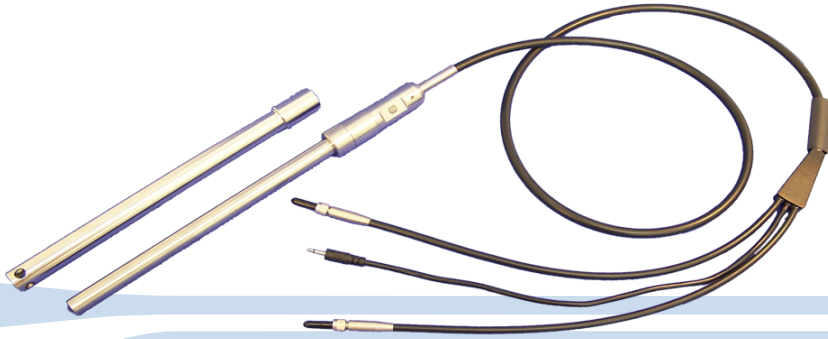


BAC035/036 Dark Field Reflectance Probe



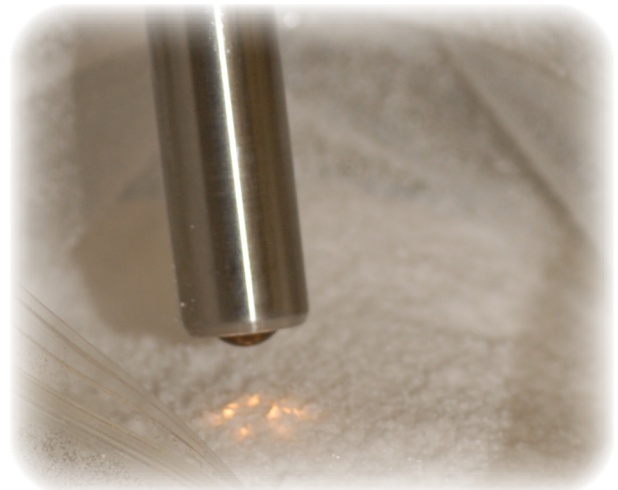
The BAC035 or BAC036 is designed to allow sampling of materials such as powders, slurries and abrasives. The innovative design reduces specular reflectance by using a proprietary optical design.

Features:

Features:	Benefits:
Dark field optical design	Collects less specular components
Interactive with sample	Probe directly contact with sample
Sapphire ball lens tipped	Hard to scratch and less compression effect
Transflectance sleeve	Adjustable pathlength, can measure particles in liquid
Arrayed collection fibers	Maximum the signal
Electrical trigger switch	Good for process application and incoming material ID
Kalrez O-ring sealed	Compatible with most chemicals
Maximum Pressure	Up to 300 PSI environment

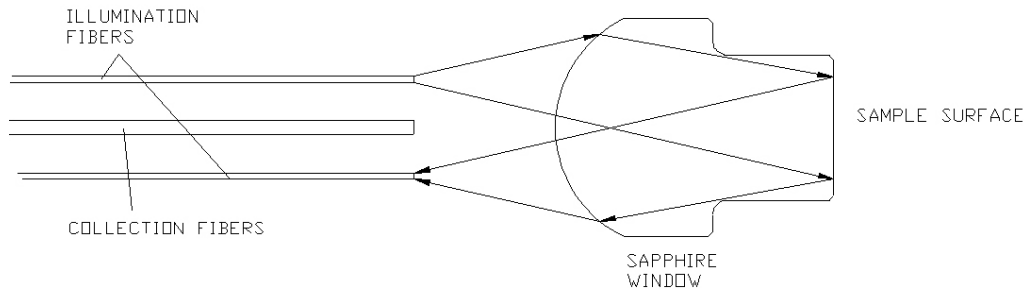
Benefits:

Reflectance signals contain two components: diffuse reflectance and specular (mirror-like) components. Specular components contain no useful information for NIR analysis and should be eliminated from measurements. The concept of dark field illumination is from microscopy. If the illumination cannot be reflected back to the objective lens by a mirror type sample then the observer will see a dark field image. A dark field diffuse reflectance probe can greatly reduce the collection of specular components. The BAC035 has twelve 400 μm core diameter fibers to illuminate the sample arranged at the outer ring, seven central fibers are for collection.



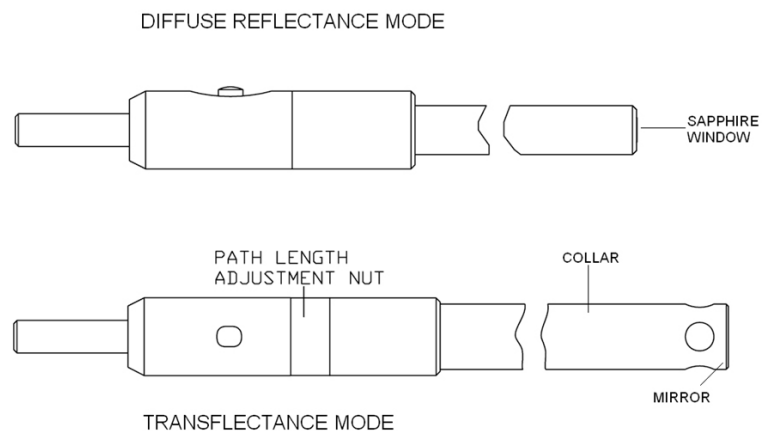
Optical Design:

Inside the probe, the beam from one illumination fiber passing through the objective lens will reflect back to another illumination fiber. So if a mirror is at the sample surface, minimum signal will be collected by the receiving fibers at the center. For diffuse reflectance measurements, NIST traceable Spectralon® is most often used as a reference material. The sapphire window is scratch resistant to the majority of materials it comes in contact with.



Transflectance of Turbid Liquids and Slurries:

This dual purpose probe can be configured to measure transflectance. Since it is a dark field design, it is a good tool for measuring non-homogenous liquids, turbid liquids, or slurries. The optical path length is set using a filler gauge and locked by an adjustment nut. Since there is a mirror at the end of the sleeve, the optical path length is twice the length set by the filler gauge.



Specifications:

Fiber bundle for illumination:	12 x 400um low OH (Vis-NIR) or high OH (UV-Vis)
Fiber bundle for collection:	7 x 200um low OH (Vis-NIR) or high OH (UV-Vis) in line arrayed arrangement
Connector:	SMA 905 male
Shaft diameter:	12mm dia.
Shaft material:	Stainless steel 316L
Shaft length:	8 inches
Transmission Sleeve Dia.	15.9 Dia.
Transmission Sleeve Material	Stainless Steel 316L
Transmission Sleeve Length	8.8 Inches
Probe End:	Sapphire ball lens for BAC036, Sapphire window for BAC035
Seal:	Kalrez O-ring
Optical Path:	0-10mm adjustable, Double pass
Maximum pressure:	300 PSI
Maximum temperature:	300°C at probe end
Trigger switch:	Electronic

