



Continuous in-line and online Oil-in-Water analyzing



Multiple display options

OPERATING PRINCIPLE

The Mirmorax Oil-in-Water analyzer 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. The reflection and absorption of the signal provides a wide range of accurate measurements. 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 direct measurements, the analyzer calculates mean particle size for oil and sand. The size distributions are used to calculate corresponding concentration values. Important process information as salinity and temperature are measured and presented by the Oil-in-Water graphical user interface. The analyzer performs self-diagnosing and auto adjustment.

MODEL FEATURES

The Mirmorax DeskTop Oil-in-Water analyzer is based on the 3rd generation ultrasonic analyzer technology. Model DT250 is specially developed to do sample analysis in a simple and reliable way without having to use chemicals. The analyzer is designed to manage the lower range (0-250 ppm) of oil and particles with high accuracy and at the same time deliver classification of particles and size distribution. Integrated into the design is an analysis chamber where the sample is analyzed. The sample is poured into the chamber and an integrated stirrer keeps the sample homogeneous during the analysis. The chamber comes with a waterproof safety lid for safe operation. The analysis time for a sample is less than 2 minutes under normal conditions. The model also has an integrated inlet – outlet interface that allows a 1/8 inch flow of produced water to flow continuously through the measurement chamber. This is especially practical if the intention is to find the optimal location for a permanent installation the In-line probe version LR2500.

DESIGN

The Mirmorax Oil-in-Water analyzer Model DT250 is fully integrated into a robust weather proof case. The design is light weight and ideal as a portable test instrument that can be mobilized quickly if needed and fulfills the weight and size requirements for offshore helicopter transport. In the top-half of the analyzer case there is a touch screen unit that is used both for displaying the results and for configuring the analyzer into the mode of operation relevant. The display has a series of practical data presentation modes and the option to export data.

The electronics consists of a high performance signal processing and communication electronics that is connected to the touch display. The analyzer can also be connected to a computer that has Mirmorax Graphical User Interface installed or directly to the control system through one of the available communication protocols.

FACTS

Key features for the Mirmorax DT250 Analyzer are:

- Accurate and high resolution real-time measurements
- Simultaneous detection of oil, particles and gas
- Provides mean particles size for oil particles and solids
- Temperature measurements of process water
- Salinity Measurements of the process water
- Local display with screen selection
- Remotely control and data access possibility
- Reliable and robust
- Low maintenance



SPECIFICATIONS

PRIMARY OUTPUT PARAMETERS:

Size distributions of oil and solids [μm]	Median particle diameter, D50 [μm]	Mass based concentration [mg/l]	Volume concentration [ppm]
Volume based concentration [ppm]	Temperature of process flow [$^{\circ}\text{C}$]	Density of water [g/l]	Salinity of water [g/l]

SYSTEM PERFORMANCE AND CHARACTERISTICS

Concentration range: Oil: 0-250 ppm Solids: 0-250 ppm	Uncertainty: < 5% relative	Operating pressure: 10 bar with closed lid	Operating temperature: 0°C - 120°C (32°F - 250°F)
Ambient temperature: -20°C to 50°C (-4°F to 122°F)	Salinity: 0 – 350g/l NaCl	Flow velocity: Max. 4 m/s (9 mph)	Particle size range: 2 – 150 micrometer (2-70 micrometer for particle size measurements)
Reynolds no.: < 5000	*Max. Concentration range dependent on particle size range		

INTERFACE DETAILS – ELECTRICAL

Power supply: 24VDC	Power consumption: Maximum 36W	Serial communication: RS485/4-20mA/HART/Ethernet	Protocol: Modbus RTU
ANALYSIS CHAMBER:			
1/8" BSP by-pass inlet and outlet	Differential pressure inlet-outlet > 0.2 Bar	Materials: Acrylic or PA6 GF	Magnetic stirrer 0-1500 rpm
GENERAL:			
Material: Polycarbonate	Safe Area Classification (Non-Ex)	Weather protection open: IP65, IEC 60529	Weather protection closed: IP67, IEC 60529
Weight: 10 kg (22 lb)	Size EC: 53 x 32.4 x 32.4 cm (L x W x H)	Size US: 20.85" x 12.73" x 12.75" (L x W x H)	Weight: 10 kg

DISPLAY

Type: Touch Analog-resistive	Size and resolution: 800 x 480 pixel, 7" diagonal	Quality: 64K color, LED Backlit LCD display	Flash: 80 MB
Flash: 80 MB	Expansion: 1 SD Card Slot		

EXPANSION: 1 SD CARD SLOT

Ethernet: 1 x 10 Base-T / 100 Base-TX (shielded RJ 45)	Serial: 2 combined ports: 2 x RS232, 2 x 422/485	USB: 1 x USB 2.0 full-speed, 200 mA max	
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