

Final Effluent Turbidity Monitoring



Partech's market leading self cleaning sensors provide long reliable and accurate monitoring of Turbidity or Suspended Solids in Final Effluent channels

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Final Effluent Turbidity Monitoring

PRODUCT

7300w² Monitor
TurbiTechw² LS Sensor

PORTABLE ALTERNATIVE

740 Monitor with Soli-Tech I0
Sensor

INSTALLATION OPTIONS

Dip Sensor
Flowcell
Outer Enclosure for Monitor
Fully Integrated Monitor, Sensor
with Flowcell and Sample Pump

APPLICATION NAMES

Final Effluent Suspended Solids
Final Effluent Turbidity

PROCESSES

Municipal Wastewater Treatment
Industrial Effluent Treatment

Monitoring final effluent Suspended Solids or Turbidity is a key parameter for assessing the quality of the effluent in respect of meeting discharge consent and permitting levels. It is also an excellent indicator of the basic performance of the treatment works. An increase in the level of Turbidity is an indicator to plant operators that sludge blanket breakthrough is occurring, either through a failure in the treatment process or excessive flow producing poor settlement.

The monitoring process is also of major significance in applications where treatment is not undertaken, as any rise in the level of Turbidity will warn of a process problem upstream of the effluent point. This will allow the operator to avoid causing problems in the effluent treatment plant receiving the flow. This can reduce treatment charges and avoid fines and bad publicity.

Recent changes in Environment Agency policy, covering OMA and OPRA assessments for ERP sites and the knock on attention that this giving smaller sites mean that good quality monitoring is essential.

The TurbiTechw² LS Sensor is the product of over 40 years experience of making measurements in wastewater and industrial effluent applications. The sensor employs infrared light at 860 nm using the 90° light scatter principle in accordance with ISO 7027. The user can configure the sensor and it's accompanying 7300w² Monitor to measure either Suspended Solids or Turbidity, depending on the requirements of the application. The sensor is normally setup to work in the range of 0-50 to 0-500 FTU and can be adjusted to monitor to upto a range of 0-1000 FTU. Subject to the points made on the last page of this document these ranges can be translated to 0-50 to 0-500 mg/l.

The TurbiTechw² LS sensor incorporates a self cleaning mechanism that has repeatedly been proven to be market leading. The perfectly cylindrical glass tubes that house the optical arrangement are withdrawn past a combination of polyurethane wiper seals and nitrile 'H' rings. This system fully removes any fouling from the optical area and does not suffer from the smearing of fat and grease that afflicts wiper systems. The cleaning system ensures that manual cleaning on a routine basis is not required, the sensor should simply be checked as part of routine housekeeping procedures.

The terms Suspended Solids and Turbidity are widely used and interchanged without full consideration for the actual measurement being taken. The vast majority of the instruments available for these measurements use an infrared light source that emits light into the sample with a detector placed at 90° to the light source. This internationally recognised principle of operation produces a fairly response to increasing levels of Turbidity.

When setting the instrument up, the user needs to consider the correct units of measurement, the calibration method to be used, and how the data will be reported. If the measurement is being made for regulatory reasons the 7300w² Monitor should be set up to use the same units as the regulator is using. For EPR sites this is likely to be FTU, and therefore the instrument should be set up to measure Turbidity. The calibration standard would then be Formazin. Most standard discharge consents use mg/l which implies that Suspended Solids measurement is required and calibration will be carried out using reference to a laboratory solids analysis.

Calibration of the system in Suspended Solids units is based on the assumption that the solids present in the sample analysed by the laboratory are representative of the normal process conditions and that the distribution of particle size, density and colour do not change between calibrations. This is a reasonable assumption when monitoring solids at the outlet of a treatment plant where the effluent is thoroughly mixed by the process, becoming fairly homogeneous.

Using Turbidity as the measurement provides a straight forward calibration process, that is easy to reproduce and make traceable, for trend monitoring this is the preferred option. Care needs to be taken interpreting the information from the system when relating the Turbidity value to Suspended Solids discharge parameters.



Key Features

- Ease of installation
- Excellent reliability
- Low cost of ownership
- Self Cleaning Optical System

Additional Parameters

- pH
- Conductivity
- DO
- Redox
- Colour