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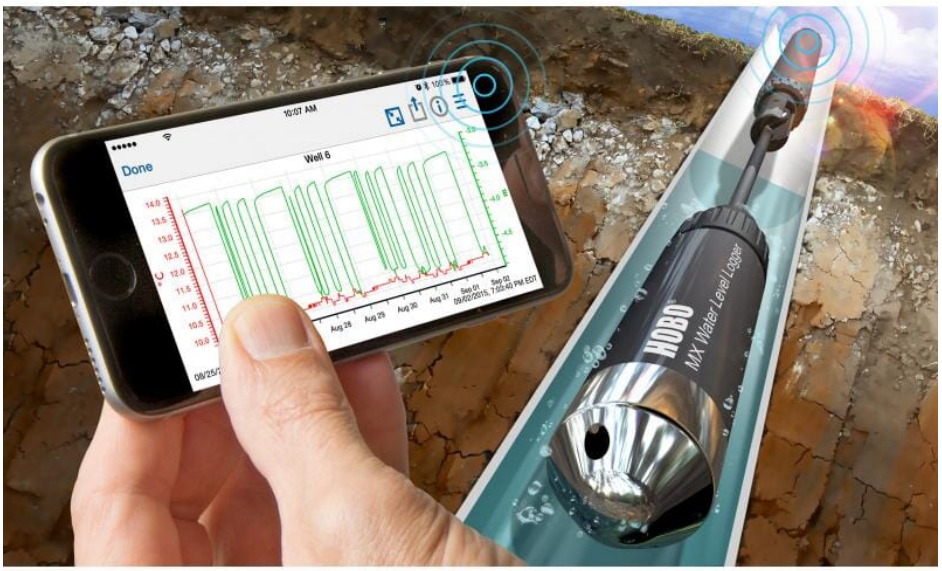
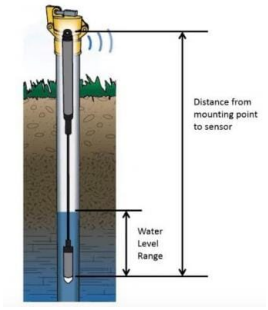
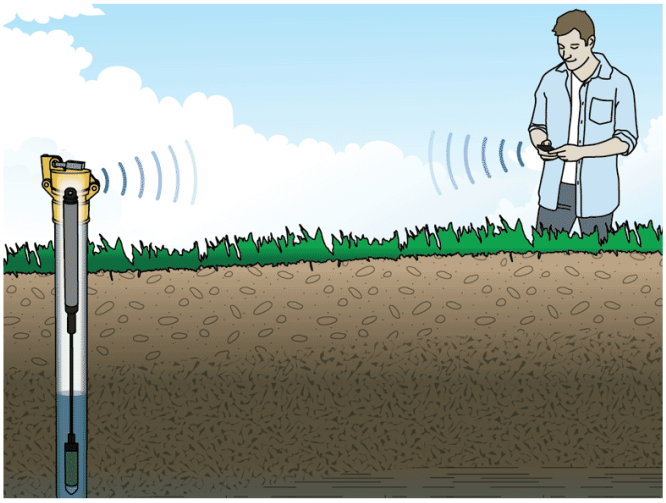
HOBO MX2001 Bluetooth (BLE) Water Level & Temperature Data Logger

Product Images







Short Description

This data logger dramatically simplifies and lowers the cost of field data collection by providing wireless access to high-accuracy water level and temperature measurements direct from your mobile phone or tablet.

Description

The HOBO® MX2001 from Onset is the industry's first water level data logger designed for simple wireless setup and download from mobile devices via Bluetooth Low Energy. The data logger dramatically simplifies and lowers the cost of field data collection by providing wireless access to high-accuracy water level and temperature measurements direct from your mobile phone or tablet.

The MX2001 water level logger comprises a top-end unit and water level sensor connected by a direct read cable. Cables can be ordered in lengths from 0.2 to 500m for deployment in a wide range of wells.

Key Features

- Wireless data offload to mobile devices using Bluetooth Low Energy
- Direct read cable connects sensor to top-end logger/transmitter
    - The cable includes Kevlar strength member
    - Twist-on connectors make it easy to change cables
    - 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 5, 10, 15, 30 and 60 metre cable lengths are in stock; custom cable lengths have a 2 - 4 week lead time
- Integrated barometric pressure sensor enables direct water level readout
- Reference water level can be entered at the start of the deployment
- Use the free HOBOconnect app on your iOS or Android device 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 burst-logging
- Durable ceramic sensor
- Available with stainless steel or titanium sensor ends.

Requires the free HOBOconnect app (available from iTunes or Google Play) and a Direct Read Cable (select the length you require from the Cable Length options below).

Additional Information

Country of Manufacture	United States
Explanation	**Specifications** **Pressure (Absolute) and Water Level Measurements MX2001-01-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-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-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-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-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 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 HOBOconnect 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-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 ±3% 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-S): Approximately 106 g (3.74 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, Polycarbonate collar nut; Viton and Buna-N O-rings Stainless sensor end (MX2001-0x-S): Acetal housing, PVC end cap, Polycarbonate collar nut; 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, Polycarbonate collar nut; Viton and Buna-N O-rings; ceramic sensor in Titanium end cap 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, 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
Brand	Onset HOBO
Onset Product Series	MX2000
Typical applications	Environmental (Outdoor), Field Research
Measurements	Barometric Pressure, Water Level, Water Temperature

Additional Options

Cable Length	5 Metres (CABLE-DR-05)
	10 Metres (CABLE-DR-10)
	15 Metres (CABLE-DR-15)
	30 Metres (CABLE-DR-30)
	60 Metres (CABLE-DR-60)
Select Water Level Sensor Required	Fresh Water Stainless Steel - 4 Metre Range (MX2001-04-S)
	Fresh Water Stainless Steel - 9 Metre Range (MX2001-01-S)
	Fresh Water Stainless Steel - 30 Metre Range (MX2001-02-S)
	Fresh Water Stainless Steel - 76 Metre Range (MX2001-03-S)
	Salt Water Titanium - 4 Metre Range (MX2001-04-Ti-S)
	Salt Water Titanium - 9 Metre Range (MX2001-01-Ti-S)
Well Cap for Mounting HOBO Loggers in Wells	WELL-CAP-01