

Seres OL Detector Opal (Oil Pollution Alarm)

Datasheet No. DenSOL59211x00



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.

- 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 box (ATEX, IECEx, EAC)
- Available for marine applications (IMO MEPC.107 (49))



| | | |
|----------|--|----------------|
| Analyzer | Seres OL Opal Detector Standard (assembled on frame) | SOL-59.211.000 |
| Analyzer | Seres OL Opal Detector Russia (EAC ATEX) | SOL-59.211.100 |
| Analyzer | Seres OL Opal Detector in ATEX/IECEx Enclosure | SOL-59.211.200 |
| Analyzer | Seres OL 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 |

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

07/2022 Subject to changes without notice



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

Seres OL Opal Line



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).

Seres OL 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 |
| EAC: | RU C-FR.AJK58.B.02345/22 |
| | (2 Ex pz II T4 Gc) |
| | for hazardous areas |

Seres OL 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 (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 frame): 30 kg
Protection degree (cabinet): IP 65
Installation in safe and sheltered area, away from dust and corrosive atmospheres

Interferences: Turbidity, bubbles

