



## HOBO® MX230x Data Logger

### MX Soil Moisture and Temperature

HOBO MX Soil Moisture Data Loggers are the industry's only low-cost, fully integrated soil moisture loggers with Bluetooth wireless data offload. Available in two models – one that measures soil moisture (HOBO MX2306) and one that measures both soil moisture and temperature (HOBO MX2307) – these loggers are ideal for researchers and growers looking for the accurate data they need to save water, improve crop yields, reduce harmful runoff, and protect ecosystems.

With just a mobile phone, tablet, or Windows laptop running Onset's free HOBObconnect app, users get convenient wireless setup and data download via Bluetooth when within 100 feet of the logger – making it easy to retrieve data from hard-to-access field locations. And for indoor areas, such as greenhouses, users can add the MX Gateway for remote access to data in Onset's cloud-based HOBOLink software.

Product Numbers:

MX2306

MX2307

#### Key Advantages:

- Ready to deploy, with pre-attached sensors
- Easy configuration and data offload with the free HOBObconnect app
- Durable TEROS 10 soil moisture sensor lasts over 10 years in the field
- For use in both mineral soils and soilless media
- Sturdy, sharp stainless-steel spikes for easy installation and better soil contact
- Option to view data in Percent of Field Capacity



## HOBO MX230x Data Logger Specifications

|                                               |                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Soil Moisture: Volumetric Water Content (VWC) |                                                                                                                                                                                                                                                                                                                                                                    |
| Measurement Range*                            | 0.00 to 0.64 m /m in mineral soils<br>0.00 to 0.70 m /m in soilless media                                                                                                                                                                                                                                                                                          |
| Accuracy                                      | ±0.031 m /m typical in mineral soils that have solution EC <8 dS/m<br>±0.051 m /m typical in soilless media                                                                                                                                                                                                                                                        |
| Resolution                                    | 0.001 m /m                                                                                                                                                                                                                                                                                                                                                         |
| Dielectric Measurement Frequency              | 70 MHz                                                                                                                                                                                                                                                                                                                                                             |
| Temperature Sensor (MX2307)                   |                                                                                                                                                                                                                                                                                                                                                                    |
| Range                                         | -40 to 100°C (-40 to 212°F), with tip and cable immersion in fresh water up to 50°C (122°F) for one year                                                                                                                                                                                                                                                           |
| Accuracy                                      | ±0.25°C from -40 to 0°C (±0.45 from -40 to 32°F)<br>±0.2°C from 0 to 70°C (±0.36 from 32 to 158°F)<br>±0.25°C from 70 to 100°C (±0.45 from 158 to 212°F)                                                                                                                                                                                                           |
| Resolution                                    | 0.04°C (0.072°F)                                                                                                                                                                                                                                                                                                                                                   |
| Drift                                         | <0.01°C per year (0.018°F per year)                                                                                                                                                                                                                                                                                                                                |
| Response Time                                 | 3 minutes in air moving 1 m/s; 20 seconds in stirred water<br>4 minutes in air moving 1 m/s with RS3-B Solar Radiation Shield                                                                                                                                                                                                                                      |
| Logger                                        |                                                                                                                                                                                                                                                                                                                                                                    |
| Operating Range                               | -25° to 60°C (-13° to 140°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 (normal, statistics) or burst                                                                                                                                                                                                                                                                                                                       |
| Memory Modes                                  | Wrap when full or stop when full                                                                                                                                                                                                                                                                                                                                   |
| Start Modes                                   | Immediate, push button, date & time, or next interval                                                                                                                                                                                                                                                                                                              |
| Stop Modes                                    | When memory full, push button, date & time, or after a set logging period                                                                                                                                                                                                                                                                                          |
| Time Accuracy                                 | ±1 minute per month 0° to 50°C (32° to 122°F)                                                                                                                                                                                                                                                                                                                      |
| Battery Type                                  | 2/3 AA 3.6 Volt lithium, user replaceable                                                                                                                                                                                                                                                                                                                          |
| Battery Life                                  | 2 years, typical with logging interval of 1 minute and Bluetooth Always On enabled; 5 years, typical with logging interval of 1 minute and Bluetooth Always On disabled. Faster logging intervals and statistics sampling intervals, burst logging, remaining connected with the app, excessive downloads, and paging may impact battery life.                     |
| Memory                                        | 110,000 measurements, maximum (472 kB)                                                                                                                                                                                                                                                                                                                             |
| Full Memory Download Time                     | Approximately 60 seconds; may take longer the further the device is from the logger                                                                                                                                                                                                                                                                                |
| Dimensions                                    | Logger housing: 10.8 x 5.08 x 2.24 cm (4.25 x 2.0 x 0.88 in.)<br>Soil moisture sensor: 7.5 x 5.1 x 2.4 cm (2.95 x 2.02 x 0.95 inches)<br>Soil moisture sensor needle length: 5.4 cm (2.13 inches)<br>Soil moisture sensor needle diameter: 0.32 cm (0.13 inches)<br>Temperature sensor (MX2307) diameter: 0.53 cm (0.21 in.)<br>Sensor cable length: 2 m (6.56 ft) |

|                      |                                                                                                                                                                                                                                                                                                                                         |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Weight               | MX2306: 229 g (80 oz)<br>MX2307: 267 g (94 oz)                                                                                                                                                                                                                                                                                          |
| Materials            | Logger: Acetal, silicone gasket, stainless steel screws<br>Soil Moisture Sensor: ASA plastic body with polyurethane epoxy filling and stainless steel pins<br>Temperature Sensor (MX2307): Stainless steel waterproof tip<br>Cable: PVC, UV resistant and rodent repellent (soil moisture sensor cable)                                 |
| Environmental Rating | Temperature sensor and cable (MX2307): Immersion in water up to 50°C (122°F) for 1 year                                                                                                                                                                                                                                                 |
| Compliance Marks     |     |

\* The sensor data can be post-calibrated if necessary (e.g. the sensor is used in non-mineral soil types or higher than standard accuracy is required). Users can apply a calibration equation to the data exported from the app. The VWC range will depend on the calibration equation.

## Contact Us

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