy Transducer and Current Transformer (CT) used. Available for free download

HOBOWare Lite Software

Entry-level software for HOBO USB loggers, offering easy logger launch, readout, and data plotting.

HOBOWare Lite does not support any of Onset's data assistants or data shuttles.

Setup & Status Checks

Launching a logger is easy with HOBOWare Lite software

Launch parameters include:

- Which channels to record
- Logging interval (1 second to over 18 hours)
- Immediate start, delayed start, start at interval, or triggered (push-button or coupler) start
- Set up linear scaling to user-defined units for 0–2.5V or 4–20mA inputs (U-series loggers only)
- Battery level indication
- Synchronizes logger's clock to computer's clock

Check Logger Status:

- Verify logger set-up before launch
- Verify logger operation while logging
- Display real-time sensor readings
- Display memory used and battery voltage

Software Information

21 CFR Part 11 Systems Requirements using HOBOWare Pro Software (Version 2.3 or above) and customers computer systems and internal procedures.

Compare Software Features	Pro	Lite
Support for HOBO U-Series Loggers	*	*
File support for HOBO H-Series Loggers	*	
Support for HOBO Weather Station, HOBO Micro Station, and HOBO Energy Logger Pro loggers	*	
Support for HOBO Conductivity Logger	*	
Configure HOBO FlexSmart modules	*	
Support for HOBO U-Shuttle and HOBO Waterproof Shuttle	*	
Launch supported loggers	*	*
Launch time-saving options	*	
Graphing and analysis with ability to view multiple data files on one graph	*	*
Cropping a series	*	
Merging data files	*	*
Readout and open-file time-saving options	*	
Filters to extract key series information	*	*
Subset Statistics Tool	*	
Save (Project) Changes	*	*
Import ASCII text data	*	
Export ASCII text data	*	*
Export to directly to .xls (Excel) format	*	*
Check Logger Status and view current readings	*	*
Data Assistants for Grains per pound, Growing degree days, Linear Scaling, Pulse Scaling, and kWh(included with software)	*	
HOBOWare Setup Assistant	*	
Bulk Export Tool	*	
Alarm Readout Tool	*	
Ability to add other plug-in tools	*	
Access remote loggers through Ethernet (requires supported Ethernet server)	*	

21 CFR Part 11 Regulation Reference	Provided by:	Notes (HOBOWare Pro Software only)
Sec. 11.10 Controls for closed systems - Persons who use closed systems to create, modify, maintain, or transmit electronic records shall employ procedures and controls designed to ensure the authenticity, integrity, and, when appropriate, the confidentiality of electronic records, and to ensure that the signer cannot readily repudiate the signed record as not genuine. Such procedures and controls shall include the following:		
(a) Validation of systems to ensure accuracy, reliability, consistent intended performance, and the ability to discern invalid or altered records	Onset	NIST-traceable temperature accuracy certification available for loggers for an additional fee. Test files are included with HOBOWare Pro that can be used to verify it is properly detecting files that have been altered.
(b) The ability to generate accurate and complete copies of records in both human readable and electronic form suitable for inspection, review, and copying by the agency.	HOBOWare Pro	Electronic records produced by HOBOWare Pro can be viewed with HOBOWare Pro or HOBOWare Lite, and can be printed from either of these as well. Secure electronic copies of files can be made and shared by e-mail or other electronic transfer methods.
(c) Protection of records to enable their accurate and ready retrieval throughout the records retention period.	Customer systems	HOBOWare Pro stores the electronic records in the location specified by the user. The customer systems must ensure that these files are backed up regularly, and that the data files are stored in a location where they can be readily available on request. The computer system must have sufficient redundancy to prevent loss of data.



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Software Information

HOBOWare 3.2.1 is built with Java 1.6.0_25 on Windows and on OS X. While HOBOWare may run using a previous or later version of the Java JRE, version 1.6.0_25 is recommended as a baseline. Use of Java v1.4.x and Java 5 are specifically no longer supported.

HOBOWare 3.2.1 on Mac is built for OS X 10.5 as a minimum. While HOBOWare may run using a previous version of OS X, earlier versions of OS X are specifically no longer supported.

Regardless of the Java runtime version in use, it is up to every user to ensure that their Java installation is up to date regarding the Olson Timezone Database for their locale.

Please review the following website: www.oracle.com/technetwork/java/javase/timezones-137583.html

***Disk Space – Defining the disk space requirements for HOBOWare depends on the proposed use. The table above describes the disk space needed for a traditional desktop user, allowing for installation of the program and storage of data files. For users of HOBOWare nodes the space requirements depend on a variety of factors, including the number of nodes, the number of sensors, the frequency of data sampling, the longevity of deployments, and other factors. Please review the following website: www.onsetcomp.com/support/knowledgebase

System Requirements

- PC: Windows 7 (Pro, Ultimate and Home Premium), Windows XP Pro, Windows XP Home, Vista Business, Vista Home Premium
- Mac: OS X Versions 10.5.x and 10.6.x.
- Java Runtime Environment (JRE) 1.6 (32-bit or 64-bit on Windows). Please note that version 1.6, also known as Java 6, is officially supported on OS X only on Intel Core 2 Duo processors or newer. See the time zone note below.
- One of the following Internet browsers (version number listed is the highest major version we tested): Safari 4 or greater, Firefox 3 or greater, Microsoft Internet Explorer 8.0.
- Minimum screen resolution of 1024x768
- 256+ colors
- Processor Speed, Memory and Disk Space

	High End	Mid Range	Low End	Lowest End
CPU	2.9 GHz dual core	2.0 GHz dual core	1.8 GHz single core	1.8 GHz single core
RAM	3 GB	2 GB	1.5 GB	1 GB
Disk Space	256 + (see***note)	256 + (see***note)	256 + (see***note)	300 MB
User Model	4	3	2	1

The User Model row suggests some guidelines for using the Processor Speed and Memory table:

- User Model 1 - Using HOBOWare Data loggers only, no data nodes – traditional desktop user
- User Model 2 - Using HOBOWare Data loggers and up to 5 data nodes, 20 sensor
- User Model 3 – Using HOBOWare Data loggers and up to 50 data nodes, 100 sensors
- User Model 4 – Using HOBOWare Data loggers and up to 100 data nodes, 200 sensors

Ordering Information:

Part No

HOBOWare Pro Software for Windows/MAC (CD-Rom)

BHW-PRO-CD

HOBOWare Lite Software for Windows/MAC (CD-Rom)

BHW-LITE-CD

USB interface cable for U-series Loggers to PC
(Supplied with BHW-PRO-CD and BHW-LITE-CD software)

CABLE-USBMB



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