

ECO-VSF 3

Optical Backscattering Sensor

The angular distribution of scattered radiation in the backward hemisphere is important in the interpretation of remote sensing measurements, investigations of particle shape, and models of visibility in seawater. The ECO-VSF 3 measures the optical scattering at three distinct angles: 100, 125, and 150 degrees, and at wavelengths of 450, 530, and 650 nm, thus providing the shape of the Volume Scattering Function (VSF) throughout its angular domain. Motivated by the need to better understand the relationship of water leaving radiance with the backscattering into the same direction, the three-angle measurement allows determination of specific angles of backscattering through interpolation. Conversely, it also can provide the total backscattering coefficient by integration and extrapolation from 90 to 180 degrees. The sensor employs three transmitters coupled to a single receiver to obtain its measurements.

Specifications

Mechanical

Diameter: 5.75 in (14.6 cm)

Length: 12 in (30.5 cm)

Weight in air: 6.9 lbs (3.1 kg);

in water, approx. 4.1 lbs (1.8 kg) buoyant

Material: Acetron/ABS

Environmental

Temperature Range: 0–30 deg C

Depth Rating: 600 m

Electrical

Digital Output: Yes

Connector: Subcon MCBH6M

Input Voltage: 7–15 VDC

Current, Typical: 250 ma @ 12 volts

Output RS-232/RS-485

Sample Rate: 1 Hz

Data Memory: 5000 samples

Optical

Wavelength (factory set): 450/530/650 nm

Sensitivity, min: 0.005 m^{-1}

Range, Typical: $0\text{--}5 \text{ m}^{-1}$ (b)

Linearity, min: 99% R^2

