

Pressure & Temperature Monitoring System (P&TMS)

A unique nonintrusive system for flow performance enhancement in deepwater applications



Sensor system with mechanical protection and insulation

Sensor system

The entire system is rated for applications up to 3000m water depth and 30 years life duration

The advantage of the P&TMS, beyond being nonintrusive, is its modularity: different type of sensors can easily be installed around the clamp to monitor almost any subsea line behaviour.

Installation

The clamp is suited for any pipe outer diameter between 4" to 16". It is installed below the thermal insulation foam, overcoating.

The data acquisition and recording system fixed near the clamp transmits the data either by umbilical or acoustic modem to the surface unit.

Technologies

Based on a patented nonintrusive clamp concept

P&TMS is designed to measure internal pressure and temperature in rigid pipelines (flowlines and risers) in order to detect internal flow instabilities with no impact on the pipe wall.

The combination of a pressure and a temperature measurement allows the detection of defects such as slugging before they can cause damage to a production facility.

Benefits for our Clients

- Nonintrusive system
- Combination of pressure instrumented screw and temperature sensors
- ROV serviceable subsea unit



Data acquisition and recording system

Real time pipeline pressure and temperature measurement

- Pressure measurement accuracy = 2% full scale
- Temperature measurement accuracy = 0,5°C
- Full sensor and data acquisition redundancy

Nonintrusive system

- Avoid risks of leaks and structure degradation
- Avoid flow perturbations and cold points

Main applications

- Bottom of risers
- Flowlines terminations
- Designed for deep offshore applications

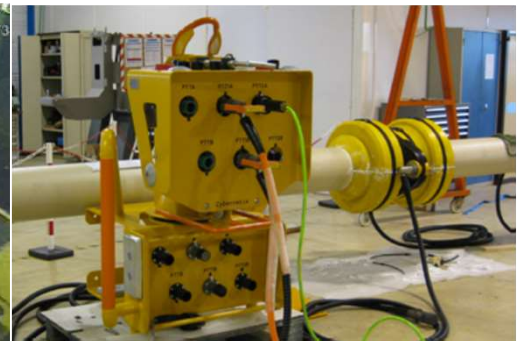
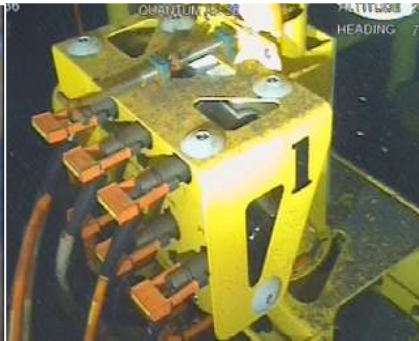
P&TMS - projects list

Operator / Client type	Project Location & Measurements
IOC / Contractor	Angola <ul style="list-style-type: none"> • Temperature
IOC	Angola <ul style="list-style-type: none"> • Temperature
IOC / Contractor	Angola <ul style="list-style-type: none"> • Pressure and Temperature
IOC / Contractor	Kazakhstan <ul style="list-style-type: none"> • Temperature
IOC / Contractor	Nigeria <ul style="list-style-type: none"> • Pressure and Temperature
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IOC: International Oil Company – NOC: National Oil Company



P&TMS in subsea environment



P&TMS factory acceptance test