

EX-100M/1000M

Side Stream/Slip Stream PPM, Solids and Oil Droplet Water Monitor - Analyzer



EX-100M/1000M

The introduction of Advanced Sensors revolutionary oil in water analyzers in 2005 gave users the first on-going maintenance free analyzer to provide continuous uninterrupted accurate measurements of oil concentrations.

Combining Laser Induced Fluorescence with video microscopy in one analyzer provides another revolutionary step in product capability. Now, with the introduction of Microscopy, Advanced Sensors have enhanced the existing range of products by utilising video imaging to measure Total Suspended Solids (TSS), Oil Droplet Size and Gas bubble size measurements, whilst still accurately measuring concentration of oil with fluorescence technology. All of which, still utilise patented self cleaning technology to keep fouling from impacting the data gathered.

Features

- Zero routine maintenance using patented ultrasonic cleaning mechanisms and software
- One system with both fluorescence for concentration and microscopy for solids and oil drop dimensions
- High concentration measurement capabilities allowing user configurable ranges from 0-1,000 PPM
- 1% accuracy and 99% measurement repeatability for concentration
- +/-4% accuracy and 98% measurement repeatability for microscopy data
- Complete remote capabilities with offline software for live view of results and offline review capabilities
- No flow conditioning or flow control
- Plumb'n'Play – easy installation into new or existing installations
- Multiple communications configurations – 4-20mA, HART, Modbus, Ethernet, ADSL
- Optional Integrated Spectrometer, turns the EX-100M into EX-1000M - see Spectrometer in Technology section of website

Benefits

- With no consumables and no regular operator intervention, the Advanced Sensors analyzer offers very low Cost Of Ownership (COO)
- By using laser induced fluorescence (LIF), the analyzer avoids standard lamp fluorescent issues, namely, warm up requirements and deterioration of lamps over time resulting in accuracy issues
- Advanced software capabilities allow complete remote control and monitoring. Ideal for un-manned locations and remote process monitoring
- Easy to use windows based interface



Stainless Steel enclosure optional

Technical Specification

Fluorescence Specification	
Measurement Principle	Laser Induced UV Fluorescence
Measured Components	Hydrocarbons or Chemicals that Fluoresce
Range	0-20,000 PPM
* User may select any desired measurement from 0 to 20,000ppm	
Accuracy	±1% of measurement range
Repeatability	> 99%
Response Time	< 1 Second, continuous results

Spectrometer Specification	
Emission Wavelength Range	400-1,100nm
Resolution	0.5nm

Microscopy Specification	
Measurement principle	CCD Camera 2D Image
Image Resolution	2 Million Pixels
Lighting	Controlled LED lighting with 5 year MTBF
Number of Images Per Dataset	1-50 Images (User Configurable)
Time between each Image	0.1 to 10 Seconds (User Configurable)
Imaging Modes	Flowing, Static, High Gas Content Mode

Microscopy Image Processing	
Advanced Sensors Image Processing Engine (no 3rd party Algorithms)	
Shape and object matching used to classify objects in the image	
No need to change parameters for different turbidity of samples, due to Automatic exposure time and Multi-level image threshold algorithms	

Microscopy Measured Items	
Hydrocarbons, Total Suspended Solids + Gas PPM	
Hydrocarbons, Total Suspended Solids + Gas Size	
Turbidity: Measurement in AU	

Microscopy PPM	
Range	0-1,000 PPM
Calibration	4 parameter curve fit with gain correction
Auto-Calibration	Microscopy PPM can auto calibrate to Fluorescence measurement

Microscopy Measured Parameters	
PPM	Turbidity
% Concentration	No. of Objects Per Image
High Sensitivity Circularity	Aspect Ratio
Convexity	Elongation
Size	DV10, DV50 and DV90
Diameter PED (Circle of Equal Perimeter)	Configurable Object Sharpness
Length, Width	Volume, Area

Microscopy Size Range	
Dimensional Range	1-450um
Accuracy	±4% of measurement range
Repeatability	> 98%
Calibration	Size calibrated to known latex beads

EX-100M/1000M Technical Specification

Microscopy Turbidity	
Range	0-1,500 AU
Light Frequency	White light
Measurement Timeline	Every Image Cycle
Data Storage	
Image Storage	30-60 days depending on schedule
Data of every Particle Measured	120 days storage
MiView Offline Software	
Powerful Client software for complete analysis of data from system	
Connect live to the analyzer over the network for real-time analysis	
View historical data for process review	
Look at the performance of processes at different points	
Generate reports automatically from the data	
Operating Conditions	
Process Temperature	0°C to 100°C (180°C optional)
Process Pressure	0-35 barg (180 barg optional)
Process Flow	0-25 l/min (0-1,000l/min optional)
Operational Ambient Temperature	-20°C to 55°C
Utilities	
Power Supply	110 or 230 VAC, 50-60 Hz
Power Consumption	60W normal, 300W peak
Instrument Air	5-8 barg (for pneumatic valve; electric valve option available)
Weight & Dimensions	
Weight	76.9kg+ inc. stand, valve and chamber
Footprint	600W x 670D mm
Clear Space	500mm front and rear
Height	1.12m typical (optional variants)
Communications	
4-20 mA	Passive
HART, Modbus (over HART), Wireless (Wi-Fi), 2-wire ADSL	Optional
Ethernet	Standard
Remote Access	VNC, Master Remote Manager
Internal Data Storage	>10 years
Security	Multiple level password protection
Additional Information	
Flange Fitting	1" ANSI standard, options available
Wetted Parts	SS 316L (Hastelloy, Inconel, CR25, CR22, Titanium, Monel)
Sample take off point	Standard – integral to analyzer
Viewing Window	Standard
Homogenisation	Ultrasonic
Gas Removal, Solids Removal, Temp. Conditioning, Flow Control	Not Required
Discrepancy for Oil droplet size	Automatic Oil Droplet Size compensation
Ingress Protection	IP66
Enclosure Material	Aluminium (SS 316L optional)
ATEX Exd II 2 G IIB T4, IECEX, CSA, Class 1 Div 1	
Size calibration of objects conforms to ASTM E1951 Standard Guide for Calibrating Reticles and Light Microscope Magnifications	
Microscopy Alarms configured by user	
Automatic Cleaning using Ultrasonics	