

Use of Campbell Data Loggers For SubSea Systems

Fugro Structural Monitoring has extensive experience at providing underwater solutions for clients and in response to client demands has developed its own data acquisition system. Specifically designed to meet the challenges of the deepwater environment the system is known as **DeepData**.

DeepData is the core of a highly versatile data acquisition system, which can be specifically configured to meet most sub-sea data collection requirements. The system is modular in nature and can be configured to meet any application.

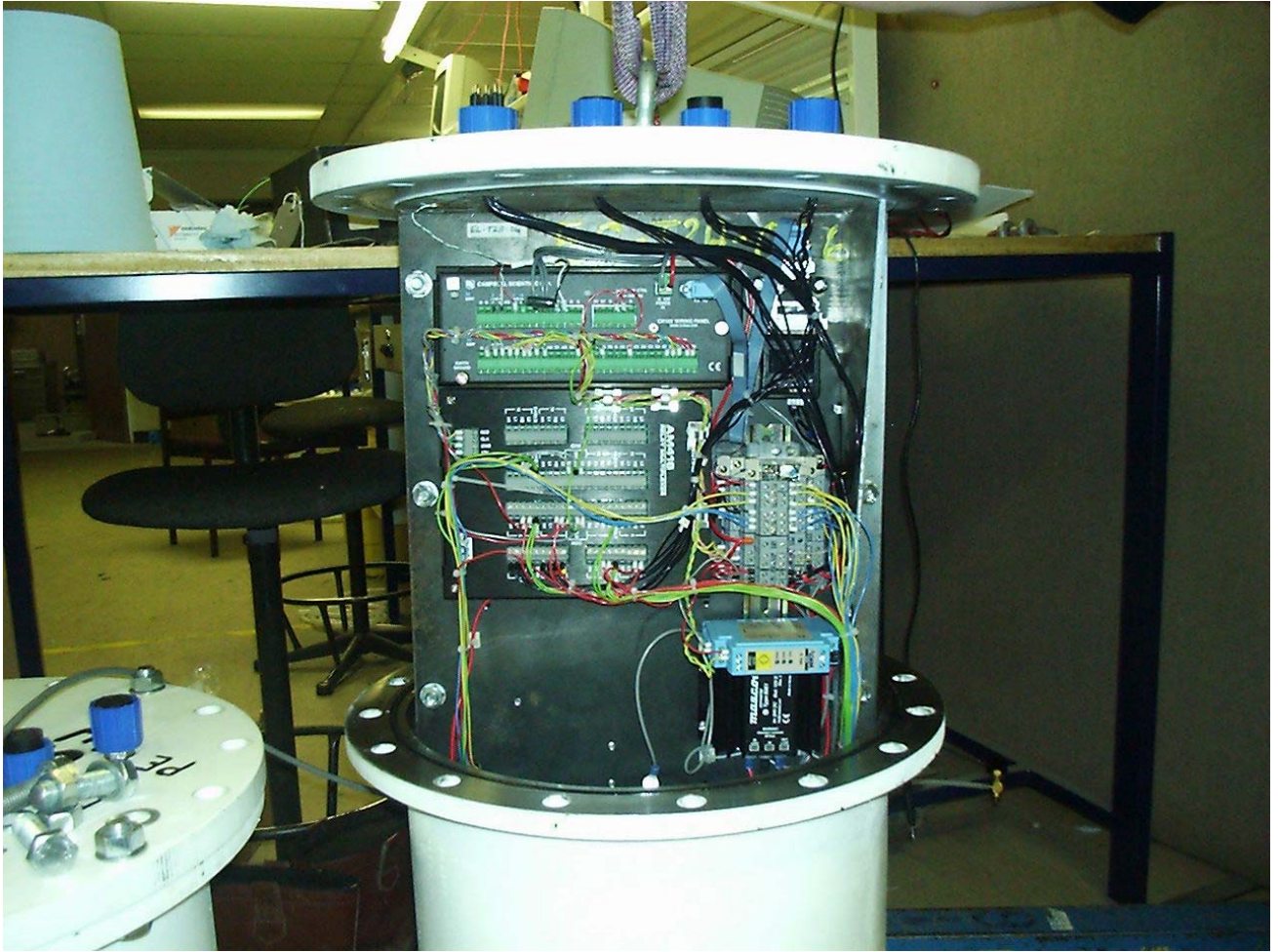
Consisting of a canister, hydrotested to an operational depth of 3000m many different types of sensors can be installed to meet required measurements. The modular design consists of the following components.

- Internal data storage unit, data collection and analysis.
- Internal batteries or external battery pack (thus allowing replacement by ROV).
- Data transmissions link either by an umbilical cable to the surface or by an hydro acoustic link.
- Internal sensor options
- Interface to external sensors to permit ROV connection.

Integral to these systems is the data storage unit. For this, FSM relies on the Campbell Scientific CR10X. The CR10X is a well-proven and versatile system capable of collecting information from a wide range of sensors such as strain gauges, accelerometers, current devices, temperature sensors and most RS232 sensors. FSM have extensive experience of the use of the CR10X, including deployment in sub-sea cans in up to 1600m of seawater.

The data logger will collect data according to an agreed schedule and the results are stored to removable solid-state memory modules, for retrieval at a later date, or transmitted directly to a clients computer on the surface, where it can provide real time information about the monitored structure.

An example of a typical system is shown below:



Typical DeepData System

DeepData solutions have been provided for clients worldwide, including solutions in the North Sea and the Gulf of Mexico. A selection of projects are listed below:

- Vibration Measurements on a Drill Casing to Investigate a Vortex Shedding Problem
- Measurement and Design Stud on the Dynamic Response of Anode Risers
- Measurement of the response of a tethered tendon while parked for construction
- Measurement of the response of steel catenary risers to high current levels. Evaluation of bending stresses.