RBR
MEASURE THE BLUE PLANET

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RBR*solo*³ PAR, RBR*solo*³ rad

PAR AND NARROW-BAND LOGGERS

HIGH PERFORMANCE, LONG DEPLOYMENTS

The RBR*solo*³ PAR and RBR*solo*³ 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

- Long deployments
- High accuracy
- Wide dynamic range
- Any AA battery
- USB-C download
- Compact and lightweight

The following configurations are available:

- RBR*solo*³ PAR — photosynthetically active radiation, uniform response between 400nm and 700nm, depths up to 1000m
- RBR*solo*³ PAR|deep — photosynthetically active radiation, uniform response between 400nm and 700nm, depths up to 2000m
- RBR*solo*³ rad — narrow-band radiation, 10nm- and 25nm-wide wavelength channels from 413nm to 560nm, depths up to 1000m
- RBR*solo*³ rad|deep — narrow-band radiation, 10nm- and 25nm-wide wavelength channels from 413nm to 560nm, depths up to 2000m

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The RBR*solo*³ PAR provides uniform response to light in the PAR spectral range, while the RBR*solo*³ 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	Any AA cell
Communication	USB-C
Clock drift	±60 seconds per year
Diffuser	Acrylic
Housing	Plastic or titanium
Diameter	~25mm
Length	~250mm
Depth rating	1000m (plastic), 2000m (Ti)
Weight	140g in air, 15g in water (plastic) 320g in air, 195g in water (Ti)
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

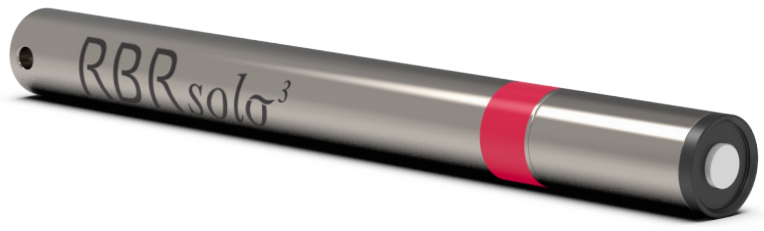
Wavelength range	400nm to 700nm
Full scale range	0-5000µmol/m²/s (minimum)
Initial offset error[1]	±0.125µmol/m²/s
Resolution	±0.010µmol/m²/s

[1] Dark offset is internally temperature-compensated.

Narrow-band wavelength channels

Centre wavelengths (CWL)	413 /445 /475 /488 /508 /532 /560nm
Accuracy	±3nm (for all CWLs except 475nm) ±5nm (for CWL 475nm only)
Full width at half-maximum	10nm (for all CWLs except 475nm) 25nm (for CWL 475nm only)
Full scale range	0-400µW/cm²/nm (minimum)
Initial offset error[1]	±0.010µW/cm²/nm
Resolution[2]	±0.001µW/cm²/nm

[1] Dark offset is internally temperature-compensated.
[2] Resolution is wavelength dependent for narrow-band radiometers.



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