



## 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

<b>Soil Moisture: Volumetric Water Content (VWC)</b>	
Measurement Range*	0.00 to 0.64 m /m in mineral soils 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 ±0.051 m /m typical in soilless media
Resolution	0.001 m /m
Dielectric Measurement Frequency	70 MHz
<b>Temperature Sensor (MX2307)</b>	
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) ±0.2°C from 0 to 70°C (±0.36 from 32 to 158°F) ±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 4 minutes in air moving 1 m/s with RS3-B Solar Radiation Shield
<b>Logger</b>	
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.) Soil moisture sensor: 7.5 x 5.1 x 2.4 cm (2.95 x 2.02 x 0.95 inches) Soil moisture sensor needle length: 5.4 cm (2.13 inches) Soil moisture sensor needle diameter: 0.32 cm (0.13 inches) Temperature sensor (MX2307) diameter: 0.53 cm (0.21 in.) Sensor cable length: 2 m (6.56 ft)

Weight  
MX2306: 229 g (80 oz)  
MX2307: 267 g (94 oz)

Materials  
Logger: Acetal, silicone gasket, stainless steel screws  
Soil Moisture Sensor: ASA plastic body with polyurethane epoxy filling and stainless steel pins  
Temperature Sensor (MX2307): Stainless steel waterproof tip  
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.