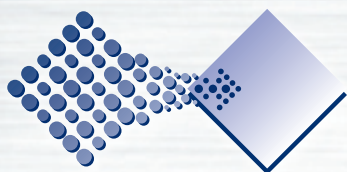


# Fiber Optic ATR Probes

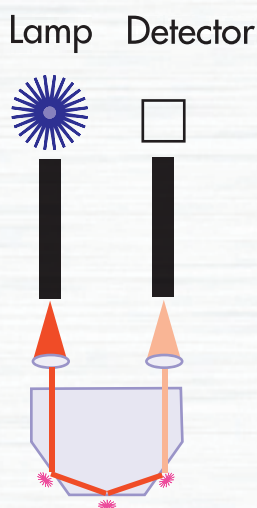
## 3503 Series Process Fiber Optic Probes



Custom Sensors & Technology has been supplying process probes for the process industry for over 20 years. Recently, we have introduced our front surface fluorescence probe\* for demanding applications in the chemical, petrochemical, pulp & paper, food/beverage and pharmaceutical industries. Our standard designs will withstand 10,000 psig and 300° C process conditions. Working in the UV-VIS regions of the spectrum, these probes are used when extractive sampling strategies are either environmentally or economically cost prohibitive and insitu information is critical.

### ATR Probe Description

#### ATR Ray Trace



#### ATR Probe Tip



\*Patent pending

### ATR Probe Applications

Typical applications for the insitu ATR probe are direct reading (no dilution of sample) of high concentration applications such as;

- Paints & Dyes
- Absorbance in the 5000 Au/cm
- Absorptive Aromatics in solvents
- Asphaltenes in Crude Oil
- Pure aromatic compounds
- Surface Deposition

### Theory of Operation

When two media with different refractive indices ( $n_1$  and  $n_2$ ) contact at an interface, the sample absorbs some of the energy, as it exceeds the critical angle a Beer-Lambert-like measurement is made.

Our 3-bounce ATR probe can also be used in a nontraditional or "leaky" mode to measure high refractive index materials that form on the surface of the crystal.

### Custom Configurations

The ATR probe can be supplied with a number of different configurations;

- Various length probes can be supplied, 6" up to 10' in length
- Electronics can be mounted on the fiber termination end of the probe, eliminating the need for long fiber runs
- The ATR probe can be supplied in different body materials such as; Hastelloy C, Monel, Hi nickel content steel, and many others
- The ATR probe can be supplied with a Welker retractable device that can clean and or be used to deliver calibration solutions to the probe.

# Product Specifications

<b>Mechanical</b>	<b>ATR Probe, P/N 3503</b>
Weight	1, 2, 4 lbs depending on length and materials of construction
Body diameter	3/4"
Materials of construction	316SS Std, Other materials are available upon request
Temperature rating (Max)	300°C
Pressure rating <sup>1</sup>	10,000 psig
Optical materials	Sapphire
Seals	Viton, Chemraz, Kalrez, Buna, TFE
<b>Optical</b>	
Wavelength regions	210-2200nm
Fiber connection	SMA-905
Conduit connection <sup>2</sup>	1" pipe thread
Pathlengths	na
<b>Options</b>	
Automatic/Manual retraction	Welker Pneumatic or external
Body Material	Hastelloy C, Monel, Titanium, others available please consult factory

**\*Notes:**

1. Pressure test performed by independent 3rd party vendor. Results available upon request. Probes have been pressure tested to 10,000 psig. For pressure ratings at specific temperatures please consult the factory.
2. Conduit connection connects to 1' flexible conduit.
3. Probes used in Bioprocessing applications are supplied with Electropolished finishes of 12RA or better.

Custom Sensors & Technology is a full service provider. We also supply photometric transmitters, fiber optic probes & flow cells, O<sub>2</sub> transmitters, sample handling systems, and services including: application engineering, commissioning & start-ups, product validation, factory acceptance testing, process stream GAP Analysis, and in-house repair.