



HOBO[®] U20-001-04 Data Logger

13-Foot Fresh Water Level Data Logger

Monitor water levels and temperatures in wells, streams, lakes and wetlands (freshwater) with this 13-foot HOBO Water Level Data Logger. With its narrow range this logger provides the best accuracy in shallow waters. This logger offers a great value and easy deployment since there are no cumbersome vent tubes or desiccants to maintain. For saltwater deployments, such as brackish wetlands and tidal areas, see HOBO U20 Water Level Titanium.



Helpful Links:

- [Sensor location drawing](#)
- [Barometric Pressure Compensation Assistant Demo](#)
- [Multi-rate Sampling Demo](#)

Key Advantages:

- Lightning protection - no long signal wires, and electronics are shielded in stainless steel housing for use in freshwater (see the Water Level logger sensor location drawing)
- HOBOWare Pro software provides easy conversion to accurate water level reading, fully compensated for barometric pressure (see demo) temperature, and water density.
- Multiple-rate sampling (see demo) allows faster sampling at critical times such as when pumping starts or stops.
- Available in 4 depth ranges
- Ideal for use in wells, streams, lakes, wetlands and tidal areas
- No-vent-tube design for easy reliable deployment
- Available in stainless and titanium versions
- Durable ceramic pressure sensor
- 3-point NIST-traceable calibration certificate included

HOBO U20-001-04 Data Logger Specifications

Pressure and Water Level Measurements U20-001-04 and U20-001-04-TI

Operation Range 0 to 145 kPa (0 to 21 psia); approximately 0 to 4 m (0 to 13 ft) of water depth at sea level, or 0 to 7 m (0 to 23 ft) of water at 3,000 m (10,000 ft) of altitude

Factory Calibrated Range 69 to 145 kPa (10 to 21 psia), 0° to 40°C (32° to 104°F)

Burst Pressure 310 kPa (45 psia) or 18 m (60 ft) depth

Water Level Accuracy* Typical error: $\pm 0.075\%$ FS, 0.3 cm (0.01 ft) water
Maximum error: $\pm 0.15\%$ FS, 0.6 cm (0.02 ft) water

Raw Pressure Accuracy** $\pm 0.3\%$ FS, 0.43 kPa (0.063 psi) maximum error

Resolution < 0.014 kPa (0.002 psi), 0.14 cm (0.005 ft) water

Pressure Response Time (90%)*** < 1 second; measurement accuracy also depends on temperature response time

Temperature Measurements (All Models)

Operation Range -20° to 50°C (-4° to 122°F)

Accuracy $\pm 0.44^{\circ}\text{C}$ from 0° to 50°C ($\pm 0.79^{\circ}\text{F}$ from 32° to 122°F), see Plot A in manual

Resolution 0.10°C at 25°C (0.18°F at 77°F), see Plot A in manual

Response Time (90%) 5 minutes in water (typical)

Stability (Drift) 0.1°C (0.18°F) per year

Logger

Real-time Clock ± 1 minute per month 0° to 50°C (32° to 122°F)

Battery 2/3 AA, 3.6 Volt lithium, factory-replaceable

Battery Life (Typical Use) 5 years with 1 minute or greater logging interval

Memory (Non-volatile) 64K bytes memory (approx. 21,700 pressure and temperature samples)

Weight Stainless steel models: approximately 210 g (7.4 oz)
Titanium models: approximately 140 g (4.8 oz)

Dimensions 2.46 cm (0.97 inches) diameter, 15 cm (5.9 inches) length; mounting hole 6.3 mm (0.25 inches) diameter

Wetted Materials 316 stainless steel, Viton® o-rings, acetyl cap, ceramic sensor

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. Refer to the HOBOWare software manual.

Launch Modes Immediate start and delayed start

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.

Environmental Rating

IP68 The CE Marking identifies this product as complying with all relevant directives in the European Union (EU).



* **Water Level Accuracy:** With accurate reference water level measurement, known water density, accurate Barometric Compensation Assistant data, and a stable temperature environment.

** **Raw Pressure Accuracy:** Absolute pressure sensor accuracy includes all sensor drift, temperature, and hysteresis-induced errors.

*** **Changes in Temperature:** Allow 10 minutes in water to achieve full temperature compensation of the pressure sensor. Maximum error due to rapid thermal changes is approximately 0.5%.

