

# **TELEDYNE** **ANALYTICAL INSTRUMENTS**

## **High / Low Level Turbidity Transmitter**

**T**eledyne has developed a low cost Photonic transmitter and sample interface for monitoring the amount of Turbidity in a variety of process streams. The transmitter incorporates state of the art electronics connected to a fiber optic based insitu probe or extractive flow cells. In addition, we offer an optional span calibration filter which allows you to check the transmitter's performance without shutting down the process or removing flow cells or probes from service.

### **Defining the Problem**

Turbidity can be a disruptive or desirous component to process streams. Monitoring the presence or absence of scattering particles in a process can assist plant managers, operators, and technicians with reducing plant upsets, shutdowns, and loss of product.

### **The Teledyne Solution**

Forward and backscatter techniques are employed by the turbidity monitor / controller depending on the specific size and concentration of particles being measured. Teledyne offers both insitu probes and extractive flow cells for this measurement.



Extractive  
turbidity flow.

The extractive flow cell can measure particles in a forward, side or ratio technique while the insitu probe measures with a backscatter technique. Both the insitu and extractive fiber optic accessory separates the sample from the electronics via safe, non-conductive fiber optic cables. The transmitter is supplied with a local readout and a 4-20mA output proportional to the amount of turbidity or % reflectivity in the stream.

### **Transmitter**

Teledyne offers a low cost photometric transmitter that produces a 4-20mA signal proportional to the amount of turbidity in process streams. The transmitter is also supplied with an automatic manual / remote means of verifying the response of the transmitter. The transmitter can be supplied in either a logarithmic or linear mode of operation.



Model 58T Turbidity  
Transmitter

### **Where the unit can be used**

- Offshore platforms
- Bio mass
- Cell density
- Water in fuel
- Refineries
- Filter efficiency
- Column packing material
- Suspended solids

### **Turbidity / Reflective Probe \***

Teledyne provides customers with the means of automatically or manually inserting the turbidity / reflectivity probe into a flowing process stream and removing the probe for cleaning without going through an expensive ball valve. The probe is either steam or solvent cleaned in the neck of the flange when needed. The probe is isolated from the process, steam or solvent are introduced, and the probe is reinserted into the process stream.



Model 3501 Turbidity  
Probe Optics

\* patent pending



# High / Low Level Turbidity Transmitter

## PRODUCT SPECIFICATIONS - Model 58T Turbidity Photometric Transmitter

### Transmitter

|                          |   |
|--------------------------|---|
| Measured parameter:      | Absorbance or turbidity / reflectivity                |
| Resolution:              | 2 NTU   |
| Lamp:                    | NIR LED, minimum 10 year life                         |
| Temperature range:       | -40 to +300° C  |
| Pressure range:          | ± 5,000 psig  |
| Response time:           | < 1 sec   |
| Maximum Zero shift:      | 0.005AU (over +20 to +40° C)                          |
| Long term output drift:  | <1% signal loss / year                                |
| Repeatability:           | 1% of range   |
| Range:                   | ppm to percent (please consult factory) or 0-100%     |
| Span calibration filter: | Manual or remote triggered, NIST traceable (optional) |

### User Display & Control

|                           |  |
|---------------------------|--|
| Type of display:          | LED display                                    |
| Display numerical format: | 3-1/2 digits in user defined engineering units |

### Electrical

|                         |  |
|-------------------------|--|
| Power requirement:      | 24 VDC (9-32 VDC) standard or 110/220 VAC, 50/60Hz with power supply |
| Power consumption:      | 0.48 Watts (check with factory for specific unit selected)           |
| Analog outputs:         | 4-20mA isolated  |
| Analog loop resistance: | 500 Ohms, maximum @ 24V  |
| Alarms:                 | Optional   |
| Certification:          | CSA, CE  |

### Mechanical

|                     |  |
|---------------------|--|
| Transmitter weight: | 1.5 lb.  |
| Enclosure:          | Extruded aluminum (NEMA 4X optional)<br>8" H x 3-7/8" W x 1-1/2" D |

### Probes / Flow Cells

|                         |                      |
|-------------------------|----------------------|
| Materials:              | 316SS or Hastelloy C |
| Max temperature rating: | 315.5° C (600° F)    |
| Max pressure rating:    | 5000 psig            |
| Expected probe life:    | 25 years             |

### Probe Options

1. 6, 12, or 24" in length
2. Automatic retractor

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### Warranty

Instrument is warranted for 1 year against defects in material or workmanship. NOTE: Specifications and features will vary with application. The above are established and validated during design, but are not to be construed as test criteria for every product. All specifications and features are subject to change without notice.

