



OilTechw² FLT Sensor

Visible Oil on Water Detector

PRODUCT DATASHEET

APPLICATIONS

Airport Run-off
Power Generation
Water Treatment Intake Protection
Metal Processing Plant Effluent
Inland Waterways

BENEFITS

Early Warning of Pollution Incident
Protection for Membrane Plants
Automatic Intake Shutdown
Reduction of Environmental Damage

PRINCIPAL OF OPERATION

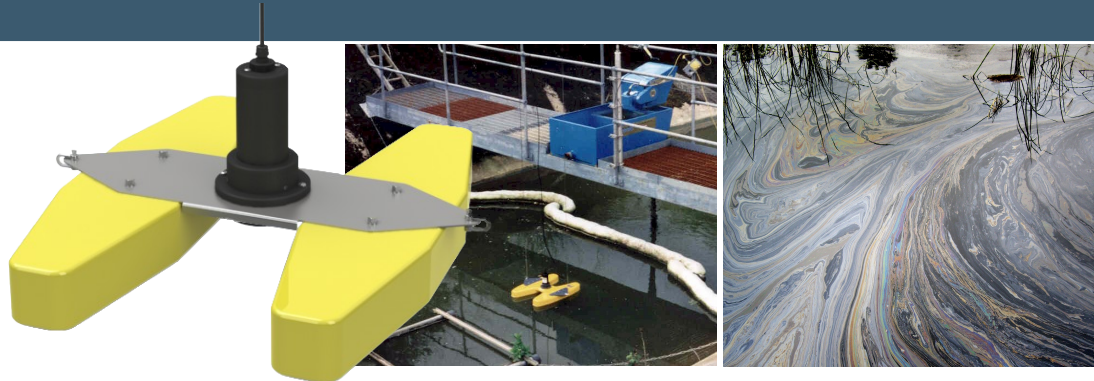
Infrared Surface Reflectance
Non-Contact Sensor
Detects Monomolecular Oil Sheen

FEATURES

Floating Sensor
Local Display
Analogue and Alarm Output

COMPATIBLE MONITORS

7300w² Monitor

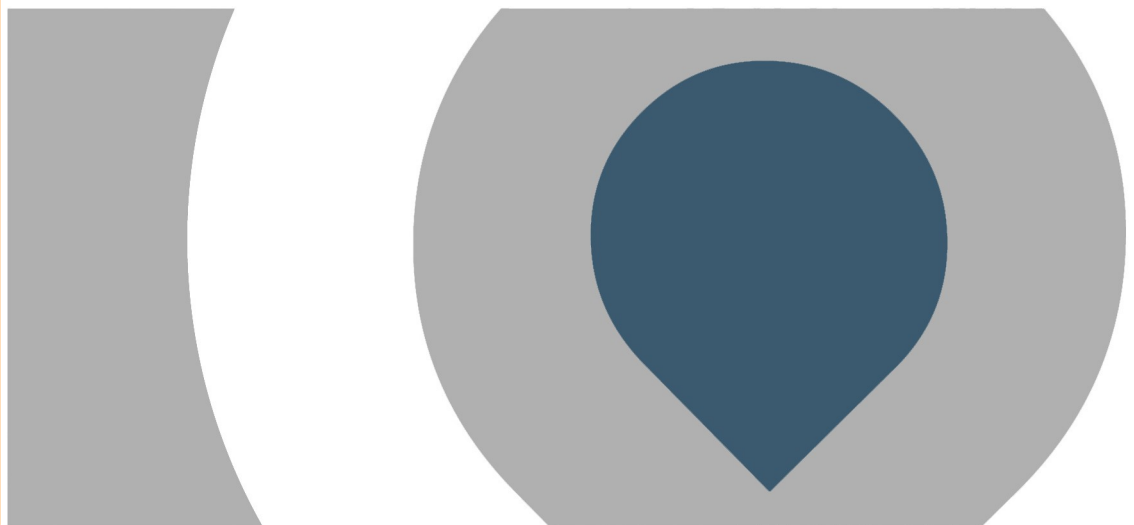


Contamination of water courses by visible oil is a problem that requires fast, reliable detection to prevent damage to either the local environment or a water treatment process. If oil is allowed to enter a river then wildlife can be harmed, if the oil then enters a drinking water plant damage can be caused to the processing system or more critically the quality of the drinking water can be affected.

Early warning of a problem allows remedial action to be taken either by automatically shutting down the intake to a process or by raising an alarm calling for manual intervention. The 7300w² monitor can also be connected to pollution prevention equipment such as oil dispersants or oil adsorbing mops, booms, and skimmers.

The OilTechw² sensor can be deployed in any application where the surface of the water is relatively calm, the system will react rapidly to both partial and complete films of oil on the water surface. The measuring system is highly stable and only needs occasional validation to ensure reliable operation.

The unsinkable floating sensor has a dual hull designed to channel any passing oil through the centre of the float so that it is presented to the detector. The non-contact infrared sensor emits light that is reflected from the water surface, any oil that is present increases the amount of light reflected and this is then converted into the desired output signals.



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The Monitoring System

The instrument is designed as a first line detection device for monitoring the presence of oil on water. The unit comprises a floating sensor and associated 7300w² Monitor. Combined these make up a complete monitoring system that provides local display, alarms and re-transmitted analogue value of the percentage probability of an oil film. The sensor is floated on a suitable sample surface, which is representative of the water supply likely to suffer contamination.

The 7300w² not only acts as a transmitter for the oil on water monitor but can also be utilised as a 'catchment' monitor.

Incorporating unique features the WaterWatch² range allows the user to:

- ⦿ Connect multiple sensors via an interface module e.g pH, redox, conductivity, turbidity, salinity to name but a few.
- ⦿ Provides graphical trending display.
- ⦿ Conventional analogue and relay output or Profibus output
- ⦿ Low power operation.
- ⦿ Configurable display.

Built in design versatility so that you modularise the measurements to suit your application and needs.

Visible Oil Detection

The presence of any form of oil in the feed water to a water treatment plant is unacceptable and may lead to contamination of the final treated water. Designed to float on a calm water surface, The OilTechw² uses techniques which applies to particular oil types that form a "mono-molecular" film or sheen on the surface of water. These oil types tend to be persistent and resist evaporation. Examples are diesel oil, heating oil, fuel oil, lubricating oil and hydraulic oil.

Oil Probability Function

The OilTechw² has been programmed to look at a series of readings over a short time period and generates a probability that there is an oil layer present.

This is displayed as "% Probability Oil on Water". The unique software protects against spurious alarms being generated by surface disturbance and high levels of suspended solids. In addition, if debris should drift under the measurement sensor, this will not produce a visible oil response but an alternative alarm condition.

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Outdoor Installation

When the transmitter is to be installed outdoors it is highly recommended that it is located in a secondary enclosure. This enclosure should provide space for associated switches and mains power terminations. The transmitter should be located as close as possible to the sensor.

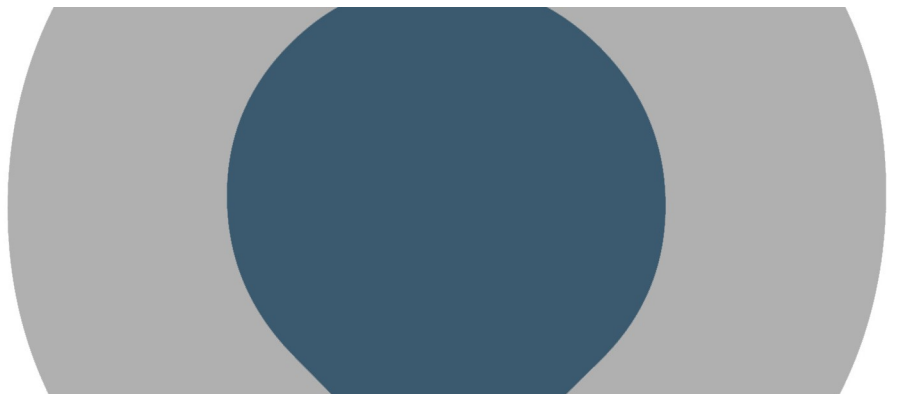
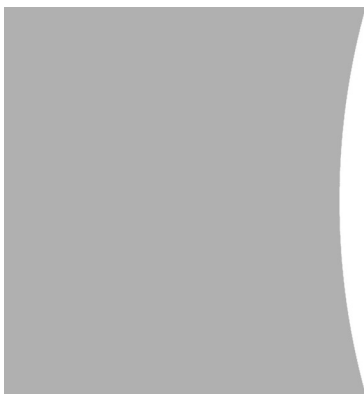
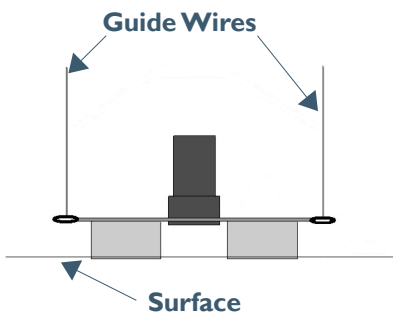
Installing the Sensor

The sensor consists of a floating assembly and connecting cable. The sensor should float in a position consistent with the probable location of floating oil slicks. It is kept in position using a system of moorings that allow for variations in surface height. A simple sensor recovery system could comprise a winch and wire arrangement as shown in the drawings.

Floating Sensor

Designed to operate in calm water the OilTechw² incorporates unique software to compensate for low levels of surface disturbance.

This sensor is supported on a float, which ensures the correct distance between optical sensors and water surface is maintained. The float is positioned on the water surface to be monitored and moored in position. The electronics within the sensor conditions the signal and provides a nominal 4-20 mA output signal. Typically 12mA represents clean water and 20mA or greater represents a complete oil layer. Power to operate the sensor is derived from the transmitter and is a nominal 12 volts DC.

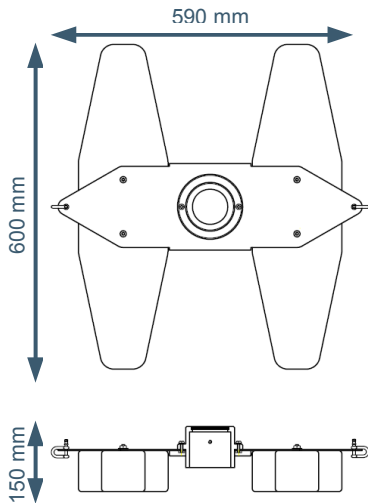




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Physical

Dimensions
Weight
Protection Class
Material

Cable Entries
Cable Type
Cable Length
Service Requirement

150 x 590 x 600 mm (HxWxD)
2.2 kg (inc 10 metres of cable)
IP68
Fibre Glass coated Float with Black Acetal Transmitter Housing and Stainless Steel Fittings
Integral Cable Gland
4 Core, 2 Twisted Pair, 5mm O/D Polyurethane Coated
10 metres standard, 100 metres maximum
No routine servicing required
The sensor is not in direct contact with the water and therefore routine cleaning is not necessary, however due needs to be paid to the optical surface after any pollution event.

Environmental Data

Operating Temperature
Storage Temperature
Location

0 to 60°C
-20 to 60°C
Indoor/Outdoor

Electrical

Power Supply

12VDC from Monitor

Interface to Monitor

Type

RS485

Measurement

Resolution
Measurement Principle
Wavelength/Frequency
Response Time
Flow Rate

Sensor will detect a mono-molecular layer of oil
Light Back Scatter
860 nm Infrared
0.2 seconds - damping provided by monitor
Not affected by flowrate, the sensor must be placed in a stable flow avoiding turbulence or surface disturbance

Mounting

Installation Type
Tether Length

Float
8 metres standard

Order Codes

Part No	Description
223909	OilTechw ² ™ FLT Sensor (Cable Length: 10 metres, Tether Length: 8 metres)
223924	OilTechw ² ™ FLT Sensor (Cable Length: 20 metres, Tether Length: 8 metres)

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