

Inside this package
 The HOB0 H8 4-Channel External logger is shipped with:

1. One HOB0 H8 logger (part number H08-006-04)
2. Mounting Accessories:
 - Magnet
 - Hook and loop tape
 - Double-sided tape

HOB0® H8 4-Channel External User's Manual

Requires Onset Computer Corporation's BoxCar® Pro 3.5 or BoxCar 3.6 or later software and PC interface cable for operation.

© 1998-2003 Onset Computer Corporation, all rights reserved. Onset, HOB0, StowAway, TidbiT, and BoxCar are registered trademarks of Onset Computer Corporation.

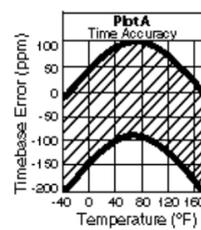
The CE mark identifies this product as complying with all relevant directives in the European Union (EU).

Thank you for buying a HOB0 data logger. With proper care it will give you years of accurate and reliable measurements.

This manual covers the HOB0 H8 4-Channel External data logger. This logger can store 32,520 time-stamped measurements and is compatible with the HOB0 Shuttle allowing for convenient retrieval of field data.

Specifications

Operating range (logger): -4°F to +158°F (-20°C to +70°C),
 0 - 95% RH non-condensing
 Time accuracy: approx. ±1 minute per week (±100 ppm at +68°F or +20°C),
 full dependance shown in Plot A
 Measurement capacity: 32,520 measurements total, stored in nonvolatile memory
 Drop proof to 5'
 Size: 2.4" H x 1.9" W x 0.8" D
 Weight: approximately 1 oz.
 Battery: CR-2032 (lithium), user-replaceable
 Battery life (continuous use): 1 year
 Storage temperature: -40°F to +167°F (-40°C to +75°C)



External Sensors - Onset has a range of external temperature and AC current sensors that are compatible with the HOB0 H8 4-Channel External logger. Measurement specifications for using Onset temperature and AC current sensors with this logger are provided in the sensor manuals. For compatible sensors, see the HOB0 catalog, contact Onset Computer Corporation or contact an Onset Authorized Dealer.

When using multiple voltage inputs, current inputs, or a combination of both input types; keep in mind that the (-) from your current source(s) and the (0V) line of your voltage source(s) will be tied together when installed on the logger. The lines must be at the same voltage potential or inaccurate readings or even damage to the logger may occur. You must also take into account that these lines may also be tied to earth ground through your PC interface cable when connected to your computer. Special precautions may be necessary if any of your voltage or current source common lines are not tied to earth ground.

4-20 mA Input cable - This cable (part number CABLE-4-20mA) measures currents from 0 to 20.1 mA. The accuracy is ±0.1 mA ±3% of reading. The 4-20 mA cable must be connected such that the current flows through, and with the proper polarity, as shown in Diagram A. Do not expose to current above 20 mA or negative current. Do not cut off the end of the gray cable where it connects to the blue and yellow wires as that contains the precision resistor required for current measurement.

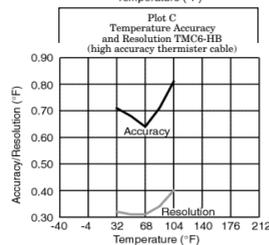
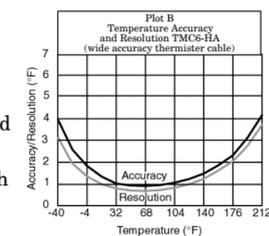


Diagram A - 4-20 mA Input cable

Voltage Input Cable

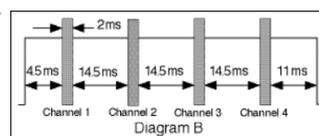
The logger's external inputs can accept the voltage input cable (Onset part number CABLE-2.5-STEREO) which allows a voltage to be recorded. This input reads 0 to 2.5 DC volts, with a ±0.1 μA maximum leakage between measurements and a ±0.4 μA leakage during sensor measurements (5.4 ms each). The accuracy is ±10 mV ±3% of reading. Input impedance is 10k . The input line should not be exposed to signals below 0 volts or above 2.5 volts.

Switched 2.5 V Output - This signal can be used to power a sensor directly or it can also be used to trigger an external circuit. External sensors should draw no more than 4 mA total when powered. The switched 2.5 V output switches on about 4.5 ms before the first channel is measured and stays powered for 11 ms after the last channel is measured, as shown in Diagram B. The gray bars show the 2 ms periods during which the HOB0 samples the input signals. Diagram B shows the envelope when all four channels are enabled. For each disabled channel, the envelope is 16.5 ms shorter.

Voltage Input Cable Connections	
red wire	switched 2.5 V output
white wire	voltage input
black wire	Ground

Connecting the Communications Cable and Launching

A Starter Kit, which includes the appropriate PC interface cable and software, is required to operate your logger. Connect the PC interface cable into the 3.5 mm jack on the logger, as shown in Diagram C, and into a working serial port of your computer. Install and start the logger's software. Select **Launch...** under **Logger** on the menu bar and a launch dialog box will be provided. For a complete explanation on installing the software and launching your logger, please refer to the logger software manual.



Continued on next page

Continued from other side

Operation Indication

The HOBO data loggers have a red LED light that blinks while they are logging. The LED blinks brightly at every measurement, and weakly every two seconds if the interval between measurements is longer than two seconds. The blinking LED is located on the front of the logger and is most visible when viewed straight on, as shown in Diagram C.

Mounting Options

Included with your HOBO H8 data logger are three options for mounting it on location: a magnet, hook and loop tape, and double-sided tape. These can be stuck on the back of your HOBO. When using the magnet, note that it works best on flat surfaces.

Readout

Reconnect the HOBO data logger to the PC interface cable, start the logger software, select **Readout** under **Logger** on the menu bar and the data will be displayed in graphical or tabular form. For a complete explanation on reading out your logger, please refer to the logger software manual.

Keep it Dry

Your HOBO data logger can be permanently damaged by corrosion if it gets wet. Protect it from rain or condensation. Should it get wet, remove the battery immediately and dry the board completely with a hair dryer before reinstalling the battery.

Changing the Battery

We recommend changing the HOBO's battery when its level is less than 30% (battery level is displayed on the host computer during Launch, Readout or on the HOBO Shuttle after data offload). Data stored in the HOBO will not be lost when removing the battery. To change the battery, open the case as shown in Diagram D, lift the circuit board and remove the battery by carefully pushing it out with a small screwdriver or other small, blunt instrument. Be sure to install the battery with the printed side away from the HOBO's circuit board as shown in Diagram E. The logger's LED will blink a number of times after the battery has been installed. **Note: Do not cut open, incinerate, heat above 185°F (85°C) or recharge lithium battery. Dispose per local regulations.**

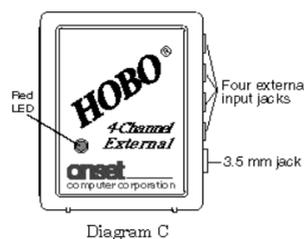


Diagram C



Diagram D

Battery

Battery Holder

Diagram E

Service and Support

HOBO® products are easy to use and reliable. In the unlikely event that you have a problem with the hardware or software, please read the following.

Who do I contact?

Contact the company that you bought the loggers from: Onset Computer Corporation or an Onset Authorized Dealer.

Before calling, you can evaluate and often solve your problem if you try the following:

1. Read this manual and the ReadMe file on the software disk. It may only take a few moments to get the answers you need.
2. Write down the events that led to the problem. Have you changed anything in your computer recently? Are you doing anything differently?

When contacting Onset Computer Corporation, please indicate that you need Technical Support for HOBO® products.

Be prepared to:

1. Provide the product number which is found on the bottom of the logger, the software version and serial number if present on the diskette.
2. Provide details on the hardware and software configuration of your computer including: manufacturer, model number, peripherals, and version of operating system.
3. Completely describe the problem or question. The more information you provide, the faster and more accurately we will be able to respond.

NOTE: Onset provides technical support to one person for each software license.

Onset Technical Support

Onset Computer Corporation
470 MacArthur Blvd.
Bourne, MA 02532
Mailing address: PO Box 3450
Pocasset, MA 02559-3450
1-800-LOGGERS (1-800-564-4377)
Phone: (508) 759-9500
Fax: (508) 759-9100
E-mail: loggerhelp@onsetcomp.com

Warranty

The HOBO® products are warranted to be free from defects in material and workmanship for a period of one year from the date of original purchase. During the warranty period Onset will, at its option, either repair or replace products that prove to be defective. This warranty is void if the Onset products have been damaged by customer error or negligence or if there has been an unauthorized modification.

Returning Products to Onset

Direct all warranty claims to place of purchase. Before returning a failed unit, you must obtain a Return Merchandise Authorization (RMA) number from Onset. You must provide proof that you purchased the Onset product(s) directly from Onset (purchase order number or Onset invoice number). Onset will issue an RMA number that is valid for 30 days. You must ship the product(s), properly packaged against further damage, to Onset (at your expense) with the RMA number marked clearly on the outside of the package. Onset is not responsible for any package that is returned without a valid RMA number or for the loss of the package by any shipping company. Loggers must be clean and free of any toxins before they are sent back to Onset or they may be returned to you.

Repair Policy

Products that are returned after the warranty period or that are damaged by the customer as specified in the warranty provisions can be returned to Onset with a valid RMA number for evaluation.

Please contact Onset for more information and prices on:

ASAP Repair Policy

Onset will expedite the repair of a returned product.

Data-back™ Service

HOBO® data loggers store data in nonvolatile EEPROM memory. Onset will, if possible, recover your data to a disk.

Tune Up™ Service

Onset will examine and retest any HOBO® data logger.