HOBO® U12 Temperature Data Logger (Part # U12-001)

Inside this package:

- HOBO U12 Temperature Data Logger
- Mounting kit with magnet, hook and loop tape, tie-wrap mount, tie wrap, and two screws.

Thank you for purchasing a HOBO data logger. With proper care, it will give you years of accurate and reliable measurements.

The HOBO U12 Temperature Data Logger is a single channel temperature logger with 12-bit resolution and can record up to 43,000 measurements or events. The logger uses a direct USB interface for launching and data readout by a computer.

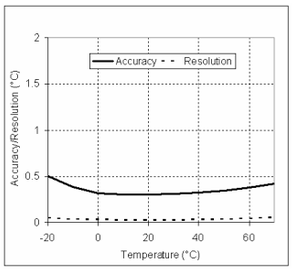
An Onset software starter kit is required for logger operation. Visit www.onsetcomp.com for compatible software.



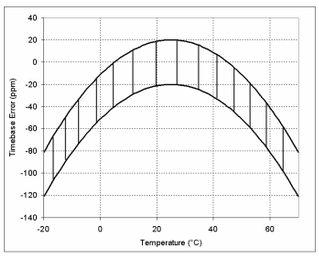
Doc # 7551-B, MAN-U12-001
Onset Computer Corporation

Specifications

Measurement range	-20° to 70°C (-4° to 158°F)
Accuracy	± 0.35°C from 0° to 50°C (± 0.63°F from 32° to 122°F), see Plot A
Resolution	0.03°C at 25°C (0.05°F at 77°F), see Plot A
Drift	0.1°C/year (0.2°F/year)
Response time	In airflow of 1 m/s (2.2 mph): 6 minutes, typical to 90%
Time accuracy	± 1 minute per month at 25°C (77°F), see Plot B
Operating temperature	Logging: -20° to 70°C (-4° to 158°F) Launch/readout: 0° to 50°C (32° to 122°F), per USB specification
Battery life	1 year typical use
Memory	64K bytes (43,000 12-bit measurements)
Weight	46 g (1.6 oz)
Dimensions	58 x 74 x 22 mm (2.3 x 2.9 x 0.9 inches)
CE	The CE Marking identifies this product as complying with all relevant directives in the European Union (EU).



Plot A



Plot B

Accessories available

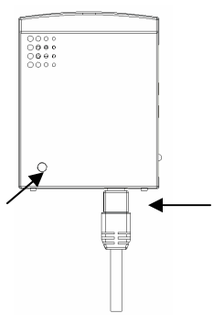
- White waterproof case (Part # SUBC2-WH)
- Gray waterproof case (Part # SUBSC2-GR)

Connecting the logger

The U-Family logger requires an Onset-supplied USB interface cable to connect to the computer. If possible, avoid connecting at temperatures below 0°C (32°F) or above 50°C (122°F).

1. Plug the large end of the USB interface cable into a USB port on the computer.
2. Plug the small end of the USB interface cable into the bottom of the logger as shown in the following diagram.

Important: Press this button for **3 seconds** when logger is launched with Button Start or press for **1 second** to record an event while logging



If the logger has never been connected to the computer before, it may take a few seconds for the new hardware to be detected. Use the logger software to launch and read out the logger.

Important: If you configure the logger to start with a button start, be sure to press and hold down the button on the front of the logger for at least three seconds when you want to begin logging.

You can read out the logger while it continues to log, stop it manually with the software, or let it record data until the memory is full. Refer to the software user's guide for complete details on launching, reading out, and viewing data from the logger.

Sample and event logging

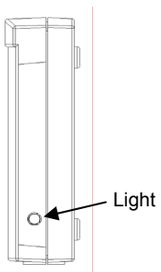
The logger can record two types of data: samples and events. Samples are the sensor measurements recorded at each logging interval (for example, the temperature every minute). Events are independent occurrences triggered by a logger activity. Examples of events recorded asynchronously during deployment include when the logger is connected to the host, when the battery is low, the end of a data file once the logger is stopped, and button pushes.

Press and hold down the button on the front of the logger for one second to record an event. Both a button up and down event will be recorded. This is useful if you want to mark the datafile at a particular point. For example, if the logger is located in an incubator, you might press the button each time the door is opened.

The logger stores 64K of data, and can record up to 43,000 samples and events combined.

Operation

A light (LED) on the side of the logger confirms logger operation.



The following table explains when the logger blinks during logger operation.

When:	The light:
The logger is logging	Blinks once every one to four seconds (the shorter the logging interval, the faster the light blinks); blinks when logging a sample.
The logger is awaiting a start because it was launched in Start At Interval, Delayed Start, or Button Start mode	Blinks once every eight seconds until launch begins.
The button on the logger is being pushed for a Button Start launch	Blinks once every second while pressing the button and then flashes rapidly once you release the button. The light then reverts to a blinking pattern based on the logging interval.

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Protecting the logger

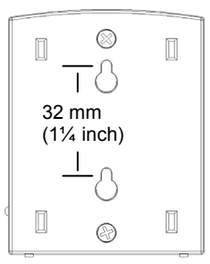
The logger can be permanently damaged by corrosion if it gets wet. Protect it from condensation. If it gets wet, remove the battery immediately and dry the circuit board with a hair dryer before reinstalling the battery. Do not let the board get too hot. You should be able to comfortably hold the board in your hand while drying.

Note! Static electricity may cause the logger to stop logging. To avoid electrostatic discharge, transport the logger in an anti-static bag, and ground yourself by touching an unpainted metal surface before handling the logger. For more information about electrostatic discharge, visit our website at http://www.onsetcomp.com/Support/support.html.

Mounting

There are four ways to mount the logger using the materials in the mounting kit included with the logger.

- Use the hook and loop tape to affix the logger to a surface.
- Attach the magnet and then place the logger on a magnetic surface.
- Use the tie wrap and tie wrap mount to tie the logger to an object.
- Fasten the logger to a surface with the two Phillips-head screws. The back of the logger has two inserts for the screws, 32 mm (1¼ inches) apart.



Battery

The logger requires one 3-Volt CR-2032 lithium battery. Expected battery life varies based on the temperature and the frequency at which the logger is recording data (the logging interval). A new battery will typically last one year with logging intervals greater than 1 minute. Deployments in extremely cold or hot temperatures or logging intervals faster than 1 minute may significantly reduce battery life.

To replace the battery:

1. Disconnect the logger from the computer.
2. Unscrew the logger case.
3. Lift the circuit board and carefully push the battery out with a small blunt instrument, or pull it out with your fingernail.
4. Insert a new battery, positive side facing up.
5. Carefully realign the logger case and re-fasten the screws.

⚠ WARNING: Do not cut open, incinerate, heat above 85°C (185°F), or recharge the lithium battery. The battery may explode if the logger is exposed to extreme heat or conditions that could damage or destroy the battery case. Do not dispose of the logger or battery in fire. Do not expose the contents of the battery to water. Dispose of the battery according to local regulations for lithium batteries.

Service and Support

HOBO products are easy to use and reliable. In the unlikely event that you have a problem with this instrument, contact the company where you bought the logger: Onset or an Onset Authorized Dealer. Before calling, you can evaluate and often solve the problem if you write down the events that led to the problem (are you doing anything differently?) and if you visit the Technical Support section of the Onset web site at www.onsetcomp.com/support.html. When contacting Onset, ask for technical support and be prepared to provide the product number and serial number for the logger and software version in question. Also completely describe the problem or question. The more information you provide, the faster and more accurately we will be able to respond.

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Fax: 508-759-9100
E-mail: loggerhelp@onsetcomp.com
Internet: www.onsetcomp.com

Returning Products to Onset

Direct all warranty claims and repair requests 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 to protect 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. Products must be clean and free of any contaminants 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.

Optional Services

Please contact Onset for more information and prices on:

- ASAP Repair. 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.

Warranty

Onset Computer Corporation ("Onset") warrants to the original end-user Purchaser for a period of one year from the date of original purchase that the HOBO product(s) purchased will be free from defect in material and workmanship. During the warranty period Onset will, at its option, either repair or replace products that prove to be defective in material or workmanship.

This warranty is void if the product has been damaged by the Purchaser as a result of improper maintenance, abuse, misuse, mishandling, misapplication, error or negligence of Purchaser, or if there has been an unauthorized alteration, attachment or modification.

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