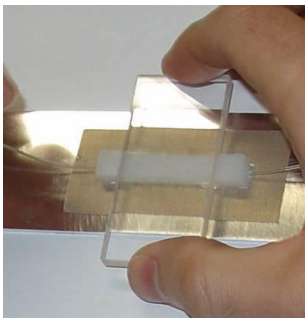
Strain Gage Installation Kit SGK-01

Description

The Strain Gage Installation Kit allows a fast, easy and reproducible way of installing the fiber optic Strain Gages SG-01 and the fiber optic Strain Gage Chain SGC-01 to various surfaces. Installation of the optical gages happens using a patented methodology which makes use of a specially designed, reusable mounting tool called a sensor pad.

The optical gages can be installed with two different adhesives: a UV-curable adhesive and a cyano-acrylate based rapid curable adhesive.

Installation with the UV-curable adhesive is the preferred method as it is highly controllable. This method requires an extra UV source which is sold as a separate accessory.



Measurement of the FO Strain Gages can be performed using an additionally low-cost interrogation unit, FBG-Scan 700, included with a user friendly software interface. Measurements are directly converted and visualized into real strain values.

Applications

The Strain Gage Installation Kit SGK-01 can be used to install the optical Strain Gages SG-01 and the optical Strain Gage Chain SGC-01 on various surfaces for structural strain and stress analysis.

Standard specifications

Under the restriction of being installed by means of the Installation Kit procedure, the optical Strain Gages SG-01 and those from the SGC-01 exhibit the following characteristics:

Parameter	UV-curable	Cyano-acrylate
Temperature operating range[1]	-45 °C to 90 °C	-30 °C to 90 °C
Strain range	-5000 με to +5000 με	
Fatigue shift[2]	≤ 4 με / 10^6 cycles	

[1] For the sensor, not for the connector. For the extreme temperatures, splicing is recommended.
[2] The bonding during fatigue cycling was tested by mounting gages on unidirectional glass composite material that was strained from -0.24 % to +0.24 % up to 2 million cycles.

Fibre Optic Sensing & Sensing Systems – FOS&S
Cipalstraat 14
2440 Geel
BELGIUM

Tel: +32 14 58 11 91
Fax: +32 14 59 15 14
E-mail: sales@fos-s.com
www.fos-s.com

Included sensors

Additional to all necessary materials and tools for proper installation of the gages and a detailed instruction manual with all Kit items listed, the Installation Kit contains 20 fiber optic Strain Gages SG-01 with mixed wavelengths (2 boxes SG-01-MA and 2 boxes SG-01-MB) and 2 Temperature Compensating probes TC-probe. This allows the user to make easy series configurations for multiplexing purposes and to apply temperature compensation methods.

Features and Benefits

Features	Benefits
Based on optical fiber measurement principle	Fiber optic sensing advantages apply
Kit contains all necessary materials to get started User friendly manual describing installation steps	Both experienced as non experienced operators can perform the installation
DTG (fiber optic sensor) directly glued to the surface of the structure	No interference from sensor pads during measurements
Use of highly adhesive DTG coating with high Young's Modulus (Ormocer®)	Excellent strain transfer through coating
UV-curable or cyano-acrylate glue	Short curing times (within a few minutes)
Patented sensor installation pad	Fast, easy and reproducible installation Installed and ready to measure in less than 20'
Full performance validation on various substrates	Multi-material and application use
Method fatigue tested: negligible fatigue influence up to 2 million cycles	Excellent fatigue resistance: durable, reliable and highly reproducible
Optical fibre tensile strain remains very high	High lifetime under severe strain conditions
900µm buffered fibre with 28mm free fibre length	Easy to handle
Splicing or connecting into a chain is possible	Possible to use sensors in series configuration
Completely packaged Ruggedized and waterproof ABS casing	Suitable for field use Resistant in harsh environmental conditions
All Kit items are refillable and delivered from stock	Easy to access, quick delivery
Possibility to be trained by FOS&S experts	Assurance of quality installation

Optional accessories

- UV-lamp
- FBG-Scan 700 interrogation unit

Ordering information

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This product has been developed in the framework of a joint collaboration between the Belgian Science Policy and the Federal Public Service of Economy, SMEs, Independent Professions and Energy of Belgium.

Fibre Optic Sensing & Sensing Systems – FOS&S
Cipalstraat 14
2440 Geel
BELGIUM

Tel: +32 14 58 11 91
Fax: +32 14 59 15 14
E-mail: sales@fos-s.com
www.fos-s.com