

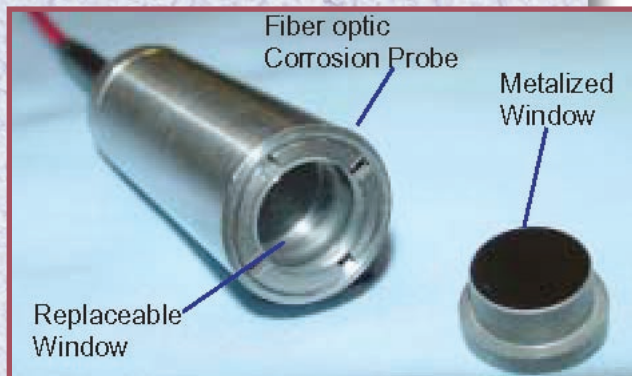
TELEDYNE ANALYTICAL INSTRUMENTS

Corrosion Probe and Transmitter

Corrosion affects many different industrial sectors of our economy and has been reported to cost in upwards of \$276 billion a year. Effective management of corrosion could save approximately 25 to 30% of this cost or \$70 to 80 billion a year. Teledyne has introduced a unique optical corrosion monitor that utilizes insitu fiber optic probes, replaceable metalized windows, and remote read out device that can monitor the loss of metal on an optical substrate.

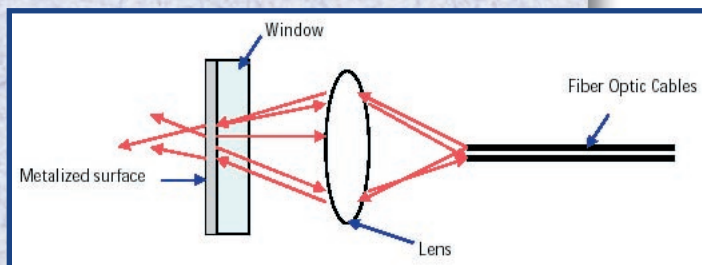
Defining the Problem

Current technology for monitoring corrosion is either via a preweighed coupon or an electrical based measurement. Coupons are time consuming to install and do not provide real time measurements. Electrical based sensors operate in conductive streams only and are temperature and pressure limited.



The Teledyne Solution

The corrosion monitoring system operates on the concept of reflectance from a reflective surface. Light from a stable light source impinges a thin metal coating on an optical substrate and the reflected light (the reflectance) from the metal coating is collected and monitored.



As corrosion changes the thin metal surface, the reflectance from that surface changes.

The corrosion monitor is specific to each piping system since the metal coating used to generate the reflective surface is the same material as the piping system. This corrosion sensor will not be able to determine the type of corrosion occurring; only that metal is being removed from the process wetted surface.

Transmitter

Teledyne offers a low cost fiber optic based Photometric transmitter that produces a 4-20mA signal proportional to the amount of Reflectivity from the corrosion probe. The transmitter is also supplied with an automatic/manual or remote means of verifying the response of the transmitter.



Model 58T Corrosion Transmitter

Fiber Optic Reflectance Probes *

Teledyne provides customers with the means of automatically or manually inserting the Reflectance probe into a flowing process stream and removing the probe for window replacement. The probe is isolated from the process via a ball valve (not shown) for ease of window replacement without shutting the process down.

All optical probes have been tested to withstand pressures up to 10,000 psig and temperatures up to 300° C.



Corrosion Probe Pipeline Retraction

* patent pending



Corrosion Probe and Transmitter

PRODUCT SPECIFICATIONS

58T Series Corrosion Photometric Transmitter

Transmitter

Measured parameter:	% Reflectivity
Resolution:	0.001%
Lamp:	NIR LED, minimum 10 year life
Temperature range:	-5 to + 40° C
Response time:	< 1 sec
Maximum Zero shift:	0.005% R (over -5 to +40° C)
Long term output drift:	<1% signal loss / year
Repeatability:	1% of range
Range:	Based on application 0-1MPY up to 5MPY, 0-100%
Span calibration filter:	Manual or remote triggered, NIST traceable (optional)

User Display & Control

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

Electrical

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

Mechanical

Transmitter weight:	1.5 lbs
Enclosure:	Extruded aluminum, NEMA 4X optional 8" H x 3-7/8" W x 1.5" D

Probes / Flow Cells

Materials:	316 SS or Hastelloy C
Temperature rating:	315.5° C (600° F)
Pressure rating:	10,000 psig
Probe window material:	Please consult factory

Probe Options

- 6, 12, or 24" length
- Automatic retractor for cleaning

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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.

