



OBS-3A

Turbidity & Temperature Monitoring System

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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.

The heart of the OBS-3A monitoring system is an OBS sensor for measuring turbidity and suspended solids concentrations. This sensor works by emitting a near-infrared light into the water, then measuring the light that bounces back from the suspended particles.

A fast-response, stainless steel-clad thermistor monitors temperature. Pressure is measured with a semiconductor piezoresistive 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 software running under Windows® 98, 2000, and XP. Campbell Scientific offers the Archer-OBS to display measurements and set up the OBS-3A in the field (see Ordering Information).

Applications

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

Features

- Runs 1,5000 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 depth, wave height, wave period, temperature, and salinity
- Records 200,000 lines of data in FLASH
- 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)

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 (see right).

Turbidity Range Options (must choose one)

- 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

- 10 Orders a pressure transducer that measures depth up to 10 m (14 psi).
- 20 Orders a pressure transducer that measures depth up to 20 m (28 psi).
- 50 Orders a pressure transducer that measures depth up to 50 m (71 psi).
- 100 Orders a pressure transducer that measures depth up to 100 m (142 psi).
- 200 Orders a pressure transducer that measures depth up to 200 m (284 psi).

Conductivity Sensor Option

- CS Orders a conductivity probe that measures the range of 0 to 65 mS/cm.



The Archer-OBS (center) is a small handheld device that you can carry to the field and display OBS-3A measurements, run surveys, and setup the OBS-3A for extended deployment.

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.

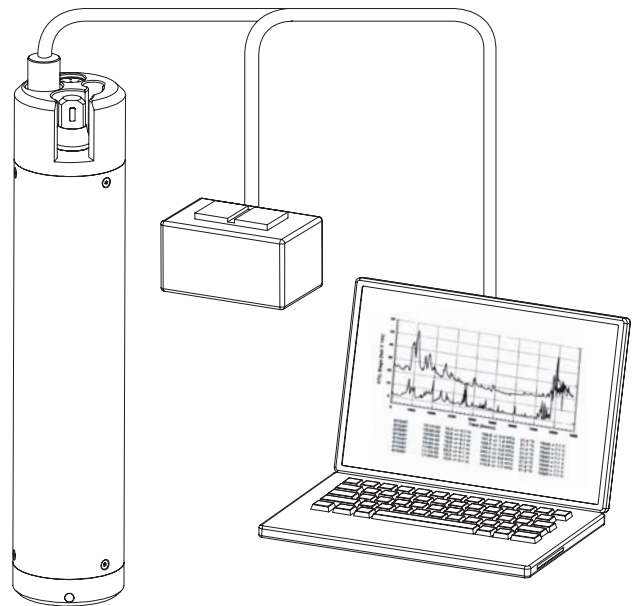
- 21214** OBS-3A Field Cable with a 10-m (33 ft) length.
- 21318** OBS-3A Field Cable with a 20-m (66 ft) length.
- 21319** OBS-3A Field Cable with a 30-m (98 ft) length.

Handheld Field PCs for OBS-3A System

- Archer-OBS** Handheld Field PC with 256 Mbytes of internal data storage. Includes Juniper System's Archer and Campbell Scientific's OBS-Mobile software.
- Archer-OBS-EM** Handheld Field PC with 512 Mbytes of internal data storage. Includes Juniper System's Archer and Campbell Scientific's OBS-Mobile software.

Other Accessories

- HYDRO-WIPER-K** OBS-3A Battery Powered Mechanical Wiper with 1-m (3-ft) Cable. This wiper can help ensure accurate measurements by preventing algae and other fouling from covering the sensor's lens.
- 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.



The field cables are used to connect the OBS-3A to a PC for system configuration. A CD containing OBS software is shipped with the OBS-3A.

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:	1 to 25 Hz
Maximum Data Rate:	2 Hz
Data Capacity:	8 Mbytes
Maximum Number of Data Lines:	200,000
PC Interfaces:	RS-232/115 kbps RS-485/115 kbps
Battery Capacity:	18 Ahr
Maximum Battery Life:	8,000 hrs
Infrared Wavelength:	850 nm

Measurement Ranges

Turbidity:	0.4 to 4,000 NTU
Concentration*	
Mud ($D_{50} = 20 \mu\text{m}$):	0.4 to 5,000 mg/l
Sand ($D_{50} = 250 \mu\text{m}$):	2 to 100,000 mg/l
Pressure:	0 to 10, 20, 50, 100, or 200 m
Temperature:	0° to 35°C
Conductivity:	0 to 65 mS/cm (40 PSU, o/oo)

Accuracy

Turbidity:	<2%
Concentration	
Mud:	2% of reading)
Sand:	3.5% of reading)
Pressure:	$\pm 0.5\%$ of f.s.**
Temperature:	$\pm 0.5^\circ\text{C}$
Conductivity:	1%

Physical

Connector:	MCBH-8-FS, wet-pluggable
Temperature Range	
Operating:	0° to 35°C
Storage:	-20° to 70°C
Weight:	3.4 lbs (1.5 kg) w/o batteries
Dimensions:	see below



*The measurement range for concentration depends on the sediment type.

**f.s. = 50, 100, or 200 dBar.

