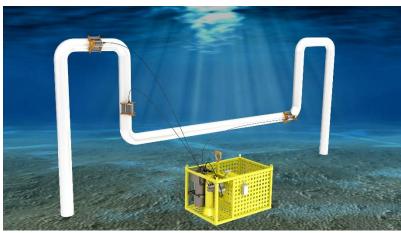
ULTRASONIC INTELLIGENT SENSORS

Advanced LPHP Subsea 3D Vibration Monitor

ClampOn 3D Vibration Monitor, Low Power High Performance (LPHP)

To accurate monitor vibration in complex subsea pipework, multiple measurement locations are required. The different modes are measured to gain knowledge of the forces in play; hence, a system of several vibration monitors must be installed at different locations on the pipework. A datalogger communicates with each of the vibration monitors, and synchronize the measurements by its onboard, real time clock. This allow for complete motion tracking/phase relation of pipework sections, such as well jumpers, flex loops, and other unsupported lines. As an alternative to battery and datalogger, the instruments can be directly interfaced trough the ROV power and coms, or by direct cable to surface when the water depth is less than 400 meters.



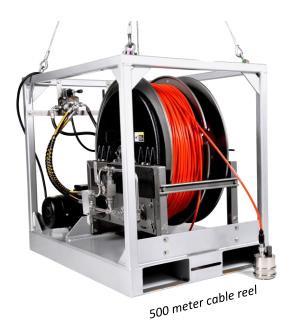
Vibration monitors installed by magnetic fixture on well jumper

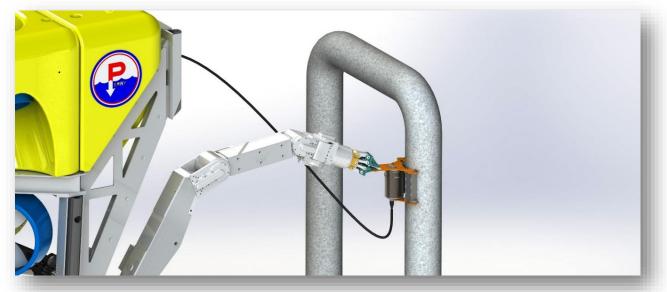
For short inspection type monitoring tasks, single or multiple instruments can be interfaced directly with topside PC in water depths less than 400 meters, using our 500-meter electrohydraulic cable reel, providing real time data. Alternatively, instruments can be directly interfaced trough the ROV communication link on its serial interface. These solutions are typically used to map out the vibration force during well start-up and short campaigns. For long time monitoring the data-logger set-up is better suited as equipment can be installed and left.



Basket with Battery, datalogger and 3off LPHP Vibration monitors

- Phase relation
- 16ch Multichannel system
- 3-axial gyroscope
- 3-axial magnetometer/compass
- Up to 10 years battery/deployment life
- Wireless data offloading (third party)
- Direct interface to ROV
- Local indication
- Direct cable to surface vessel





Vibration monitor beeing installed using magnetic fixture, directly interfaced with ROV

OUTLINE SPECIFICATIONS

Cable reel

Cable
 500 meter 2 pair 9,3mm OD

Supply voltage
 3Phase 230 or 400 AC

• Weight 180 Kg

• Dimensions L:1150*W:750*H:950mm

ROV interface

Voltage 9-36VdcSignal interface RS485

Connector type
 Depending on ROV system/type

Basket (multichannel logger)

Battery 350Ah primary Lithium or 54Ah chargeable Ni-MH

Design depth 3000 metersLocal indication Dual colour led

On/off
 Scheduling and optional ROV switch

Data logger / Controller
 128GB storage

Weight ~120kg (depending on configuration)

Dimensions
 L:1095*W:745*H:940mm

Instrument*

Measurement principle
 MEMS accelerometers, gyroscope and magnetometer

Frequency range
 0 Hz to 6000Hz

Signal interface RS485Power consumption 0,1W

Rev3 - June 2016

^{*}See datasheet for further details