Onset RXW-SMD-900

HOBOnet Wireless Soil Moisture 10HS Sensor

Model: RXW-SMD-900

Manufacturer: Onset

Introduction

The Onset HOBO RXW-SMD-900 HOBOnet Wireless Soil Moisture 10HS Sensor is designed to accurately measure soil moisture. This sensor integrates seamlessly with the HOBOnet Wireless Sensor Network, facilitating wireless data transmission from the sensor mote to an RX3000 station. Data is then uploaded to the HOBOlink web-based software, enabling users to monitor readings, view graphs, configure alarms, and download data for analysis.

Figure 1: The Onset RXW-SMD-900 HOBOnet Wireless Soil Moisture 10HS Sensor. This image displays the soil moisture probe with its two prongs, connected by a cable to the wireless mote, which features a solar panel for power.

Setup

Proper setup is crucial for accurate data collection. Follow these steps to integrate your RXW-SMD-900 sensor into your HOBOnet Wireless Sensor Network.

1. **Unpack the Sensor:** Carefully remove the sensor and all components from its packaging. Inspect for any visible damage.
2. **Connect to a HOBOnet Mote:** The soil moisture sensor connects to a HOBOnet Wireless Sensor Mote (sold separately). Ensure the connection is secure and watertight.
3. **Site Selection:** Choose a representative location for soil moisture measurement. Avoid areas with unusual drainage, compaction, or vegetation that may not reflect the overall area of interest.
4. **Sensor Installation:** Dig a small trench or pilot hole to the desired depth. Insert the sensor probes into the soil, ensuring full contact with the soil and minimizing air gaps. Backfill the trench, compacting the soil gently around the sensor.

5. **Mote Placement:** Position the HOBOnet Mote in an open area with a clear line of sight to other motes or the RX3000 station for optimal wireless communication. Ensure the solar panel on the mote receives adequate sunlight.
6. **Network Integration:** Follow the instructions for your HOBO RX3000 station and HOBOlink software to add the new sensor to your wireless network. This typically involves initiating a search for new sensors from the RX3000 station.

Operating Instructions

Once installed and integrated into the HOBOnet network, the RXW-SMD-900 sensor will begin transmitting data wirelessly. Data management and monitoring are performed via the HOBOlink web-based software.

- **Data Transmission:** The sensor mote will automatically transmit soil moisture data at configured intervals to the RX3000 station.
- **Accessing Data via HOBOlink:** Log in to your HOBOlink account. Navigate to your RX3000 station and locate the RXW-SMD-900 sensor.
- **Monitoring Readings:** View real-time and historical soil moisture readings. Data can be displayed in graphs for trend analysis.
- **Setting Alarms:** Configure alarms within HOBOlink to receive notifications (e.g., email or SMS) when soil moisture levels fall outside specified thresholds.
- **Downloading Data:** Download collected data in various formats for further analysis using spreadsheet software or other tools.
- **System Status:** Regularly check the HOBOlink dashboard for sensor battery status and network connectivity to ensure continuous operation.

Maintenance

Regular maintenance helps ensure the longevity and accuracy of your soil moisture sensor.

- **Sensor Cleaning:** Periodically inspect the sensor probes. If removed from the soil, gently clean any accumulated soil or debris from the probes using a soft cloth and water. Avoid abrasive materials that could scratch the sensor surface.
- **Cable Inspection:** Check the sensor cable for any signs of damage, such as cuts, abrasions, or rodent chew marks. Ensure all connections remain secure.
- **Mote Inspection:** Ensure the HOBOnet Mote's solar panel is clean and free of obstructions (e.g., leaves, dirt) to maximize charging efficiency.
- **Recalibration:** While the sensor is factory calibrated, soil-specific calibration can improve accuracy. Refer to the HOBOlink documentation or Onset support for guidance on performing soil-specific calibrations if required for your application.
- **Battery Monitoring:** Monitor the battery level of the wireless mote via HOBOlink. Replace batteries as needed, following the mote's specific instructions.

Troubleshooting

This section addresses common issues you might encounter with your RXW-SMD-900 sensor.

- **No Data Appearing in HOBOlink:**

- Verify the sensor is properly connected to the HOBOnet Mote.
- Check the mote's battery status in HOBOlink.
- Ensure the mote has a clear wireless path to the RX3000 station or another mote in the network.
- Confirm the sensor has been successfully added to the HOBOlink network.

- **Inaccurate or Unexpected Readings:**
  - Inspect the sensor probes for proper soil contact; air gaps can lead to low readings.
  - Ensure the sensor is installed at a representative depth and location.
  - Consider performing a soil-specific calibration if the default calibration does not match your soil type.
  - Check for any physical damage to the sensor or cable.

- **Mote Not Communicating:**
  - Check the mote's battery.
  - Ensure the mote is within range of the RX3000 station or another active mote.
  - Verify there are no new obstructions blocking the wireless signal.

Specifications

Sensor Performance

- **Measurement Range:** In soil: 0 to 0.570 m^3/m^3 (volumetric water content)
- **Extended Range:** -0.659 to 0.6026 m^3/m^3
- **Accuracy:** ±0.033 m^3/m^3 (±3.3%) typical 0 °C to 50 °C (32 °F to 122 °F) for mineral soils up to 10 dS/m and ±0.020 m^3/m^3 (±2%) with soil specific calibration
- **Resolution:** 0.0008 m^3/m^3 (0.08%)

General Product Details

- **Item Model Number:** RXW-SMD-900
- **Manufacturer:** Onset
- **Package Dimensions:** 11 x 5 x 3 inches
- **Item Weight:** 14.56 ounces
- **ASIN:** B07SPFX6SD
- **Date First Available:** June 4, 2019

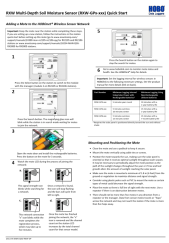
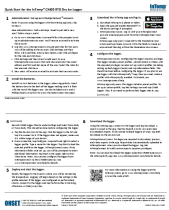
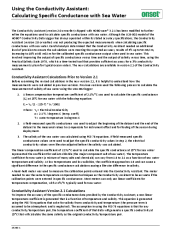
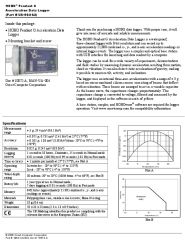
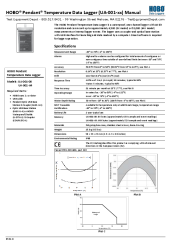
Warranty and Support

Onset provides a standard warranty for its products. Specific warranty terms and duration are typically provided with your purchase documentation or can be found on the official Onset website. Please retain your proof of purchase for warranty claims.
For technical support, troubleshooting assistance, or warranty inquiries, please contact Onset Customer Service:

- **Website:** www.onsetcomp.com
- **Contact Information:** Refer to the 'Contact Us' section on the Onset website for phone numbers and email support.

Additional resources, including detailed product manuals and software guides, are available on the Onset website.

Related Documents - RXW-SMD-900

	RXW Multi-Depth Soil Moisture Sensor (RXW-GPx-xxx) Quick Start Guide | Onset HOBO Quick start guide for adding and installing the Onset HOBO RXW Multi-Depth Soil Moisture Sensor (RXW-GPx-xxx) to a HOBOnet Wireless Sensor Network. Includes setup steps, mounting instructions, and installation procedures for optimal soil moisture monitoring.
	Onset InTemp CX405 RTD Dry Ice Logger Quick Start Guide Quick start guide for the Onset InTemp CX405 RTD Dry Ice Logger, detailing account setup, battery installation, app download, logger configuration, deployment, and data download procedures.
	Onset Conductivity Assistant: Calculating Specific Conductance with Sea Water A technical guide detailing the calculations performed by the Onset Conductivity Assistant (Version 2.1) for determining specific conductance and salinity in sea water, including revised non-linear temperature compensation methods and data tables.
	HOBO Pendant G Acceleration Data Logger - User Manual Comprehensive guide to the HOBO Pendant G Acceleration Data Logger, covering its features, specifications, operation, connection, logging modes, mounting, protection, battery replacement, and support. Includes details on measurement ranges, accuracy, logging intervals, temperature ratings, and warranty information.
	HOBO Pendant Temperature Data Logger UA-001-xx User Manual Comprehensive user manual for the Onset HOBO Pendant Temperature Data Logger (models UA-001-08 and UA-001-64), detailing specifications, connection, setup, operation, alarm configuration, and battery replacement.

[HOBOware User's Guide: Comprehensive Software Manual for Onset Data Loggers]

This comprehensive user guide provides detailed instructions for using HOBOware software to launch, read out, plot, and analyze data from HOBO data loggers. Learn about software features, device management, data visualization, and advanced functionalities for efficient data acquisition.