HOBO® U10 Temp/RH Data Logger (Part # U10-003)

Inside this package:

- HOBO U10 Temp/RH Logger
- Mounting kit with magnet, hook-and-loop tape, and 3/8" double-sided tape.

Doc # 11196-B, MAN-U10-003
Onset Computer Corporation

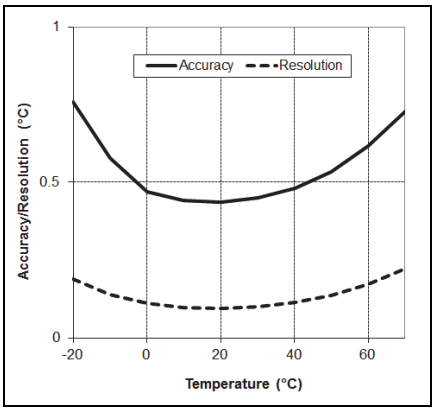
Thank you for purchasing a HOBO data logger. With proper care, it will give you years of accurate and reliable measurements.

The HOBO U10-003 is a two-channel Temperature/Relative Humidity Data Logger with 10-bit resolution and capacity for 52,000 measurements. The logger uses a direct USB interface for launching and data readout by a computer.

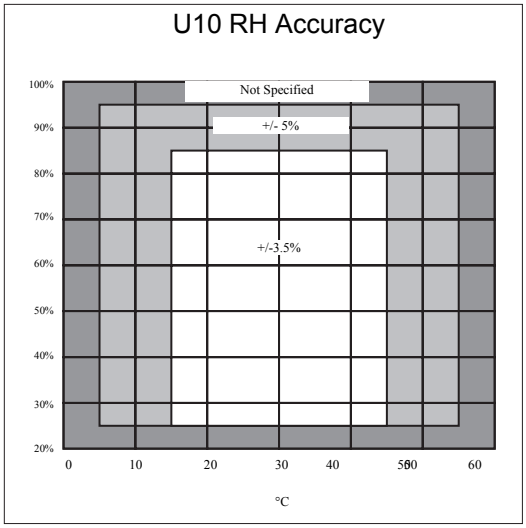
HOBOware® software is required for logger operation. Visit www.onsetcomp.com for details.

Specifications

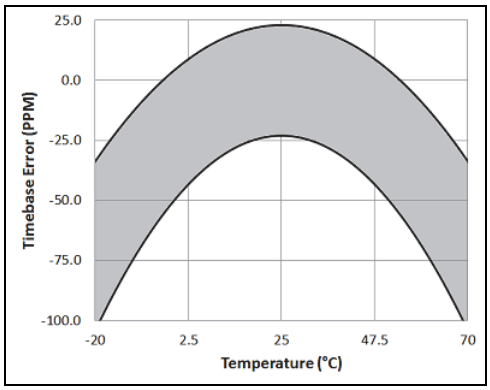
Measurement range	Temperature: -20° to 70°C (-4° to 158°F) RH: 25% to 95% RH
Accuracy	Temperature: ± 0.53°C from 0° to 50°C (± 0.95°F from 32° to 122°F), see Plot A RH: ± 3.5% from 25% to 85% over the range of 15° to 45°C (59° to 113°F), see Plot B; ± 5% from 25% to 95% over the range of 5° to 55°C (41° to 131°F), see Plot B
Resolution	Temperature: 0.14°C at 25°C (0.25°F at 77°F), see Plot A RH: 0.07% @ 25°C and 30% RH
Drift	Temperature: 0.1°C/year (0.2°F/year) RH: <1% per year typical
Response time in airflow of 1 m/s (2.2 mph)	Temperature: 10 minutes, typical to 90% RH: 6 minutes, typical to 90%
Time accuracy	Approximately ± 1 minute per month at 25°C (77°F), see Plot C
Operating range	Logging: -20° to 70°C (-4° to 158°F); 0 to 95% RH (non-condensing)
Battery life	1 year typical use
Memory	64K bytes (52,000 10-bit measurements)
Weight	26 g (0.82 oz)
Dimensions	45 x 60 x 20 mm (1.8 x 2.38 x 0.77 inches)
CE	The CE Marking identifies this product as complying with the relevant directives in the European Union (EU).



Plot A



Plot B

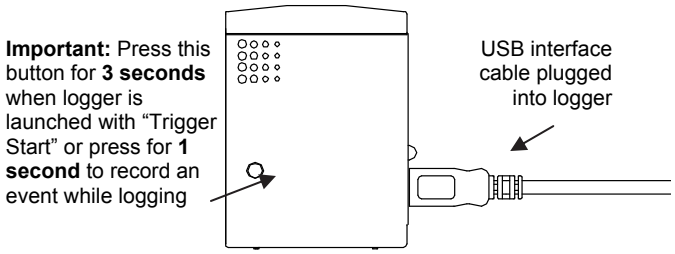


Plot C

Connecting the logger

The U-Series 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 side of the logger as shown in the following diagram.
3. Load and use logger software to operate the logger (see software manual).



If the logger has never been connected to the computer before, it may take a few seconds for the new hardware to be detected

Important: If you configure the logger to start with a trigger 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. When you release the button, the light on the side of the logger will flash rapidly to indicate that logging has begun.

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 logger activity. Examples of events recorded asynchronously during deployment include: when the logger is connected to the host, when the battery is low, end of a datafile once the logger is stopped, and button pushes.

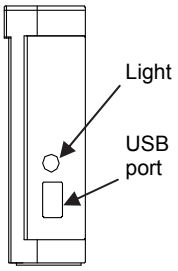
Press the button on the front of the logger for one second to record an event. Both a "button down" and a "button up" event will be recorded. This is useful if you want to mark the datafile at a particular point.

The logger stores 64K of data, and can record up to 52,000 samples.

Logger 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 Trigger Start mode	Blinks once every eight seconds until launch begins
The button on the logger is being pushed for a Trigger 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

Using the RH sensor

Your HOBO U10 Temp/RH data logger has a temperature-compensated, user-replaceable RH sensor. In order to take humidity measurements, temperature must be recorded as well as RH.

Conditions outside the recommended range may offset the RH signal. Vapors may also affect the RH sensor. The diffusion of chemicals into the sensor may cause a shift in both offset and sensitivity. High levels of pollutants may cause permanent damage to the sensor. The logger's RH sensor will be damaged if exposed to condensation. It must not be exposed to fog, mist, or other condensing environments.

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. If your unit has an RH sensor, it should be replaced if it became wet.

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 http://www.onsetcomp.com/support/support.html.

Mounting

There are three 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 flat magnetic surface.
- Use the double-sided tape to affix the logger to a surface.

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 one minute. Deployments in extremely cold or hot temperatures, or logging intervals faster than one minute, may significantly reduce battery life.

To replace the battery:

1. Disconnect the logger from the computer.
2. Open the case by unsnapping the side cover.
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 in the case and re-close it.

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.

Part #: MAN-U10-003, Doc #: 11196-B, Patent # 6,826,664