

LISST-ST

Sediment Settling Velocity Sensor

• Particle Size Distribution • Settling Velocity Distribution

A submersible laser-scattering instrument that measures settling velocity rates of suspended particles. Sequoia Scientific, Inc. offers a field instrument for *in-situ* measurements that leaves particle aggregates undisturbed.

The LISST-ST is a submersible field instrument developed for *in-situ* observation of the settling velocity distribution of suspended particles in the aquatic environment. In addition to particle size distribution and settling rates, water pressure and temperature are recorded.

Settling velocity is an important factor in the estimation of sediment transport rates and particle settling in biogeochemical studies. The LISST-ST is designed to capture the variability of settling velocity within each size class. A unique motorized sliding door in the tube chamber maintains complete

isolation of the trapped column of water producing reliable data on settling velocities for even the smallest particles. Precise and reliable, the LISST-ST is a self-contained unit engineered for low power consumption and built to withstand the rigors of long term deep-water deployment.

- Size Distribution, Settling Velocity, Pressure and Temperature
- Laser Optics — Small Angle Forward Scattering (Mie Theory)
- Platform Mounted for Long Term Use
- Programmable Data Logger



SEQUOIA

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LISST-ST Technical Specifications

Technology

Small Angle Forward Scattering (basis: Mie theory) for size
Turbulence Suppressing Settling Column

Laser

Solid State Diode (670 nm)

Optical Path

5.0 cm (standard)
2.5 cm (optional)

Parameters

Particle Size Distribution
Settling Velocity Distribution
Optical Transmission
Water Depth (0 to 300 m)
Water Temperature (-5°C to 50°C)

Deployment Modes

Laboratory and Submersible Platform

Operating Range

Concentration (approximate limit with particles having a 30 micron mean size):
5.0 cm optical path - 10 to 750 µl/l
2.5 cm optical path - 20 to 1,500 µl/l
[limits change linearly with particle size]

Size Range: 1.25 - 250 microns (Type B)
2.5 - 500 microns (Type C)

Transmission: 0-100%

Concentration: ±20% over full range of sizes
Transmission: 0.1%

Accuracy

Concentration: 0.5µl/l Size Distribution: 8 size classes, log spaced

Programmable, up to 4 Hz [four measurements per second]

Internal memory and/or external data output, RS-232C

6,000 measurements, plus date & time [expandable up to 4 times]

RS-232C, Windows '95/'98/ NT Software

Internal - Custom Alkaline Pack, 12V Rechargeable Lead Acid

External - REG +15 & -15 V @ 250ma max

32" length x 5" diameter (81 cm x 13 cm)

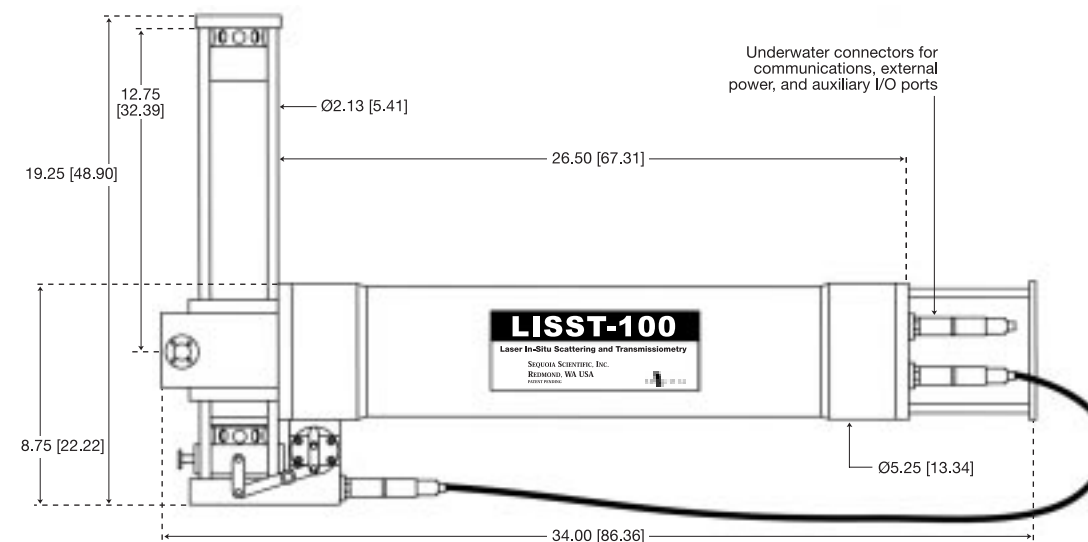
Settling Tube: 19.25" high x 2.13" square (48.9 cm x 5.41 cm)

Weight: in air 35 lbs (16 kg); in water 18 lbs (8 kg)

300 meters

Physical Dimensions

Depth Rating



Windows '95/'98/NT software is supplied to process raw data into size distribution and settling velocities. The results of computations can be saved in ASCII format.

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