

Pressure-Indicating Spark Plug

- Miniature (ø1.7mm) Pressure Sensor Integrated with Production Spark Plug
- Flush Mounted Sensor Eliminates Channel Errors
- Exceeds Performance of Un-Cooled Head-Mounted Piezoelectric Transducers
- ±1% Full Scale Output Total Pressure Reading Accuracy
- User-Selected, Modified Production Spark Plug Retains Original Thermal and Electrical Characteristics
- Ideal for High Speed Engines
- Available in M14 and M12 Thread Sizes



CALplug™ combines a user-selected, modified production spark plug with Optrand's 1.7mm diameter fiber optic-based pressure sensor, flush mounted in the spark plug shell. A calibrated pressure reading accuracy of ±1% Full Scale Output (including the linearity, hysteresis, thermal shock, repeatability, and sensitivity stability under changing engine load) is achieved by using a miniature diaphragm (which minimizes thermal shock errors) and a temperature compensated transducer. The CALplug is the world's only pressure indicating device that offers the exact characteristics of a production spark plug and performance comparable to water-cooled, head-mounted sensors without the need for engine head drilling or sensor water-cooling.

The CALplug has been specifically designed for demanding heat release analysis as well as engine calibration and mapping. When used with portable data acquisition equipment, the CALplug is the perfect device for in-vehicle operation. In addition the CALplug is particularly suitable for racing applications where a flush mounted sensor eliminates any channel artifacts under high RPMs.

Specifications

Pressure Range	0-100 bar (~1,500 psi) 0-200 bar (~3,000 psi)	Cable Operating Temp. Range	-40 to 200°C (392°F)
Non-Linearity, Hysteresis, and Thermal Shock	±1% FSO	Signal Conditioner Temp. Range	-S/-TC Version: -20 to 65°C (150°F) -HT Version: -20 to 125°C (257°F)
Output Signal	0.5V to 5V Analog	Output Impedance	250 Ohm
Diaphragm Resonant Frequency	>120 kHz	Sensor Operational Mode	Sealed Gauge
Frequency Range	0.1 Hz to 20 kHz or 1.0 Hz to 40 kHz	Guaranteed Lifetime	1 year
Fiber-Optic Cable Length	2m (6.5') standard		
Cable Minimum Bending Radius	5 mm		
Sensing Element Temp. Range	-40 to 300°C (572°F)		
Temperature Coefficient of Sensitivity	AutoPSI-S: ±0.03%/°C AutoPSI-TC: ±0.005%/°C		



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