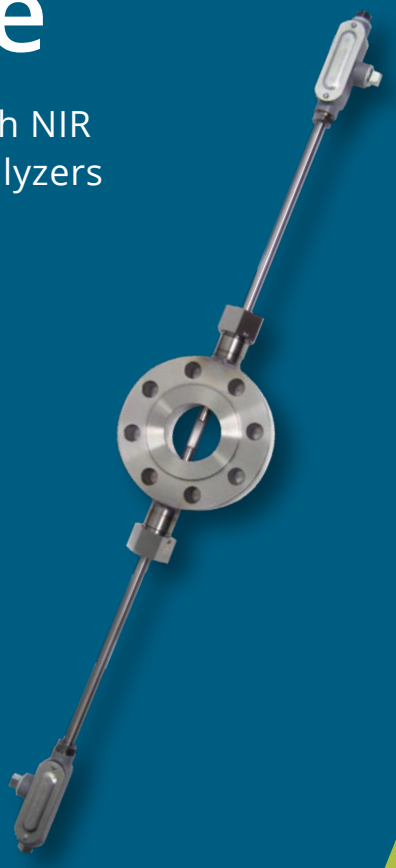
Process Insights™
Premium Insights Into Process

SAMPLE INTERFACE

PRODUCT DATASHEET

Shuttle Process Probe

Compatible with NIR and UV-VIS Analyzers



More signal

Less noise

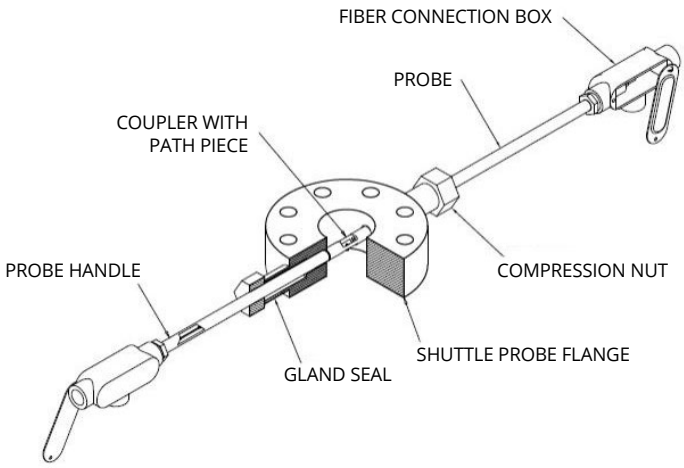
Better measurement

- Virtual view into the process
- Continuous PAT
- Maintenance without process flow interruption

Shuttle Process Probe Maintenance without Process Flow Interruption

The GUIDED WAVE Shuttle Probe is a unique and convenient process probe for monitoring liquid samples, in-situ. It is ideal for continuous process monitoring applications where it is difficult and/or costly to shut down the line for probe servicing, or where side streams or fast loops are not appropriate. The probe is mounted in a standard-size process flange for easy installation. Periodic probe cleaning and referencing can be performed without interrupting the process flow.

A Simple, Serviceable Design



The Shuttle Probe is a convenient, compact, rugged sample interface that is easy to install and even easier to service. The Shuttle Probe consists of two transmission probes connected by a threaded, precision-machined coupler that also functions to accurately set a fixed and reproducible pathlength. After coupling, the two transmission probes become a one-piece sensor that is inserted through the heart of a durable process flange. Carefully engineered gland seals prevent process leakage thus facilitating safe operation. The area where the light interacts with the sample, the sample path, can be easily removed from or "shuttled" out of the process by firm but gentle tugs on either end of the probe. By design, the forces are balanced resulting in a negligible ejection force on the probe. Thus, the critical cleaning of the optical windows and subsequent probe referencing are possible without having to interrupt the process.

Process-Resistant Construction

The Shuttle Probe is designed to withstand harsh process conditions. It is constructed from 316L stainless steel. It can also be made from other materials depending upon specific application requirements, such as Hastelloy C-276. The Shuttle Probe's sapphire optical windows are sealed to the probe body with proprietary gold alloy brazing. These materials are unaffected by most hydrocarbons and polymers. Additionally, our special construction techniques also make the probe insensitive to most process pipe vibrations.

Dual Seal for Added Safety

Perhaps the most crucial aspect of any online sample interface design is the sealing approach. Since process fluid streams will be under pressure and the composition is often hazardous leaks are unacceptable. Additionally, moisture infiltration from the external environment adversely affects performance too. Our brand utilizes multiple o-ring seals that effectively address both issues. This protects the expensive internal optics.

The threads of the precision coupler that determine the probe's pathlength and maintain the optical alignment are protected by a double o-ring set. This prevents process material from entering the threaded area and seizing the coupler in place. The process seals where the probe and flange meet are hydraulic-style chevron packing glands, doubled for safety. The fiber connection area is conduit ready and sealed to prevent moisture infiltration into the back end of the probe.

Exceptional Light Transmission

Like all our sample interfaces, the Shuttle Probe provides exceptional optical performance. Internal optics result in a collimated light beam for consistently accurate measurements. Typically, peak transmission exceeds 38%. That means more signal, less noise, and lower detection limits for the measurement. The optics on the Shuttle Probe are permanently aligned at the factory. As a result, there is no need for any optical adjustments in the field. Additionally, there is no chance for optical misalignment to occur under normal processing conditions or during servicing.

Optically Matched with All Our Analyzers and Compatible with Most Other Spectrometer Brands

The sample interface is a crucial component of a complete fiber optic-based analyzer system. For maximum performance, the probe or flow cell must be optically matched with both the analyzer (spectrometer) and the fiber that transmits the spectral signal. All our sample interfaces, analyzers, and fiber optic cables are optically matched, so when used in combination they achieve the highest possible consistency and performance. The Shuttle Probe is also manufactured to facilitate full integration with any fiber optic system configured with SMA 905 connectors. This includes FT-NIR analyzers. When choosing a sample interface for an FT-NIR analyzer the current fiber core size must be taken into consideration. The Shuttle Probe design works best when the size of the internal and external fiber core match.

One of the primary advantages of UV-VIS and NIR process spectroscopy is the utilization of intrinsically safe fiber optic cables to remotely locate the analyzer relative to the sample interface (probe or flow cell) installed in the process. Get the full power of this technology and choose the Shuttle Probe along with one of our optically matched analyzers and process grade fiber optic cables – *for control you can measure!*

Specifications	
Probe Length	12; 18; 24; 30; (inches) other lengths available on request
Optical Pathlength	1; 2; 3.5; 5; 10; 20; 37; 50 (mm) other lengths available on request
Spectral Range	UV-VIS (230 – 800 nm); NIR (800- 2100 nm)
Fiber Connector	400; 500; 600 µm / SMA 905; FC
Optical Efficiency	> 38% from 800 nm to 1600 nm
Temperature Range	-20 °C to 260 °C probe only; (maximum handle temperature 50 °C)
Pressure Range	0 psi to 2000 psi [0 – 138 bar] (probe only)
Body Material	SS316L standard (SS304, SS316, Hastelloy, Monel, Titanium, and Nickel available on request)
Window Seal	Au alloy braze
Probe Diameter	0.625 inch [15.9 mm]

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SAMPLE INTERFACE

GAIN REAL-TIME INSIGHT INTO YOUR PROCESS

Process Insights manufactures and delivers premium sensors, monitors, detectors, analyzers, instrumentation, and software that are mission-critical to keep your operations, personnel, and the environment safe – every day across the globe.

Get the most reliable, precision analytical technologies available on the market today. We will work to match your needs and budget, and provide the optimal, and most stable process analysis solution for your application.

CENTERS OF EXCELLENCE | PROVIDING PROVEN SOLUTIONS

Process Insights is committed to solving our customers' most complex analytical, process, and measurement challenges everyday.

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