



# HOBOnet Soil Moisture 10HS Sensor

## Product Images



## Short Description

HOBOnet Wireless Soil Moisture 10HS Sensor - pre-configured and ready to deploy. Data is accessed through HOBOLink web-based software.

## Description

**The HOBOnet Wireless Soil Moisture Sensor integrates the field-proven ECH20™ 10HS Sensor and provides readings directly in volumetric water content.**

The 10cm probes measure soil moisture over a larger volume of soil, helping to average out any soil variability. The sensor's high-frequency design minimises sensitivity to salinity and textural effects, and gives

it a wide measurement range. HOBOnet Wireless Sensors communicate data directly to the RX3000 weather station or pass data through other wireless sensors back to the central station. They are preconfigured and ready to deploy, and data is accessed through [HOBOLink](#), Onset's innovative cloud-based software platform.

## Sensor Features

- $\pm 3\%$  accuracy in typical soil conditions, and  $\pm 2\%$  accuracy with soil-specific calibration
- Measures a large 1-litre volume of soil, providing a more accurate picture of average soil moisture
- High-frequency (70 MHz) circuit provides good accuracy even in high-salinity and sandy soils.

## Wireless Features

- 868 MHz wireless mesh self-healing technology
- 450 to 600 metre (1,500 to 2,000 feet) wireless range and up to five hops
- Up to 50 wireless sensors per RX3000
- Simple button-push to join the HOBOnet wireless network
- Onboard memory to ensure no data loss
- Powered by rechargeable AA batteries and built-in solar panel.

**Note:** A complete [HOBOnet](#) system requires at least one [HOBOnet RX3000](#) Remote Monitoring Station, a [HOBOnet Wireless Manager](#), and a [HOBOnet Wireless Sensor](#), OR one [HOBOnet MicroRX Station](#) (which has an integrated HOBOnet Wireless Manager) and a [HOBOnet Wireless Sensor](#). [HOBOnet Wireless Repeaters](#) can be added to extend the range.

# Additional Information

Country of Manufacture	United States
Brand	Onset HOBO
Measurements	Soil Moisture
Typical applications	Environmental (Outdoor), Field Research
Explanation	<div><div><div>Sensor</div><div><div>Measurement Range</div><div>In soil: 0 to 0.570 m³/m³ (volumetric water content)</div></div><div><div>Extended Range</div><div>-0.659 to 0.6026 m³/m³; see Note 1</div></div><div><div>Accuracy</div><div>±0.033 m³/m³ (±3.3%) typical 0 to 50°C (32° to 122°F) for mineral soils up to 10 dS/m and ±0.020 m³/m³ (±2%) with soil specific calibration; see Notes 4 and 5</div></div><div><div>Resolution</div><div>0.0008 m³/m³ (0.08%)</div></div><div><div>Volume of Influence</div><div>1 liter (33.81 oz)</div></div><div><div>Sensor Frequency</div><div>70 MHz</div></div><div><div>Sensor Operating Temperature Range</div><div>0° to 50°C (32° to 122°F). Although the sensor probe and cable can safely operate at below-freezing temperatures (to -40°C/F), the soil moisture data collected at these extreme temperatures is outside of the sensor's accurate measurement range. Extended temperatures above 50°C (122°F) will decrease mote battery life.</div></div></div></div> <div><div>Wireless Mote</div><div><div>Operating Temperature Range</div><div>-25° to 60°C (-13° to 140°F) with rechargeable batteries -40 to 70°C (-40 to 158°F) with lithium batteries</div></div><div><div>Radio Power</div><div>12.6 mW (+11 dBm) non-adjustable</div></div><div><div>Transmission Range</div><div>Reliable connection to 457.2 m (1,500 ft) line of sight at 1.8 m (6 ft) high Reliable connection to 609.6 m (2,000 ft) line of sight at 3 m (10 ft) high</div></div><div><div>Wireless Data Standard</div><div>IEEE 802.15.4</div></div><div><div>Radio Operating Frequencies</div><div>RXW-SMD-900: 904–924 MHz RXW-SMD-868: 866.5 MHz RXW-SMD-922: 916–924 MHz</div></div><div><div>Modulation Employed</div><div>OQPSK (Offset Quadrature Phase Shift Keying)</div></div><div><div>Data Rate</div><div>Up to 250 kbps, non-adjustable</div></div><div><div>Duty Cycle</div><div>&lt;1%</div></div><div><div>Maximum Number of Motes</div><div>50 motes per one RX Wireless Sensor Network</div></div><div><div>Battery Type/ Power Source</div><div>Two AA 1.2V rechargeable NiMH batteries, powered by built-in solar panel or two AA 1.5 V lithium batteries for operating conditions of -40 to 70°C (-40 to 158°F)</div></div><div><div>Battery Life</div><div>With NiMH batteries: Typical 3–5 years when operated in the temperature range -20° to 40°C (-4°F to 104°F) and positioned toward the sun (see Deployment and Mounting), operation outside this range will reduce the battery service life With lithium batteries: 1 year, typical use</div></div><div><div>Memory</div><div>16 MB</div></div><div><div>Dimensions</div><div>RXW-SMD-xxx soil probe: 89 x 15 x 1.5 mm (3.5 x 0.62 x 0.06 in.) Cable length: 5 m (16.4 ft) Mote: 16.2 x 8.59 x 4.14 cm (6.38 x 3.38 x 1.63 inches)</div></div><div><div>Weight</div><div>RXW-SMD-xxx sensor and cable: 180 grams (6.3 oz) Mote: 223 g (7.87 oz)</div></div><div><div>Materials</div><div>Sensor: Weatherproof Mote: PCPBT, silicone rubber seal</div></div><div><div>Environmental Rating</div><div>Mote: IP67, NEMA 6</div></div><div><div>Compliance Marks</div><div><div><div></div></div><div>RXW-SMD-868</div></div></div></div>
Ideal For	Professional, Agronomy
Power	Battery only