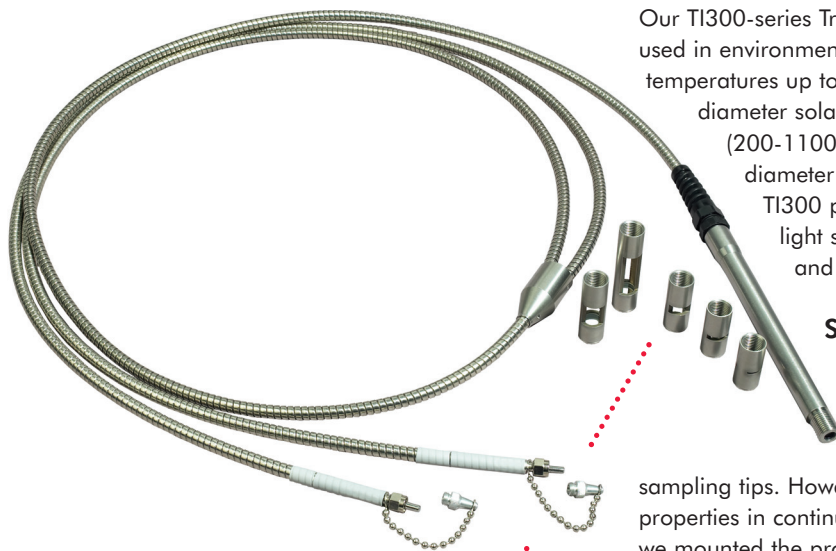




Industrial Process Probes



Industrial Environments up to 250 psi, 300 °C

Our TI300-series Transmission Industrial Dip Probes can be used in environments with pressure limits up to 250 psi and at temperatures up to 300 °C. The TI300-UV-VIS uses 300 μm diameter solarization-resistant optical fiber (200-1100 nm), while the TI300-VIS-NIR uses 300 μm diameter VIS-NIR optical fiber (400-2200 nm). The TI300 probes couple to our spectrometers and light sources to measure solutions absorbance and transmission in industrial applications.

Sampling Tips Use O-rings, Replacing Epoxy

With our other transmission probe offerings, we use high-grade epoxy to adhere the sampling optics to the sampling tips. However, most epoxies lose their adhesive properties in continuous heat over 220 °C. With the TI300s, we mounted the probe optics into the sampling tips using Parker perfluoroelastomer (Parofluor ULTRA) O-ring seals. The material in these special O-rings offers broad chemical resistance, excellent thermal stability and temperature resistance up to 300 °C. The other materials in the screw-on, interchangeable sampling tips are grade 303 stainless steel, a back-coated quartz mirror and a quartz lens. The tips come in pathlengths of 2, 5, 10, 25 and 50 mm so that sampling setups can be configured for optically dense or dilute solutions.



Probe Ferrule & Jacketing

The TI300s use a fully interlocked stainless-steel jacketing over Teflon tubing and have an outer diameter of 0.68 cm. The immersible part of the probe, the ferrule, is also made from 303 stainless steel and measures 12.7 cm in length, with an outer diameter of 1.27 cm.

How it Works

In a TI300 probe, there are two 300- μm optical fibers -- one illumination optical fiber and one read optical fiber -- in a 12.7-mm diameter stainless-steel ferrule. Light transmits via the illumination fiber through a plano-convex lens and the sample compartment to a flat, second-surface mirror (see diagram on page 150). The light reflects from this mirror, travels back through the sample compartment and is focused by the lens onto the read fiber and through the read leg of the probe to the spectrometer. The trade-offs with these probes are that they measure both transmitted light and backscattered light from the sample and have internal reflections that limit the dynamic range of the measurement. But at less than \$1,600 (for the TI300 probe and one sampling tip), a TI300 probe, with its high pressure and temperature limits, is a great option for many industrial applications.

Specifications

Fiber type:	TI300-UV-VIS -- 300 μm diameter UV/SR fiber type (200-1100 nm) TI300-VIS-NIR -- 300 μm diameter VIS-NIR fiber type (400-2500 nm)
Wavelength range:	TI300-UV-VIS -- 200-1100 nm TI300-VIS-NIR -- 400-2500 nm
Pressure limit:	250 psi
Temperature limit:	300 °C
Sampling tip body:	303 stainless steel
Sampling tip optics:	Quartz back-coated mirror and quartz lens
Sampling tip O-ring:	Parker perfluoroelastomer (Parofluor ULTRA) O-ring seal
Probe ferrule:	12.7 mm outer diameter 303 stainless steel
Probe jacketing:	Fully interlocked stainless-steel jacketing over Teflon tubing; total 6.8 mm outer diameter
Length:	Fiber -- 2 meters Ferrule -- 12.7 cm without tip Tips -- 2.6 cm to 4.99 cm, depending on tip
Breakout distance:	1 meter from the end of the probe
Immersible length:	12.7 cm
Optical pathlengths:	2, 5, 10, 25 and 50 mm pathlengths available
Connectors:	SMA 905

