CAMPBELL® SCIENTIFIC
WHEN MEASUREMENTS MATTER

OBS501
Turbidity Probe with Antifouling Features

Ideal for Heavy Sediment Load Environments

Patented* ClearSensor antifouling features, dual backscatter sensors

A shutter on the OBS501 probe is opened (top) only during measurements to reduce fouling of the lens.

Overview

The OBS501 is a submersible turbidity probe with active antifouling capabilities for better measurements in biologically active water with both high and low turbidity. It outputs an SDI-12, digitally processed signal that many of our dataloggers can measure. The OBS501 is similar to the OBS500, but the OBS501 has better mechanical performance in heavy sediment/sand conditions.

Benefits and Features

› Dual backscatter and sidescatter sensors used to measure turbidity
› Patented* ClearSensor Antifouling Method providing better measurements in biologically-active water
› Shutter/wiper mechanism to keep lenses clean
› Refillable biocide chamber for preventing fouling
› Disposable plastic sleeve that facilitates clean up
› Optional copper sleeve for additional protection (especially for sea water) or disposable plastic sleeve facilitates easy cleanup

Technical Description

Design features of the OBS501 include the combination of a backscatter sensor (better at measuring higher turbidity) with a second sidescatter sensor (better at measuring lower turbidity). It has a shutter that is opened only during measurements, which reduces the time that algae or other organisms can cling to its optics.

To prevent biofouling and ensure better measurements, the OBS501 incorporates the ClearSensor Method. This method uses a shutter/wiper mechanism to protect and clean the optics. With the ClearSensor method, a chamber is also filled with a biocide that continuously leaches out over the optics while the probe shutter is in the closed position.

Campbell Scientific offers a disposable, plastic sleeve that can make cleanup a snap, as well as a copper sleeve that can provide additional protection, especially in sea water.

*U.S. Patent No. 8,429,952

Two sleeve options are offered by Campbell Scientific. The three above photographs show the plastic sleeve being removed.

Ordering Information

Turbidity Sensors

OBS501   Smart Turbidity Meter with ClearSensor® Technology (case not included). A cable is needed for datalogger attachment (see below)

Cables for Datalogger Attachment

Several field cable choices are offered for attaching the OBS501 to the datalogger. The cables differ in their length.

27785   OBS501 Field Cable with 5 m (16 ft) length

27786   OBS501 Field Cable with 10 m (32.8 ft) length

27787   OBS501 Field Cable with 20 m (65.6 ft) length

27788   OBS501 Field Cable with 30 m (98.4 ft) length

Accessories

27225   OBS501 Carrying Case (holds 2)

27573   Test Cable with 2 m (6.5 ft) length. Connects sensor to a PC.

31569   OBS501 Copper Sleeve

31570   OBS501 Plastic Sleeve

20915   5-Point Sediment Calibration (must send Campbell Scientific a dry sample of sedimentation from the water that will be monitored)
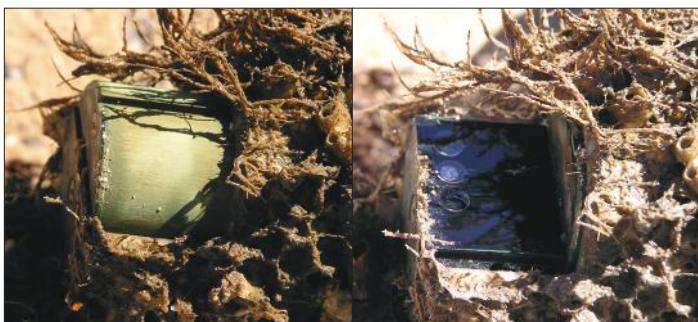
Biological fouling on a closed sensor (far left) and an opened sensor after 86 days of deployment in the Atlantic Ocean near Savannah, Georgia.

Specifications

❯ Dual Probe: 90° sidescatter and backscatter
❯ Range: 0 to 4000 NTU
❯ Active and Passive Antifouling: shutter, wiper, biocide, copper, optional removable sleeve
❯ Accuracy: ±2% of reading or 0.5 NTU (whichever is greater)
❯ Temperature Range: 0° to 40°C
❯ Temperature Accuracy: ±0.3°C
❯ Emitter Wavelength: 850 nm
❯ Power Requirements: 9.6 to 18 Vdc
❯ Measurement Time: < 10 s
❯ Maximum Submersion Depth: 100 m (330 ft)
❯ Diameter: 4.8 cm (1.88 in)
❯ Length: 27 cm (10.63 in)
❯ Weight: 0.59 kg (1.30 lb)
❯ Maximum Cable Length: 107 m (350 ft)

Power Consumption

❯ Quiescent: < 200 µA
❯ Measurement: < 40 mA
❯ Communication: < 40 mA
❯ Maximum Peak Current: 200 mA for 50 ms when shutter motor starts
❯ Active Shutter Motor: < 120 mA

Outputs

❯ SDI-12: version 1.3, 1200 bps
❯ RS-232: 9600 bps
❯ Analog: 0 to 5 Vdc