

TELEDYNE ANALYTICAL INSTRUMENTS

Low Cost UV Photometric Transmitter

Teledyne has developed a new, modular based fiber optic UV transmitter for continuous process monitoring applications. The UV transmitter is reliable and low cost. Additionally the transmitter is supplied with an automatic means of calibration and a diagnostic that alarms the user if the windows are fouled. Teledyne can also integrate the system into a package that meets the needs of the specific application. Fiber optic probes or flow cells can also be supplied by the factory to complement your sample interface.

Industry Applications

Many industries can economically benefit from monitoring just a few wavelengths on-line. Typically the return on investment for this type of product takes less than 3 months, and since the product will have a life cycle of about 10 years, this makes for a valuable investment on the part of the customer.

Controlling a process is first accomplished by monitoring a condition in the process. Below are examples of typical industries using UV transmitters.

- Refinery/Petrochem
- Chemical
- Pulp & Paper
- Food & Beverage
- Emission monitoring
- Utilities
- Pharmaceutical
- Biotechnology
- Water quality
- Environmental

Chemicals that can be measured

Typically gases or liquids that exhibit a strong absorbance in the UV have chemical structures that contain; Aromatics rings, Carbonyl Compounds, Aldehydes, Ketones, Halogens, and Amines. A few examples of compounds in this class are:

- Ketones
- Phenol
- Benzene, BTX
- Acetone
- Aldehyde
- Chlorine
- Fluorine
- Ammonia
- Oil mist
- VOC / TOC
- SO₂
- H₂S

The Teledyne Solution

Combining flash lamp technology with highly sensitive detectors and separating

the electronics from the process stream via fiber optic cables is an ideal solution to monitoring the process stream. Reliable components that can operate 24 / 7 / 365 with minimal maintenance further enhances the value of this product in your process.

UV Transmitter

Teledyne offers low cost UV transmitters that send UV light out to a flow cell or probe and measures the returning signal from our detector board housed in the transmitter. The resulting 4-20mA signal can be sent to a PLC or DCS for process control.



Example of a UV Transmitter suited for Class I, Div 2 areas

InSitu Probes*

Teledyne's insitu probe series is composed of all fiber optic probes that sense the amount of chemical in a process stream. In addition to monitoring the optical absorbance or reflection, the probe can be supplied with an optional retractable device for automatic cleaning of the probe.



Teledyne's Transmission and ATR Probes, 12" and 24" versions
* patent pending

Low Cost UV Photometric Transmitter

PRODUCT SPECIFICATIONS 53T Series UV Photometric Transmitter

Transmitter

Measured parameter:	Application dependent
Temperature range:	-20 to +50° C (other temperatures will depend on packaging)
Response time:	< 1 sec to 90% of FS
Detector response:	200 - 650 nm
Maximum Zero shift:	0.05AU (over +20 to +40° C)
Long term output drift:	<2% signal loss / year
Repeatability:	1% of full scale range

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) If 110 / 220 VAC is available, Teledyne will supply an AC/DC power supply
Power consumption:	0.48 Watts
Analog outputs:	4-20mA isolated
Analog loop resistance:	500 Ohms, nominally @ 24V
Alarms:	Optional
Certification:	Available upon request

Mechanical

Transmitter weight:	3 lbs.
Enclosure:	Extruded aluminum (optional NEMA or purged enclosures) 8" H x 3-7/8" W x 1-1/2" D

Lamp

Type:	Xenon flash lamp
Wavelength range:	200 - 650 nm
Lamp Life:	Typically 3 years
Size:	2" H x 4" W x 1-1/2" D
Power requirements:	24 VDC (9-32 VDC)

Probe or Flow Cells

Materials:	316SS or Hastelloy C
Max temperature rating:	315.5° C (600° F)
Max pressure rating:	5000 psig

Probe options:

1. 6, 12 or 24" in length
2. Automatic retractor
3. Temperature measurement
4. Pressure measurement

Flow Cell options:

1. Cross Flow cells
2. T-Flow cells
3. Long path Flow cells

Calibration options:

1. Automatic span filter
2. Manual span filter

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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.

