

TRIMARES – Autonomous Underwater Vehicle

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□ Key words

Advanced engineering (including robotics / control systems)

□ Description

TriMARES is an **underwater vehicle designed for autonomous inspection, bathymetry; mapping and data collection**. TriMARES' modular structure allows different sensor package configurations. Its increased capacity to transport sensors allows it to carry an on-board high resolution video camera, as well as different types of sonar equipment. It can move smoothly in the water, increasing the quality and georeferencing of the collected data.

TriMARES was developed in 6 months by INESCTEC and commissioned by a consortium of Brazilian hydroelectric power companies (CEB Lajeado, EDP). The first unit was exported to Brazil in 2011.



MAIN FEATURES

- Modular construction with reconfigurable sections
- Spare ports to accommodate additional payload sensors
- Robust and safe with fully shrouded moving parts

- Operates in confined spaces- able to ascend/descend on the vertical
- Hovering in the water column -station keeping and close inspection
- 5 degrees off freedom (surge. sway. heave. yaw. pitch)
- Autonomous operation with simple mission definition
- Rechargeable Li-Ion batteries
- Low maintenance
- Optional fiber-optic umbilical for real-time video/data transmission
- (ROY mode)

SPECIFICATIONS

- Length: 1.3 m II Total width: 80 cm II Overall height: 50 cm II Weight: 75 kg
- Maximum depth: 100m
- Horizontal speed: 0-2 m/s. variable //Vertical speed: 0-0.3 m/s, variable
- Autonomy/Range: 10 hrs/40 km
- Typical sensors: video camera. high sensitivity still camera. multi beam sonar;
- sidescan sonar. CTD. turbidity. fluorescence

□ Applicability of Technology to Maritime SMES

Marine surveys, installation, operational and maintenance activities. Has been used by Brazilian hydroelectric power companies. Potential use in Marine renewable energy, Maritime services, Oil and gas.