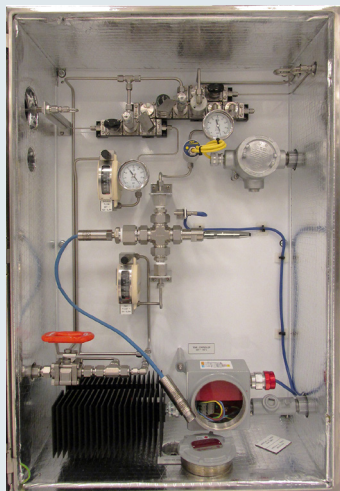


# AirHead™ Probe Datasheet

## Gas-phase Raman probe

### Key Features

- In situ measurement – no transfer lines required
- Compatibility with the Kaiser Optograf™ analyzer
- Materials of construction certification (for wetted components)
- Compact profile
- Industry standard installation options



OptoAST™ Sample Conditioning Interface with AirHead probe



Monitoring gas-phase reactions is particularly challenging because of corrosivity and wetness of the sample environment and low sensitivity of analyzer technologies. Many of these applications could be addressed by Raman spectroscopy with suitable sampling technology. The AirHead™ gas-phase probe was designed as a tool for gas-phase monitoring in chemical processes by allowing low concentrations (100 ppm – gas dependent) of gases to be measured relatively quickly (minutes), and to operate reliably in process environments.

Sampling versatility and materials compatibility are critical factors for process applications. The design of the AirHead probe is compatible with installations in classified environments by using stainless steel construction of the probe shell and hermetically sealed internal probe volumes. The AirHead probe has been optimized to

enhance sample signal-to-noise ratios and to improve the overall limit of detection (LOD). The AirHead probe also incorporates Kaiser's patented multipass approach\* to further improve the analyzer's LOD.

The AirHead probe can be directly inserted into processes with temperatures up to 150 °C and pressures up to 1000 psig, and mounted using either standard NPT fittings or compression fittings. Alternatively, the AirHead probe can be mounted into a gas slip-stream using a Kaiser-supplied sampling cell or via a NeSSI interface.

The standard fiber-optic cable used with Kaiser probes, which incorporates a single input and single output fiber-optic cable, allows the AirHead probe to be installed in a variety of locations and up to 150 meters from the analyzer base unit.



\* Patent 5,956,138

## Advantages

- Compact, easy to install
- No special sample preparation required
- Enhanced signal-to-noise ratio and limit of detection
- Compatible with installation in classified environments (ATEX and North American hazard area marking available as options)

## Versatile

- Compatible with installation in various process environments including direct insertion, side insertion, and sample loop
- Installation with ½ inch NPT port or 1 inch compression mount
- NeSSI interface (threaded or compression mount)
- Compatible with the OptoAST™ and OptoDRS™ sample interfaces\*
- Probe can be installed up to 150 meters from the analyzer
- Optional cross-flow cell

## Specifications

Materials	SS 316 (other materials upon request) Materials of construction certification (for wetted components)
Laser Wavelength	532nm
Spectral Coverage	150-3425 cm-1
<b>Laser Power</b>	
Maximum Laser Power	500 mW into probe head
<b>Sample Interface</b>	
Temperature (probe head)	-40 to +150° C
Temperature (fiber cable)	-40 to +80° C
Temperature (ramp)	<6° C (min)
Pressure (at tip)	1000 psi
<b>Fiber Optic Cable</b>	
Design	PVC jacketed, proprietary construction, conduit and tray rated
Connections	Industrial hybrid (optical/electrical) integrated connector (IP67)
Length	16 ft (5m ) standard, custom lengths available on request
Minimum Bend Radius	5 in (12.7 cm)
<b>Gas Stream</b>	
Filtration	1 micron or better (multistage filtration recommended)
<b>Certification</b>	
ATEX	II 2/1 G Ex ia op is IIA or IIB; or IIB+H2; or IIC T3; or T4; or T6 Ga
North American Hazard Area	Ex ia IIB+H2 T4 Class I Zone 0 AEx ia IIB+H2 T4 Class I Division 1 Groups B, C and D T4

\* See the OptoDRS™ & OptoAST™ Process and Sampling Interfaces Datasheet

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[www.optograf.com](http://www.optograf.com)

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