



BB9

WET Labs' popular *Environmental Characterization Optics (ECO)* series tools determine 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 *ECO* series incorporates a common set of options with a single basic design to make the sensors ideal for a wide variety of deployments.

The new ECO BB9 is a flexible sensor system for measuring optical backscattering at nine wavelengths. The BB9 was developed to compliment the WET Labs family of spectral attenuation and absorption meters: the ac-9 and the new ac-s. Based on the successful line of ECO BB sensors, the BB9 uses a centroid angle of 117 degrees, which minimizes the error in extrapolating to the total backscattering coefficient¹. As part of an IOP package, the combination of a BB9, an ac-s and an ac-9 equipped with a 0.2 μm filter can define a, b and c: the inherent optical properties of the water column.



The BB9 is designed as a flexible system. The BB9 can be customized with any of the ECO line of optical configurations. For example, scattering can be measured at seven wavelengths as well as CDOM and chlorophyll fluorescence. See the Triplet specifications sheet for details on the available options. Further customization of the instrument is possible with pressure and temperature sensors to provide a stand-alone profiling tool.

1. 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).



BB 9 Specifications

Mechanical	
<i>Diameter</i>	14.6 cm
<i>Length</i>	30.5 cm
<i>Weight in air</i>	3.1 kg
<i>Weight in water</i>	1.8 kg buoyant

Electrical	
<i>Input</i>	7–15 VDC
<i>Current draw</i>	300 mA @12 volts
<i>Serial output</i>	RS-232 or 485
<i>Connector</i>	MCBH6M
<i>Sample rate</i>	1 Hz

Optical		
<i>Wavelengths (nm) and Sensitivity</i>	412:	2.44×10^{-5}
	440:	2.60×10^{-5}
	488:	2.14×10^{-5}
	510:	1.81×10^{-5}
	532:	7.70×10^{-6}
	595:	1.02×10^{-5}
	660:	3.79×10^{-6}
	676:	3.60×10^{-6}
	715:	3.20×10^{-6}
<i>Range, typical</i>	~ 0.0024–5 m ⁻¹	
<i>Linearity</i>	≥ 99% R ²	

Environmental	
<i>Temperature range</i>	0–30 deg C
<i>Depth rating</i>	600 m

Specifications subject to change without notice.



ECO BB9

Specifications Sheet

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Revision History

Revision	Date	Revision Description	Originator
Draft	10/7/04	New spec sheet	H. Van Zee, I. Walsh
A	10/13/04	Approved spec sheet (DCR 432)	H. Van Zee, I. Walsh
B	4/5/05	Revise available wavelength options (DCR 463)	H. Van Zee, I. Walsh
C	4/28/05	Update depth specification (DCR 466)	H. Van Zee
D	9//26/06	Update specifications (DCR 507)	M. Johnson