

Strain Gage Installation Kit SGK-01

Fibre Bragg Gratings reinvented

Draw Tower Gratings (DTG[®]s) are produced during the drawing process of the fibre itself, before the primary coating is applied. This is a cost effective production process for high quality Fibre Bragg Gratings. This offers unique characteristics such as extremely high breaking strength, insensitivity to bending, spliceless array configurations and uniform coating coverage. FBG parameters and coating material can be selected based on customer needs.



Description

The Strain Gage Installation Kit contains all the parts and accessories required to install the fibre optic Strain Gages SG-01 and the fibre optic Strain Gage Chain SGC-01. Installation of the optical gages uses a patented process 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 cyanoacrylate based rapid curing adhesive. Installation with the UV-curable adhesive is the preferred method as it is highly controllable. This method requires a UV lamp which can be supplied separately.

To measure the FO Strain Gages, a low-cost interrogation unit, FBG-Scan 700 is available, together with a user friendly software interface. Measurements are directly converted and presented in real strain values.

Standard specification

Using the Installation Kit, the optical Strain Gages SG-01 and those from the SGC-01 exhibit the following characteristics:

Parameter	UV-curable	Cyano-acrylate
Sensor temperature 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 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.



Additional sensors supplied

Additional to the tools and instruction manual, the Installation Kit also contains the following sensors: 20 x fibre optic Strain Gages type SG-01 with mixed wavelengths (2 boxes SG-01-MA and 2 boxes SG-01-MB) and 2 x Temperature Compensating probes TC-probe. This allows the user to quickly and easily apply single or series configurations for multiplexing purposes and to apply temperature compensation methods.

Features and Benefits

Kit contains all necessary materials to get started including a user friendly manual describing installation	Both novice and experienced operators can perform the installation
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
Patented sensor installation pad	Easy installation method means ready to measure in less than 20 minutes
Application method is fatigue tested: up to 2 million cycles	Excellent fatigue resistance: giving reliable and highly reproducible results
Optical fibre tensile strain remains very high	High lifetime even under severe strain conditions
Ruggedized and waterproof ABS casing	Suitable for field use
All kit items are refillable and delivered from stock	Easy to access, quick delivery
Training available from FBGS experts	Confidence of quality installations

Item	Quantity
SG-01 Strain Gage Kit set A	2
SG-01 Strain Gage Kit set B	2
Teflon patches brown (for UV)	24
Teflon patches white (for Z70)	20
TC-probe 1562	1
TC-probe 1564	1
Single mode patchcord, FC/APC,FC/APC, 3 mm cable, SMF28e, 6 m	2
FC/APC adapters	12
Abrasive paper (grade 120)	7 pcs of 17 cm
FPF1-00-0901: Fibre preparation fluid	2
Norland NOA 61 1 Oz (28 g) bottle	1
Rectangular glass (kwarts) piece for applying pressure	1
Sensor pads	2

Item	Quantity
Rapid adhesive X60 component A	1
Safety datasheet X60 component A	1
Rapid adhesive X60 component B	2
Safety datasheet X60 component B	1
Mixing cups	10
Spoon	2
Wooden sticks	± 20
RTV 3145 (MIL-A-46146) mechanical protection	1 tube
Tweezers	1
Scalpel	1
Fibrewipes	1
Z70 glue	1
Teflon band (Z70)	1
Drop dosing device (Z70)	2
Instruction manual	1

Optional accessories

- UV-lamp (Omniculture series 1000)
- 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.

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