

LISST-Holo2

SUBMERSIBLE DIGITAL HOLOGRAPHIC CAMERA

- **Particle Images**
- **Particle Size Distribution**
- **Particle Volume Concentration**

The LISST-Holo2 is a submersible digital holographic camera. It is designed for capturing holograms of suspended particles (algae, plankton, sediment, oil droplets, flocs etc.). The internal rechargeable battery and memory allow for collection of up to 100,000 holograms. To facilitate data processing, the included software ranks the holograms by image content richness, then automatically extracts particle information and images from the holograms. The resulting data output is a composite image where all particles are in focus, as well as the particle size distribution and volume concentration.



FEATURES

- In-situ digital in-line holographic technology
- Self-contained with internal datalogger and rechargeable battery
- Ethernet connection to PC for programmable data collection—no software needed for programming or offloading data
- Power via internal rechargeable battery pack or external power source
- Programmable data collection including burst and fixed Rate modes and programmable start and stop conditions
- Automated firmware updates possible when instrument is connected to the Internet
- Automated ranking of collected images based on richness of data, permitting a user to view the most interesting holograms first
- Data processing yields in-focus particle images and particle volume distribution
- Optical Path Reduction Modules available for higher concentration ranges
- Towable up to 4 knots ($2.05 \text{ m}\cdot\text{s}^{-1}$).

SPECIFICATIONS subject to change without notice

Parameters Measured

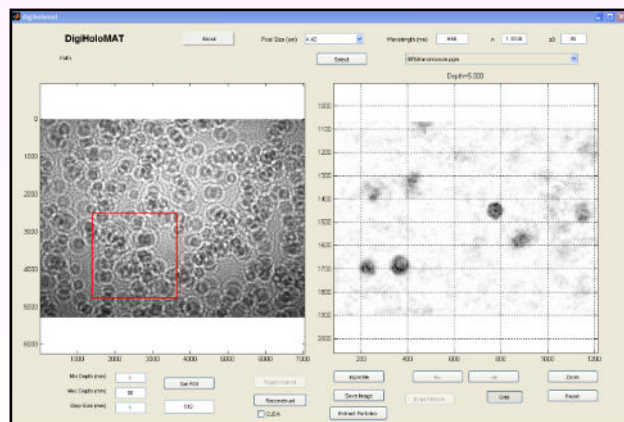
- Particle images for observation and classification
- Particle distribution
- Particle volume concentration
- Temperature
- Depth

Measuring Ranges

- 25-2500 μm equivalent spherical diameter, features down to 4 μm
- $\sim 0\text{-}50 \text{ mg}\cdot\text{L}^{-1}$ (grain-size dependent)

Technology

- Solid state diode laser @ 658 nm
- 4.4 μm pixel size digital camera; 1600 ~ 1200 pixels



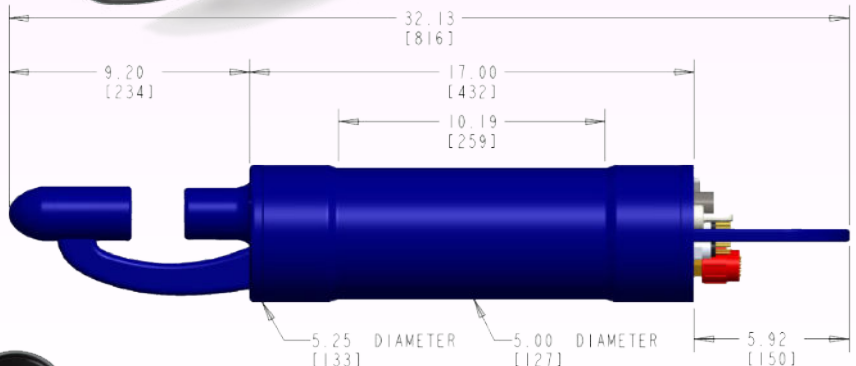
Detail of hologram reconstruction. Two particles, 75-90 μm in size are in focus at this image plane. Grid size is 200 μm .

Mechanical and Electrical

- Dimensions [$\text{Ø} \times \text{L}$]: 13.3 cm \times 75 cm (5.25" \times 29.5")
- Weight [air / water]: 9.5 kg / 3.6 kg (21 lbs / 8 lbs)
- Depth rating: 600 m
- Memory: 237 GB internal solid-state drive
- Sampling rate: 25 Hz
- Sample volume: 1.86 cm^3
- Power: Internal rechargeable NiMH battery or external power, 12 VDC - 24 VDC
- Current consumption @ 12 VDC [sleeping / idling / collecting images]: 4 mA / 0.6 A / 0.85 A. Max current spike 1.7A for up to 40 s upon power up
- Connectors: SubConn 1 x MCBH5M, 1 x MCBH6M, 1 x DBH8M.



The open LISST-Holo2 optics design permits measurement of undisturbed fragile particles.



LISST-Holo2 optional accessory: Path Reduction Module.

