







PAR AND NARROW-BAND RADIOMETERS



LOW POWER,
HIGH PERFORMANCE

The RBRcoda³ PAR and RBRcoda³ rad optical radiometers feature a wide dynamic range, optimized cosine response, and excellent low-light detection, making them ideal for both moored and profiling applications. The sensors are easy to integrate into any RBR multi-parameter instrument, or connect directly via RS-232.

FEATURES

 <p>Low power consumption</p>	 <p>High accuracy</p>	 <p>Wide dynamic range</p>	 <p>Depths up to 2000m</p>	 <p>RS-232 output</p>	 <p>Compact and lightweight</p>
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Realtime streaming sensor configurations:

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|---------------------------------|---|
| ▶ RBRcoda ³ PAR | photosynthetically active radiation, 400-700nm, depths up to 1000m |
| ▶ RBRcoda ³ PAR deep | photosynthetically active radiation, 400-700nm, depths up to 2000m |
| ▶ RBRcoda ³ rad | narrow-band radiation, channels from 413nm to 560nm, depths up to 1000m |
| ▶ RBRcoda ³ rad deep | narrow-band radiation, channels from 413nm to 560nm, depths up to 2000m |

The RBRcoda³ PAR sensor provides uniform response to light in the PAR spectral range, while the RBRcoda³ rad is available in a variety of narrow-band light channels and channel widths.

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Specifications

Physical

Connector	MCBH-6-MP
Diameter	~25mm
Length	~270mm (standard)
Depth rating	1000m (plastic) 2000m (Ti)
Weight (air)	170g (plastic) 330g (Ti, standard)
Weight (water)	40g (plastic) 200g (Ti, standard)

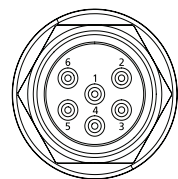
Power

Supply voltage	6 to 18V (12V nominal)
≤2Hz sampling	77 mJ/sample
>2Hz sampling	15mA/180mW at 12V

Interface

RS-232 polled or autonomous streaming

MCBH-6-MP connector pinout



- ▶ Pin 1 - Ground
- ▶ Pin 2 - Power
- ▶ Pin 3 - Serial data from sensor
- ▶ Pin 4 - Serial data to sensor
- ▶ Pin 5 - N/C
- ▶ Pin 6 - N/C

Sensor pack variants

Sensor pack variants of RBRcoda³ PAR and RBRcoda³ rad are available to integrate with RBR standard instruments.

Radiometer

Initial offset error ¹	±0.0025% full scale
Resolution ²	±0.0002% full scale
Dynamic range	>5.5 decades
Absolute calibration ³	±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 ²	>25dB (typical), OD 2.5

Photosynthetically active radiation

Wavelength range	400 to 700 nm
Full scale range	0-5000µmol/m ² /s (minimum)
Initial offset error ¹	±0.125µmol/m ² /s
Resolution	±0.010µmol/m ² /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 ² /nm (minimum)
Initial offset error ¹	±0.010µW/cm ² /nm
Resolution ²	±0.001µW/cm ² /nm

¹ Dark offset is internally temperature-compensated.

² Out-of-band rejection and resolution are wavelength dependent for narrow-band radiometers.

³ RBR calibrates radiometers with NIST traceable references.



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