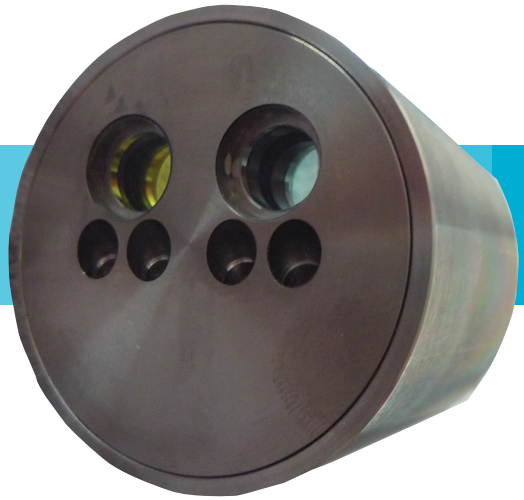
seabird.com | sales@seabird.com | +1 425-643-9866

SeaOWL UV-A™

SEA OIL-IN-WATER LOCATOR



Overview

Sea-Bird Scientific introduces SeaOWL UV-A, a new in-situ oil-in-water sensor. Based upon the highly successful ECO sensor, Sea-Bird Scientific has developed an industry leading oil detection technology with 5X optical resolution improvement over its predecessor.

SeaOWL UV-A measures crude oil-in-water using the same UV-A excitation and blue emission wavelengths (370 nm EX/ 460 nm EM) currently used in the ECO CDOM fluorometer. The SeaOWL UV-A improves the resolution and range of the ECO with a greater depth of field, optimized electronics and dynamic gain stage modulation.

The new dynamic gain provides industry leading sensitivity across a large detection range making saturation unlikely in even the most heavily impacted environments.

The compact SeaOWL UV-A design also includes chlorophyll fluorescence and 700 nm backscattering measurements to discriminate crude oil from phytoplankton and other natural sources of FDOM.

Features

Industry-leading optical resolution.

Wide dynamic gain prevents measurement saturation even within heavily impacted environments.

Three parameters in a single sensor: chlorophyll, backscattering, and Fluorescent Dissolved Organic Matter (FDOM).

Backscattering and chlorophyll fluorescence provide discrimination of crude oil from phytoplankton and other natural sources of FDOM.

SeaOWL UV-A™

SEA OIL-IN-WATER LOCATOR

Field Specifications

The specifications below represent the expected performance of the instrument when deployed in the field. Under controlled circumstances in a lab, we would expect the instrument to outperform these specifications.

We have chosen to display field specifications to give our users a true measure of how Sea-Bird Scientific instruments perform in harsh environments and applications. It is critical to keep this in mind when comparing specifications with instruments from other manufacturers.

Optical	
Backscattering Wavelength	700 nm
Backscattering Sensitivity 700 nm[A]	1E-06 m^{-1} sr^{-1}
Backscattering Range700 nm[A]	0-0.04 m^{-1} sr^{-1}
Chlorophyll EX/EM	470/690 nm
Chlorophyll Sensitivity	0.005 µg/l
Chlorophyll Range	0.005–250 µg/l
FDOM EX/EM	370/460 nm
FDOM Sensitivity	0.03 ppb QSDE
FDOM Range	0.03–900 ppb QSDE
Oil Calibration	
Oil Limit of Detection[B]	< 80ppb crude oil
Oil Sensitivity[C]	3 ppb crude oil
Electrical	
Digital Output Resolution	14 Bit
Communication	RS-232
Sample Rate	1 Hz
Connector Style	MCBH(WB)-6MP
Input Voltage	7–15 volts
Current, Typical (@7V)	81 mA
Mechanical	
Diameter	56.6 mm (2.23 in)
Length	54.6 mm (2.15 in)
Weight in Air (approx.)	340 g
Displacement	137 ml
Pressure Housing Material	Titanium 6Al-4V
Environmental	
Temperature Range of Calibration[D]	-2 to 38 °C
Storage Temperature Range	-20 to 50 °C
Depth Rating	2000 m

A) Backscattering specifications are derived from a vicarious calibration with a MCOMS backscattering sensor. Scale factors for backscattering incorporate the target weighting function and the solid angle subtended for the MCOMS optical backscattering sensor. The SeaOWL UV-ATM is highly linear in response to changes in the particle concentration of a specific particle population.

B) The estimated limit of detection (LOD) for the ECO CDOM fluorometer is <300 ppb cruide oil (Conmy et al., 2014), i.e. 30 counts. Using the same count to LOD relationship, LOD for SeaOWL UV-A was derived.

C) Applying the ECO CDOM fluorometer crude oil calibration from Conmy et al., 2014, yields this scale factor.

D) The temperature range through which the instruments are tested for operation. The -2° C minimum covers all natural waters on Earth. Please contact Sea-Bird Scientific for testing to higher temperatures.

SEA-BIRD SCIENTIFIC

seabird.com | sales@seabird.com | +1 425-643-9866