

ECO FL

Fluorescence sensor

The Environmental Characterization Optics (ECO) series of single channel fluorometers delivers both high resolution and wide ranges across our entire line of parameters using 14 bit digital processing. The ECO series excels in biological monitoring and dye trace studies. The potted optics block results in long term stability of the instrument and the optional anti-biofouling technology delivers truly long term field measurements.

ECO FL fluorometers measure fluorescence from chlorophyll-a, FDOM, uranine, rhodamine, and phycocyanin and phycoerythrin.

Chlorophyll-a fluorescence is an indicator of active phytoplankton biomass and chlorophyll concentrations. This measurement is used for tracking biological variability and abundance in the water column.

Fluorescent Dissolved Organic Matter (FDOM) ECO allows you to obtain FDOM fluorescence across a wide range of environments, from mangrove swamps to oligotrophic blue water.

Uranine (fluorescein) and rhodamine: The ideal combination of linearity, sensitivity and range for dye studies. Detection limits in parts per trillion allows for precise patch determination and first arrival timing as well as reducing the necessary initial dye concentration.

ECO phycobilin fluorometers have the high resolution necessary for early detection of either blue-green (**phycocyanin**) or brown (**phycoerythrin**)



Features

- Analog and digital output
- Analog scaling to maximize analog resolution
- Optional integrated Bio-wiper™ and copper faceplate for antifouling
- Optional internal batteries and memory; 100K + samples
- Full ocean depth model available

Optical

Chlorophyll-a ex/em: Sensitivity Range	470/695 nm 0.02 Ag/l 0–125 Ag/l
CDOM: Sensitivity Range	ex/em: 370/460 nm 0.09 ppb 0–500 ppb
Uranine: Sensitivity Range	ex/em: 470/530 nm 0.05 ppb 0–400 ppb
Rhodamine:	ex/em: 540/570 nm
Phycocerythrin:	ex/em: 540/570 nm
Phycocyanin: Sensitivity Range	ex/em: 630/680 0.03 ppb 0–230 ppb
Linearity (all)	99% R ²

Environmental

Temperature Range	0–30 °C
Depth Rating*	600 m (std) 6000 m (deep)

Mechanical

Diameter	6.3 cm
Length	12.7 cm
Weight in air	0.4 kg
Weight in water	0.02 kg
Materials	Acetal copolymer

Options*

- **FL(RT)** Provides analog or RS-232 serial output with 16,300-count (approximate) range. “Real Time” instruments provide continuous operation when powered.
- **FL(RT)D** Provides the capabilities of the FL(RT) with 6,000-meter depth rating.
- **FLS** Provides the capabilities of the FL with an integrated anti-fouling Bio-wiper™.
- **FLB** Provides the capabilities of the FL with internal memory and batteries for autonomous operation.
- **FLSB** Provides the capabilities of the FLS with internal memory and batteries for autonomous operation.

Electrical

Digital output resolution	14 bit
Internal data logging	Optional
Internal batteries	Optional
Connector	MCBH6MP
Input	7–15 VDC
Current, typical	50 mA
Current, sleep	140 µA
Data memory	108,000 samples
Sample rate	User selectable to 8 Hz
RS-232 output	19200 baud
Analog output signal	0–5 V
Anti-fouling Bio-wiper™	Optional*
Current, Bio-wiper™ cycle	140 mA

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