

Suspended Solids Monitor

The SoliSense® range of Suspended Solids/Turbidity analyzers provides a single sensor with a large dynamic range which utilizes a patent applied for measurement technology that eliminates the need for a “zero” and also eliminates the effect of background light. For multiple measuring ranges the one sensor can monitor Turbidity and Suspended Solids from 2 NTU (1mg/l) to 8%* solids in one sensor.

- Autoclean optical sensor - minimal operator intervention
- Stable and reliable - excellent process control
- Suitable for all potable, waste and process waters
- Up to 12 months between maintenance
- Up to 12 months between calibration
- From 2 NTU (1mg/l) to 8%* Solids
- Up to 145 psi



The SoliSense® sensors are available with different controller options giving you great performance with different communication, display, and control features.

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

CRIUS® Controller



- High resolution color display
- Intuitive user interface
- Graphing and datalogging
- NEMA 4X Enclosure
- Options:
 - Modbus RS485/LAN
 - Profibus
 - PID/flow controls
 - Remote sensors
 - Downloadable data logs
 - Up to 4 sensors
 - Remote access via LAN
 - Remote access via GPRS
 - Expandable to 16 sensors

Additional controller information may be found on the CRIUS product data sheet.

The SoliSense® suspended solids analyzer has been designed specifically to be suitable for all waste water applications.

Inlet monitoring
(turbidity 2-4,000 NTU)
Effluent monitoring
(suspended solids 0-1,000 mg/l)

Traditional monitoring applications where the New SoliSense® is particularly suited:

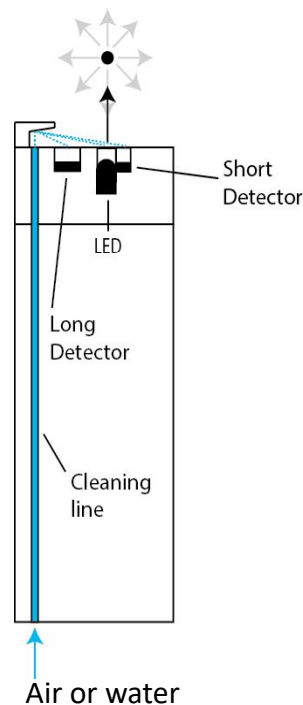
- Online Suspended Solids Analyzer
- Online Return Activated Sludge
- Online Mixed Liquor Suspended Solids
- Online Waste Activated Sludge
- Thickened sludge
- Centrate
- Filtrate
- Waste Water Effluent
- Waste Water Influent

Principle of Operation

The sensor determines the suspended solids concentration or the turbidity in water using a measurement of the backscattered light. The SoliSense® sensor uses lifetime based optical technology to provide an extremely stable, accurate, low-maintenance sensor, with no moving parts and no consumables.

Each sensor is fitted with a light source and two 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 light source is a long life infra-red LED emitter (providing for 15 years working life). The detectors are matched photodiodes. The detectors in the SoliSense® are positioned to detect backscattered light (light that is scattered by $>90^\circ$). By measuring back scattered light the sensor can be used to detect low and high concentrations of solids. The SoliSense® uses EquipSolutions novel measurement technique that automatically takes

readings at four different light levels and uses the gradient between the four readings to produce the sensor output. This configuration allows accurate and reliable measurements of suspended solids concentrations and turbidity to be made.



Mounting

The SoliSense® can be mounted on the end of a pole for dip mounting in a channel or tank, or in a low pressure or high pressure flow cell, or inserted into a pipe via a valve which allows for retraction and removal of the sensor without shutting down the process.

Calibration

Calibration of the SoliSense® 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 analyzer calibrates the sensor by a procedure that reduces 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 SoliSense® for the measurement of samples with high concentrations of solids uses a multi-point procedure. Up to 5 calibration points can be used to give an accurate performance across a wide range of sample concentrations.

Cleaning

To keep the sensor clean, the SoliSense® is fitted with a cleaning nozzle. This can be used to clean the optical windows with a jet of clean water. This cleaning procedure can be automated to carry out the cleaning at predefined intervals.

Sensor Specifications

Range	Up to 500 g/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 0.01 g/l or 0.8 NTU (whichever is greater)
Reproducibility	< 1% of measuring value or 0.001 g/l or 0.8 NTU (whichever is greater)
Limit of Detection	0.001 g/l or 2.4 NTU
Resolution	Up to 0.0001 g/l or NTU
Response Time	T ₉₀ > 10 sec (adjustable based on averaging)
Drift (electronic)	None
Averaging	Configurable (10 sec - 10 min)
Lamp Source	IR LED (860 nm)
Weight	Approximately 2 lbs.
Process Temperature	32° - 122° F
Operating Pressure	145 psi (maximum)
IP Rating	IP68
Mounting Thread (dip installation)	1" BSP
Max Power Consumption	70 mA at 12 VDC
Cable Length	20 ft. as std (extendable by request)
Wetted Parts	316 SS, sapphire
Diameter	1.5"
Length	9"