

MX2301A

## HOBO Temperature/RH Data Logger

### Bluetooth

A weatherproof data logger with built-in temperature and relative humidity sensors, leveraging Bluetooth for easy setup and data download.

### Important Information

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



Compatible with  
**HOBObconnect<sup>®</sup> Monitoring App**



### Supported Measurements

Dew Point, Relative Humidity, Temperature

### Features

#### Contact Us

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

- Email [sales@onsetcomp.com](mailto: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 5pm ET, Monday through Friday)

- Contact Product Support [www.onsetcomp.com/support/contact](http://www.onsetcomp.com/support/contact)
- Call 1-508-759-9500
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## HOBO Temperature/RH Data Logger (MX2301A) Specifications

| Temperature Sensor                                |                                                                                                                                                                                                                                                                                    |                                             |                                             |  |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------|--|
| Range                                             | MX2301A and MX2305 internal sensors: -40 to 70°C (-40 to 158°F)<br>MX2302A external temperature sensor: -40 to 70°C (-40 to 158°F)<br>MX2303 and MX2304 external sensors: -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), MX2303 and MX2304 only                                                                                                   |                                             |                                             |  |
| Resolution                                        | MX2301A and MX2302A: 0.02°C (0.036°F)<br>MX2303, MX2304, and MX2305: 0.04°C (0.072°F)                                                                                                                                                                                              |                                             |                                             |  |
| Drift                                             | <0.01°C (0.018°F) per year                                                                                                                                                                                                                                                         |                                             |                                             |  |
| Relative Humidity Sensor* (MX2301A, MX2302A only) |                                                                                                                                                                                                                                                                                    |                                             |                                             |  |
| Range                                             | 0 to 100% RH, -40° to 70°C (-40° to 158°F); exposure to conditions below -20°C (-4°F) or above 95% RH may temporarily increase the maximum RH sensor error by an additional 1%                                                                                                     |                                             |                                             |  |
| Accuracy                                          | ±2.5% from 10% to 90% (typical) to a maximum of ±3.5% including hysteresis at 25°C (77°F); below 10% RH and above 90% RH ±5% typical                                                                                                                                               |                                             |                                             |  |
| Resolution                                        | 0.01%                                                                                                                                                                                                                                                                              |                                             |                                             |  |
| Drift                                             | <1% per year typical                                                                                                                                                                                                                                                               |                                             |                                             |  |
| Response Time (typical, to 90% of change)         |                                                                                                                                                                                                                                                                                    |                                             |                                             |  |
| Temperature                                       | Without Solar Radiation Shield                                                                                                                                                                                                                                                     | With RS1/M-RSA Solar Radiation Shield       | With RS3-B Solar Radiation Shield           |  |
| MX2301A internal sensor                           | 17 minutes in air moving 1 m/sec                                                                                                                                                                                                                                                   | 24 minutes in air moving 1 m/sec            | NA                                          |  |
| MX2302A external sensor                           | 3 minutes, 45 seconds in air moving 1 m/sec                                                                                                                                                                                                                                        | 7 minutes, 45 seconds in air moving 1 m/sec | 6 minutes, 30 seconds in air moving 1 m/sec |  |
| MX2303/MX2304 external sensors                    | 3 minutes in air moving 1 m/sec; 20 seconds in stirred water                                                                                                                                                                                                                       | 7 minutes in air moving 1 m/sec             | 4 minutes in air moving 1 m/sec             |  |
| MX2305 internal sensor                            | 17 minutes in air moving 1 m/sec                                                                                                                                                                                                                                                   | 24 minutes in air moving 1 m/sec            | NA                                          |  |
| RH                                                | Without Solar Radiation Shield                                                                                                                                                                                                                                                     | With RS1/M-RSA Solar Radiation Shield       | With RS3-B Solar Radiation Shield           |  |
| MX2301A internal sensor                           | 30 seconds in air moving 1 m/sec                                                                                                                                                                                                                                                   | 40 seconds in air moving 1 m/sec            | NA                                          |  |
| MX2302A external sensor                           | 15 seconds in air moving 1 m/sec                                                                                                                                                                                                                                                   | 30 seconds in air moving 1 m/sec            | 30 seconds in air moving 1 m/sec            |  |
| Logger                                            |                                                                                                                                                                                                                                                                                    |                                             |                                             |  |
| Operating Range                                   | -40° to 70°C (-40° to 158°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)                                                                                                                                                                                                                                             |                                             |                                             |  |

|                                  |                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Logging Rate</b>              | 1 second to 18 hours                                                                                                                                                                                                                                                                                                                           |
| <b>Logging Modes</b>             | Fixed interval (normal, statistics) or burst                                                                                                                                                                                                                                                                                                   |
| <b>Memory Modes</b>              | Wrap when full or stop when full                                                                                                                                                                                                                                                                                                               |
| <b>Start Modes</b>               | Immediate, push button, date & time, or next interval                                                                                                                                                                                                                                                                                          |
| <b>Stop Modes</b>                | When memory full, push button, date & time, or after a set logging period                                                                                                                                                                                                                                                                      |
| <b>Time Accuracy</b>             | ±1 minute per month 0° to 50°C (32° to 122°F)                                                                                                                                                                                                                                                                                                  |
| <b>Battery Type</b>              | 2/3 AA 3.6 Volt lithium, user replaceable                                                                                                                                                                                                                                                                                                      |
| <b>Battery Life</b>              | 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. |
| <b>Memory</b>                    | MX2301A and MX2302A: 128 KB (63,488 measurements, maximum)<br>MX2303, MX2304, and MX2305: 128 KB (84,650 measurements, maximum)                                                                                                                                                                                                                |
| <b>Full Memory Download Time</b> | Approximately 60 seconds; may take longer the further the device is from the logger                                                                                                                                                                                                                                                            |
| <b>Dimensions</b>                | Logger housing: 10.8 x 5.08 x 2.24 cm (4.25 x 2.0 x 0.88 in.)<br>External temperature sensor diameter: 0.53 cm (0.21 in.)<br>External temperature/RH sensor diameter: 1.17 cm (0.46 in.)<br>External sensor cable length: 2 m (6.56 ft)<br>Solar radiation shield bracket: 10.8 x 8.3 cm (4.25 X 3.25 in.)                                     |
| <b>Weight</b>                    | Logger: 75.5 g (2.66 oz)<br>Solar radiation shield bracket: 20.4 g (0.72 oz)                                                                                                                                                                                                                                                                   |
| <b>Materials</b>                 | Acetal, silicone gasket, stainless steel screws                                                                                                                                                                                                                                                                                                |
| <b>Environmental Rating</b>      | NEMA 6 and IP67                                                                                                                                                                                                                                                                                                                                |

\*Per RH sensor manufacturer data sheet

