

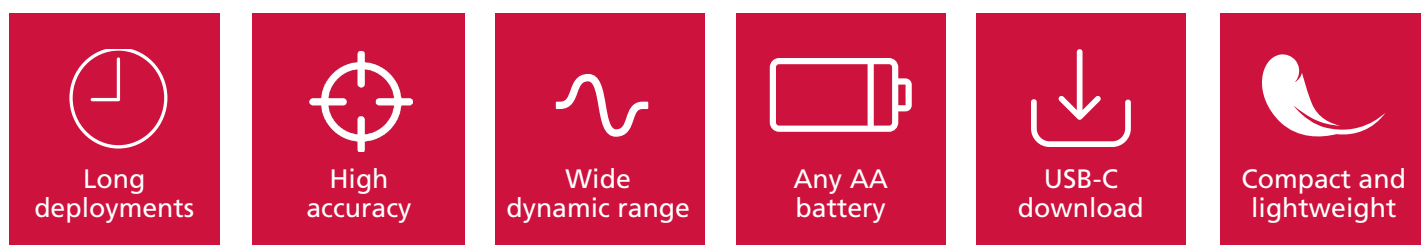
## PAR AND NARROW-BAND LOGGERS



HIGH PERFORMANCE,  
LONG DEPLOYMENTS

The RBRsolo<sup>3</sup> PAR and RBRsolo<sup>3</sup> 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:

- ▶ RBRsolo<sup>3</sup> PAR photosynthetically active radiation, uniform response between 400 and 700nm, depths up to 1000m
- ▶ RBRsolo<sup>3</sup> PAR|deep photosynthetically active radiation, uniform response between 400 and 700nm, depths up to 2000m
- ▶ RBRsolo<sup>3</sup> rad narrow-band radiation, 10nm- and 25nm-wide wavelength channels from 413nm to 560nm, depths up to 1000m
- ▶ RBRsolo<sup>3</sup> rad|deep narrow-band radiation, 10nm- and 25nm-wide wavelength channels from 413nm to 560nm, depths up to 2000m

## PAR AND NARROW-BAND LOGGERS

### HIGH PERFORMANCE, LONG DEPLOYMENTS

The RBRsolo<sup>3</sup> PAR provides uniform response to light in the PAR spectral range, while the RBRsolo<sup>3</sup> 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

Power	Any AA cell
Communication	USB-C
Clock drift	±60 seconds per year
Diameter	~25mm
Length	~250mm
Depth rating	1000m (plastic) 2000m (Ti)
Weight (air)	140g (plastic), 320g (Ti)
Weight (water)	15g (plastic), 195g (Ti)

#### Power consumption

≤1Hz sampling	14mJ per sample
≥2Hz sampling	25mW
Sleep power	<36µW

#### Deployment estimates

Sampling rates	24hr to 1s, 2Hz, 4Hz, 8Hz, 16Hz		
Autonomy	Speed	Time	# samples
	10s	140 days	~1.2 million
	8Hz	7 days	~5 million

#### Radiometer

Initial offset error <sup>1</sup>	±0.0025% full scale
Resolution <sup>2</sup>	±0.0002% full scale
Dynamic range	>5.5 decades
Absolute calibration <sup>3</sup>	±5%
Linearity	±1%
Time constant	<5ms
Operating temperature range	-5°C to 35°C
Gain temperature dependence	±0.15%/°C
Cosine response error (water)	±5% at 0-60°, ±10% at 61-82°
Azimuth error (water)	±1.5% at 45°
Out-of-band rejection <sup>2</sup>	>25dB (typical), OD 2.5

#### Photosynthetically active radiation

Wavelength range	400 to 700nm
Full scale range	0-5000µmol/m <sup>2</sup> /s (minimum)
Initial offset error <sup>1</sup>	±0.125µmol/m <sup>2</sup> /s
Resolution	±0.010µmol/m <sup>2</sup> /s

#### Narrow-band wavelength channels

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

<sup>1</sup> Dark offset is internally temperature-compensated.

<sup>2</sup> Out-of-band rejection and resolution are wavelength dependent for narrow-band radiometers.

<sup>3</sup> RBR calibrates radiometers with NIST traceable references.



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