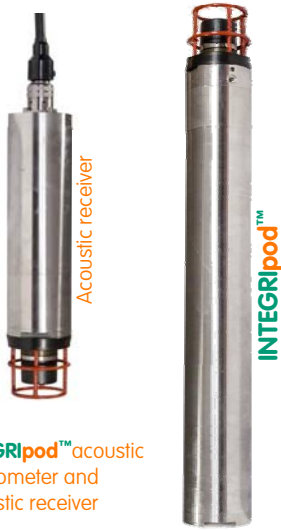


**DRILLASSURE™**  
Drilling Riser Monitoring System



INTEGRipod™ acoustic inclinometer and Acoustic receiver



The **DRILLASSURE™** drilling riser monitoring system provides critical information to support day-to-day drilling operations and integrity management. It monitors two key riser operating parameters:

- Upper flex joint angles
- Lower stress joint angle

or through an existing electrical umbilical system.

The measurement data is displayed and compared with preset thresholds. Where measurements exceed predefined threshold, alarms are raised by the software.



Upper flex joint riser inclinometer contained in an EExd housing

**OPTIONS**

- Collect additional data from 3rd party systems (current, position, wave height, hook load, tensioner stroke, etc)
- Measure riser base tension using an **INTEGRicollar™** strain sensor.
- Measure motion along the riser using **INTEGRipod™** motion loggers to detect vortex-induced-vibration (VIV) and estimate fatigue damage
- Track fatigue damage in strategic areas using dynamic curvature sensor **INTEGRistick™**

The system's functionality can be expanded by incorporating 2H standard or 3rd party instrumentation.

**SYSTEM DESCRIPTION**

An **INTEGRipod™** inclinometer is attached above and below the stress joint to measure angles. The angle data is sent to a data acquisition system via cables.

A further inclinometer is attached to the bottom of the riser above the lower stress joint to measure angles.

The angle data is sent to the topside data acquisition system via an acoustic receiver



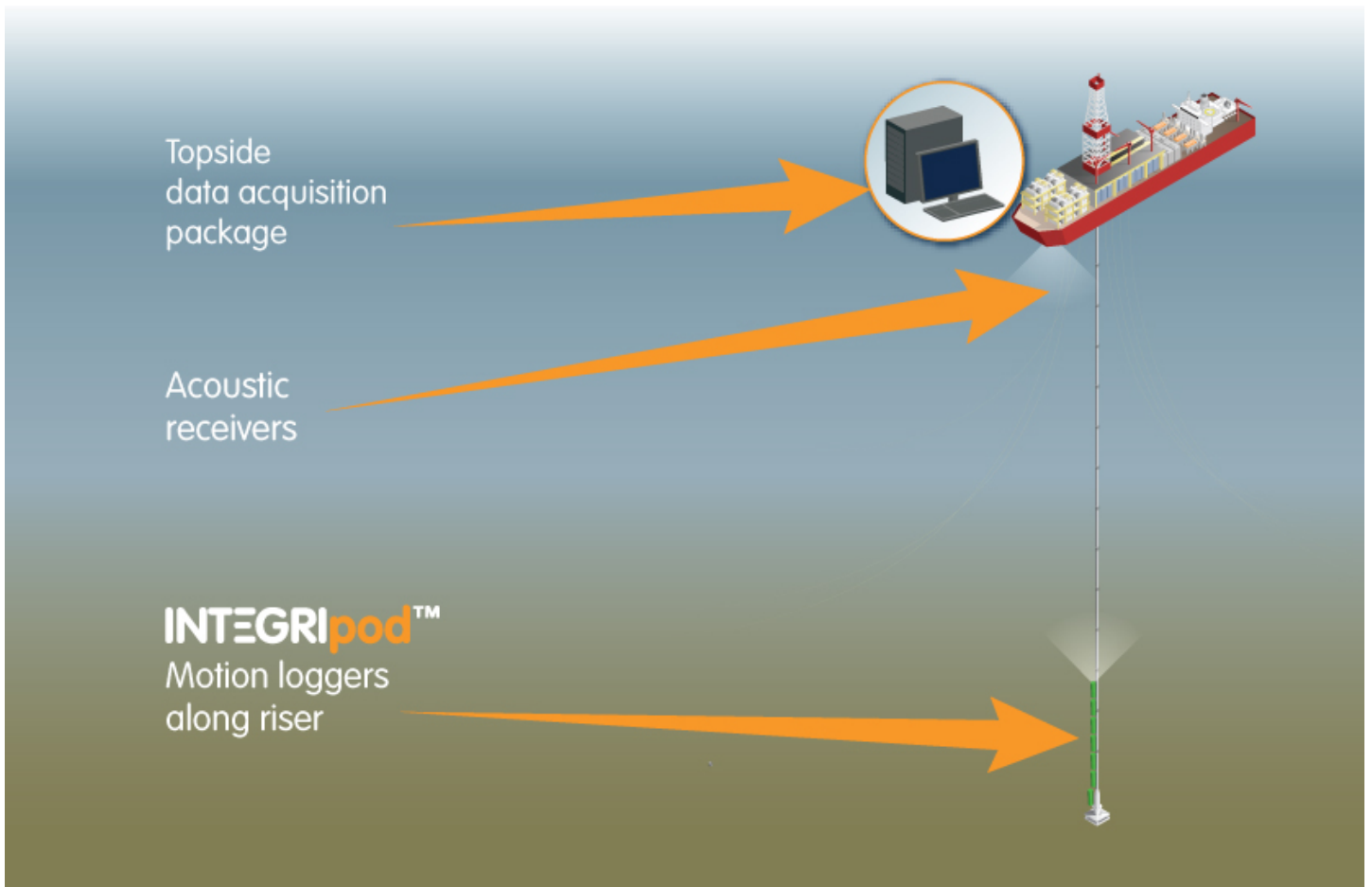
ROV deployable holder for **INTEGRipod™**



**DRILLASSURE™** software screenshot

**FEATURES**

- Display all relevant parameters in one screen
- Display operation limits of the measured parameters
- Raise alarms upon exceedence of limits
- Fatigue damage tracking of riser components



**SPECIFICATIONS**

Items	Description
Inclinometer package	Accelerometer or precision inclinometers
Measurement resolution	Acceleration: < 2 mg RMS Inclination: < 0.05 deg RMS Temperature: 0.5°C
Measurement accuracy	Inclination accuracy < 0.1 deg (after calibration)
Deployment interfaces to the riser	Tailored interface to suit client application
Topside data acquisition system	2 sensor packages installed on the riser above and below the flex joint 1 sensor package installed at the bottom of the riser which may have an acoustic linker or hardwired to the BOP control box. 100 m of topside electrical cable Topside data acquisition system (laptop or industrial PC) User specified software running on the PC
Topside sensor working temperature	0 to 50 deg C
Topside sensor housing	EExd rated instrumentation casing



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