



MX20L-04 • MX20L-01 • MX20L-02

HOBOb MX Water Level Data Logger

Bluetooth data offload

A low-cost, research-grade data logger with Bluetooth data offload to continuously monitor water level and temperature. Measures at depths of up to 13, 30, or 100 feet in a wide range of underwater environments, both freshwater and saltwater.

Important Information

Requires a compatible mobile device or Windows computer and the HOBObconnect app. System requirements can be found at the bottom of the HOBObconnect software page.



Compatible with
HOBObconnect[®] Monitoring App

Supported Measurements

Absolute Pressure, Barometric Pressure, Water Level, Water Temperature

Features

- Self-contained, non-vented design enables easy deployment
 - Ideal for use in both freshwater and saltwater environments, including wells, streams, lakes, wetlands, and tidal areas
 - Depth measurement options of up to 13, 30, or 100 feet depending on model
 - Durable ceramic pressure sensor withstands freezing
 - Streamlined data offload via Bluetooth to the free HOBObconnect app
 - HOBObconnect app provides easy extraction and visualization of water level data
 - Extended battery life up to 10 years (power-saving mode requires magnetic fob to activate Bluetooth for data download)
- Note: A calibration certificate is not offered for this logger. If you require a NIST-traceable calibration certificate, please see the U20-001-01 (freshwater) or U20-001-01-Ti (saltwater).

Contact Us

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

- Email sales@onsetcomp.com
- Call 1-508-759-9500
- In U.S. toll free 1-800-564-4377
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Technical Support (8am to 5pm ET, Monday through Friday)

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

HOBO MX Water Level Data Logger (MX20L) Specifications

Pressure (Absolute) and Water Level Measurements MX20L-01

Operation Range	0 to 207 kPa (0 to 30 psia); approximately 0 to 9 m (0 to 30 ft) of water depth at sea level, or 0 to 12 m (0 to 40 ft) of water at 3,000 m (10,000 ft) of altitude
Factory Calibrated Range	69 to 207 kPa, 0° to 40°C (10 to 30 psia, 32° to 104°F)
Burst Pressure	310 kPa or 18 m depth (45 psia or 60 ft depth)
Water Level Accuracy*	Typical error: $\pm 0.1\%$ FS, 1.0 cm (0.03 ft) Water Maximum error: $\pm 0.2\%$ FS, 2.0 cm (0.06 ft) Water
Raw Pressure Accuracy**	$\pm 0.3\%$ FS, 0.62 kPa (0.09 psi) Maximum error
Resolution	<0.02 kPa Water (0.007 ft Water)
Pressure Response Time (90%)***	<1 second at a stable temperature; measurement accuracy also depends on temperature response time

Pressure (Absolute) and Water Level Measurements MX20L-02

Operation Range	0 to 400 kPa (0 to 58 psia); approximately 0 to 30.6 m (0 to 100 ft) of water depth at sea level, or 0 to 33.6 m (0 to 111 ft) of water at 3,000 m (10,000 ft) of altitude
Factory Calibrated Range	69 to 400 kPa (10 to 58 psia), 0° to 40°C (32° to 104°F)
Burst Pressure	500 kPa (72.5 psia) or 40.8 m (134 ft) Depth
Water Level Accuracy*	Typical error: $\pm 0.1\%$ FS, 3.0 cm (0.1 ft) Water Maximum error: $\pm 0.2\%$ FS, 6.0 cm (0.2 ft) Water
Raw Pressure Accuracy**	$\pm 0.3\%$ FS, 1.20 kPa (0.17 psi) Maximum error
Resolution	<0.04 kPa (0.006 psi), 0.41 cm (0.013 ft) Water
Pressure Response Time (90%)***	<1 second at a stable temperature; measurement accuracy also depends on temperature response time

Pressure (Absolute) and Water Level Measurements MX20L-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 (All Models)

Operation Range	-20° to 50°C (-4° to 122°F)
Accuracy	±0.2°C from 0° to 50°C (±0.36°F from 32° to 122°F)
Resolution	0.10°C at 25°C (0.18°F at 77°F)
Response Time (90%)	10 minutes in water (typical)
Stability (Drift)	0.1°C per year (0.18°F per year)

Logger

Wireless Standard	Bluetooth 5 LE
Transmission Range	Approximately 30.5 m (100 ft) line-of-sight
Radio Power	1mW (0 dBm)
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)	3 years with 1-minute logging and Bluetooth always on 7 years with 1-minute logging and Bluetooth off and LED off 10 years with 5-minute logging and Bluetooth off and LED off
Battery Indication	Battery status shown in HOBOnnect app (approximate)
Memory (Non-volatile)	Approximately 400,000 sets of pressure and temperature measurements
Data Download Time (with Bluetooth 5+ devices)	Approximately 3.5 minutes; 100,000 measurements < 1 minute
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 acetal end cap; stainless steel screws suitable for saltwater
Logging Modes	Fixed-interval (normal or statistics), burst or multiple intervals with up to 8 user-defined intervals and durations; logging intervals from 1 second to 18 hours. Refer to the HOBOnnect User's Guide for details.
Start Modes	Immediate, next interval, date & time, button start (fob or app)
Stop Modes	Memory full, never stop (overwrite oldest data), date & time, or after set logging period
Pause	Pause and restart with HOBOnnect app
Alarms	Log high- or low-alarm events; alarm status shown in HOBOnnect app
Environmental Rating	IP68

* Water Level Accuracy: With accurate reference water level measurement, known water density, accurate barometric compensation 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%.

