

RXW-GP3A-900 • RXW-GP3A-922 • RXW-GP3A-868 • RXW-GP3A-921 • RXW-GP4A-900
• RXW-GP4A-922 • RXW-GP4A-868 • RXW-GP4A-921 • RXW-GP6A-900 •
RXW-GP6A-922 • RXW-GP6A-868 • RXW-GP6A-921



HOBOnet Multi-Depth Soil Moisture Sensor

An award-winning wireless sensor that works with the HOBOnet system to measure soil moisture and soil temperature at multiple depths with a single probe, for fast and easy installation.

Important Information

A complete system requires at least one HOBO RX3000 Remote Monitoring Station, a HOBOnet Wireless Manager, and a HOBOnet Wireless Sensor, OR one HOBO MicroRX Station (which has an integrated HOBOnet Wireless Manager) and a HOBOnet Wireless Sensor. HOBOnet Wireless Repeaters (RXW-RPTR-xxx or RXW-RPTR-B-xxx) can be added to extend the range.

Supported Measurements

Soil Moisture, Soil Temperature

Features

Sensor Features

- Available in three probe lengths: 45 cm (18 in), 60 cm (24 in), and 90 cm (35 in)
- Soil moisture measurements over entire probe segment lengths
- Soil temperature measurements at multiple points
- Largest volume of influence per measurement (2 L volume of influence per 15 cm segment)
- Advanced filtering of 400,000 pulses per measurement eliminates outlying readings and provides precise, repeatable soil moisture data
- Polycarbonate housing and epoxy-sealed circuit board protect vital components during installation and throughout deployment
- Easy installation with minimal soil disturbance, and no digging required when using the optional pilot rod and slide hammer

Wireless Features

- Sub-GHz wireless mesh self-healing technology
- 450 to 600 meter (1,500 to 2,000 feet) wireless range and up to five hops
- Up to 50 wireless sensors or 336 data channels per one HOBO RX station
- 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

What's in the box

- HOBOnet Multi-Depth Soil Moisture Sensor

- Two AA 1.2V rechargeable NiMH batteries
- Cable ties
- Screws

Contact Us

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

- Email 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
- Call 1-508-759-9500
- In U.S. toll free 1-877-564-4377

Onset Computer Corporation
470 MacArthur Boulevard
Bourne, MA 02532

HOBOnet Multi-Depth Soil Moisture Sensor (RXW-GPxA) Specifications

Soil Moisture: Volumetric Water Content (VWC)

Measurement Range	In soil: 0 to 0.550 m ³ /m ³ (volumetric water content)
Accuracy	±0.02 m ³ /m ³ (±2%) in most soils typical from 0° to 50°C (32° to 122°F)*
Resolution	0.001 m ³ /m ³

Temperature

Measurement Range	-20° to 70°C (-4° to 158°F)
Accuracy	±0.5°C (0.9°F)
Resolution	0.1°C (0.18°F)

Depths Measured (see below)

RXW-GP3A-xxx	45 cm (18 inches) total; three soil moisture zones, six temperature depths
RXW-GP4A-xxx	60 cm (24 inches) total; four soil moisture zones, six temperature depths
RXW-GP6A-xxx	90 cm (35 inches) total; six soil moisture zones, nine temperature depths

Wireless Mote

Operating Temperature Range	Sensor: -20° to 70°C (-4° to 158°F) Mote: -25° to 60°C (-13° to 140°F) with rechargeable batteries -40° to 70°C (-40° to 158°F) with lithium batteries
Radio Power	12.6 mW (+11 dBm) non-adjustable
Transmission Range	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
Wireless Data Standard	IEEE 802.15.4
Radio Operating Frequencies	RXW-GPxA-900: 904–924 MHz RXW-GPxA-868: 866.5 MHz RXW-GPxA-921: 921 MHz RXW-GPxA-922: 916–924 MHz
Modulation Employed	OQPSK (Offset Quadrature Phase Shift Keying)
Data Rate	Up to 250 kbps, non-adjustable
Duty Cycle	<1%
Maximum Number of Motes	Up to 50 wireless sensors or 336 data channels per one HOBO RX station
Logging Rate	Maximum logging interval: 18 hours Recommended minimum logging interval: 5 minutes year round when using solar power with rechargeable batteries, 10 minutes when using non-rechargeable lithium batteries
Number of Data Channels	RXW-GP3A-xxx: 10 RXW-GP4A-xxx: 11 RXW-GP6A-xxx: 16
Battery Type/Power Source	Two AA 1.2V rechargeable NiMH batteries, powered by built-in solar panel or two AA 1.5 V non-rechargeable lithium batteries for operating conditions of -40 to 70°C (-40 to 158°F)

Battery Life	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 Mounting and Positioning the Mote), operation outside this range will reduce the battery service life With non-rechargeable lithium batteries: 1 year with a 10-minute logging interval
Memory	16 MB
Dimensions	RXW-GP3A-xxx sensor length: 53.2 cm (20.9 inches) RXW-GP4A-xxx sensor length: 68.2 cm (26.9 inches) RXW-GP6A-xxx sensor length: 98.2 cm (38.7 inches) Sensor diameter: 3 cm (1.2 inches) Cable length: 3.5 m (11 ft 6 in) Mote: 16.2 x 8.59 x 4.14 cm (6.38 x 3.38 x 1.63 inches)
Weight	RXW-GP3A-xxx sensor: 351 g (12.4 oz) RXW-GP4A-xxx sensor: 408 g (14.4 oz) RXW-GP6A-xxx sensor: 526 g (18.6 oz) Cable: 180 g (6.5 oz) Mote: 226 g (7.97 oz)
Materials	Sensor: Polycarbonate housing encasing epoxy sealed circuit board Cable: Polyurethane Mote: PCPBT, silicone rubber seal
Environmental Rating	Mote: IP67, NEMA 6

*Soil-specific calibration requires user post-processing in a spreadsheet program such as Microsoft® Excel® or a utility and connector as recommend by RioT Technology Corp., manufacturer of GroPoint sensors. Refer to "Performing a Soil-Specific Calibration" in the [manual](#) for details.

