

# FISO STARTER KIT



SPECIAL PROMOTION FOR UNIVERSITY/ACADEMICS

➤ CHF 7'900

➤ EUR 6'900

PROMOTION VALID UNTIL 31.12.2017

## GENERAL DESCRIPTION

The FISO Starter / Educational Kit is the first off-the-shelf monitoring system designed for small monitoring projects and for educational demonstrations and tests. It includes all hardware and software components needed to implement a basic monitoring project or laboratory test without specific knowledge about fiber optic sensing.

Additional sensors and modules can be ordered separately

## TECHNICAL DESCRIPTION

The Kit includes:

- 1 Reading unit Evolution System 4 channels EVO-SD-2
  - 2 modules FPI-HR-2 dual channel (up to 125 Hz sampling rate per channel)
  - USB communication
  - SCAI connector (smart chip communicating calibration data to signal conditioner module)
- 1 software license for SDB View (advanced visualization and alerting)
- 2 Fiber optic TEMPERATURE sensor FOT-L
- 2 Fiber optic STRAIN sensors FOS-N
- 1 Fiber optic PRESSURE sensors FOP-MIV
- 1 Fiber optic embedded STRAIN sensor EFO-N
- 1 Fiber optic spot welding STRAIN sensor SFO-W
- 1 Fiber optic DISPLACEMENT sensor FOD-AL
- 1 Fiber optic miniaturized PIEZOMETER sensor FOP-MP
- 1 Book entitled: *Fiber Optic Methods for Structural Health Monitoring*, by Branko Glišić and Daniele Inaudi, Smartec SA
- 1 cleaning kit with 20x mini Foam Fiber Optic Swabs, packet of non-woven dry wipes 4"x4", 1 LDPE bottle 2oz, 8x Electro-Wash MX Universal Cleaner/Degreaser Wipes



## FEATURES

- Static or dynamic measurements up to 125 Hz per channel
- Strain, deformation, temperature and pressure sensors
- Automatic control
- SCAI technology: calibration included in connection chip
- Data analysis and display software

## EVOLUTION EVO-SD-2

Platform of 158mmx182mmx236mm allowing up to 2 FPI-HR modules. USB communication, expansion RS-485, data logging memory via external computer (not included)



## FPI-HR MODULE

Interrogator module with 2 SCAI connectors. Each module allows measurement of 2 sensors simultaneously with a sampling rate up to 125 Hz. It offers a resolution up to 0.05% of full scale and an accuracy of 0.5% of full scale. Analog output is available on each module (0-5 V/4-20 mA, 16 bit resolution)



## FIBER OPTIC TEMPERATURE SENSOR FOT-L

FOT-L provides measurements are based on variations of the reflected light — when compared to the emitted light — due to thermal expansion of the highly stable glass used within the sensor.

Temperature operating range:  $-10^{\circ}\text{C}$  to  $120^{\circ}\text{C}$ , Resolution  $^{\circ}\text{C}$ , Accuracy  $\pm 0.4^{\circ}\text{C}$ , Response time second



## FIBER OPTIC STRAIN SENSORS FOS-N

The strain gauges are designed around a Fabry-Perot interferometer (FPI). When bonded to a specimen, the strain transferred to the gauge is converted into engineering units by the readout.

Strain range  $\pm 1000 \mu\epsilon$ , resolution % of full scale (signal conditioner dependant)



## FIBER OPTIC PRESSURE SENSOR FOP-MIV

The FOP-MIV fiber optic pressure sensor is based on proven Fabry-Perot interferometer technology. The sensor's unique design is based on deflection measurement of a silicon diaphragm. Pressure creates a variation in the length of the Fabry-Perot cavity which is measured by the fiber optic signal conditioner.

Pressure range  $-300 \text{ mmHg}$  to  $300 \text{ mmHg}$  ( $\pm 40 \text{ MPa}$ ), accuracy % of full scale, resolution mmHg ( Pa)



## FIBER OPTIC STRAIN EMBEDDED SENSOR EFO-N AND SPOT WELDING SENSOR SFO-W

The EFO is a 70 mm long sensor designed to be embedded in concrete. It consists of a stainless steel body, with two flanges for better adherence to concrete.

The SFO-W consists of a small diameter stainless steel tube of 25.4 mm long welded on a steel sheet, suitable for spot-welding on steel surfaces.

Range  $\pm 1000\mu\epsilon$ , Resolution % of full scale, transverse sensitivity % of full scale (signal conditioner dependant)



## FIBER OPTIC DISPLACEMENT SENSOR FOD-AL

The FOD is an absolute position sensor. Its design is based on a Thin Film Fizeau Interferometer device (TFFI) mounted on a movable shaft.

Linear stroke 20 mm, resolution  $\mu\text{m}$ , accuracy  $\pm \mu\text{m}$



## FIBER OPTIC MINIATURIZED PIEZOMETER SENSOR FOP-MP

The FOP-M260 fiber optic miniature pressure sensor has a diameter of 260 microns and accounts for a 50% size reduction over the current FOP-MIV pressure sensor.



## FIBRE OPTIC METHODS FOR STRUCTURAL HEALTH MONITORING

Fibre Optic Methods for Structural Health Monitoring is organized as a step-by-step guide to implementing a monitoring system and includes examples of common structures and their most-frequently monitored parameters.

Fibre Optic Methods for Structural Health Monitoring is an invaluable reference for practising engineers in the fields of civil, structural and geotechnical engineering. It will also be of interest to academics and undergraduate/graduate students studying civil and structural engineering.



## SDB VIEW SOFTWARE

SDB View software is part of the SDB suite. It provides a simultaneous display, within the same window, of several different views on sensors chosen from the database over a defined monitoring period.