

LISST-HORIZON

FLOW-THROUGH AUTOMATED PARTICLE SIZE AND SCATTERING MEASUREMENT

**Particle Size Distribution • Beam Transmission
Volume Scattering Function • Total Scattering & Backscattering**

The LISST-Horizon is a self-contained instrument for bench-top deployment in a research vessel laboratory. Plumbed to continuous underway uncontaminated seawater, it continuously measures PSD and particle concentration, as well as inherent optical properties (IOPs).



FEATURES

- Volume Scattering Function (VSF) from near-forward and side-scattering detectors using a 520 nm laser source
- Beam attenuation and particle size from proven LISST-200X optics, with extended pathlength for application to offshore waters
- Side scattering allows for particle sizing over an extended range, ~0.2 μm to 500 μm
- Automated deployment in flow-through seawater systems, including clean water backgrounds, cleaning, and scattering standard measurement
- Mixers in the sample chamber to keep particles suspended during measurement
- Automated filtered sample background using attached external particle filter (0.2 μm). Raw data stored internally and offloaded via ethernet for processing with provided MATLAB software (MATLAB software license NOT included).

SPECIFICATIONS subject to change without notice

Parameters Measured

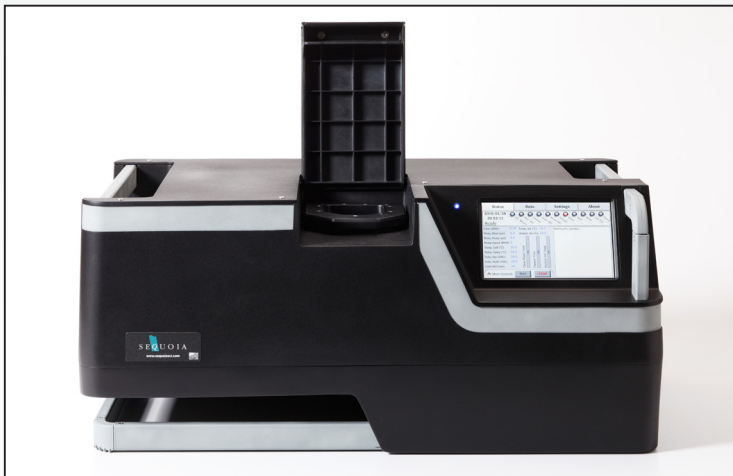
- Volume scattering function (VSF) at 60 angles
- Particle size distribution in 60 size classes inverted from scattering measurements
- Beam transmission
- Derived IOPs including total scattering, backscattering, and absorption by difference ($a = c - b$)
- Sample temperature and fluidics parameters such as pressures and flow rate

Measurement Ranges

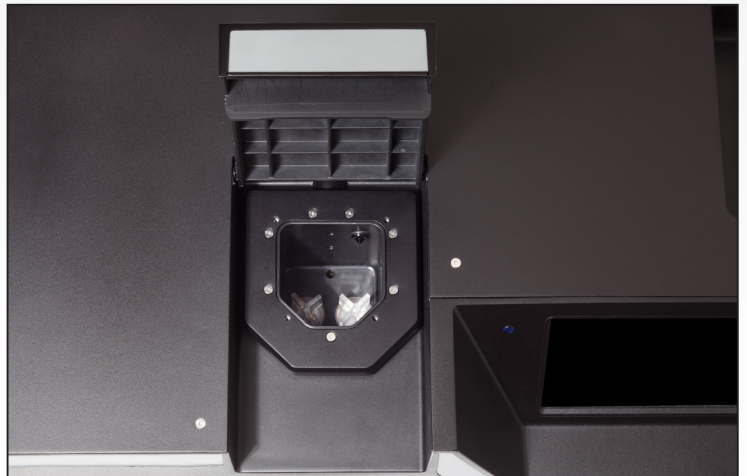
- VSF from 0.1 $^\circ$ to 150 $^\circ$ in water; near-forward 0.1 $^\circ$ to 15 $^\circ$ on 36 log-spaced detectors and side-scattering 35 $^\circ$ to 150 $^\circ$ on 24 detectors
- Particle size distribution from 0.2 μm to 500 μm
- Beam transmission from 0.3 m^{-1} to 15 m^{-1} (30 % to 98 %)

Mechanical and Electrical

- Dimensions [L \times W \times H]: 674 mm \times 375 mm \times 293 mm
- Weight: 19 kg
- Laser: 520 nm solid state diode laser
- External power input: 110/220 VAC converted to 24 VDC using provided power brick
- Plumbing connections using 3/8" OD (1/2" OD for drain) tubing and push-to-connect fittings
- External tanks for holding clean water background



Front view: sample cover open & touch panel



Top view: open chamber with mixers