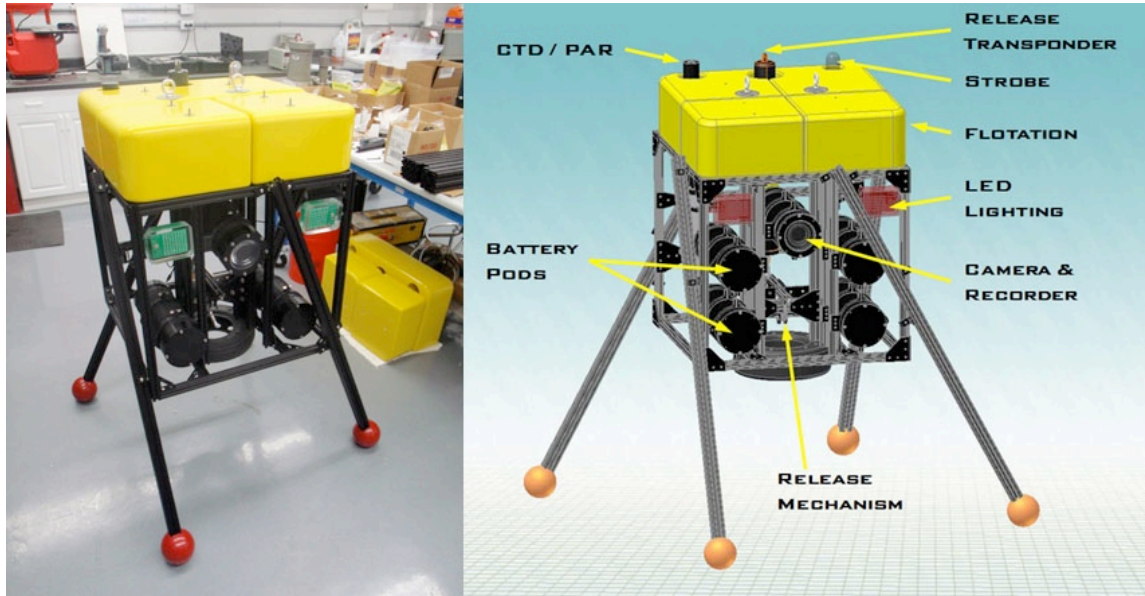


## “MEDUSA” Research Lander Systems



**Summary:** Medusa is a low-cost, compact, modular instrumentation package, designed for unobtrusive, autonomous video and data recording down to 2000m. It can be operated in three different modes, as a lander, mooring, or drifter. Medusa can be deployed overboard from a ship or small boat, or directly on-site with an ROV or submersible. Upon mission completion, a sacrificial drop-weight is jettisoned via acoustic release. The system is then recovered at the surface using light deck gear, such as a small davit and capstan winch.

### System Specifications (Standard Equipment)

- Dimensions (main body, no legs): 26”L x 26”W x 34”H (66cm L x 66cm W x 86cm H).  
*\*Legs are adjustable. Typical configuration puts camera ~1m off bottom in lander mode. In drifter and moored modes, legs are removed and fins are added to hold orientation in currents.*
- In-Air Weight (no drop weight, 2 battery pods): 220 lbs. (100 kg)
- In-Seawater Weight (no drop weight): +40 lbs. (+18 kg) buoyant
- Drop Weight (typical): 75 lbs (34 kg), steel, concrete, or sand
- Operational Depth: 6500ft (2000m)
- Mission duration: 72 hours continuous recording with standard camera, 2 battery pods and 2 lights. Missions may last up to a month, depending on recording duty-cycle and number of battery pods present.

### Power Supply

- 380Wh Lithium-Ion Battery pods in dry, 2000m-rated, cylindrical anodized aluminum housings
- Outputs: regulated +5V, +12V (-5, -12, +24 available), unregulated 14.4V
- Pod Dimensions: 14.5” L x 5.5” dia. (37cm L x 14cm dia.)
- Pod In-Air Weight: 18 lbs. (8.2 kg)
- Pod In-Seawater Weight: 7lbs. (3.2 kg)
- Voltage regulation and charging circuitry is internal to each pod.
- Battery pods may be daisy-chained for longer missions or higher power-draw.
- Up to 6 battery pods can be used on the Medusa frame.

### Video & Lighting

- Camera (standard): Ultra-low-light B&W CCD (0.0001 lux), 600TVL (SD), Auto-iris lens, manual zoom & focus (pre-set), wide-angle 90° FOV.
- Cameras (optional): Low-light color CCD (0.001 lux) or Intensified B&W ICCD (0.00001 lux). *\*Other cameras and lenses are available.*
- Recording Format: MPEG-2 (DVD video and audio), NTSC-D1 (720x480 @ 30fps), Stereo audio @ 256kbps. Custom user-settable text overlay including timestamp. Adjustable quality settings.
- Recording Media: Solid-state Compact Flash Card.
- Recording Time: Up to 220hours on 128GB CF Card (less is typical for good quality)
- Video Retrieval: Download to PC via USB (through bottle) or by CF Card removal
- Recording Modes: Continuous (magnetic switch start) or Externally Triggered. *\*Scheduled and Motion-Detect recording are under development.*
- Lighting (standard): Epoxy-encapsulated LED arrays @ 690nm Red.
- Lighting (optional): 470nm Blue and 6500K Daylight White also available. *\*Two LED lights are typical, up to 3 can be connected. More lighting can be added with wye-cables.*

#### Ancillary Sensors

- Conductivity, Temperature, Depth (CTD) with built-in datalogger and lithium battery. Will log at user configurable rate. Typical endurance is 1Hz for 1 month. Data download to PC via USB cable.
- Photosynthetically Available Radiation (PAR) sensor for downwelling light. Connected to CTD datalogger and battery. *\*Other COTS sensors can be added, including: DO, pH, Turbidity, Chl-a, Bioluminescence, Petroleum Fluorescence, etc.*

#### Recovery Tracking

- Standard: Acoustic release transponder provides slant-range and tilt status while submerged
- Standard: Strobe for night recovery aid
- Optional: RF or Satellite beacon for surface tracking post-recovery or in drifter mode

#### Medusa Operating Configurations:

