

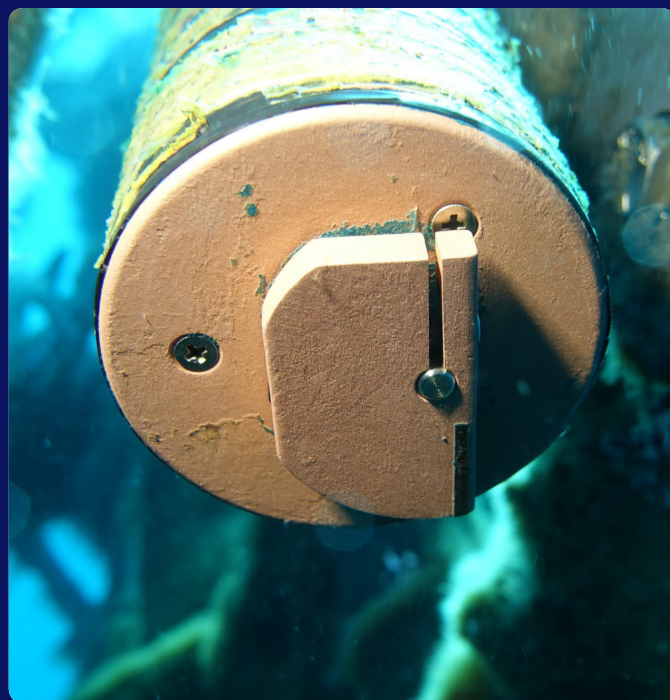
## ECO FLbb

### Fluorometer and Scattering Meter

Sea-Bird Scientific offers the Environmental Characterization Optics (ECO) series of in-situ fluorometers and backscattering instruments that incorporate a common set of options with a single basic design to make them ideal for a wide variety of environments.

The ECO FLbb/FLntu fluorometer and backscattering instrument co-locates blue (470 nm) and red (700 nm) LEDs. The blue LED stimulates chlorophyll fluorescence in plants while the red light illuminates the total particle field. By alternately flashing the LED's at 1.4 Kilohertz the ECO FLbb/FLntu maximizes data coherence between these most common measurements of phytoplankton and particle concentration.

The instrument is available with a backscattering (FLbb) and/or turbidity (FLntu) calibrations.



## Features

- Combines two biogeochemical measurements into one instrument
- Combines unparalleled fluorescence sensitivity with market leading optical backscattering
- Multiple ranges available to tailor the instrument response to the environment
- User controlled data averaging for assessment of chlorophyll and particle concentration variability
- Digital and analog output for integration into analog CTD packages or serial data streams
- Provides excellent precision and reliability at a fraction of the size and cost of similar instruments

## Optical

Fluorometer EX/EM	470/695 nm
Chlorophyll sensitivity	0.015 µg/l
Fluorescence range	0 - 30 µg/l
Linearity	99% R <sup>2</sup>
Backscattering wavelength	700 nm
Backscattering sensitivity*	0.0015 m <sup>-1</sup>
Backscattering range*	0 - 3 m <sup>-1</sup>
Linearity	99% R <sup>2</sup>

## Electrical

Digital output resolution	12 bit
RS-232 output	19200 baud
Connector	MCBH-6-MP
Input	7-15 VDC
Data output rate	8 Hz
Operating current typical	60 mA
Operating current max.	140 µA

## Mechanical

Diameter	6.3 cm
Length	12.7 cm (standard) / 17.78 cm (deep)
Weight in air	0.4 kg (standard) / 1.3 kg (deep)
Weight in water	0.02 kg (standard) / 0.75 kg (deep)
Materials	Acetal copolymer (standard) Titanium (deep)

## Options\*

**FLbb(RT)**— Analog and RS-232 serial output with 4,000-count range. Unit operates continuously when power is supplied.

**FLbb(RT)D**— Provides the capabilities of the FLbb(RT) with 6,000-meter depth rating.

**FLbbB**—The capabilities of the FLbb with internal batteries and memory for autonomous operation.

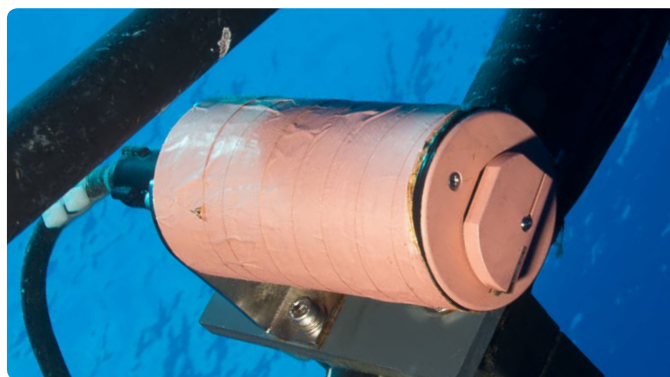
**FLbbS**—The capabilities of the FLbb with an integrated anti-fouling Bio-wiper™.

**FLbbSBS**—The capabilities of the FLbb with internal batteries for autonomous operation.

**FLbb2k**—Designed for float applications but can be use for applications down to 2000m

## Environmental

Calibrated Temperature Range	-2 to 30°C
Working Temperature Range	-10 to 50°C
Storage Temperature Range	-20 to 70°C
Depth rating standard	600 m
Depth rating with wiper*	300 m
Depth rating deep	6000 m



\*The limit depth for ECO with Anti-fouling Bio-wiper™ and Internal Batteries (models B, S and SB) rated to 300 m.