



CAMPBELL SCIENTIFIC
CANADA CORP.

11564 - 149 street - edmonton - alberta - T5M 1W7
tel 780.454.2505 fax 780.454.2655
www.campbellsci.ca



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 nearinfrared 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 is operated with software running under Windows® 98, 2000, and XP.

Applications

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

Features

- Runs 1,500 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 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)

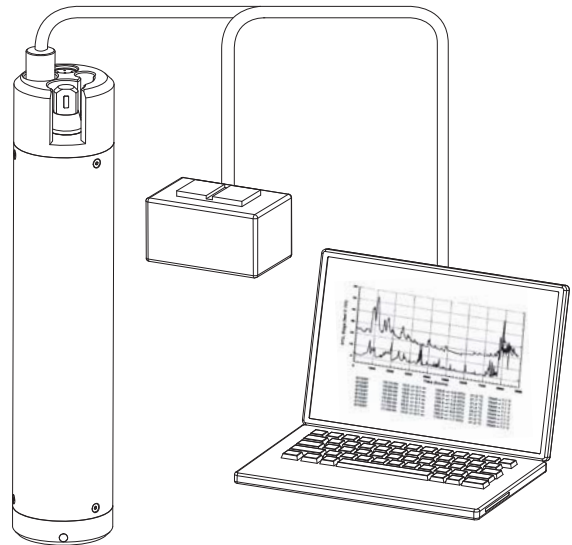
Ordering Information

System and Its Options

Model	Description
OBS-3A	Turbidity & Temperature Monitoring System (requires three D-cell batteries; must choose a Turbidity Range; carrying case and field cable for attachment to a PC are ordered as common accessories)
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.

Common Accessories

Model	Description
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.
Field cables for attachment to PC	
Campbell Scientific offers a choice of field cables that attach 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.



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)

*Depends on sediment type.

Accuracy

Turbidity:	<2%
Concentration	
Mud:	2% of reading
Sand:	3.5% of reading
Pressure:	±0.5% of f.s.*
Temperature:	±0.5°C
Conductivity:	1%

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

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

