



PD11 Dynamic Pressure Sensor

PRODUCT FEATURES

PD11 Dynamic Pressure Sensing System

- » Optical sensing enables:
 - Extreme temperature operation in harsh environments
 - Harsh environment operation
 - EMI immunity: start-up pyroelectric noise is nil
- » Asset protection through autonomous monitoring
- » Eliminates the need for semi-infinite tubes for monitoring gas turbine combustion dynamics – removes risk of fluid build up
- » Closer proximity to combustion events enables:
 - Increased acoustic bandwidth capability
 - Enhanced event characterisation
- » Intrinsically safe for use in explosive atmospheres
- » No electrical systems required in ATEX zone
- » No requirement for a charge amplifier or galvanic separator
- » Small form factor digital interrogator (signal conditioner) mounted on DIN rail located with control electronics
- » Dynamic pressure measurement using Fabry-Perot optical interferometer

OVERVIEW

The PD11 optical sensing system measures dynamic pressure in harsh environments and is ideal for gas turbine combustion monitoring. The sensor incorporates a micro-machined sapphire sensing element packaged with a high temperature fibre-optic lead-out to form a unique passive sensor configuration.

The properties of the sensor make it suitable for directly mounting on gas turbine combustors. The high reliability passive optical element provides a unique capability for continuous condition monitoring of gas

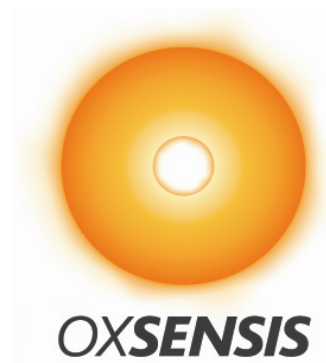


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SYSTEM SPECIFICATIONS

Operation

Input power	24±4 VDC
Signal processing	PD1 Interrogator
Output range	±10V
Dynamic sensitivity (configurable on request)	100mV/psi
Frequency response (higher bandwidths available on request)	10Hz to 10kHz
Acceleration sensitivity	<1 mbar/g

Environmental

Sensor

Static pressure	1 to 70 bar (options available)
Burst pressure (static)	132 bar
Operating temperature (continuous)	≤600°C
Operating temperature (extreme) ¹	≤1000°C
Operating humidity	5% to 90% non-condensing
Minimum bend radius	76mm (at 90°)

Interrogator

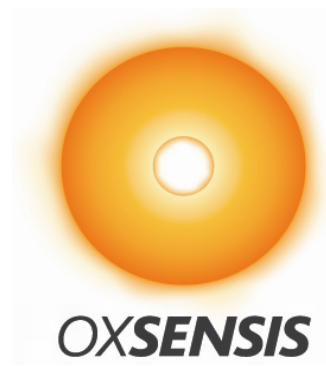
Interrogator operating temperature	-20°C to 55°C
Interrogator storage temperature	-40°C to 85°C

Optical Cable

Operating temperature	-40°C to 150°C
Pull limit (armoured)	22kg
Pull limit (standard)	2kg
Minimum bend radius	50mm

¹ Limited time at sensor front face, maintaining sensor body temperature of ≤600°C

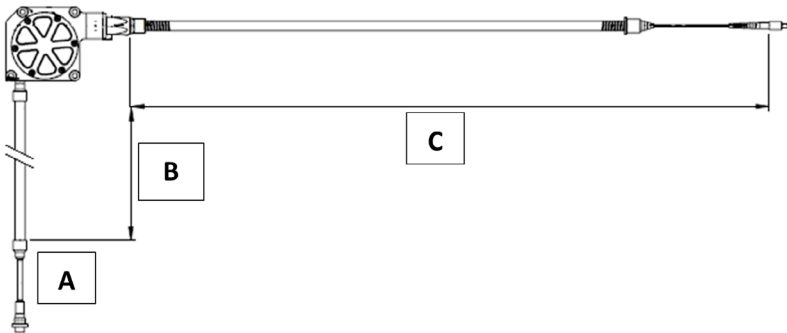




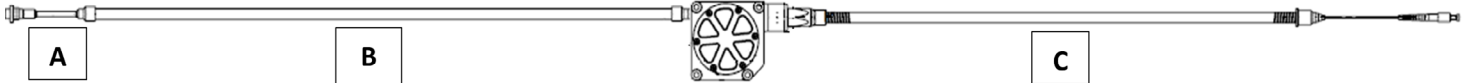
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SENSOR OUTLINE

Orthogonal Optical Cable Lead Out



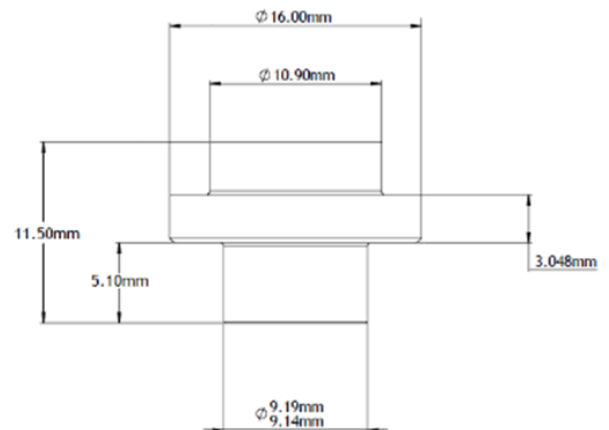
Standard Optical Cable Lead Out

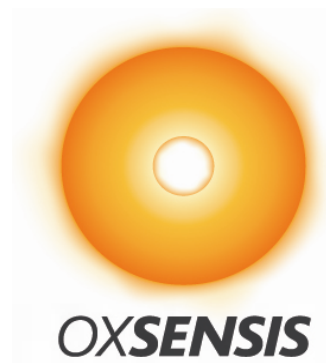


Note: sections A, B and C are configurable on order (see information on page 4)

- Section A** Rigid Inconel Tube (3/16")
- Section B** Flexible Braided Conduit
- Section C** Optical Cable (armoured shown)

Sensor Head Dimensions





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SYSTEM OPTIONS & ACCESSORIES

Conduit Length (Section B)

- 0.5m
- 1.0m

Optical Cable Type (Section C)

- Standard
- Armoured

Optical Cable Length (Section C)

1m	OX-20649-001
10m	OX-20649-010
14m	OX-20649-014
20m	OX-20649-020
30m	OX-20649-030
40m	OX-20649-040
50m	OX-20649-050
100m	OX-20649-100

Other lengths available on request

Optical Cable Lead Out

- Standard
- Orthogonal

Cleaning Kit

Optipop FC/APC Fibre Optic Connector Cleaner	OX-40075
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