

For Benelux:



Roxar Watercut meter

Fullcut (FC) model

WEGMAN

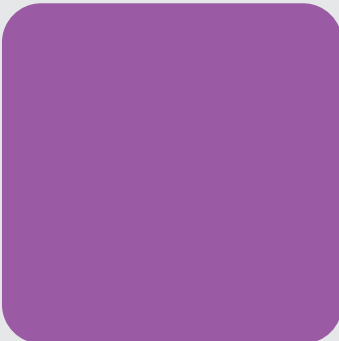
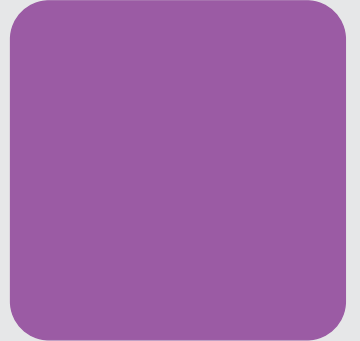
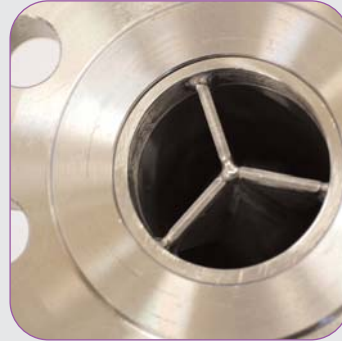
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Data Sheet



Continuous in-line measurement of water in oil/water mixture flow

Operating principle

The Roxar Watercut meter (WCM) Full Cut (FC) model is constructed as an open coaxial cable resonator. The pipe is used as the outer conductor of a coaxial transmission line, and a metal rod in the middle of the pipe acts as the centre conductor. An electric field propagating along the coaxial line will be reflected at both ends of the rod. Oil/water mixtures flow in the space between the centre conductor and the pipe; thus the mixture affects the frequency at which the sensor resonates

Autozero Option

All water-in-oil analyzers are sensitive to variations in the fluid properties (e.g. changes in hydrocarbon density). Roxar has proven a close correlation between the density and the permittivity of a dry hydrocarbon liquid. This patented relationship enables the Meter to continuously compensate for changes in the hydrocarbon liquid composition.

Facts

The Roxar Watercut meter is characterized by:

- Continuous real time measurement
- Unmatched sensitivity and long-term stability
- Full bore or by-pass in-line installation
- No moving or exposed parts
- Customer specified size, rating and material upon request
- Automatic compensation for process temperature
- AutoZero function providing automatic correction for changing fluid properties (optional)
- Coriolis interface for two-phase flow measurement (optional)
- User-friendly, menu based configuration software

Autosalinity Option

The optional AutoSalinity function enables continuous compensation for changing water salinities.



INTERPRETATION



MODELING



SIMULATION



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Specifications

Interface Details - Electrical

Power supply:

- 100-240 VAC / 24VDC

Current consumption:

- Max 32W, typically 25W

Electronic housing:

Materials:

- Stainless steel (ATEX) /
- Painted aluminum

Weather protection:

- IP66 / NEMA 7

Mounting:

- Field-mounted, maximum 2 m from sensor

Ambient temperature:

- -20°C – 60°C (-4 – 140°F)

Weight:

- Approx. 70 kg (ATEX) / 88lb (NEC)

Hazardous area approval:

- EEx de [ia] IIB T5 and Class 1, Div 1, Group C

Temperature transmitter:

- EEx d IIC T6 (IS as option) and Class 1 Div 1, Group B C D

Input/Output

Analogue 4-20mA inputs:

- Input signals: Up to 3 (temperature, mixture density, flow rate, pressure, dry oil density)

Frequency inputs:

- Input signals: Up to 2 (mixture density and total flow rate)

Analogue 4-20mA outputs:

- Output signals: Up to 5 (temperature, % water, oil/water flow rate, etc)

Pulse outputs:

- Output signals: Up to 2 (accumulated volume of oil and water)

Digital I/O:

- RS232/422 serial ports, user selectable baud rates

Number:

- 2 (ASCII-string)

Transmission distance:

- 15m (RS232)/1000m (RS422)

Interface Details - Mechanical

Connection type to pipe:

- 2"-3" Spool piece type sensor up to 600# ANSI

Materials:

- Standard: Duplex UNS S31803
- Non Standard: Stainless Steel SS 316L

Measurement range:

- 0-100%

Accuracy:

Inline Calibration:

- 0-100% water: +/-1% absolute

Repeatability:

- 0.25%

Sensitivity:

- 0.05%

Response Time:

- 0.75s

Flow conditions:

- Well mixed

Pressure Drop:

- Less than 0.3bar (5psi)

Weather protection:

- IP66

Hazardous area approval:

- Simple Apparatus

Design temperature:

- Up to 120°C (250°F)

Effect of temperature variations:

- Automatic temperature compensation

Effect of oil density variations:

- +/- 0.027% water per +/-1kg/m3
- Automatic compensation with Autozero (requires a line density input).

Effect of pressure variations:

- Approx. +/-0.00017% water per +/- 1psi
- Automatic compensation with Autozero (requires a line density input).

Roxar Watercut meter Fullcut (FC)



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