



## OPERATING PRINCIPLE

The Mirmorax Oil-in-Water analyzer is based on an ultrasonic measurement technique which is a direct measurement on individual acoustic echoes that are characterized using advanced signal processing.

A highly focused acoustic signal is transmitted directly into the produced water flow. The reflection and absorption of the signal provide 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 monitor calculates mean particle size for oil and sand. The size distribution and also the number of particles are used to calculate corresponding concentration values.

Important process information as salinity and temperature are measured and used as input for calculation of oil concentration.

## MODEL FEATURES

The primary outputs, real-time oil concentration and 24H average oil concentration, are displayed numerically in the digital display integrated in the analyzer. The analyzer performs self-diagnostics and auto calibration.

Mirmorax Oil-in-Water RTG100 primary outputs are real-time oil concentration and 24 hours floating average oil concentration. These outputs are displayed numerically in the digital display integrated in the analyzer. Additional data available as Modbus addresses are droplet size, water density and temperature. The analyzer performs self-diagnostics and auto calibration. Recommended calibration range is 0-100 ppm.

## DESIGN

The by-pass Oil-in-Water analyzer is our newest design and a "Ready-To-Go" solution with an easy and low-cost integration.

The standard interface is a 1" NPTF inlet and outlet to transport the flow through the flow cell, however fittings to match smaller sizes can easily be added. A pressure drop of minimum 0,2 barg will allow for the flow to be returned to the main flow after passing the measurement element in the flow cell. Alternative return is a closed or open drain system. The measurement element is directly connected to the electronics placed in a stainless steel 316 housing with EX classification Zone 1. The total weight is approximately 20 kilos. Two pigtail cables of 10 meters are included for the power supply and output signals.

The analyzer can be supplied in a customized mounting rack with an integrated Mirmorax Automatic Cleaning system to ensure clean ultrasonic transducer and reflector at all time.

## FACTS

**Key features for the Oil-In-Water RTG100 analyzer are:**

- Accurate and high resolution real time measurements
- Easy integration – Ready to Go design
- Integrated numeric digital display with real-time concentration and 24H average
- Reliable and robust to changing process conditions
- Low maintenance
- Automatic cleaning system

## OPTIONS

Mirmorax By-Pass Oil in Water Analyzer is designed as a fully integrated Ready-To-Go system. Still, optional requests for materials, communications will be available at customer request.

SPECIFICATIONS	
PRIMARY OUTPUT PARAMETERS:	
Real time Oil-in-Water concentration 0–100 ppm*	24h Average Oil-in-Water concentration 0–100 ppm*
Real time Oil-in-Water droplet size 3,5-17 µm	

SYSTEM PERFORMANCE AND CHARACTERISTICS			
<b>Concentration range:</b> Oil: 0–100 ppm*	<b>Accuracy:</b> +/- 1%	<b>Operating pressure:</b> 200 bar g	<b>Operating temperature:</b> Min 0°C, max. 90°C
<b>Ambient temperature:</b> -20°C to +60°C**	<b>Salinity:</b> 0–350g/l NaCl	<b>Δ Pressure:</b> min. 0,2 barg	<b>Δ Pressure in by-pass:</b> Min 0,2 barg
<b>Particle size range:</b> > 2–3 micrometer	<b>Particle size sensitivity:</b> >1-2 µm	<b>Reynolds no.:</b> < 5000	*Max. Concentration range dependent on particle size range **Heat tracer for cleaning system required when temperature < 0°C

INTERFACE DETAILS – ELECTRICAL			
<b>Power supply:</b> 18–36 VDC	<b>Power consumption:</b> Normal 10W Max 20W at start-up	<b>Serial communication:</b> RS485	<b>Protocol:</b> Modbus RTU 4–20mA
<b>Cables:</b> 2 each pigtails of 10 meter			

INTERFACE DETAILS – MECHANICAL			
<b>Inlet/outlet flow cell:</b> • 1" NPTF	<b>Flow cell and enclosure:</b> • Materials: SS316 • Hazardous area classification: Zone 1 II 2 G Ex d IIB T5/T4 Gb (ATEX & IECEx) • Weather protection: IP66, IEC 60529 • Weight: max 25 kg.	<b>Display:</b> • Numeric, digital local display integrated	<b>Wall/floor mount:</b> • Customized mounting frame for analyzer and cleaning system available.

AUTOMATIC CLEANING SYSTEM
<ul style="list-style-type: none"> <li>• Material: SS316</li> <li>• Weight: max 15kg.</li> <li>• Process pressure range: 0–20 bar (higher available at request)</li> </ul>

