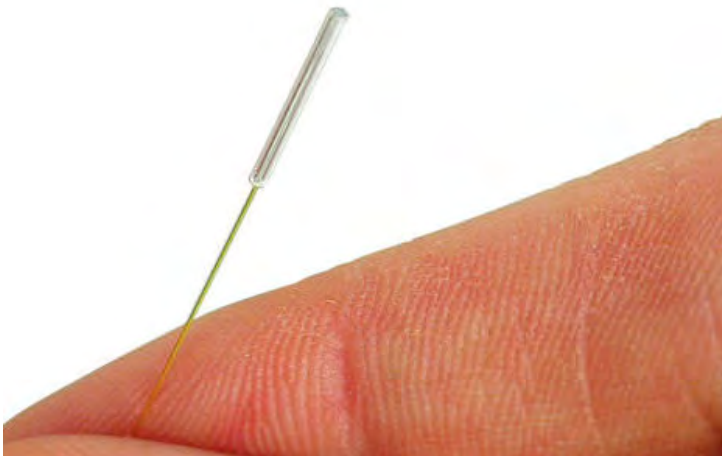
FOP-M Pressure sensor

Laboratory, Industrial, R&D



Fiber Optic Pressure Sensor

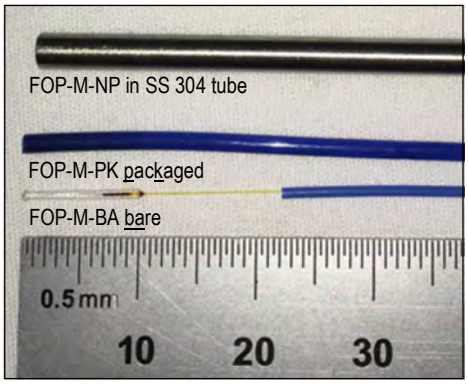
Complete Immunity to EMI / RFI

Key Features

- Intrinsically safe
- Immune to EMI / RFI
- Up to 150°C (302°F)
- Up to 1000 psi

Applications

- Aerospace
- Defense
- Metallurgy
- Industrial in-situ process monitoring
- High temperature
- Harsh and hazardous environments
- Oil well and natural gas pumping station
- Plastic injection molding & extrusion monitoring
- Food packaging development



Description

The FOP-M is a fiber optic pressure sensor designed mainly for applications where high temperature conditions can be found such as in aerospace and defense. This is a useful tool for general industrial applications in harsh and hazardous environments. The FOP-M pressure sensor offers immunity to EMI/RFI, a small size, reliable measurements under harsh conditions, high accuracy, and resistance to corrosive environments.

Research engineers in aerospace, defense, and different industrial areas may now improve process and product technology by monitoring the performance of specific properties over time. This will provide accurate information on changes in pressure, the manufacturing process or throughout the lifetime of a product.

The FOP-M fiber optic pressure sensor is based on proven White Light Fabry-Perot Interferometer technology. The sensor's unique design is based on deflection measurement of a silicon diaphragm, as opposed to more conventional stress measurement techniques. Pressure creates a variation in the length of the Fabry-Perot cavity and our optical signal conditioners can consistently measure the cavity length with high accuracy under all adverse conditions of temperature, EMI, humidity and vibration.

With a temperature range of up to 150°C (302°F), it is ideal for applications in any research and development field. For those extreme conditions, the fiber optic lead cable is available in different types and may be delivered up to several kilometers long.

Specification of the sensors

Reading conditioner	FPI-HR / FPI-HS / SKR	FTI-10 / UMI / DMI / VELOCE-50[5]
Sampling rate	125-250Hz / 15kHz / 250Hz	10Hz / 20Hz / 20Hz / 200kHz
Pressure ranges	0 to 2 psi ± 0.06 psi	0 to 2 psi ± 0.06 psi *(also see FISO spec. sheet # MC-00206)*
± Accuracy[4]	0 to 5 psi ± 0.06 psi	0 to 5 psi ± 0.10 psi
	0 to 50 psi ± 0.25 psi	0 to 50 psi ± 0.40 psi
	0 to 150 psi ± 1.00 psi	0 to 150 psi ± 1.25 psi
	0 to 1000 psi ± 1.25 psi	0 to 1000 psi ± 7.50 psi
Resolution[1]	<0.05% of full scale (range dependant)	0.2% of full scale (range dependant)
Connector type	SCAI[2] connector required	ST connector
Operating temperature[3]	−20°C to +150°C (−4°F to 302°F)	−20°C to +150°C (−4°F to 302°F)
Storage temperature	−30°C to +80°C (−22°F to 176°F)	−30°C to +80°C (−22°F to 176°F)

1. Signal conditioner dependent.
2. SCAI is a SCA connector with smart chip communicating calibration data to the signal conditioner module.
3. Temperature at which the sensing tip can be exposed.
4. Accuracy of the system (conditioner and sensor together)
5. This system is obsolete., for any question regarding the VELOCE, ask directly our sales representatives for alternatives.

FOP-M Pressure sensor

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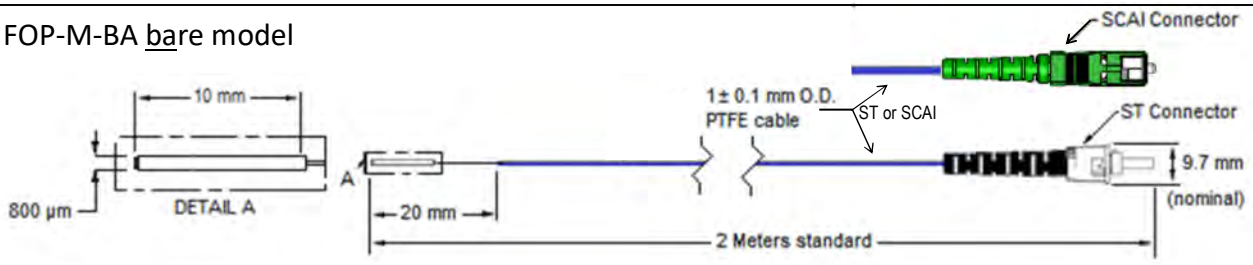
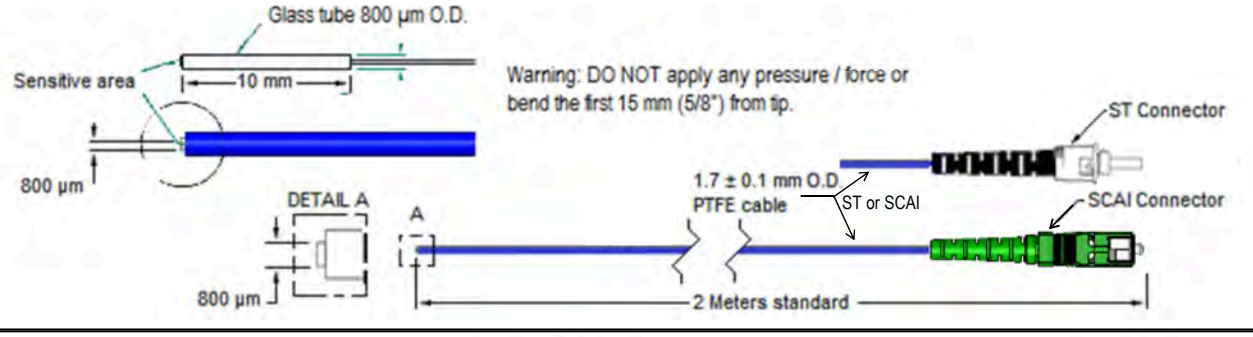
Dimensions

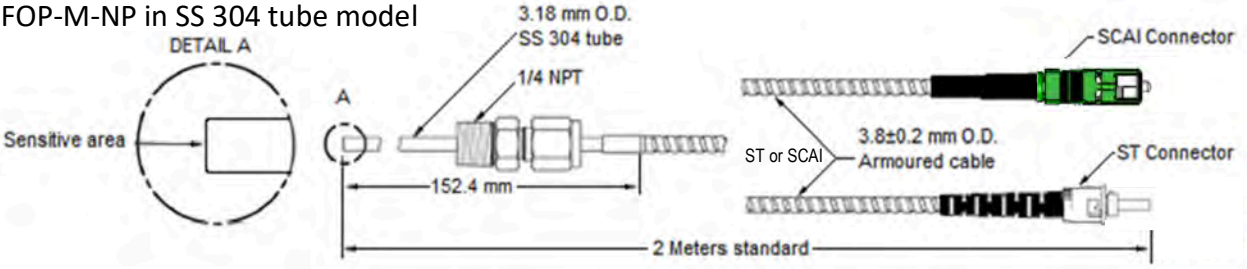
FOP-M-BA bare model



FOP-M-PK packaged model



FOP-M-NP in SS 304 tube model



Ordering information

Example: **FOP-M- BA - C1 - F1 - M2 - R3 - ST**

FOP-M- __ - __ - __ - __ - __ - __

Package
- BA- 20 mm sensor and bare fiber exposed
- PK- Packaged in 1.7 mm ϕ PTFE tube
- NP- Packaged in 3.18 mm ϕ stainless steel tube

Cable
- C1- 1 mm ϕ PTFE cable for BA C2- 1.7 mm ϕ PTFE cable for PK
- C5- 4 mm ϕ Armoured cable for NP model

Fiber
- F1- 50µm (FTI, UMI, DMI, VELOCE-50)
- F2- 62.5µm (FPI-HR, FPI-HS, SKR)

Sensor length
- M2 2 meter total length
- M5 5 meters total length
- M10 10 meters total length

Range
- RX 0 to 2 psi*
- R1 0 to 5 psi
- R2 0 to 50 psi
- R3 0 to 150 psi
- R4 0 to 1000 psi
- RX 0 to 3000 psi*

- ST connector (for FTI, TMI, UMI, DMI, VELOCE-50)
- SCAI intelligent connector (for FPI-HR, FPI-HS)

Other configurations may be possible. *Call FISO for availability.

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FPI-HR / FPI-HS module

Laboratory, Industrial, R&D

The FPI-HR and FPI-HS signal conditioner are

Description

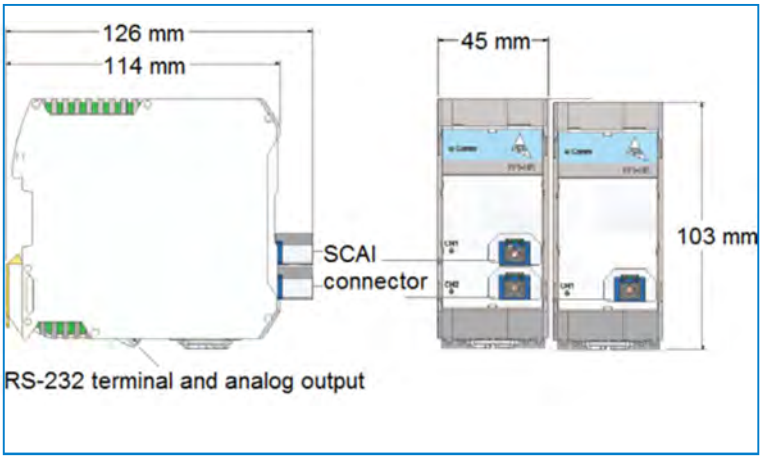
The FPI-HR and FPI-HS like all FPI-Modules are compatibles with **evolution** chassis and with the **evolution** software[1].

The FPI-HR is suitable for pressure measurements and for temperature measurement.

Compatible EVOLUTION chassis

- EVO-SD-2 (up to 2 modules)
- EVO-SD-5 (up to 5 modules)
- EVO-RM-8 (up to 8 modules)

Dimensions



Specifications

	FPI-HR	FPI-HS
Number of channel (s)	1 or 2	1
Sampling rate up to	250Hz (1 channel) 125Hz (2 channels)	15kz[4]
Atmospheric self-compensation	No	Yes
Analog output	0 to 5V 16 bits resolution	
Analog output delay response[3]	8ms (1 channel) 16ms (2 channels)	130µs
Power consumption	5 Watts	12 Watts
Power consumption	24VDC	
Operating temperature	10°C to 50°C	
Storage temperature	-30°C to 80°C	
Communication	USB via EVO chassis,	

1. The evolution software is included in the evolution chassis which is sold separately.
2. Delay between the physical phenomenon and the analog output change.
3. The frequency response limitation is the 3dB bandwidth 1600Hz.

EVOLUTION chassis

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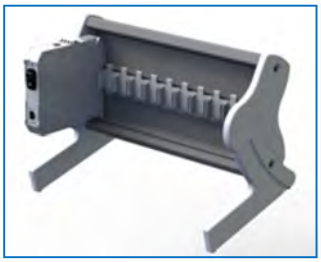
The evolution chassis are the easiest way to configure and use **evolution** modules.


Description

evolution chassis footprint, communication capabilities and speed make it the ideal tool for laboratory and in site test environments.

The **evolution** chassis can house different module types with different channel capabilities to combine results from a single acquisition source.

evolution chassis have a different number of module slots, depending on the model:

Module capacities, communication ports, and overall width specifications differ from one model to the other.

USB communication interface is available on all chassis.

The SD-2, SD-5 and RM **evolution** chassis package includes the following components:

- **evolution** chassis unit,
- **i-evo** module,
- Power supply adaptor and cord,
- USB interface cable,
- Module removal tool,
- User guide,
- CD containing software driver and manual (pdf).

Key Features

- i-evo module for communication and for power supply distribution
- USB communication
- Evolution software for sensors and module configuration and for data acquisition up to 5 k samples/sec. total.
- External data acquisition system required for higher acquisition rate > 5k samples/sec.
- Full bandwidth via analog output connectors

Applications

- Laboratory measurements with evolution modules
- Easy set-up of evolution modules before migrating modules in your own equipment

Specifications

Model	EVO-SD-2	EVO-SD-5	EVO-RM
Communication	USB	USB	USB
Data logging	Via computer	Via computer	Via computer
Number of modules	Up to 2	Up to 5	Up to 8
Power supply	24 VDC 70 W	24 VDC 70 W	24 VDC 150 W
Evolution software	Included	Included	Included
Maximum rate of acquisition[1]	5 k samples/sec. total	5 k samples/sec. total	5 k samples/sec. total
Dimensions	W:133 x H:177 x D:156mm	W:269 x H:177 x D:156mm	W:483 x H:132 x D:175mm

*1. With the **evolution** software and chassis. Analog output is available directly on the reading modules, offering full acquisition rate. Ex. FPI-HS plugged on analog is at 15Ksamples/sec.*

EVOLUTION system

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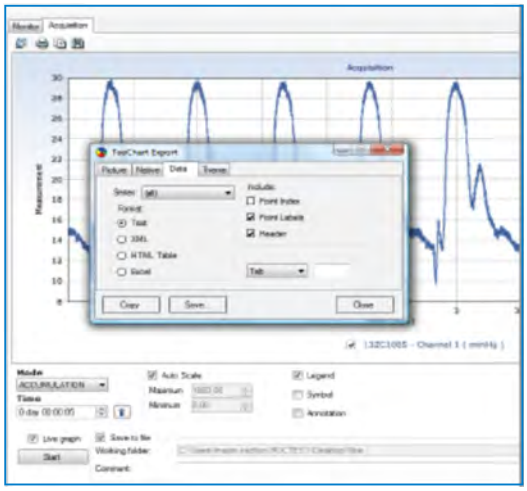


EVOLUTION Software and Solution Summary

Configure and control the reading instrument

The most common set-up users will be configure the 0-5V analog output level to the pressure range of interest, but end user will also enjoy the visually confirm proper communication between catheters and instrument.

Simple monitoring and real-time graphing

Users may choose reading the actual measurement, or plot in real-time with user specified screen refresh rates.

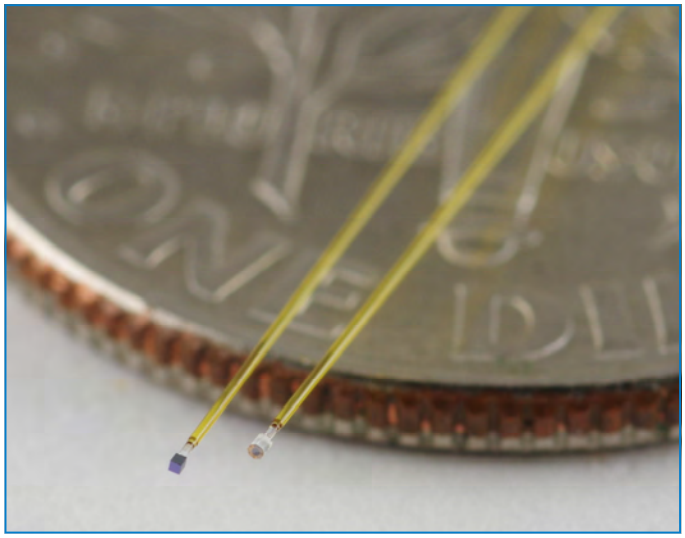
Export data

While users may generally prefer to use 250Hz/125Hz analog output on the FPI-HR, data may also be recorded and saved in multiple files formats

Other Accessories: Extensions cable

Be sure to purchase this 3 meter extension cable when a longer working distance is required, but also can be removed when working close to the subject.

THR-10 and a FOP-M260-10 on an US dime.



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