

U23-003

## HOBO 2x External Temperature Data Logger



Discontinued

A weatherproof data logger with two external soil/water temperature probes on 6-foot cables for fast sensor response and deployment in tight spaces.

### Important Information

Requires HOBOWare software and either an Optic USB Base Station or HOBOWaterproof Shuttle (U-DTW-1). HOBOWare Pro is required when using the HOBOWaterproof Shuttle. See compatible items below.



Compatible with  
**HOBOWare® Software**

### Supported Measurements

Soil Temperature, Temperature

### Features

- Weatherproof housing for use in outdoor or condensing environments
- High accuracy
- Small-diameter external sensor versions for measurements in tight spaces
- Optic USB interface for fast and reliable download
- Compatible with HOBOWare and HOBOWare Pro software for logger setup, graphing, and analysis

### What's in the box

- HOBO U23-003 2x External Temp Data Logger
- Clamp and mounting screws
- UV protective cap

### Contact Us

Sales (8am to 5pm ET, Monday through Friday)

- Email [sales@onsetcomp.com](mailto:sales@onsetcomp.com)
- Call 1-508-759-9500
- In U.S. toll free 1-800-564-4377
- Fax 1-508-759-9100

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Technical Support (8am to 5pm ET, Monday through Friday)

- Contact Product Support [www.onsetcomp.com/support/contact](http://www.onsetcomp.com/support/contact)
- Call 1-508-759-9500
- In U.S. toll free 1-877-564-4377

## HOBO 2x External Temperature Data Logger (U23-003) Specifications

### Temperature Sensor

<b>Operation Range</b>	U23-001A internal sensor: -40 to 70°C (-40 to 158°F) U23-002A external temperature sensor: -40 to 70°C (-40 to 158°F) U23-003 and U23-004 external sensors: -40 to 100°C (-40 to 212°F), with tip and cable immersion in fresh water up to 50°C (122°F) for one year
<b>Accuracy</b>	U23-001A and U23-002A: $\pm 0.25^{\circ}\text{C}$ from -40 to 0°C ( $\pm 0.45$ from -40 to 32°F), $\pm 0.2^{\circ}\text{C}$ from 0 to 70°C ( $\pm 0.36$ from 32 to 158°F) U23-003 and U23-004: $\pm 0.21^{\circ}\text{C}$ from 0° to 50°C ( $\pm 0.38^{\circ}\text{F}$ from 32° to 122°F); see Plot A
<b>Resolution</b>	U23-001A and U23-002A: 0.04°C (0.072°F) U23-003 and U23-004: 0.02°C at 25°C (0.04°F at 77°F); see Plot A
<b>Response Time (Typical to 90%)</b>	U23-001A internal sensor: 10 minutes in air moving 1 m/sec U23-002A external temperature sensor: 3 minutes, 45 seconds in air moving 1 m/sec U23-003 and U23-004 external sensors: 3 minutes in air moving 1 m/sec; 30 seconds in stirred water
<b>Drift</b>	U23-001A and U23-002A: $< 0.01^{\circ}\text{C}$ (0.018°F) per year U23-003 and U23-004: $< 0.1^{\circ}\text{C}$ (0.18°F) per year

### Relative Humidity Sensor (U23-001A, U23-002A only)

<b>Operation Range</b>	0 to 100% RH, -40° to 70°C (-40° to 158°F) Exposure to conditions below -20°C (-4°F) or above 95% RH may temporarily increase the maximum RH sensor error by an additional 1%
<b>Accuracy</b>	$\pm 2.5\%$ from 10% to 90% RH typical to a maximum of $\pm 3.5\%$ including hysteresis at 25°C (77°F); below 10% and above 90% $\pm 5\%$ typical
<b>Resolution</b>	0.05%
<b>Response Time (Typical to 90%)</b>	U23-001A: 40 minutes in air moving 1 m/sec with protective cap U23-002A: 15 seconds in air moving 1 m/sec
<b>Drift</b>	$< 1\%$ per year typical

### Logger

<b>Operation Range</b>	-40° to 70°C (-40° to 158°F)
<b>Real-time Clock</b>	±1 minute per month 0° to 50°C (32° to 122°F)
<b>Battery</b>	1/2 AA, 3.6 Volt lithium, user-replaceable (HP-B)
<b>Battery Life (Typical Use)</b>	3 years with 1 minute or greater logging interval
<b>Memory (Non-Volatile)</b>	64K bytes memory (approx. 21,000 temperature and RH measurements)
<b>Materials</b>	All models: ASA styrene polymer housing and mounting clamp; polypropylene protective cap; Buna-N o-ring(s); U23-001A, U23-002A only: ASA styrene polymer RH sensor cap; modified hydrophobic polyethersulfone membrane
<b>Cables</b>	U23-001A: No cables U23-002A: One 184 cm (6 ft) PVC cable; sensor diameter 1 cm (0.38 in.) U23-003: Two 184 cm (6 ft) PVC cables; sensor diameter 0.5 cm (0.20 in.) U23-004: One 184 cm (6 ft) PVC cable; sensor diameter 0.5 cm (0.20 in.)
<b>Environmental Rating</b>	Electronics housing is NEMA 6P equivalent (tolerant of brief submergence); Units with RH sensors are NEMA 4 equivalent (splash-resistant)
<b>Launch Modes</b>	Immediate start; delayed start
<b>Logging Interval</b>	Fixed-rate or multiple logging intervals, with up to 8 user-defined logging intervals and durations; logging intervals from 1 second to 18 hours
<b>Offload Modes</b>	Offload while logging; stop and offload
<b>Battery Indication</b>	Battery voltage can be viewed in status screen and optionally logged in datafile. Low battery indication in datafile.
<b>Weight</b>	U23-001A: 57 g (1.5 oz); U23-002A: 118 g (3.1 oz); U23-003: 138 g (3.7 oz); U23-004: 102 g (2.7 oz)
<b>Dimensions</b>	Housing measures 10.2 × 3.8 cm (4.0 × 1.5 in.)
<b>NIST Certificate</b>	Temperature certificate available for additional charge

