



## OBS-3A

Turbidity and Temperature Monitoring System



# Accurate, Rugged

## Several sensors in one probe

### Overview

The OBS-3A combines our OBS probe with pressure, temperature, and conductivity sensors in a battery-powered recording instrument. Batteries and electronics are contained in a housing capable of operating at depths of up to 300 meters—depending on the pressure sensor installed.

### Benefits and Features

- › Runs 1,500 to 8,000 hours on three D cells
- › Monitors sediment concentrations up to 5,000 mg/l and turbidity up to 4,000 NTUs
- › Uses the field-proven OBS® technology (U.S. Patent No. 4,841,157) to measure turbidity
- › Logs instrument depth, wave height, wave period, temperature, and salinity
- › Records 200,000 lines of data in flash memory
- › Programs set points and sampling times
- › Offers an optional 5-point sedimentation calibration (must send Campbell Scientific a dry sample of sedimentation from the water that will be monitored)

### Applications

- › Gage rivers and streams
- › Monitor dredging and mining operations
- › Record turbidity at remote sites
- › Support sediment transport research
- › Measure wastewater effluent

### Technical Details

The heart of the OBS-3A monitoring system is an OBS® sensor for measuring turbidity and suspended solids concentrations. This sensor detects near infrared (NIR) radiation scattered from suspended particles. A fast-response, stainless steel-clad thermistor monitors temperature. Pressure is measured with a semiconductor

piezo-resistive strain gage, and conductivity is measured with a four-electrode conduction-type cell. Working depths of the pressure sensor are selected as an option (see Ordering Info). The monitor uses HydroSci software running under Windows® XP, 7, and 8.

questions & quotes: 435.227.9120

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



## Ordering Information

### Turbidity & Temperature Monitoring System

**OBS-3A** Turbidity & Temperature Monitoring System. Must choose a Turbidity Range option (see below). The OBS-3A requires three D-cell batteries. The field cable, mechanical wiper, and carrying case are ordered separately.

### Turbidity Range Options

- N1 Measures the range of 0 to 100 NTUs.
- N2 Measures the range of 0 to 250 NTUs.
- N3 Measures the range of 0 to 500 NTUs.
- N4 Measures the range of 0 to 1000 NTUs.
- N5 Measures the range of 0 to 2000 NTUs.
- N6 Measures the range of 0 to 4000 NTUs.

### Pressure Sensor Options

- NP No pressure sensor
- 10 Orders a pressure transducer that measures depth < 10 m (14 psi).
- 20 Orders a pressure transducer that measures depth < 20 m (28 psi).
- 50 Orders a pressure transducer that measures depth < 50 m (71 psi).
- 100 Orders a pressure transducer that measures depth < 100 m (142 psi).
- 200 Orders a pressure transducer that measures depth < 200 m (284 psi).

### Conductivity Sensor Option

- NS No Conductivity sensor
- CS Orders a conductivity probe that measures the range of 0 to 65 mS/cm.

### Field Cables for Attachment to Computer

Several cable choices are offered for attaching the OBS-3A to a PC. The cables differ in their length.

- 21214** OBS-3A Field Cable with a 10 m (33 ft) length.
- 21318** OBS-3A Field Cable with a 20 m (66 ft) length.
- 21319** OBS-3A Field Cable with a 30 m (98 ft) length.

### Other Accessories

- 21099** OBS-3A 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).
- 425** Alkaline D Cell Battery.

## Specifications

- › Maximum Depth: 300 m (984 ft)
- › Drift Over Time: <2% per year
- › Drift Over Temperature: 0.05% per °C
- › Maximum Sample Size: 2048
- › Sampling Rate when connected to the PC: 1 to 25 Hz
- › Maximum Data Rate: 25 Hz (connected to PC), 5 Hz (used autonomously)
- › Data Capacity: 8 MB
- › Maximum Number of Data Lines: 200,000
- › PC Interfaces: RS-232/115 kbps, RS-485/115 kbps
- › Infrared Wavelength: 850 nm
- › Battery Capacity: 18 Ah
- › Battery Life (maximum): 8,000 hr

### Measurement Ranges

- › Turbidity: 0.4 to 1,000 NTUs
- › Pressure: 0 to 10, 20, 50, 100, or 200 m
- › Temperature: 0° to 35°C
- › Conductivity: 0 to 65 mS cm<sup>-1</sup> (40 PSU, o/oo)

### Concentration (depends on sediment type)

- › Mud (D50 = 20 µm): 0.4 to 5,000 mg L<sup>-1</sup>
- › Sand (D50 = 250 µm): 2 to 100,000 mg L<sup>-1</sup>

### Accuracy

- › Turbidity: <2%
- › Pressure: 0.5% of f.s. (f.s. = 50, 100, or 200 dBar)
- › Temperature: ±0.5°C
- › Conductivity: 1%

### Sediment Concentration

- › Mud: 2% of reading
- › Sand: 3.5% of reading

### Physical

- › Connector: MCBH-8-FS, wet-pluggable
- › Operating Temperature Range: 0° to 35°C
- › Storage Temperature Range: -20° to 70°C
- › Weight without batteries: 1.5 kg (3.4 lb)
- › Diameter: 7.6 cm (3 in)
- › Height: 36.2 cm (14.3 in)



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