

SERIES 650 Transflectance Probe

PSD's Series 650 Transflectance Probe is a precision optical instrument that allows remote fiber optic NIR transmission measurement of heated and pressurized clear or slightly scattering liquid process streams. Applications include permanent side-stream and in-line installations and this probe can also be dipped into liquid samples at the laboratory bench or at receiving inspection.

A major advantage and unique design feature of this probe is a proprietary sapphire-to-metal seal capability. This technique eliminates the use of O-rings, seals or brazed joints that can be chemically attacked and limit the long-term operational reliability of the sapphire seal and lead to potentially dangerous failure. The only sample contact materials are the 316/316L Stainless Steel, or the metal specifically requested, and the sapphire windows. This capability enables this probe to operate at temperatures up to 300°C and pressures up to 5,000 PSI. The sapphire windows are chemically inert and have a very hard surface that resists etching from caustic solutions and scratching from hard or rough surfaces.

The probe consists of an optically efficient sapphire window and an adjustable reflecting mirror assembly. Fiber assembly length is specified by request. The probe is a double-pass transflectance design where the radiant energy passes through the sample medium twice. This makes the effective pathlength twice the physical gap. The physical gap is variable from 1mm–20mm. The probe houses both the transmit and collection fibers in a special tip configuration. The unique bundling of the fibers optimizes the performance of this probe. The result is high transmission capability, excellent optical stability and photometric accuracy. In addition, it provides the flexibility for this probe to be made with diameters of 0.5" (12.7mm) to 1" (25.4mm) with lengths to satisfy specific customer requirements. The ends of the fiber optic assembly are terminated with SMA connectors. This probe can be provided with a wide assortment of attachment capabilities such as welded-on flanges, pipe fittings, or port connectors to accommodate specific installation requirements.

PRODUCT HIGHLIGHTS & SPECIFICATIONS

No O-ring or brazed joints	Capable of operating up to 300°C and 5,000 PSI
Optional UV and visible light sampling	Probe Diameter: 0.5" (12.7mm)
Proprietary sapphire-to-metal seal providing robust, inert design	to 1" (25.4mm) or larger upon request
Variable Pathlength Mirror Tip (1–20mm)	Different probe lengths available
Interchangeable Fixed Pathlength Mirror Tips (pathlength per request)	Optics: Sapphire
	Probe Material: 316/316L Stainless Steel (other materials available upon request)