

# S-One-FS / S-One-FP

Laser Induced Fluorescence Oil in Water Analyser  
Side-Stream and/or Inline, for Non-Hazardous Areas



Ultronics



Fluorescence



Spectroscopy

The Advanced Sensors S-One is the next generation of our incredibly successful range of analysers for Oil in Water measurement.

The analysers comprise a central controller with up to two measurement modules. The measurement modules are available in side stream and inline configurations for placement in a process by-pass loop (S-One-FS) or directly in a process pipe (S-One-FP) respectively. The S-One-FP and S-One-FS use Laser Induced Fluorescence (LIF) to provide continuous accurate measurements of oil concentrations in water across a wide range of oil types. Reliable real-time data enables operators to record accurate discharge measurements, react to process changes and improve process efficiency thus enabling cost reductions.

The S-One additionally facilitates interconnection of 3<sup>rd</sup> party sensors to the controller via Modbus and 4-20mA inputs.

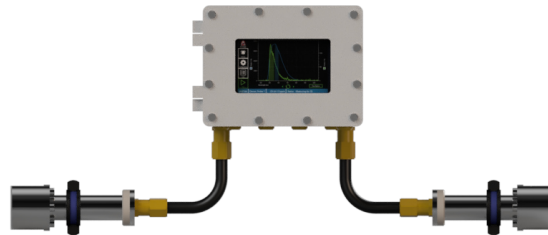
## Application Examples

Applications include Oil in Water measurement in discharge management, process improvement, cooling water, waste-water treatment and oil leak detection. Please follow up with ASL to determine the optimum configuration for your specific application.

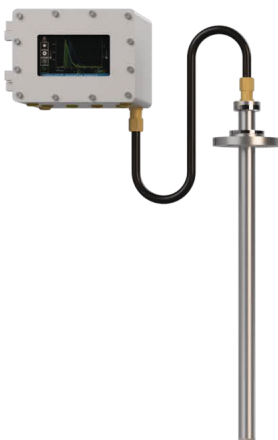
The analyser is available in 5 model configurations



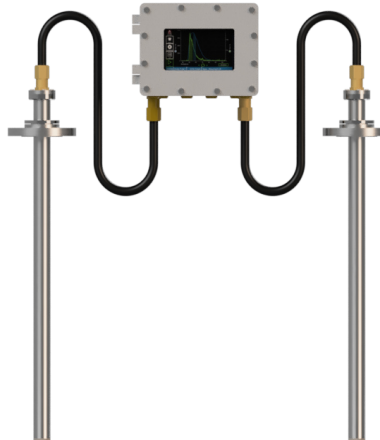
**S-One-FS**  
Side-Stream analyser  
with one measurement cell



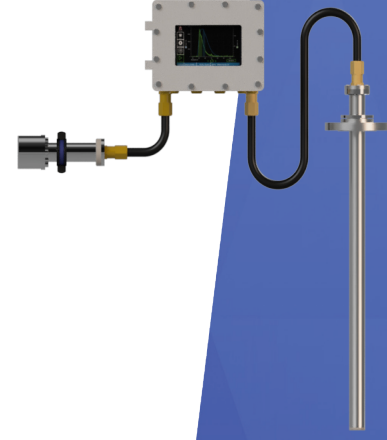
**S-One-FS-FS**  
Dual Side-Stream analyser  
with two measurement cells



**S-One-FP**  
Inline analyser  
with one measurement probe



**S-One-FP-FP**  
Dual Inline analyser  
with two measurement probes



**S-One-FS-FP**  
Side-Stream and Inline analyser  
with one measurement cell and probe



Ultrasonics



Fluorescence



Spectroscopy

# S-One-FS / S-One-FP

Laser Induced Fluorescence Oil in Water Analyser  
Side-Stream and/or Inline, for Non-Hazardous Areas

## BENEFITS

- Compact, lightweight design
- Low cost of ownership
- Independent controller acts as a hub for 3<sup>rd</sup> party and for future Advanced Sensors measurement devices
- No user required maintenance, artificial intelligence (AI) Enhanced Ultrasonic Cleaning removes fouling build up
- Consistent accurate performance
- No sample conditioning system required
- Laser lifetime of 36 months. (Factor of 2 extension over previous generation model)
- No re-calibration required and no degradation of signal over the period of 36 months
- Same sample used for analyser and lab measurement for better accuracy
- Remote control of the analyser
- Analyser outputs accessible remotely via HART, Modbus, Ethernet and 4-20mA
- Visibility of process changes provided via spectral fingerprint

## FEATURES

- AI Enhanced Ultrasonic Cleaning
- Laser Induced Fluorescence [LIF]
- Dual measurement options
- Remote management and diagnostics
- Easy to install
- Spectral representation of the fluorescence signal
- Ability to connect 3<sup>rd</sup> party devices to the controller via Modbus and 4-20mA
- Database storage of all data
- Export historical data via .PDFs and .CSV files
- Optional integrated laboratory sample point



### Additional for Probe/Inline

- Hot insertion/extraction

For pressures in the range 3-5 bar<sub>g</sub> a low pressure extraction tool is recommended. For pressures above 5 bar<sub>g</sub> a high pressure extraction tool is required

### Additional for Cell/Side-Stream

- Optional automatic compensation for oil droplet size variation
- Optional flexibility of measurement cell location



<b>Measurement Performance</b>	
Measurement principle	Laser Induced Fluorescence (LIF)
Cleaning principle	A.I. Enhanced Ultrasonics (automatic)
Range	0-20,000 ppm ↗
Repeatability	±1% of measurement range Ⓢ
Accuracy	±1% of measurement range Ⓢ
Measurement frequency	1 Second intervals, continuous results ⌚
<b>Operating Conditions</b>	
Process temperature	Up to 100°C
Operating pressure	Up to 15 bar <sub>g</sub>
Process velocity with Probe	Nominal 10 m/s ⌚
Process flow on Cell	Up to 25 l/m ⌚
<b>Ambient Conditions</b>	
Ambient temperature for operation	-20°C to +60°C
<b>Spectrometer Specification</b>	
Measurement wavelength range	475-1,050 nm
Pixel resolution	0.24 nm
<b>Utilities</b>	
Power supply	100 to 240 VAC
Power frequency	50 or 60 Hz
Power consumption	25W normal, 150W peak
<b>Certification</b>	
Ingress protection	IP rated for both IP66 and IP68
Enclosure classification	NEMA 4X
CE compliant	<b>CE</b>
UK	UKCA
<b>Weight &amp; Dimensions</b>	
Weight	Controller 24 Kg Measurement Probe 6 Kg Measurement Cell 3.5Kg
Dimensions	Controller L 280 mm x H 200 mm x D 195 mm Measurement Probe Up to 1m Length with 38mm Diameter Longer probe lengths on request Measurement Cell L 225 mm Diameter 76.5mm (Max)
<b>Communications</b>	
2 x 4-20 mA Output	Can be configured as passive or active at the factory Configurable measurement reporting
1 x 4-20 mA Input	Readings from external measurement device displayed at the controller interface
Up to 4 x Digital Inputs Up to 3 x Digital Outputs (Dry contacts)	Start/Stop cycle control Configurable as alarm contacts
Remote access	Windows Remote Desktop
Internal data storage	>10 years
User passwords	3 level password protection
<b>Optional Communications</b>	
HART	Hart version 7
Modbus RTU output	Modbus tables provided on request
Modbus RTU input	Enables connection of an external measurement device ✨
Extended ethernet	2 wire connection, capable of up to 1.3km distance

Additional Information	
Cable entries	8 x M20
Wetted components	Stainless Steel 316L, 25 Cr Duplex, 22 Cr Duplex, Hastelloy C-276, Monel 400, Inconel 625, Incoloy 825 and other options available on request
Controller material	Stainless Steel 316L
Conduit length	Up to 30m
Dual Cell S-One-FS-FS Dual Probe and cell S-One-FS-FP Dual Probe S-One-FP-FP	Allows dual simultaneous measurement
Analyser Stand	Optional
Additional Information Cell	
Process connection	½" NPT Connection (additional optional connections available e.g. flanged connections)
Optional ultrasonic homogenisation	Facilitated via an optional flow valve
Additional Information Probe	
Hot insertion/extraction	Up to 15 bar <sub>g</sub>
Flange fitting	2" ASME RF (various other flange ratings and sizes available upon request)

Laser Radiation. Avoid direct eye exposure. Class 3R Laser product

↻ Dependent on sample matrix & instrument configuration. User may select any desired measurement from 0-10 ppm, 0-100 ppm [...] up to 20,000 ppm

⊕ Under ideal conditions, with a homogenised sample.

Note: Lab calibration with potable water and following ASL standards preparation method can achieve accuracy and repeatability of +/-1% of calibrated range.

Ⓞ Option to extend the interval via software

↻ For Higher flow rates contact Advanced Sensors

✳ Contact ASL for assistance with device integration

## Contact Us

**UK headquarters:**  
8 Meadowbank Road  
Carrickfergus  
N. Ireland  
BT38 8YF  
UK

**Email:** sales@advancedsensors.co.uk

**Tel:** +44(0) 28 93 32 89 22

**Web:** www.advancedsensors.co.uk

Advanced Sensors is TPS Registered