

# 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  $\mu\text{m}$  to 500  $\mu\text{m}$
- 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  $\mu\text{m}$ ). 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

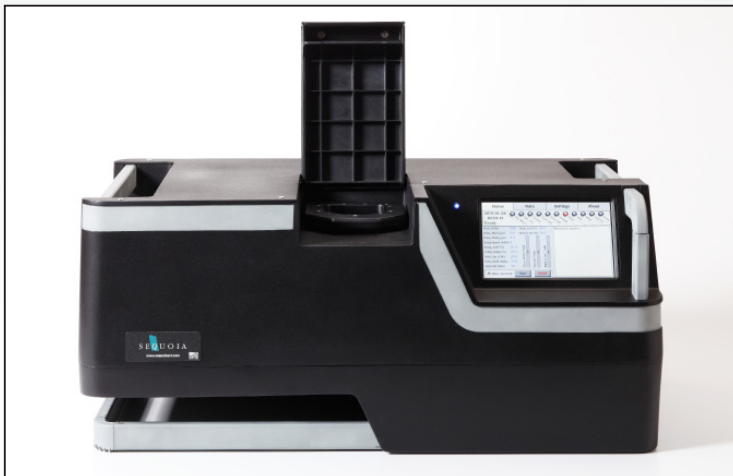
- Volume scattering function (VSF) at 60 angles
- Particle size distribution in 60 size classes inverted from scattering measurements
- Beam transmission
- Derived IOPs including total scattering, backscattering, and absorption by difference ( $a = c - b$ )
- Sample temperature and fluidics parameters 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  $\mu\text{m}$  to 500  $\mu\text{m}$
- Beam transmission from 0.3  $\text{m}^{-1}$  to 15  $\text{m}^{-1}$  (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