

RXW-LIA-xxx Sensor

HOBOnet PAR Sensor

The HOBOnet Wireless Photosynthetic Active Radiation (PAR) Sensor measures light intensity for frequencies relevant to photosynthesis. 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.

Supported Measurements:

Light Intensity and PAR

Key Advantages:

Sensor Features

- Measurement range of 0 to 2500 $\mu\text{mol}/\text{m}^2/\text{sec}$ over wavelengths from 400 to 700 nm
- Enclosed in an anodized aluminum housing with acrylic diffuser

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 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






RXW-LIA-xxx Sensor Specifications

Sensor

Measurement Range	0 to 2500 mol/m ² /sec, wavelengths 400 to 700 nm
Accuracy	±5 mol/m ² /sec or ± 5%, whichever is greater in sunlight; Additional temperature induced error ±0.75 mol/m ² /sec/°C from 25°C (0.42 mol/m ² /sec/°F from 77°F)
Angular Accuracy	Cosine corrected 0 to 80 degrees from vertical; Azimuth Error <2% error at 45 degrees from vertical, 360 degree rotation
Resolution	2.5 mol/m ² /sec
Drift	<±2% per year

Wireless Mote

Operating Temperature Range	-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-LIA-900: 904–924 MHz RXW-LIA-868: 866.5 MHz RXW-LIA-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	50 motes per one RX Wireless Sensor Network
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 Deployment and Mounting), operation outside this range will reduce the battery service life With lithium batteries: 1 year, typical use
Memory	16 MB
Dimensions	Sensor: 4.1 cm height x 3.2 cm diameter (1.61 x 1.26 inches) Cable length: 2 m (6.56 ft) Mote: 16.2 x 8.59 x 4.14 cm (6.38 x 3.38 x 1.63 inches)
Weight	Sensor and cable: 109 g (3.85 oz) Mote: 223 g (7.87 oz)
Materials	Sensor: Anodized aluminum housing with acrylic diffuser and O-ring seal Mote: PCPBT, silicone rubber seal
Environmental Rating	Sensor: Weatherproof Mote: IP67, NEMA 6
Compliance Marks	 RXW-LIA-900  RXW-LIA-868  RXW-LIA-922

RXW-LIB-xxx Sensor

HOBOnet Solar Radiation (Silicon Pyranometer) Sensor

The HOBOnet Wireless Solar Radiation (Silicon Pyranometer) Sensor is calibrated to measure light intensity for frequencies relevant for solar radiation. 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.



Supported Measurements:

Evapotranspiration, Light Intensity and Solar Radiation

Key Advantages:

Sensor Features

- Measurement range of 0 to 1280 W/m² over a spectral range of 300 to 1100 nm
- Enclosed in an anodized aluminum housing with acrylic diffuser and O-ring seal




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 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

Sensor

Measurement Range	0 to 1280 W/m ²
Spectral Range	300 to 1100 nm
Accuracy	Typically within ±10 W/m ² or ±5%, whichever is greater in sunlight; Additional temperature induced error ±0.38 W/m ² /°C from 25°C (0.21 W/m ² /°F from 77°F)
Angular Accuracy	Cosine corrected 0 to 80 degrees from vertical (see Plot B); Azimuth Error <±2% error at 45 degrees from vertical, 360 degree rotation
Resolution	1.25 W/m ²
Drift	<±2% per year

Wireless Mote

Operating Temperature Range	-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-LIB-900: 904–924 MHz RXW-LIB-868: 866.5 MHz RXW-LIB-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	50 motes per one RX Wireless Sensor Network
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 Deployment and Mounting), operation outside this range will reduce the battery service life With lithium batteries: 1 year, typical use
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Compliance Marks	 RXW-LIB-900  RXW-LIB-868  RXW-LIB-922