



## OBS-3+ and OBS300

Turbidity Sensors



# Accurate, Rugged

## Compact, low-power sensors is field-proven

### Benefits and Features

- › Measures suspended solids and turbidity for up to 4000 NTUs
- › Provides a compact, low-power probe that is field proven
- › Compatible with all Campbell Scientific dataloggers
- › Accurate and rugged
- › Stainless-steel body allows use down to 500 m in fresh water
- › Titanium body allows use down to 1500 m in fresh or salt water
- › Fitted with MCBH-5-FS, wet-pluggable connector—multiple mating cable length options available
- › Offers an optional 5-point sedimentation calibration (must send Campbell Scientific a dry sample of sedimentation from the water that will be monitored)

### Overview

The OBS-3+ and OBS300 use OBS® technology to measure suspended solids and turbidity for up to 4000 NTUs. They are submersible sensors. With the stainless steel body, these turbid-

ity sensors can be submerged in fresh water to a depth of 500 meters. With the titanium body, the sensors can be submerged in both fresh and salt water to a maximum depth of 1500 meters.

### Applications

- › Gage rivers and streams
- › Monitor dredging and mining operations
- › Control water quality in settling ponds and tanks
- › Support sediment transport research
- › Provide laboratory measurements

### Technical Details

#### OBS Technology

The OBS3+ and the OBS300 use the innovative OBS method for monitoring suspended sediment and turbidity. With this method, the probe uses its optics to emit a near-infrared light into the water. It

then measures the light that bounces back from the water's suspended particles. If an obstruction is in the emitted light's range, the light will scatter back and the turbidity reading will be too high.

#### Model Description

The OBS-3+ has optics on the side of its body, which allows you to avoid obstructions above or below the probe. The OBS300 has

optics on the end of its body, which allows you to avoid obstructions around the sides of the probe.

#### Channels

Each OBS sensor has two channels—one channel measures the lower turbidity range and the other channel measures the higher turbidity range. When the OBS sensor has a current output, the channel

with the 4-20 mA output measures the lower turbidity range, and the channel with the 0 to 5 V output measures the upper turbidity range.

questions & quotes: 435.227.9120

[www.campbellsci.com/obs-3plus](http://www.campbellsci.com/obs-3plus)



## Ordering Information

### Turbidity Sensors

When ordering an OBS-3+ or OBS300, you must choose a body option, output option, and turbidity option.

**OBS-3+** Turbidity Sensor with optics on side of its body.

**OBS300** Turbidity Sensor with optics at the end of its body.

### Body Options (choose one)

- SB Stainless Steel Body (fresh water only; maximum submersion depth of 500 m)
- TB Titanium Body (fresh or salt water; maximum submersion depth of 1500 m)

### Output Options (choose one)

- 2.5 Supports our CR200(X)-series, CR510, or CR10(X) dataloggers; both channels have an output range of 0 to 2.5 V.
- 5 Supports our CR800, CR850, CR1000, CR3000, CR5000, and CR9000(X) dataloggers; both channels have an output range of 0 to 5 V.
- 20 Low channel has an output range of 4-20 mA, and the high channel has an output range of 0 to 5 V. A CURS100 is required.

### Turbidity Range Options (choose one)

- T1 Measures the lower range of 0 to 250 NTUs or higher range of 0 to 1000 NTUs.
- T2 Measures the lower range of 0 to 500 NTUs or higher range of 0 to 2000 NTUs.
- T3 Measures the lower range of 0 to 1000 NTUs or higher range of 0 to 4000 NTUs.
- T4 Measures the lower range of 0 to 2000 NTUs or higher range of 0 to 4000 NTUs.
- T5 Measures the range of 0 to 4000 NTUs on both channels.

### Cables for Datalogger Attachment

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

- 21094** Cable with 5-m (16 ft) length
- 21307** Cable with 10-m (32 ft) length
- 21308** Cable with 15-m (49 ft) length.
- 21309** Cable with 20-m (66 ft) length.
- 21310** Cable with 25-m (82 ft) length.
- 21311** Cable with 30-m (98 ft) length.

### Mechanical Wipers for the OBS-3+

A wiper can help ensure accurate measurements by preventing algae and other fouling from covering the lens of the OBS-3+.

- HYDRO-WIPER-C** Battery-powered, mechanical wiper with integrated timer and 1 m (3 ft) cable.
- HYDRO-WIPER-D** Datalogger-controlled wiper with a 5-m (16 ft) cable. It uses the datalogger's power supply.
- HYDRO-WIPER-D-L** Datalogger-controlled wiper with user-specified cable length; enter length, in meters, after the -L. A user-specified cable length takes more time to manufacture; delivery time is 4 to 6 weeks. This wiper uses the datalogger's power supply.

### Other Accessories

- 21098** OBS-3+ or OBS300 Carrying Case (holds 2)
- 20915** 5-Point Sedimentation Calibration (must send Campbell Scientific a dry sample of sedimentation from the water that will be monitored)
- CURS100** Current Shunt Module is required for our dataloggers to read a 4-20 mA signal (output option -20)

## Specifications

- › Operating Temperature Range: 0° to 40°C
- › Drift Over Time: <2% per year
- › Maximum Data Rate: 10 Hz
- › Operating Wavelength: 850 nm ±5 nm
- › Minimum Warm-Up Time: 2 s
- › Daylight Rejection: -28 dB (re: 48 mW cm<sup>-2</sup>)
- › Optical Power: 2000 μW
- › Turbidity Accuracy: 2% of reading or 0.5 NTU (whichever is larger)
- › Housing material: 316 stainless steel or titanium
- › Warm Up Time: 2 s
- › Connector: MCBH-5-FS, wet-pluggable
- › Diameter: 2.5 cm (0.98 in)
- › Height  
OBS-3+: 14.1 cm (5.56 in)  
OBS300: 13.1 cm (5.15 in)
- › Weight: 181.4 g (0.4 lb)

### Maximum Depth

- › Stainless-Steel Body: 500 m (1640.5 ft)
- › Titanium Body: 1500 m (4921.5 ft)

### Concentration

	Mud	Sand
<b>Maximum Range*</b>	5,000 mg/l to 10,000 mg/l	50,000 mg/l to 100,000 mg/l
<b>Accuracy</b>	2% of reading or 1 mg/l (whichever is larger)	4% of reading or 10 mg/l (whichever is larger)

### Power

	Voltage Output	Current Output
<b>Input Voltage</b>	5 to 15 Vdc	9 to 15 Vdc
<b>Current Drain</b>	15 mA	45 mA

\*Maximum concentration depends on sediment size, particle shape, and reflectivity.