

Roxar Oil-in-water monitor

Data Sheet



Continuous in-line and online oil-in-water monitoring

Operating principle

The Roxar Oil-in-water monitor is based on an ultrasonic measurement technique in which individual acoustic echoes are characterized using advanced signal processing.

A highly focused acoustic signal is transmitted directly into the produced water flow. In the focal region, individual solids, oil droplets and gas bubbles will reflect the acoustic energy and each reflected signal will hold particle specific information.

Based on a large number of measurements, the monitor calculates full size distributions for oil and sand. From the size distributions, corresponding concentration values are calculated.

Design

The Roxar Oil-in-water monitor consists of a Field Unit and a Probe. The Probe is an insertion design unit which is connected to the Field Unit through a 5 meter communication and power cable.

The Roxar Oil-in-water monitor includes high performance electronics and advanced signal processing. All components are suitable for operation in hazardous areas.

Facts

Key features for the Roxar Oil-in-water monitor are:

- Remotely controlled
- Insertion design, "one size fits all"
- No need to shut down to be inserted or extracted
- Reliable and robust
- Accurate and high resolution real-time measurements
- Low maintenance
- Simultaneous detection of oil, sand and gas
- Provides full size distributions and concentration for oil and sand



INTERPRETATION



MODELING



SIMULATION



WELL & COMPLETION



PRODUCTION & PROCESS

Specifications

System performance and characteristics

Particle class:

- oil and solids

Particle size range:

- > 2 – 3 micrometer

Concentration range:

- 0 – 1000* ppm

Uncertainty:

- < 10% relative

Reynolds no.:

- min. 5000

Flow velocity:

- max. 4 m/s

Operating temperature:

- max. 90°C

Temperature variation:

- max. 5°C/minute

Operating pressure:

- 10 bar g

Salinity:

- 0 – 350g/l NaCl

Ambient temperature:

- -20°C to +60°C

*Max concentration range dependent on particle size range

Interface Details - Electrical

Power supply:

- 24VDC

Power consumption:

- Maximum 36W

Field Unit:

- Material: SS316
- Weather protection: IP66
- Mounting: Field-mounted, maximum 5 m from probe.
- Ambient temperature: -20°C to +60°C (-4°F to +140°F)
- Weight: Field Unit: 70 kg (ATEX) / 88lb (NEC)
- Hazardous area approval: Field Unit: II 2(2) G EEx de[ib] IIB T5

Interface details - mechanical

Connection type to pipe:

- 2" 150 lbs weldoflange (or spool piece)
- Suitable for any pipe size >3"

Probe:

- Materials: Titanium Gr. 2
- Hazardous area approval: II 2(2) G EEx d[ib] IIB T5
- Weight: 20 kg

Specifications

Serial communication:

- RS485

Protocol:

- Modbus RTU

Primary output parameters:

- Mass - volume concentration [mg/l]
- Volume concentration [ppm x v]
- Mass concentration [ppm x m]
- Median particle diameter; D50 [μ m]
- Size distributions [μ m]

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