The LISST-100X instrument obtains in-situ measurements of particle size distribution, optical transmission, and the optical volume scattering function (VSF). Using a red 670nm diode laser and a custom silicon detector, small-angle scattering from suspended particles is sensed at 32 specific log-spaced angle ranges. This primary measurement is post-processed to obtain sediment size distribution, volume concentration, optical transmission, and VSF. Temperature and depth are also recorded. Optionally, a SeaBird MicroCat 37-SI CTD can be integrated for high precision conductivity, temperature, and depth measurement. Alternatively a Campbell OBS-3+ or a Turner Designs Cyclops-7 fluorometer can be integrated upon request. Special versions with folded housing or a shorter housing with an external battery pack are available. A version for deep-ocean use (LISST-DEEP) is also available. For extended field deployment, our BioBLOCK anti-fouling system option is recommended.
**FEATURES**

- Small angle forward-scattering laser diffraction technology
- Self-contained with internal datalogger, CF memory module and alkaline battery pack
- RS232 connection to PC for real-time size distribution displays
- Programmable data collection
- Integrated BioBlock connection
- *Optional extra feature:* Can be configured to receive input from Campbell OBS-3+, Turner Designs Cyclops-7 fluorometer or Sea-Bird Micro-Cat CTD.

**SPECIFICATIONS**

**Parameters Measured**

- Particle Size Distribution, Optical Transmission, Depth,
- Volume Concentration, Temperature,
- Volume Scattering Function

**Technology**

- Solid State Diode Laser @ 670 nm, 1mW
- Detector: 32-ring custom photodiode
- Sample Rate: Programmable, up to 25 Hz internally, 1 Hz saving to datalogger
- Optical Path: 50 mm standard. Bolt-on path reduction modules are available for higher concentration environments

**Sediment Size Distribution, Scattering Angles and Concentration**

- 32 log-spaced size classes: 1.25-250 or 2.5-500 µm (0.08-15° or 0.04-7.5° in water)
- Range: 1-750 mg/L (approximate range based on 30 µm mean size particles)
- Resolution: <1 mg/L

**Mechanical and Electrical**

- Dimensions: 5.25” (13.3 cm) ø x 34.25” (87 cm) L
- Weight: 25 lbs (11 kg) in air; 8 lbs (3.6 kg) in water
- Depth Rating: 300 meters
- Serial Interface: RS232C, 9600 baud, High speed offload at 115K baud
- Alkaline Battery Pack: Custom 9V nominal, 42Ah
- External Power Input (optional): 12 VDC nominal, 10 to 24 VDC
- CF Memory Card: 128 Mb standard (1,600,000 size distributions)
- Battery Current Drain: 146 mA / 8 mA / 128 µA (measuring/quiescent/sleeping)