

PAR AND NARROW-BAND LOGGERS



HIGH PERFORMANCE,
LONG DEPLOYMENTS

The RBRsolo³ PAR and RBRsolo³ rad logging radiometers feature a wide dynamic range, optimized cosine response, and excellent low-light detection, making them ideal for both moored and profiling applications. Both instruments feature a rugged, low-power design that allows for long deployments with a single AA battery.

FEATURES



The following configurations are available:

- ▶ RBRsolo³ PAR photosynthetically active radiation, uniform response between 400nm and 700nm, depths up to 1000m
- ▶ RBRsolo³ PAR|deep photosynthetically active radiation, uniform response between 400nm and 700nm, depths up to 2000m
- ▶ RBRsolo³ rad narrow-band radiation, variety of narrow-band channels, depths up to 1000m
- ▶ RBRsolo³ rad|deep narrow-band radiation, variety of narrow-band channels, depths up to 2000m

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The RBRso/o³ PAR provides uniform response to light in the PAR spectral range, while the RBRso/o³ rad is available in a variety of wavebands. Large storage capacity and reliable battery power facilitate long deployments with higher sampling rates. Downloads are quick with USB-C. A dedicated desiccant holder makes it simple to replace desiccant before each deployment. The calibration coefficients are stored with the instrument, and only one software tool, Ruskin, is required to operate it. Datasets can be read directly in Matlab, or exported to Excel, OceanDataView®, or text files.

Specifications

Physical

Storage	~130 million readings
Power	An AA cell (alkaline or lithium iron)
Communication	USB-C
Clock drift	±60 seconds per year
Diffuser	Acrylic
Housing	Plastic or titanium
Diameter	~25mm
Length	~250mm
Depth rating	
Plastic	1000m (plastic)
Ti	2000m (Ti)
Weight	
Plastic	140g in air, 15g in water
Ti	320g in air, 195g in water
Sampling rate	Up to 16Hz

Power consumption

Sampling	12mJ per sample (1Hz or slower) 6mA/22mW (2Hz or faster)
Sleep current	10µA

Deployment estimates

Sampling rate	Time	# samples
10s	140 days	~1.2 million
8Hz	7 days	~5 million

Optical radiometry

Dynamic range	>5.5 decades
Absolute calibration ¹	±5%
Linearity	±1%
Operating temperature range	-5°C to 35°C
Cosine response error (water)	±5% at 0-60°C, ±10% at 61-82°C
Azimuth error (water)	±1.5% at 45°C
Out-of-band rejection ²	>25dB (typical), OD 2.5

¹ RBR calibrates radiometers with NIST traceable references.

² Out-of-band rejection is wavelength-dependent for narrow-band radiometers.

Photosynthetically active radiation

Wavelength range	400nm to 700nm
Full scale range	0-5000µmol/m ² /s (minimum)
Resolution	±0.010µmol/m ² /s

Narrow-band wavelength channels

Centre wavelengths (CWL)	380 / 413 / 445 / 475 / 488 / 508 / 532 / 560nm
Full width at half-maximum	10nm (25nm for CWL 475nm)
Full scale range	0-400µW/cm ² /nm (minimum)

³ Other CWL options within the 300-1100nm range are available upon request. Contact RBR for more information.

⁴ Resolution is wavelength-dependent for narrow-band radiometers.

Note: Dark offset is internally temperature-compensated.



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