

THREE-CHANNEL FLUORESCENCE AND BACKSCATTER SENSOR



LOW POWER,
HIGH DYNAMIC RANGE

The RBRtridente³ is an optical sensor with three channels, capable of making multiple fluorescence and backscatter measurements simultaneously. Its high dynamic range permits exposure to full sunlight with very low detection limits, while power consumption and depth rating have been tailored for use in a wide variety of applications.

FEATURES



Low power consumption



High accuracy



High dynamic range



Depths up to 6000m



RS-232 output



Compact and lightweight

The following channels are available in the RBRtridente³:

- ▶ chlorophyll a
- ▶ fDOM
- ▶ backscatter
- ▶ turbidity

The RBRtridente³ supports measurement of chlorophyll a, fDOM, and backscatter or turbidity within the same sensor package. Tolerant of a wide ranging power supply, data are streamed via RS-232 on the MCBH-6-MP connector. A variety of adaptors make it easy to integrate into existing vehicle payload bays. Synchronous detection and automatic gain control make it tolerant of full sunlight exposure while still permitting high-resolution measurements of very small signals.

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Specifications

Physical

Connector	MCBH-6-MP
Depth rating	6000m
Housing	Titanium
Diameter	63mm
Length	57mm, 93mm (with connector)
Weight	400g (in air), 210g (in water)
Temperature range	-5°C to +35°C

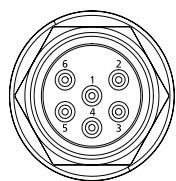
Power

Supply voltage	4.5V to 30V (12V nominal)
Sampling	20mJ/sample (1Hz)
Power consumption	32mA at 12V
Sleep current	10µA 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



Optical

Centroid angle	120°
Sensing volume	~1.3mL
Linearity, R ²	0.99
Calibration accuracy	5%

Chlorophyll a

Channel wavelength (excitation/emission)	470nm/695nm
Range	0-250µg/L
Detection limit	0.01µg/L

fDOM

Channel wavelength (excitation/emission)	365nm/450nm
Range	0-500ppb
Detection limit	0.004ppb

Backscatter

Channel wavelength	700nm
Range	0-5m ⁻¹
Detection limit	1x10 ⁻⁴ m ⁻¹

Turbidity

Channel wavelength	700nm
Range	0-500FTU
Detection limit	0.001FTU

Instrument integration

The RBRtridente³ can be easily added to any RBR instrument alongside the CTD and other sensors.

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