Fiber Optic Tip Pressure Sensor

0.20 mm OD miniature sensor

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The FTPS is a MEMS-based fiber optic pressure sensor specifically designed for physiological pressure measurements in both human and animal applications. Constructed with non-metallic materials, it is fully immune to EMI and RFI interference. This miniature sensor, with an outer diameter of just 0.20 mm, is ideal for integration into catheters, guidewires, or other devices for minimally invasive pressure measurements. The patent-pending design eliminates moisture-induced drift and significantly reduces thermal zero shift. We offer customizable sensor encapsulation at the sensor tip and/or along the entire optical cable, available in various materials and sizes to meet specific OEM application needs.

When paired with the OPRO readout unit, the FTPS delivers long-term accuracy, repeatability, low drift, and high-fidelity pressure measurements, even in harsh environments with EM, RF, MR, and microwave fields.

Features

- Ultra miniature
- High fidelity
- Easy catheter integration
- Custom sensor packaging
- EMI/RFI immunity
- MRI safe and compatible
- Low cost

Applications

- Physiological pressure monitoring:
- Catheter research, new product development design
- Guidewires design (0.2,5 mm OD model)
- Cardiac assist applications
- Pressure measurement under electro-surgery, MRI and MW/RF related practices

Specifications

Parameter	Min	Typical	Max	Unit
Dimension (mm O.D.)		0.20		mm
Pressure range (relative to atmospheric pressure)	-300		+350	mmHg
Precision		± 1		mmHg
Resolution		0.2		mmHg
Moisture drift		< 3		mmHg/28 days
Thermal coefficient of Zero		0.2		mmHg per °C
Proof pressure		4000		mmHg
Operating temperature	10		50	°C
Operating humidity range	0		100	%
EM/RF/MR/MW susceptibility	Complete immunity			
Cable length	1.5 meters standard (Other lengths available)			
Optical connector	SC standard			
Cable sheathing	Customer specifications			

Note:

1. The OPRO readout is designed to be integrated into customer host system but is not approved by the FDA or by any applicable regulatory bodies.

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link]:

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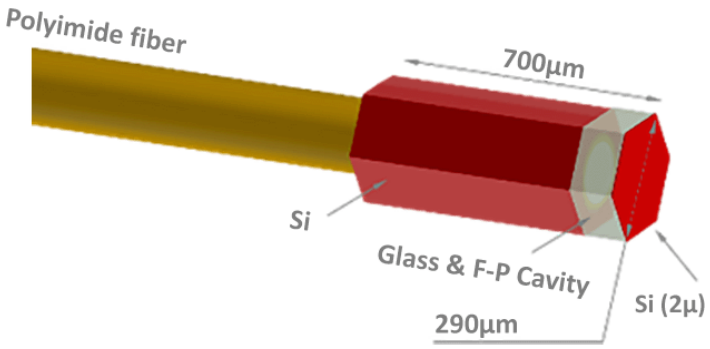
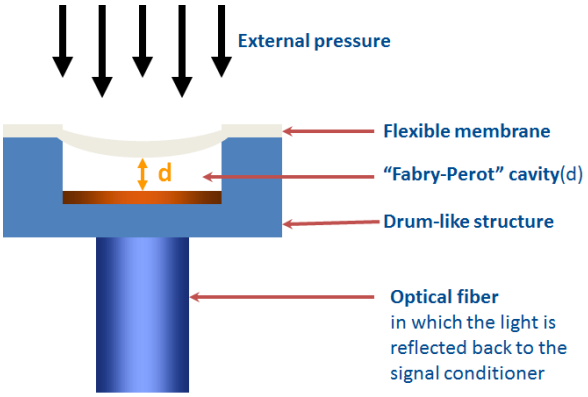
Mechanical Dimension (mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Sensor Configuration Illustration



Ordering Information (Part Number)

	☐	☐	☐	☐☐	☐☐	1	1	1
Prefix	**Package**	**Fiber Cover**	**Fiber Length**	**Connector**[1]	**Readout**			
FTPS-	A = 1 B = 2 Special = 0	0.9mm tube = 1 3mm tube = 2 0.2mm coating = 3 Polyimide 0.2mm coating = 4 2.8mm peek = P Special = 0	1.5m = 1 2m = 2 Special = 0	FC = FC SC = SC Special = 00	Single Channel = 01 Dual Channel = 02 Special = 00			

[1]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

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Fiber Optic Multichannel Pressure Readout

The Fiber Optic Multichannel Pressure Readout is an optoelectronic unit designed for precise setup, control, and data acquisition via an electrical interface. It is compatible with Agiltron fiber-optic pressure sensor probes, offering industry-leading accuracy, repeatability, and reliability for demanding pressure monitoring applications. Each readout can be configured with up to eight measurement channels, providing substantial cost reduction and space savings per measurement point. Data access and control are available through the front-panel display and a USB-based graphical user interface (GUI) as well as analog 0-5V BNC output. A full command list is supplied to support custom software integration. An Original Equipment Manufacturer (OEM) module version is also available for system integration. The OEM compact module offers robust communication capabilities, high sampling rates, and RoHS compliance, making it ideal for embedded applications such as hospital monitoring consoles or industrial systems. Custom configurations are available to meet specific design and performance requirements.

Features

- Low heat emitted from LED light source
- Long lifetime greater than 20,000 hours without maintenance
- Self-Calibration
- Full bandwidth via analog output and digital connectors
- Up to 8 channels
- Low Cost

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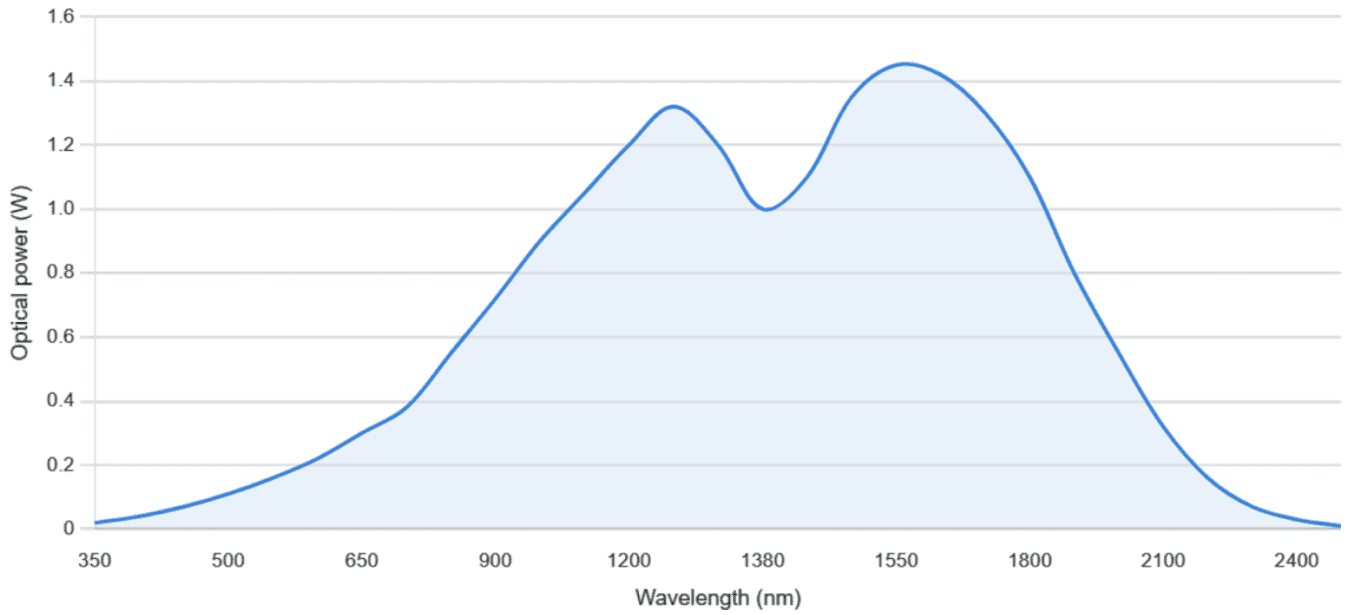
Regular Single Mode / Polarization Maintaining Fiber Optical Power Handing vs Wavelength



Single mode fiber optical power is limited by nonlinear effects in addition to absorption that increase loss and generate heat. The curve shows the approximate safe CW power envelope for standard single-mode fiber. Actual limits depend on fiber design, core size, length, and laser characteristics. Specialty fibers can significantly increase the power limit.

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