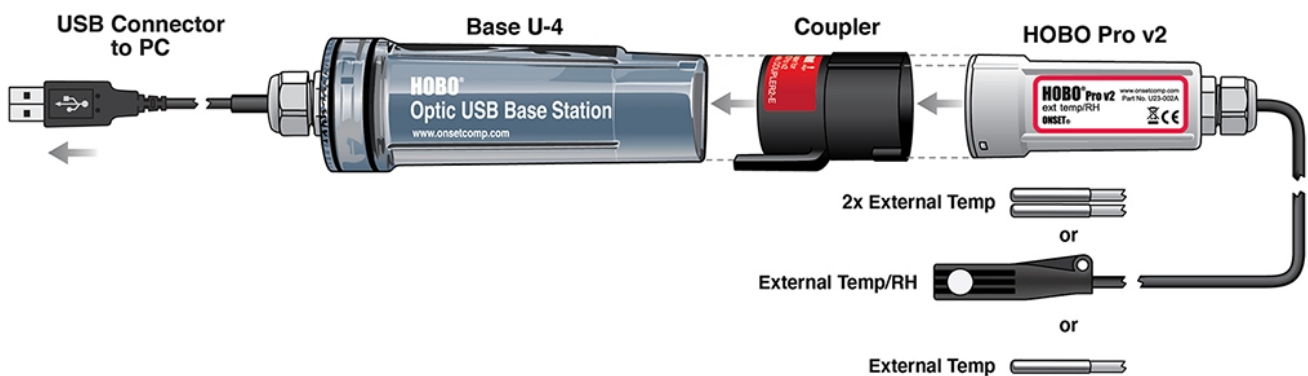




A weatherproof data logger with built-in temperature and relative humidity sensors; the relative humidity sensor provides superior durability in humid environments.

Features:

- Weatherproof housing for use in outdoor or condensing environments
- High accuracy
- Relative humidity sensor provides fast response and superior recovery from condensing conditions
- 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 and graphing & analysis (HOBOWare Pro is required when using the U-DTW-1 Waterproof Shuttle)



Technical Specifications:

Temperature Sensor

| | | |
|---------------------------------------|---|--|
| Operation Range | : | 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 |
| Accuracy | : | U23-001A and U23-002A: $\pm 0.25^{\circ}\text{C}$ from -40 to 0°C (± 0.45 from -40 to 32°F), $\pm 0.2^{\circ}\text{C}$ from 0 to 70°C (± 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 |
| Resolution | : | 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 |
| Response Time (Typical to 90%) | : | 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 |
| Drift | : | 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) |
| Operation Range | : | 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% |
| Accuracy | : | $\pm 2.5\%$ 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 |
| Resolution | : | 0.05% |
| Response Time (Typical to 90%) | : | U23-001A: 40 minutes in air moving 1 m/sec with protective cap U23-002A: 15 seconds in air moving 1 m/sec |
| Drift | : | $< 1\%$ per year typical |
| Logger | | |
| Operation Range | : | -40° to 70°C (-40° to 158°F) |
| Real-time Clock | : | ± 1 minute per month 0° to 50°C (32° to 122°F) |
| Battery | : | 1/2 AA, 3.6 Volt lithium, user-replaceable (HP-B) |
| Battery Life (Typical Use) | : | 3 years with 1 minute or greater logging interval |
| Memory (Non-Volatile) | : | 64K bytes memory (approx. 21,000 temperature and RH measurements) |

| | | |
|-----------------------------|---|--|
| Materials | : | 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 |
| Cables | : | 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.) |
| Environmental Rating | : | Electronics housing is NEMA 6P equivalent (tolerant of brief submergence); Units with RH sensors are NEMA 4 equivalent (splash-resistant) |
| Launch Modes | : | Immediate start; delayed start |
| Logging Interval | : | Fixed-rate or multiple logging intervals, with up to 8 user-defined logging intervals and durations; logging intervals from 1 second to 18 hours |
| Offload Modes | : | Offload while logging; stop and offload |
| Battery Indication | : | Battery voltage can be viewed in status screen and optionally logged in datafile. Low battery indication in datafile. |
| Weight | : | 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) |
| Dimensions | : | Housing measures 10.2 × 3.8 cm (4.0 × 1.5 in.) |
| NIST Certificate | : | Temperature certificate available for additional charge |
| CE | : | The CE Marking identifies this product as complying with all relevant directives in the European Union (EU). |

Compatible Items:

Accessories:

Carrying Case

Pelican Case : CASE-PELICAN-1510

Data Offload - Base Stations - Shuttles - Couplers

Replacement Coupler for HOBO Pro v2 : COUPLER2-E

Mounting Accessories

Clamp Kit for U23-001 : U23-RS-CLAMPKIT

Solar Radiation Shields

Solar Radiation Shield (assembled) : M-RSA

Solar Radiation Shield : RS1

UV Protection Caps

5 UV Protection Caps for U23 Series Data Loggers : U23-CAP

Required Communications

Data Offload - Base Stations - Shuttles - Couplers

| | | |
|-----------------------------|---|----------|
| HOBO Optic USB Base Station | : | BASE-U-4 |
| HOBO Waterproof Shuttle | : | U-DTW-1 |

Required Software

Graphing & Analysis

| | | |
|-------------------------------|---|-------------|
| HOBOWare Pro Download Version | : | BHW-PRO-DLD |
| HOBOWare Pro CD Version | : | BHW-PRO-CD |
| HOBOWare Pro USB Drive | : | BHW-PRO-USB |

What's in the box

- HOBO U23-001 Pro v2 Temp/RH Data Logger
- Clamp and mounting screws
- UV protective cap