

RXW-T21-XXX

HOBOnet T21 Soil Water Potential/Temp Sensor



Discontinued

A wireless sensor that works with the HOBOnet system to measure soil temperature and soil water potential; long-lasting and maintenance-free.

Important Information

A complete 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 (RXW-RPTR-xxx or RXW-RPTR-B-xxx) can be added to extend the range.

Supported Measurements

Soil Moisture, Soil Temperature, Soil Water Potential

Features

Sensor Features

- Soil water potential and soil temperature measurements with one device
- A more accurate picture of the amount of water available to plants than volumetric water content sensors
- No calibration required for soil type or salinity
- Long-lasting and maintenance-free with durable epoxy construction
- Wide measurement range: -9 to -2000 kPa

Wireless Features

- 900 MHz 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 HOBOnet 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 T21 Soil Water Potential/Temp Sensor
- 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

Onset Computer Corporation
470 MacArthur Boulevard
Bourne, MA 02532

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

HOBOnet T21 Soil Water Potential/Temp Sensor (RXW-T21-xxx) Specifications

Water Potential

Measurement Range	-2,000 to -9 kPa in soils up to 10 dS/m
Accuracy*	±10% of reading + 2 kPa from -100 to -9 kPa
Resolution	0.1 kPa
Dielectric Measurement Frequency	70 MHz

Temperature

Measurement Range	-40 to 60°C (-40 to 140°F)
Accuracy	±1°C (1.8°F)
Resolution	0.1°C (0.18°F)

Wireless Mote

Operating Temperature Range	Sensor: -40 to 60°C (-40 to 140°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-T21-900: 904–924 MHz RXW-T21-868: 866.5 MHz RXW-T21-921: 921 MHz RXW-T21-922: 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	1 minute to 18 hours
Number of Channels	3
Battery Type/ Power Source	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)
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 lithium batteries: 1 year, typical use
Memory	16 MB
Dimensions	Sensor: 9.6 x 3.5 x 1.5 cm (3.8 x 1.4 x 0.6 inches) Sensor diameter: 3.2 cm (1.3 inches) 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)

Weight RXW-T21-xxx sensor and cable: 103 g (3.65 oz)
Mote: 223 g (7.87 oz)

Materials Sensor: Vinyl body with polyurethane resin, stainless steel and ceramic sensor head
Cable: PVC, UV resistant and rodent repellent
Mote: PCPBT, silicone rubber seal

Environmental Rating Mote: IP67, NEMA 6

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RXW-T21-900

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RXW-T21-868

Compliance Marks



RXW-T21-921



RXW-T21-922

* The sensor is not well calibrated beyond -100 kPa. For more information on using the sensor beyond this range, see Sensor Accuracy and Calibration.

** Temperature measurement, for applicable sensors, may not be accurate if sensor is not fully immersed in medium of interest, due to longer equilibration time.