

M3x0.5 Combustion Pressure Sensor

Rated for temperatures up to 380°C

- Miniature Size: M3x0.5 Thread, 3.5mm reach
- Sensor tip rated for temperatures up to 380°C
- Available in pressure ranges of 100 and 250 bar
- Suitable for installation directly into cylinder head or integrated with Optrand PSIplug spark plug
- Immune to EMI/RFI, can be used in very close proximity to noisy engine components
- Can detect and tolerate knock
- Frequency response of 0.5 Hz to 30 kHz



Optrand's smallest in-cylinder pressure sensor has M3x0.5 thread and features a very short thread engagement length making it suitable for thin wall installation locations. The M3 sensor is offered with two pressure ranges: 100 bar (1450 PSI) and 250 bar (3625 PSI), and is rated for maximum continuous temperature of 380°C. The frequency response is typically in the 0.5Hz to 25kHz range but is available up to 40 kHz for use in high speed engines up to 18,000 rpm.

In spite of its miniature size the sensor offers high accuracy of +/- 1.5% against a water cooled reference transducer and drift free operation under dynamic engine load conditions. The temperature compensated (TC) version virtually eliminates the effect of temperature on sensor sensitivity.

The sealed gauged sensor has two package options: (1) with a built in heat shield - for direct installation into an engine cylinder head and (2) with flush mounted diaphragm for installation into Optrand's PSIplug pressure sensing spark plug.

Two versions of the signal conditioners are available: (1) one rated for maximum temperature of 65°C and (2) 110°C. A special version rated for 125°C is also available. The sensors have two options for the fiber optic cable: light weight, dielectric PTFE or rugged stainless steel braid.

The sensor targets heat release analysis including calculation of Indicated Mean Effective Pressure, Mass Fraction Burned, Start of Combustion, Maximum Pressure Rise, Peak Pressure, and similar.

Specifications

Pressure Range	0-100 bar (~1450 psi) 0-250 bar (~3600 psi)	Temp. Coefficient of Sensitivity	
Non-Linearity, Hysteresis & Thermal Shock	±1.5% FSO	AutoPSI-S	±0.03%/°C
Sensor Frequency Range	0.5 Hz to 30 kHz	AutoPSI-TC	±0.005%/°C
Output Signal Diagnostics	0.5V to 5V Analog 0.5V to 3.5V Analog	Operating Temp. Range	
Sensor Power Supply	5V or 9-18V DC	Sensing Element	-40° to 380°C (662°F)
Fiber Optic Cable Length	1.5m (5') Standard	Cable	-40° to 250°C (482°F)
Cable Min. Bend Radius	5 mm	AutoPSI Signal Conditioner	-40° to 60°C (140°F)
		AutoPSI-HT Signal Conditioner	-40° to 125°C (257°F)



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