

PROTEU – Advanced Optical Sensor for Monitoring Estuarine and Coastal Environments

Institution/Company name	INESCTEC
Contact details	Campus da FEUP Rua Dr. Roberto Frias 4200 - 465 Porto, Portugal info@inesctec.pt Tel. +351 222 094 000 Fax +351 222 094 050
Website	http://www.inesctec.pt

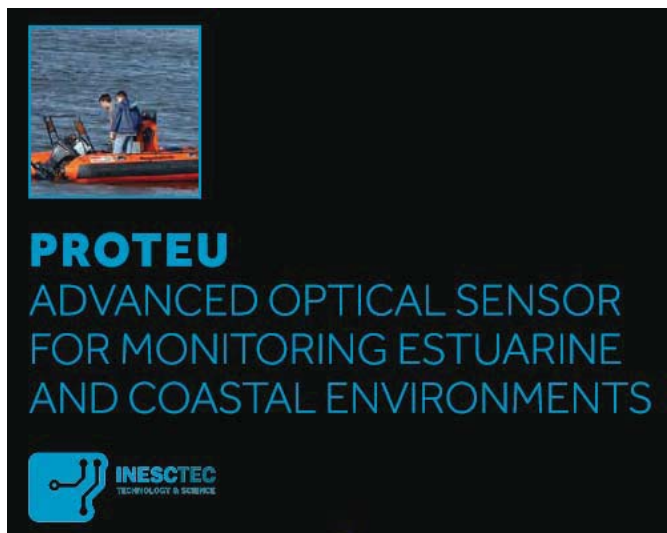
□ Key words

Sensors / instrumentation / electronics

□ Description

Technology to monitor temperature and salinity in coastal environments using an innovative fully integrated monitoring infrastructure based on optical fibre. As part of the research project PROTE U, an 11 km optical fibre cable, with Bragg sensors placed every 500 meters, was installed that runs from the mouth of the Ria de Aveiro and follows the Espinheiro channel bed to the Vouga river. This made it possible to measure the water temperature at each sensor location in real-time. The results of this project are currently being used in several studies concerning the Ria de Aveiro and the surrounding area and are crucial for continuous environmental assessment and management.

This technology is now being explored further and will be able to measure salinity and other chemical and biological parameters (dissolved CO₂, cyanobacteria) making it an advanced analytical tool for the monitoring and study of marine conditions in estuarine environments.



MAIN FEATURES

- Electromagnetic immunity
- Based on standard telecom optoelectronics
- Multipoint detection
- High sensitivity
- Real-time remote operation
- Quasi distributed sensing
- Adaptable for the detection of other environmental parameters

SPECIFICATIONS

11 km Optical fibre cable (TON GERE from CABE LTE S.A.) with three SMF 28® optical fibres with 19 Fibre Bragg grating temperature sensors distributed every 500 m. Cable anchored to the river bed with concrete structures placed every 500 m in the vicinity of the sensors.

□ Applicability of Technology to Maritime SMES

Technology to monitor temperature and salinity in coastal environments using an innovative fully integrated monitoring infrastructure based on optical fiber. For use in Aquaculture, Environmental monitoring, Water management areas.