HaloCAM

Precise Verticality and Structure Positioning

HaloCAM is a compact, 4000-meter rated sensor that delivers precise pitch, roll, heading, depth, and position for subsea structures during installation. It reduces the cost and risk of attaching expensive sensors directly to piles, conductors, or other subsea structures while ensuring accurate deployment and long-term reliability.

Inside its single 266mm x 150mm housing, HaloCAM combines an Inertial Navigation System (INS), a machine vision camera, and onboard processing. This integration provides real-time positioning and attitude data through a straightforward user interface, and the navigation engine can accept inputs from USBL, LBL, DVL, depth, or LoPs, making the system adaptable to a wide range of offshore projects. HaloCAM's design allows it to be easily deployed on an ROV, delivering accurate updates even in challenging conditions..

By combining inertial navigation with machine vision, HaloCAM offers a reliable and efficient solution that improves safety, reduces operational costs, and enhances confidence across both oil and gas and offshore wind projects.

Accurate position and verticality data

delivered in real time.

Zupt is a global leader in offshore survey solutions. We develop all core technologies in-house to deliver accurate subsea positioning, modeling, and monitoring for oil and gas, renewables, and marine construction projects worldwide.

Benefits:

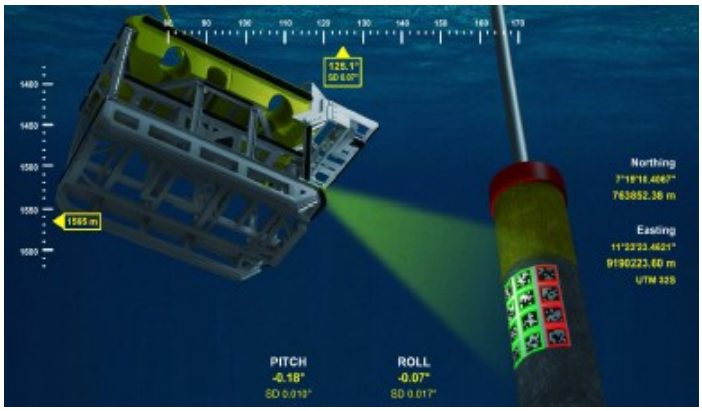
- No specialized personnel required offshore, remote operation capable
- Single, self-contained unit with simple interfacing
- No lever arms to calibrate between the INS and camera
- Easy dimensional control (DC) of targets to casing—while casing is horizontal
- Deployable on small or work-class ROVs

Applications:

- Well spudding
- Conductor casing installations
- Offshore wind farm monopiles
- Suction pile installations

Accuracy:

- Heading: ±0.15° sec Lat.*
- Pitch & Roll: ±0.1°
- Positioning: Same as USBL/LBL
  *Requires DC of targets to the structure



How HaloCAM Works:

HaloCAM combines a high-performance IMU with an HD camera and onboard machine vision processing to deliver the positioning accuracy the industry requires.

Mounted on the front of an ROV, HaloCAM maintains a clear line of sight to simple fiducial targets placed on the structure. The system automatically acquires the targets, processes INS and camera data internally, and provides real-time position and attitude through an intuitive user interface. The ROV can maintain a 2–4 meter standoff while HaloCAM delivers consistent updates unaffected by vibration, hammering, or jetting during installation. Targets can be dimensionally controlled and placed on flat or curved surfaces.

If the ROV has absolute positioning (USBL, LBL, or LoPs), HaloCAM translates this reference frame to the structure with the same accuracy. When not used for structure positioning, HaloCAM functions as a precise subsea INS.