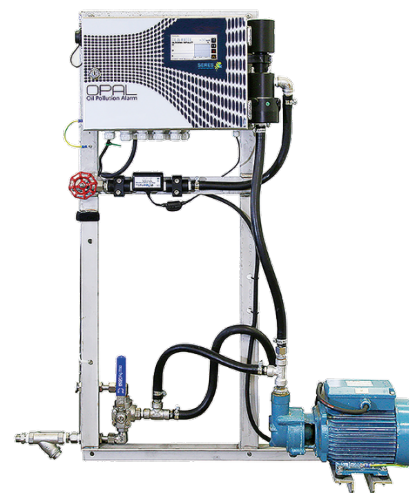


Complete monitoring system for the automatic, continuous detection of suspended hydrocarbon in water. Suitable for early detection of oil in various applications (water steam cycles, industrial water, industrial and urban wastewater), onshore and offshore.

Detector Opal (Oil Pollution Alarm)

- Available configurations for specific measuring ranges as in the table below.
- Complete system including measurement and control electronics, measuring unit and flow indicator.
- Reagent-free infrared light scattering beam measurement. Automatic compensation for Iron oxide per IMO MEPC.107(49). (Opal Detector Marine only.)
- Instantaneous response from online analyzer.
- Programmable alarms for high/low thresholds, flow and analyzer failure.
- Automatic and periodic wiper jack cell cleaning.
- Available ex-proof (ATEX, IECEx, GOST)
- Available for marine applications (IMO resolution MEPC.107 (49))



Opal Standard

Analyzer	Opal Detector Standard (assembled on frame)	SOL-59.211.000
Analyzer	Opal Detector Russia (GOST ATEX)	SOL-59.211.100
Analyzer	Opal Detector in ATEX/IECEx Enclosure	SOL-59.211.200
Analyzer	Opal Detector Marine (IMO MEPC.107 (49)) (assembled on frame)	SOL-59.211.300

Range Selection*	0-10 ppm	SOL-97.022.510	0-250 ppm	SOL-97.022.550
	0-30 ppm	SOL-97.022.520	0-500 ppm	SOL-97.022.560
	0-50 ppm	SOL-97.022.530	0-1000 ppm	SOL-97.022.570
	0-120 ppm	SOL-97.022.540	*not applicable for Opal Marine – always 0-30 ppm	

Power Supply Selection	110 VAC / 50 Hz	SOL-89.820.060	230 VAC / 50 Hz	SOL-89.820.040
	110 VAC / 60 Hz	SOL-89.820.070	230 VAC / 60 Hz	SOL-89.820.050

Configuration	Sampling probe for process pipe (Pipe nominal diameter (DN): 350 mm or 650 mm; BSP or NPT)	SOL-83.710.010 Consult Sales
Configuration	Sample Cooler for Liquid (if sample < 90°C) – for ATEX/IECEX version only	SOL-82.330.010
Configuration	Automatic backflush filter cleaning	SOL-82.810.010
Configuration	HART converter module – for ATEX/IECEX, 4-20 mA version only	SOL-81.430.010
Configuration	RS485 RTU Modbus/JBUS	SOL-84.430.020
Configuration	Self-priming pump – for 230 VAC power supply version only	SOL-82.340.020
Option	1-Year Spare Part Package	SOL-84.110.030

Hydrocarbon Detection

Infrared light scattering beam measurement:

The quantity of energy thus emitted is proportional to the number of particles and is converted into hydrocarbon ppm.

Cycle time Instantaneous, T90% < 3 sec.

Sensors/Measurement Equipment

Detection wavelength 850 nm
Photodiode detection

Detector Measuring range

Opal Detector	0-1000 ppm (selectable, pre-defined)
Limit of Detection	1 ppm (For range up to 120 ppm)
Repeatability	± 2-3 % FS
Accuracy	± 2-3 % FS

Zero calibration: On clean, fresh water

Specifications and Functionality

Pump type Emulsifier pump
Pump quantity 1

Power supply

Voltage: 110 or 230 VAC (selection pre-defined)
Frequency: 50 or 60 Hz (selection pre-defined)
Power consumption: 700 VA (with pump)

Operation

Display: Color and graphic LCD, 4.3", touch-screen

Display of process value, alarm status and graphic.

Smart and intuitive interface based on separate menu sections: "Measurement", "Maintenance" and "Settings".

User menus in English and French. Password protection and storage of data records. Storage and graphical display of measurement history.

Alarm Relays

1 summary alarm for "analyzer failure"

Maximum load: 1A / 24V

Relay Outputs

2 potential-free contacts programmable as limit switches for measuring values (high/low thresholds)

1 sample flow alarm.

1 output for indication of the active sample stream.

Rated load: 1A / 24V

Opal Models



Opal Standard



Opal Russia



Opal in ATEX Enclosure



Opal Marine

Inputs

1 input for "Standby".

Signal outputs

1 programmable signal outputs for measured values (freely scalable, linear).

Current loop: 0-4 - 20 mA

Communication interface

RS485 interface (galvanically separated) with JBUS RTU protocol

1 sealed USB connection for transfer on key

HART converter module for ATEX version (configuration).

Opal explosion proof

For installation of equipment in hazardous area zone 1 or 2, group IIC, T4:

Pressurized cabinet, air purge unit (ATEX), air control unit, integration work, certification, cabinet cooler.

Type	Code
ATEX:	LCIE 12 ATEX 3078 II 2 G Ex pxb IIC T4 Gb
IECEx:	IECEx LCIE 17.0036 II 2 G Ex pxb IIC T4 Gb
GOST:	Metrologic and TC-RU (2ExpzIIT4/T3) for hazardous areas

Opal Marine

IMO Resolution MEPC.107 (49)

Measuring range 0-30 ppm
Bilge alarm 15 ppm

Analyzer Data

(The following data refers to the Opal Detector Standard on frame. Other version's dimensions, weight etc. vary depending on the chosen configuration.)

Sample conditions

Flow rate: min 100 l/h
optimum 200 l/h
Temperature: 5 to 50 °C
Inlet pressure_{Abs.} (25 °C): 0.5 up to 3.0 bar max.
Outlet pressure: pressure-free
Particle size: 400 µm filter included (<400µm)

Ambient Conditions

Temperature: 5 to 45°C
Humidity: 10 to 90% rel.

Sample connections

Sample inlet: 1/2" BSP F
Sample outlet waste: 1/2" BSP F
Clean water inlet: connection for tube Ø10 x 12 (200l/h - 0.5 up to 3.0 bar max – Consumption about approximately 100L/month)

Analyzer measures

Dimensions: 1055 x 800 x 250 mm

Materials

Wall skid: SS 304
Vessel: Delrin & PVC
Hydraulic circuit: flexible thermoplastic piping
Total weight (basic model on wall skid): 30 kg
Protection degree (cabinet): IP 65
Installation in safe and sheltered area, away from dust and corrosive atmospheres

Interferences: Turbidity, bubbles