



HOBO[®] U20L-04 Data Logger

Water Level (13 ft)

The HOBO U20L-04 is a low-cost, research-grade water level data logger for continuously measuring water level and temperature in a wide range of underwater environments. It features 0.1% measurement accuracy, a polypropylene housing for use in both fresh and salt water, and a non-vented design for convenient and hassle-free deployment.

This data logger requires either the U-DTW-1 Waterproof Shuttle or the Base-U-4 Base Station for configuration and data offload, HOBOWare software (free download). NOTE: HOBOWare Pro is required when using the U-DTW-1 Waterproof Shuttle. See compatible items below.

Helpful Links:

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

Key Advantages:

- Self-contained non-vented design enables easy deployment
- Ideal for use in both fresh and saltwater environments, including wells, streams, lakes, wetlands, and tidal areas
- Depths up to 13 feet
- Durable ceramic pressure sensor withstands freezing
- HOBOWare Pro software provides easy conversion to accurate water level reading, fully compensated for barometric pressure (see demo), temperature, and water density

Note: A calibration certificate is not offered for this logger. If you require a NIST-traceable calibration certificate, please see the [U20-001-04](#) (freshwater) or [U20-001-04-Ti](#) (saltwater).

HOBO U20L-04 Data Logger Specifications

Pressure (Absolute) and Water Level Measurements U20L-04

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: $\pm 0.1\%$ FS, 0.4 cm (0.013 ft) water Maximum error: $\pm 0.2\%$ FS, 0.8 cm (0.026 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 at a stable temperature; measurement accuracy also depends on temperature response time

Temperature Measurements

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%)	10 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	Approximately 154 g (5.43 oz) in air Approximately 53.9 g (1.9 oz) in fresh water
Dimensions	3.18 cm (1.25 inches) diameter, 15.24 cm (6.0 inches) length; mounting hole 6.3 mm (0.25 inches) diameter

Wetted Materials Polypropylene housing and lanyard; Viton and Buna-N O-rings; ceramic sensor in acetyl end cap; stainless steel screws suitable for saltwater

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 User's Guide* for details.

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

CE 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 20 minutes in water to achieve full temperature compensation of the pressure sensor. Maximum error due to rapid thermal changes is approximately 0.5%.