

PRODUCT DATASHEET

ClearView® db Turbidity (Haze) Color Analyzer

Complete Analytical System for Measuring
Turbidity (NTU) and/or Haze (ASTM D4176)



Real-time

Configurable

Continuous PAT

- VIS-NIR analyzer using dual-beam filter photometer technology
- Suitable for fuel color analysis and other petroleum products
- Turbidity/haze measurement with optional color measurement
- Sample interface, insertion probe or flow cell (20 mm optical pathlength)

Analytical System for Measuring Turbidity (NTU) and/or Haze

Turbidity can be used to indicate solid breakthrough in a process. This can be used as an alarm and to invalidate other optical measurements until the problem can be corrected. The GUIDED WAVE Turbidity Analyzer measures the level of suspended solids or non-miscible liquids in a solution via light scattering at 90 degrees. Turbidity values can be found in several different units depending on the application. Two common measurement standards are ASTM Method D4176 (HAZE), and EPA method 180.1 (NTU).

The ASTM D4176 method is a visual standard for measuring turbidity (caused by immiscible water in fuels) by viewing cards with black lines of various thicknesses through a 100mm diameter glass jar of solution. The result is a value (called Haze) between 1 and 6, with 1 being the clearest. Haze is typically measured in the refining sector and arises from water beyond the solubility limit. Alarming on this solubility issue allows the refiner to have better control of the fuel quality.

EPA 180.1 measures light scatter at 90 degrees in nephelometric turbidity units (NTU). In this method standards of formazin are available at different NTU levels to be used for calibration. Both of these methods can be easily replicated with the Turbidity Analyzer.

System Configuration

The Turbidity Analyzer System is a complete solution. The “ready-to-go” analytical system includes:

- Analyzer – ClearView® db filter photometer technology
- Fiber optic cables
- Sample interface – insertion probe or flow cell
- Control software and specific color application calibration

Accurate, Real-time Reliable Results

The Turbidity Analyzer System utilizes a multi-wavelength ClearView db filter photometer analyzer platform. It may be configured for either one (1) or two (2) independent sample monitoring points. Turbidity can be measured on one channel only, leaving the second channel available for any other measurements, such as color. The analyzer employs a dual-beam design – meaning; the system has a continual internal optical reference check that allows it to self-compensate for signal variation due to hardware drift. This ultimately provides the system with long term stability. The final product is a total Turbidity System that measures the turbidity variation without interference from other factors.

Turbidity can be easily combined to be part of a measurement system that also measures a color value such as Saybolt color. It also can be an add-on to an existing ClearView db chemical measurement application.

Complete Turbidity (NTU) and/or Haze Analyzer System

- Unique dual beam optics – for long term, stable operation
- 2 sample channels, first channel dedicated to turbidity monitoring , second channel for other measurements
- High efficiency yet rugged fiber optics – analyzer electronics can be located away from a hazardous sample point
- In-door touch screen or Ethernet (Modbus TCP) – easy local or remote analyzer operation and control
- Analytical calculations are all encoded in the software – answers and alarms are clearly reported

The Smart Choice

The Turbidity Analyzer system delivers accurate, real-time process measurement results. Its linearity and repeatability, as well as its low maintenance requirements make it a cost effective, smart choice to help optimize production, improve yields, ensure consistent product quality, and enhance profitability.

Options for a Custom Solution

Another advantage of the Turbidity Analyzer system is that it can be customized in many ways. For more information about specifications and analyzer operations review the ClearView db analyzer.

Specifications	
Channels	2 sample channels, first channel dedicated to turbidity monitoring , second channel for other measurements
Analyzer Technology	Fiber optic dual-beam ClearView db photometer
Light Source/Life Tungsten Halogen	Tungsten-Halogen, >4000 hours typical
Fiber Optic Cable Connectors	SMA 905
Communications	Ethernet (TCP Modbus) standard
Photometric Noise	<50 μ AU 450-2100 nm 1 minute rms
Enclosure Options	General Purpose NEMA 4 unclassified Z-Purge, NEMA 4x, CI D2 X-Proof, ICEEx, ATEX, CI D1
Environmental	0 – 45°C, 0 – 90%, sun and rain sheltered
Photometric Drift	<500 μ AU rms/ °C
Response Time	1 second, minimum. user settable
Outputs (analog)	Up to 6 for a one channel unit; up to 4 per channel for a two channel unit 4 – 20 mA; customer powered
Outputs (discreet)	Up to 6 for a 1 channel unit; up to 4 per channel for a 2 channel unit contact closures
Inputs (analog)	4 (optional) 4 – 20 mA, isolated grounds
Local Display	LCD touch screen, color QVGA
Power	24 VDC, 3 A; 72 watts
Measurement Accuracy	Complies with ASTM methods D4176 and EPA method 180.1
Measurement Range	Haze 1 to 6, NTU 0-1000

Sample Interface

The Turbidity Probe and Multi-Purpose Flow Cell (MPFC™) with an additional third port can be used for Haze or Turbidity (NTU) measurements along with the Turbidity Analyzer. The 20mm pathlength is appropriate, for example, when monitoring Saybolt color.



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