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Fast Ionization Gauge and Controller

Measures time varying gas density in a localized region

Model S27 Fast Ionization Gauge (FIG)

Applied Pulsed Power's hot cathode fast ionization gauge (FIG) measures time varying gas density in a localized region. The FIG can be used to measure pressures from 1mTorr to several Torr, and has a response time of >20 mTorr/ μ s. The FIG has been used extensively with hydrogen and nitrogen and should perform well with other gases with the exception of oxygen.

The FIG is designed to minimize the disturbance to the gas flow in one direction. Inter-electrode spacings are kept small to allow high density measurements to be made in a localized region. Our standard gauge samples a volume approximately 3x4x4 mm. Gauges with other geometries can be fabricated to accommodate your requirements.

The FIG response is linear when operated at the appropriate emission current for the gas type and pressure range being measured. The gauge is normally calibrated for H₂, and is supplied with installation and operating instructions which include information on appropriate emission currents for different gas species and pressures.

Specifications for Model S27 Fast Ionization Gauge (FIG)

Maximum operating pressure, H ₂	500 mTorr static, 5 Torr pulsed
Sampled volume	3x4x4 mm
Maximum emission current	200 μ A
Sensitivity (typical)	20 mTorr/ μ A with a 200 μ A emission current
Power Supply requirements:	
Filament supply	3 to 5 V (adjusted to set emission current), < 5 A
Anode bias voltage	+250 V
Filament bias voltage	5 to 10 V

Model S28 Controller for Fast Ionization Gauge

A basic gauge controller is available to facilitate use of the hot cathode, fast ionization gauges. The controller provides the collector and anode bias voltages for operating the fast ionization gauge. A digital panel meter displays the emission current. A separate 3V to 5V, 5A, floating power supply is required to drive the filament. The controller has connectors for the fast ionization gauge and the filament power supply, as well as BNC jacks for monitoring collector and emission current with an oscilloscope.

Specifications for Model S28 Controller for Fast Ionization Gauge

Collector current monitor sensitivity	1 mV/ μ A
FIG Power:	
Anode bias voltage	+250 V
Collector bias voltage	+9 V
Connectors:	4 pin connector: FIG power
	BNC connectors: FIG collector
	I_c
	I_{e+}
	I_{e-}
Power requirements	110 Vac, 1A, 50/60 Hz
Size	8" x 8" x 5" h.

Since 1990, the mission of Applied Pulsed Power, Inc. has been the development of products for industrial applications where pulsed power technology has compelling advantages over existing methods. APP has been developing ion beam technology for industrial surface treatment for five years. The company also designs and supplies prototype systems including high power pulse generators, pulsed high magnetic field coils and high speed gas valves. We can work closely with you to meet your needs, often by modifying proven designs with a minimum of engineering costs.