



## Plasma-rich, elevated ambient light environments

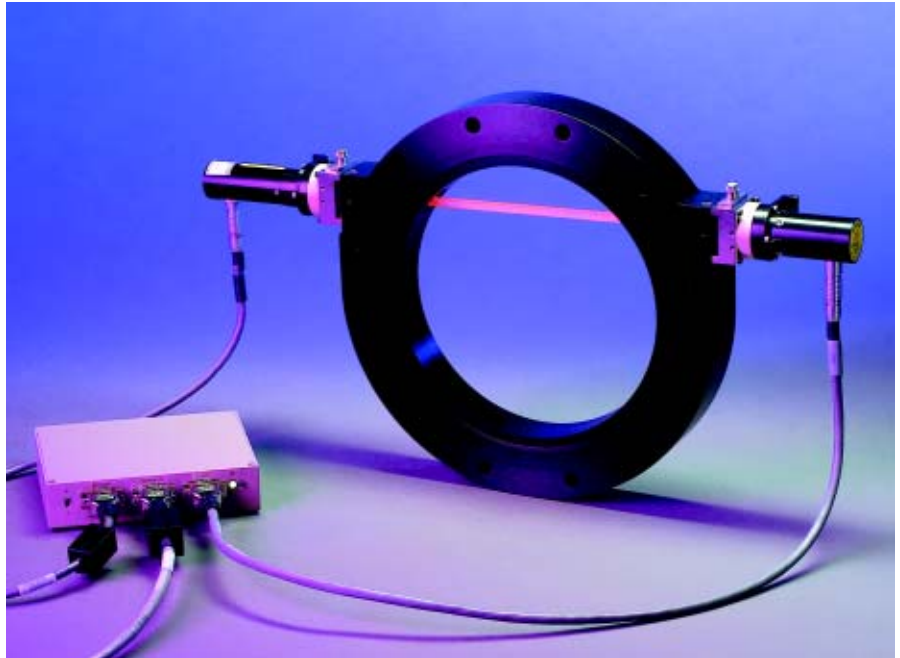
### Model 9000 Vacuum Particle Sensor

#### FEATURES

- Short wavelength laser for 0.3 micron sensitivity
- Sensor bus compliant operation
- Compact design allows installation adjacent to process modules
- Optical noise cancellation reduces plasma interference
- Easy to clean cartridge windows

#### CONFIGURATIONS

- Applied MxPTM Poly Etch
- Applied MxPTM Oxide Etch
- Applied DPSM Metal Etch
- Applied DPSM Poly Etch
- Applied HDP Oxide DxPTM
- LAMTM 9600 Metal Etch
- TEL DRM™ Oxide Etch
- KF 40/40
- KF 50/50
- LF 80
- LF 100
- All Standard ISO Flanges



The HYT Model 9000 is a bright field laser particle sensor for *in situ* particle monitoring (ISPM) of vacuum process environments. The sensor may be integrated into vacuum chambers, manifolds, and pump lines with no conductance loss. Bright field detection enables use of this sensor in plasma or high ambient light environments.

The sensor consists of three components: a visible semiconductor laser diode source, photodiode detector, and detector/laser control module. The laser and detector modules occupy opposing locations on the vacuum enclosure. The laser module beam traverses the interior of the vacuum enclosure allowing detection of particles entrained in the gas flow.

The sensor is optically coupled to the vacuum enclosure through sapphire windows mounted in cartridge assemblies for ease of maintenance. Cartridge windows may be replaced without removing the sensor. Closed loop temperature control is used to maintain sensor stability and long laser life.

A dual vacuum switch connected to the vacuum enclosure provides an interior access safety interlock when internal pressure reaches 500 torr. Dual magnetic sensors at the laser and detector modules provide an exterior access safety interlock.

Pacific Scientific Instruments is the leader in vacuum *in situ* particle monitoring and provides comprehensive user training and support, an applications engineering group, and a wide range of proven applications.

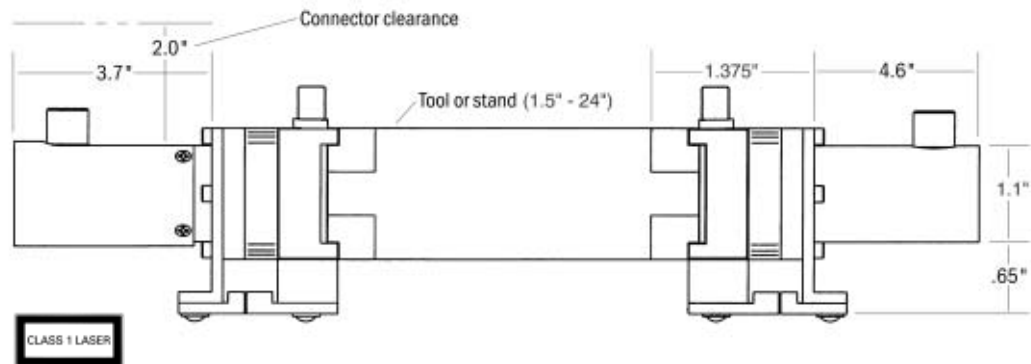


## Model 9000 Vacuum Particle Sensor

### SPECIFICATIONS

Sensitivity	0.3 $\mu\text{m}$ minimum detectable size
Count Rate	1000 per second, maximum
Detection Area	2.0 $\text{mm}^2$ @ 0.36 $\mu\text{m}$ 16.0 $\text{mm}^2$ @ 0.701 $\mu\text{m}$
Laser	AlGaAs 685 nm Wavelength 30 mW (20 mW operation), Class I
Laser Safety	Class I laser product when used in a closed vacuum system. Complies with FDA radiation performance standards, 21 CFR 1040.10 and 1040.11
Manifold Velocity Range	0.1 to 40 m/sec
Manifold Pressure Range	$10^{-8}$ torr to 100 psi
Temperature Range	32 to 104°F (0 to 40°C) ambient
Power Requirements	115 VAC, 60 Hz, 5 watts
Dimensions (Preamplifier)	5.7" wide x 1.33" high x 4.47" deep (14.48 x 3.38 x 11.35 cm)
Weight (Preamplifier)	1.2 lbs (.54 kg)

### DIMENSIONS



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