CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

OBS501

Smart Turbidity Meter with Antifouling Features

Ideal for Fouling Environments

ClearSensor antifouling features, dual backscatter sensors

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 data loggers 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
- ClearSensor antifouling method for better measurements in biologically active water
- Shutter/wiper mechanism keeps lenses clean
- Refillable biocide chamber prevents fouling
- Disposable plastic sleeve facilitates cleanup
- 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.

The OBS501 is constructed to prevent sand grains or packed sediment from getting wedged between the shutter and sensor body, which inhibits the shutter's movement. To do this, the OBS501's shutter and body were designed to eliminate parallel surfaces between moving parts wherever possible. The probe also uses a flushing action that moves the sediment down and out of the cavity behind the shutter.

To prevent biofouling and ensure better measurements, the OBS501 incorporates the ClearSensor Method (U.S. Patent No. 8,429,952. 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. *ClearSensor® and OBS® are registered trademarks of Campbell Scientific.*

The OBS501 can sense if the shutter's motor is working harder than normal. If it is, the shutter moves slightly back and forth to dislodge sand grains before fully opening or closing.

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.

Specifications

Dual Probe	90° sidescatter and backscatter
Measurement 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)
Operating Temperature Range	0° to 40°C
Storage 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.)
Maximum Cable Length	❱ 15 m (50 ft) for RS-232 ❱ 116 m (380 ft) for 1 channel SDI-12 or analog
Length	27 cm (10.63 in.)
Weight	0.59 kg (1.30 lb)

Power Consumption

Quiescent	< 200 µA
Measurement	< 40 mA
Communication	< 40 mA
Active Shutter Motor	< 380 mA

Outputs

SDI-12	Version 1.3, 1200 bps
RS-232	9600 bps, 8 data bits, 1 stop bit, no parity, no flow control
Analog	0 to 5 Vdc

For comprehensive details, visit: www.campbellsci.eu/obs501

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