

Roxar subsea Sand monitor

Non-intrusive acoustic detector

Data Sheet



Real time sand monitoring for oil, gas or multiphase pipelines

The Roxar subsea Sand monitors are intelligent non-intrusive devices that utilize the acoustic noise produced by sand particles to calculate real-time sand production in oil, gas or multiphase pipeline flows. The units are compact, robust and designed for easy installation on the outside of the subsea production pipe-work.

Roxar offers two models; ROV retrievable and Non-retrievable, both mounted in fixed pre-installed clamps assemblies.

Specifications

General Specifications

Model:

- Roxar subsea Sand monitor (Model 03 / 04)

Technology:

- Acoustic

Uncertainty:

- 5-10% (depending on flow regime and calibration level)

Repeatability:

- $\pm 1\%$ (the sensors have a repeatability better than 1%, meaning the sensor signal will read the same values with less than 1% deviation for fixed noise reference signals generated by a calibrated noise generator. The reference signal levels range from zero reading to maximum sensor reading of 2 mill. (100nV).

Flow velocity:

- Minimum 1 m/s

Particle detection limit:

- In gas: $\geq 15 \mu\text{m}$ (depending on flow rate, viscosity etc.)
- In liquid: $\geq 15\text{-}25 \mu\text{m}$ (depending on flow rate, viscosity etc.)

Clamp Assembly Specifications

Dimensions:

- Funnel for ROV retrievable detector: OD378mm, H395mm
- Tube fixture for non-retrievable detector: OD168mm, H411mm

Dry weight:

- Funnel for ROV retrievable detector: 22 kg
- Tube fixture for non-retrievable detector: 22 kg

Submerged weight:

- Funnel for ROV retrievable detector: 19 kg
- Tube fixture for non-retrievable detector: 19 kg

Cathodic Protection:

- Cover by client CP system (M8 connection on base plate)

Material Selection:

- UNS S31603 Stainless Steel

Pipe diameter OD (inches):

- $\geq 3"$ (Schedule: any)

Surface Protection:

- Xylan 1070, F4210 Yellow

Welding

- Not applicable

Detector Specifications

Dimensions:

- ROV retrievable detector: OD126mm, H506mm
- Non-retrievable detector: OD126mm, H416mm

Dry weight:

- ROV retrievable detector: 19 kg
- Non-retrievable detector: 19 kg

Submerged weight:

- ROV retrievable detector: 16 kg
- Non-retrievable detector: 16 kg

Material selection:

- UNS S31803 Duplex

No. of interface connectors:

- 1

Interface connector type:

- Omnitech MKII fitting
- Tronic connector
- ODI connector

Electrical interface:

- 4 / 7 / 12 way

Cathodic Protection:

- Covered by client CP system (eg. Via electrical interface or clamp ass.)

Sealing type:

- C-ring (Inconel 625-Silverplated)
- O-ring (Nitrile Rubber NBR)

Operation depth:

- 3000 meters

Design temperature:

- -18°C to $+70^{\circ}\text{C}$

Pipe surface temperature:

- -40°C to $+225^{\circ}\text{C}$

Design life time:

- 30 years

ROV handle:

- V-notch paddle as standard

Surface Protection:

- Detector: Xylan 1070, F4210 Yellow
- ROV handle: Xylan 1070, F1677 Orange

Welding

- Not applicable

Electronics

System:

- Dual system (redundant)

Voltage:

- 24 VDC $\pm 6\text{V}$

Power consumption:

- Nominal: $<2\text{-}4\text{W}$ (depending on redundancy)
- Startup: $<2\text{x}$ nominal, <1 sec

Communication:

- Modbus RTU – RS485
- Canbus SIIIS Level 2 – Fault-tolerant CAN

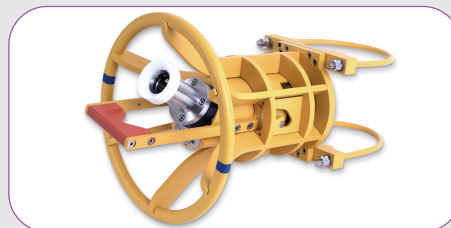
Baud rate:

- Modbus: 1200 – 19200
- Canbus: 50 or 125 KBaud

Applicable standards

- ISO 13628-6
- EN 10204/3.1
- NORSOK M-501, M-630, M-650 (S31803)
- NACE MR-0175 / ISO 15156
- ISO 3506-1 / 3506-2

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