HOBO® MX2001 Data Logger

Water Level

The HOBO MX2001 is the industry's first water level data logger designed for convenient wireless setup and download from mobile devices via Bluetooth Low Energy. The logger dramatically simplifies and lowers the cost of field data collection by providing wireless access to high-accuracy water level and temperature measurements right from a mobile phone, tablet, or Windows computer, with Onset's free HOBOconnect app. The MX2001 logger consists of a top-end unit and a water level sensor which are sold as a set, plus a direct-read cable to connect them. Cables can be ordered in lengths from 0.2 to 500m for deployment in a wide range of wells.

You can download the HOBOconnect app here:

Key Advantages:

- Wireless data offload to mobile devices or Windows computers via Bluetooth
- Integrated barometric pressure sensor enables direct water level readout
- Direct-read cable connects sensor to top-end logger/transmitter
    - The cable includes Kevlar strength member
    - Cables are interchangeable so loggers are easy to redeploy in future applications
    - The logger and sensor add 0.39 meters to the length of the cable
    - Cable length can vary up to 3% from the length ordered
    - The 1, 5, 10, 15, 30 and 60 meter cable lengths are in stock; custom cable lengths have a 1 to 2 week lead time
- Reference water level can be entered at the start of the deployment
- Use HOBOconnect for setup, data viewing, and data sharing
- Powered by two user-replaceable AA batteries in the top-end unit
- Several logging modes: normal, multi-rate logging and event-triggered burst-logging
- Durable ceramic sensor
- Available with stainless steel or titanium sensor ends
- 3-point NIST-traceable calibration certificate included for the water pressure sensor

HOBO MX2001 Data Logger Specifications

Pressure (Absolute) and Water Level Measurements MX2001-01-SS-S and MX2001-01-Ti-S - 9 Meter (30') range		
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 (10 to 30 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: ±0.05% FS, 0.5 cm (0.015 ft) water Maximum error: ±0.1% FS, 1.0 cm (0.03 ft) water	
Raw Pressure Accuracy**	±0.3% FS, 0.62 kPa (0.09 psi) maximum error	
Resolution	<0.02 kPa (0.003 psi), 0.21 cm (0.007 ft) water	
Pressure Response Time (90%)***	1 second at a stable temperature	

Pressure (Absolute) and Water Level Measurements MX2001-02-SS-S - 30 Meter (100') range		
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: ±0.05% FS, 1.5 cm (0.05 ft) water Maximum error: ±0.1% FS, 3.0 cm (0.1 ft) water	
Raw Pressure Accuracy**	±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	

Pressure (Absolute) and Water Level Measurements MX2001-03-SS-S - 76 Meter (250') range		
Operation Range	0 to 850 kPa (0 to 123.3 psia); approximately 0 to 76.5 m (0 to 251 ft) of water depth at sea level, or 0 to 79.5 m (0 to 262 ft) of water at 3,000 m (10,000 ft) of altitude	
Factory Calibrated Range	69 to 850 kPa (10 to 123.3 psia), 0° to 40°C (32° to 104°F)	
Burst Pressure	1,200 kPa (174 psia) or 112 m (368 ft) depth	
Water Level Accuracy*	Typical error: ±0.05% FS, 3.8 cm (0.125 ft) water Maximum error: ±0.1% FS, 7.6 cm (0.25 ft) water	
Raw Pressure Accuracy**	±0.3% FS, 2.55 kPa (0.37 psi) maximum error	
Resolution	<0.085 kPa (0.012 psi), 0.87 cm (0.028 ft) water	
Pressure Response Time (90%)***	1 second at a stable temperature	

Pressure (Absolute) and Water Level Measurements MX2001-04-SS-S and MX2001-04-Ti-S - 4 Meter (13') range		
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: ±0.075% FS, 0.3 cm (0.01 ft) water Maximum error: ±0.15% FS, 0.6 cm (0.02 ft) water	

Raw Pressure Accuracy**	±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

Barometric Pressure (MX2001-TOP)	
Operation and Calibrated Range	66 to 107 kPa (9.57 to 15.52 psia); -20° to 50°C (-4° to 122°F)
Accuracy	±0.2 kPa (±0.029 psi) over full temperature range at fixed pressure; maximum error ±0.5% FS
Water Level Accuracy*	Typical error: ±0.075% FS, 0.3 cm (0.01 ft) water Maximum error: ±0.15% FS, 0.6 cm (0.02 ft) water
Resolution	0.01 kPa (0.0015 psi)
Response Time	1 second at stable temperature
Stability (Drift)	0.01 kPa (0.0015 psi) per year

Temperature Measurements (All Sensor End Models MX2001-0x-SS-S and MX2001-0x-Ti-S)		
Operation Range	-20° to 50°C (-4° to 122°F)	
Accuracy	±0.44°C from 0° to 50°C (±0.79°F from 32° to 122°F), see Plot A	
Resolution	0.1°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	
Operation Range	-20° to 50°C (-4° to 122°F)
Radio Power	1 mW (0 dBm)
Transmission Range	Approximately 30.5 m (100 ft) line-of-sight
Wireless Data Standard	Bluetooth Low Energy (Bluetooth Smart)
Logging Rate	1 second to 18 hours
Logging Modes	Fixed interval, multiple intervals with up to 8 user-defined logging intervals and durations, or event-triggered burst
Memory Modes	Wrap when full or stop when full
Start Modes	Immediate, date & time, or next interval
Stop Modes	When memory full, stop with HOBOmobile, date & time, or after a set logging period
Time Accuracy	±1 minute per month 0° to 50°C (32° to 122°F)
Battery	Two AA, 1.5 V alkaline batteries, user replaceable
Battery Life	1 year, typical with logging interval of 1 minute. Faster logging and/or statistics sampling intervals, entering burst logging mode, excessive readouts, checking of Full Status Details, and remaining connected with HOBOmobile will impact battery life.
Memory	256 KB memory (30,000 sets of measurements)
Full Memory Download Time	Approximately 2 minutes; may take longer the further the device is from the top end of the logger

Dimensions	Top end (MX2001-TOP): 2.54 cm (1.0 inches) diameter, 28.9 cm (11.4 inches) length; mounting hole 7.6 mm (0.3 inches) diameter Sensor end (MX2001-0x-SS-S and MX2001-0x-Ti-S: 2.54 cm (1.0 inches) diameter, 9.91 cm (3.9 inches) length **Note:** The length of the water level logger cable (CABLE-DR-xxx) can vary -0% to +3% +10 cm (3.9 inches) from the length ordered. The logger adds 38.8 cm (15.3 inches) to the length of the cable ordered.
Weight	Top end (MX2001-TOP): Approximately 136 g (4.78 oz) in air Stainless sensor end (MX2001-0x-SS-S): Approximately 141.4 g (4.99 oz) in air; approximately 53.9 g (1.9 oz) in fresh water Titanium sensor end (MX2001-0x-Ti-S): Approximately 80 g (2.83 oz) in air; approximately 37 g (1.3 oz) in fresh water
Wetted Materials	Top end (MX2001-TOP): Acetal housing, Polycarbonate end caps; Viton and Buna-N O-rings Stainless sensor end (MX2001-0x-SS-S): Stainless steel housing, PVC end cap; Viton and Buna-N O-rings; ceramic sensor in stainless steel end cap Titanium sensor end (MX2001-0x-Ti-S): Acetal housing, PVC end cap; Viton and Buna-N O-rings; ceramic sensor in Titanium end cap
Environmental Rating	Top end: Weatherproof housing - NEMA 6, IP67 Sensor end: IP68
CE	The CE Marking identifies this product as complying with all relevant directives in the European Union (EU).
FC ⚠	

*Water Level Accuracy: With accurate reference water level measurement, known water density, and a stable temperature environment. System Water Level Accuracy equals the sum of the Barometric Water Level Accuracy plus the selected sensor end Water Level Accuracy.

**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. There can be up to 0.5% of additional error due to rapid temperature changes. Measurement accuracy also depends on temperature response time.

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
▶ Fax 1-508-759-9100

Technical Support (8am to 6pm ET, Monday through Friday)
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