

WET Labs manufactures a line of optical tools for determination of bio-optical and physical parameters within natural waters. These instruments are designed as a modular suite of sensors with special features for specific application support. The *Environmental Characterization Optics (ECO)* series incorporates a common set of options with a single basic design to make the sensors ideal for a wide variety of deployments. Features include:

- Compact size
- Integrated self-logging
- Configurable output
- High precision and stability
- Optional integrated anti-fouling

WET Labs, Inc. produces a single-angle sensor for determination of optical backscattering. Based upon recent work by Drs. Emmanuel Boss and Scott Pegau of Oregon State University\*, the ECO BB measures scattering at 117 degrees. This angle was determined as a minimum convergence point for variations in the volume scattering function (VSF) induced by suspended materials and water itself. As a result, the signal measured by this meter is less determined by the type and size of the materials in the water, and is more directly correlated to the concentration of the materials. Conversely, the meter provides unparalleled accuracy, for any single-angle measurement, in determining the optical backscattering coefficient—an important parameter for remote sensing and in-water bio-optical applications.



**New!**

**Now available  
with turbidity  
(NTU) calibration!**

\*E. Boss and W. S. Pegau, "Relationship of light scattering at an angle in the backward direction to the backscattering coefficient," *Applied Optics*. **40**(30):5503–5507 (2001).

## Specifications

**ECO BB(RT)**—Provides analog or RS-232 serial output with 4,000-count range. This unit provides continuous operation when power is supplied.

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

**ECO BB**—(Standard configuration) Provides the capabilities of the BB(RT) with periodic sampling.

**ECO BBB**—Provides the capabilities of the BB with internal batteries for autonomous operation.

**ECO BBS**—Provides the capabilities of the BB with an integrated anti-fouling *Bio-wiper*<sup>™</sup>.

**ECO BBSB**—Provides the capabilities of the BBS with internal batteries for autonomous operation.

Mechanical		Electrical	
<i>Diameter</i>	6.3 cm (std)	<i>Digital output resolution</i>	12 bit
<i>Length</i>	12.7 cm (std)	<i>RS-232 output</i>	19200 baud
<i>Length</i>	17.68 cm (deep)	<i>Analog output signal</i>	0–5 V
<i>Weight in air</i>	0.4 kg (std)	<i>Internal data logging</i>	optional
<i>Weight in air</i>	1.3 kg deep	<i>Internal batteries</i>	optional
<i>Weight in water</i>	0.02 kg (std)	<i>Connector</i>	MCBH6MP
<i>Weight in water</i>	0.75 kg (deep)	<i>Input</i>	7–15 VDC
<i>Pressure housing</i>	Acetal copolymer (std)	<i>Current, typical</i>	50 mA
<i>Pressure housing</i>	Titanium (deep)	<i>Current, sleep</i>	140 $\mu$ A
		<i>Data memory</i>	108,000 samples
		<i>Sample rate</i>	to 8 Hz
		<i>Anti-fouling Bio-wiper</i> <sup>™</sup>	optional
		<i>Bio-wiper</i> <sup>™</sup> cycle	140 mA
Optical		Environmental	
<i>Wavelength</i>	470, 532, 650 nm	<i>Temperature range</i>	0–30 deg C
<i>Sensitivity, 470</i>	0.003 m <sup>-1</sup>	<i>Depth rating</i>	600 m (std)
<i>Sensitivity, 532</i>	0.003 m <sup>-1</sup>	<i>Depth rating</i>	6000 m (deep)
<i>Sensitivity, 650</i>	0.003 m <sup>-1</sup>	<i>Pressure/temperature sensor</i>	optional
<i>Range</i>	~ 0–5 m <sup>-1</sup>		
<i>Linearity</i>	99% R <sup>2</sup>		

*Specifications subject to change without notice.*