

ORAKEL

SYSTEM

SUSPENDED SOLIDS SENSOR

The ORAKEL Suspended Solids Sensor is a sophisticated sensor, unique in its ability to measure from 2 NTU to 8% solids in waste water (up to 50% in other solids) in one sensor.



KEY FEATURES

- Autoclean optical sensor, meaning minimal operator intervention
- Stable and reliable
- Suitable for all potable, waste and process waters
- Up to 12 months between calibration and maintenance
- From 2 NTU (1mg/l) to 8% solids*
- Up to 10 Bar

DESCRIPTION

The ORAKEL Suspended Solids Sensor is a single sensor with a large, dynamic range which utilises measurement technology that removes the need for a 'zero' and eliminates the effect of background light.

For multiple measuring ranges, the sensor can monitor turbidity and suspended solids from 2 NTU (1mg/l) to 8% solids.*

The sensor uses lifetime optical technology to provide a stable and reliable low-maintenance sensor with no moving parts and no consumables.

**8% in typical municipal waste water slurries. This value will vary depending on the optical properties of the sample.*

HOW IT WORKS

The **ORAKEL Suspended Solids Sensor** determines the suspended solids concentration or the turbidity in the water using a measurement of the backscattered light.

Each sensor is fitted with an infra-red LED emitter light source and two matched photodiodes detectors for making the measurements.

Having two detectors, positioned at different distances from the light source, allows the sensor to be used over a wide range of suspended solids concentrations.

The detectors are positioned to detect backscattered light (light that is scattered by $<90^\circ$).

By measuring backscattered light, the sensor can be used to detect low and high concentrations of solids.

The **ORAKEL System** takes readings at four different light levels and uses the gradient between the readings to produce the sensor output - allowing for more accurate measurements of suspended solids and turbidity.

MOUNTING

The **ORAKEL Suspended Solids Sensor** can be mounted on the end of a pole, for dip mounting in the channel or tank, or inserted into a pipe via a valve which allows for retraction and removal of the sensor without shutting down the process.

CLEANING

The sensor is fitted with a cleaning nozzle to keep it clean. This can be used to clean the optical windows with a jet of water.

The procedure can be programmed to be automated at predefined intervals.

CALIBRATION

Calibration for turbidity measurements or measurements of samples with low concentrations of solids is very easy - only requiring a single calibration sample.

This sample can either be a reading from another method or a suitable standard.

The **ORAKEL Control Unit** calibrates the sensor by reducing the light output through four stages, taking measurements at each.

This process provides an accurate and reliable zero and span without the requirement to use a '0' NTU/solids sample.

Calibration of the sensor for measurement of samples with high concentration of solids uses a multipoint procedure.

Up to five calibration points can be used to give accurate performance across a wide range of sample concentrations.

TECHNICAL SPECIFICATION

Range

Up to 500g/l, 4000 NTU (depending on the optical properties of the sample).

Units

Selectable g/l, mg/l, ppm, ppt or % (suspended solids) NTU or FNU (turbidity).

Accuracy

<2% of measured value or 0.01g/l or 0.8 NTU (whichever is greater).

Reproducibility

<1% of measured value or 0.001g/l or 0.8 NTU (whichever is greater).

Limit of Detection

0.001g/l or 2.4 NTU.

Resolution

Up to 0.0001g/l or NTU.

Response Time

T90 ≥ 10sec (adjustable based on averaging).

Drift (electronic)

None.

Averaging

Configurable (10 seconds - 10 minutes).

Lamp Source

IR LED (860nm).

Weight

Approximately 1kg (35oz).

Process Temperature

0-50°C (32-122°F).

Operating Pressure

10 bar (145psi) [maximum].

IP Rating

IP68.

Mounting Thread (for dip installation)

1" BSP.

Maximum Power Consumption

70mA at 12 VDC.

Cable Length

6m (20') as standard.

Talk to us if you need a longer length.

Wetted Parts

316 stainless steel, sapphire.

Diameter

38mm (1.49").

Length

230mm (9.06").

THE ORAKEL SYSTEM



The **ORAKEL System** is the ultimate fluid measurement product range.

Created as a modular system with a wide range of sensors that can be added to measure various characteristics for a truly bespoke and cost effective solution.

- Two types of high specification control units available
- On-screen graphing
- 9 buttons for easy navigation
- Secure website viewing option available
- 4-20mA and Modbus outputs available
- Multilingual options
- Connects up to 2 sensors as standard; expandable up to 16 sensors

THE ULTIMATE FLOW AND QUALITY MEASUREMENT SYSTEM



The ORAKEL System

FLOW MEASUREMENT

Open Channel/Pipe:

- Non-contact Flow Sensor
- Submerged AV Sensor

Full Pipe:

- Ultrasonic Time of Flight Sensor

QUALITY MEASUREMENT

- Biofilm Sensor
- Chlorine Sensor
- COD/TOC Sensor
- ORP Sensor
- pH Sensor
- Oil on Water Sensor
- Turbidity & Suspended Solids Sensor
- Dissolved Oxygen Sensor
- Conductivity Sensor

To learn more about the Detectronic ORAKEL System and how it can help your business, get in touch:

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