Float, standard for 5 - 50 cm/s current

Turbidimeter and electronics

Battery house

Cable

UW connector

Attachment sling

Specifications

Tilt Current Meter

Range with standard float	5-50 cm/s
Processing in software	Tilt, direction, velocity

Pressure Sensor

Range, standard	0 - 24 m
Samples per measurement	1 or 60
Rate	1 Hz or 2 Hz
Processing in software	Mean, period, amplitude

Turbidimeter (nephelometric, ISO 7027 type)

Light emitted	850 nm (NIR)
Measurement angle	90°, NIR filter

Turbidimeter (nephelometric, U.S. EPA type)

Light emitted	White (LED)
Measurement angle	90°, visible light filter

Fluorescence Meter

Wavelength emitted	367 nm (UVA)
Wavelengths measured	Visible spectra
Measurement angles	90°, 180°

Logger

Memory size	32,768 measurements
Logging interval	1 second to 24 hours
Communication, charging	USB to RS485 cable

Battery

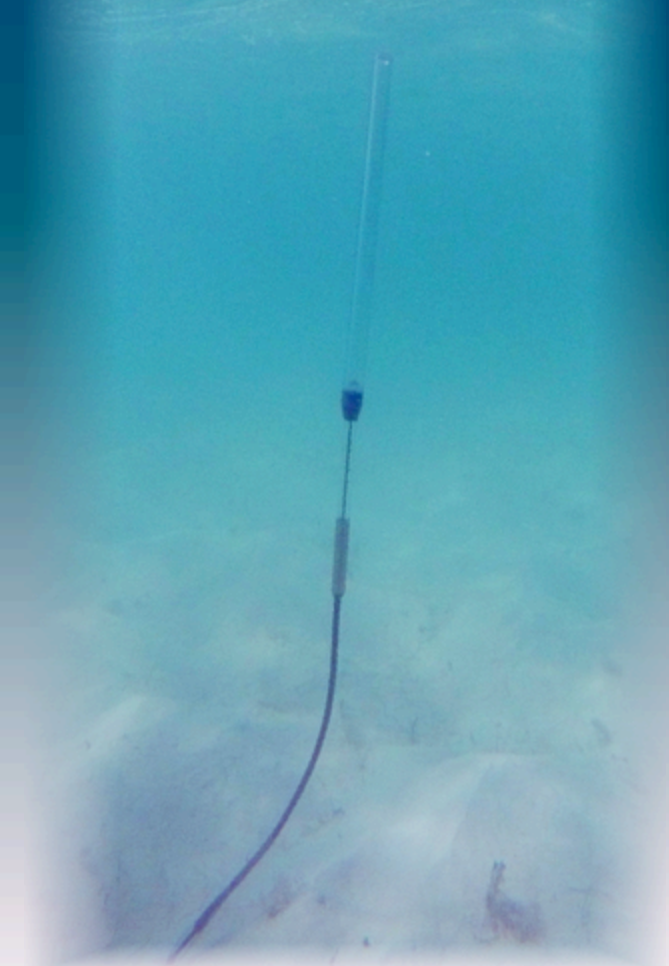|	
Type	AA rechargeable Lithium

Physical

Length with cable and float	ca 150 cm
Diameter, sensor	20 mm

Specifications subject to change without prior notice.
Representative

SediTrans™ ST1

- Turbidimeter
- Tilt Current Meter
- Pressure for Tides & Waves
- Multiple Uses

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Nephelometric Turbidimeters

The SediTrans ST1 has got two nephelometric turbidimeters—both ISO (international standard) and EPA (U.S. standard)—that are ideally suited for measuring **turbidity** in the range up to 400 FTU.

Tilt Current Meter

The tilt current meter consists of a 3D accelerometer and a 3D magnetometer, that together determine the orientation of the instrument in space. The software filters the accelerometer measurements to remove the vibrations caused by vortices, converts the net direction of gravitation to tilt angle, and then calculates the **current velocity** as a function of the inclination of the instrument. The software also calculates the compass **direction** of the current from the 3D magnetic field vector.

Pressure Sensor

The pressure sensor serves a number of purposes. When the instrument is used as a towed (streamer) turbidimeter, the instrument can take a single pressure reading to determine the **depth** of the sensor. When the instrument is mounted on the bottom the instrument can take 60 measurements at either 1 or 2 Hz. The software then calculates the average to get an accurate **tide** or **water level**, and analyzes for oscillations to estimate the **wave period and amplitude**.

Software

The PC software is used to set up the instrument for stand-alone logging, for real time monitoring, for downloading, and for data analysis. It also allows the scientist-in-charge to interactively interpret the data for level determination. It can also sound an alarm if a threshold is exceeded.

Operation Modes

The SediTrans can log data internally; it can serve as a sensor for an external logger or PC in real-time mode; and finally, it can do both at the same time: If it is connected to an RS485 cable while in logging mode it will send out the data on the network without prompting, so that the PC can listen to it and present the data in real time.

Networking

SediTrans instruments can be connected to a PC running the software through an RS485 cable. They can also share a network with SediMeters. For instance, a measurement station may consist of one SediMeter for bed conditions and near-bed turbidity, a SediTrans for currents, tides, waves, and an additional turbidity level, and a SediLink radio modem to transmit data to a base station or a ship.

UV-A Fluorescence Meters

Two UV-A LEDs irradiate the windows of the nephelometric turbidimeters with ultra-violet light to discourage growth. We also programmed the instrument to measure fluorescence using these. The LEDs emit UV-A light and the photodetector measures visible light at 90° and 180° angle. The 90° is coaxial with the turbidimeters. Since chlorophyll is fluorescent and most sediment is not, the difference between the measured fluorescence and turbidity is expected to serve as an indicator of algal blooms, which obviously are of no interest for sediment transport studies.