



L-Bracket Strain Sensor

FBGS-01

INSTALLATION INSTRUCTIONS

1 PRODUCT DESCRIPTION

The L-bracket strain sensor FBGS-01 is a fiber optic strain long gauge sensor specially designed for long term monitoring of structure behavior. The sensor can be mounted directly on the surface of a structure, which enables the most accurate measurements of strain. It is supplied with two aluminum L-brackets and fasteners which facilitate the mounting on the structure. The strain changes are then measured as elongation, compression or bending of fiber between two fixed points.



Figure 1.1 L-bracket strain sensor

2 NECESSARY TOOLS AND EQUIPMENT

- Drill
- No. 2,5 hex-key wrench
- No. 19 mounting wrench

3 CABLE INSTALLATION

- During installation all equipment must be handled with great care. Any abuse can cause damage and might result in unexpected behavior of the system during its operation.
- Please follow the basic rules during (pre)installation.
- Every end of each cable must be protected against liquid, steam and dirt. Always use a shrink hose to protect the cable ends.
- Never drop the sensor/detector and never pull the connected cables to sensors.
- Prevent extreme bending on the cable and stepping on it.

4 INSTALLATION

- Put the strain sensor into the area of monitoring interest and mark the positions of L-bracket anchors. The distance between the L-brackets has to correspond to the strain sensor length.
- Drill the holes into the surface of the structure at marked positions. Recommended mounting material is M8 dowel and screw M8-40.
- Use the fixing material to mount the L-brackets and to tighten them onto the structure surface securely.
- Remove the L-bracket cover.
- Put the strain sensors into the L-bracket throughput. The adjustment nuts need to be on both sides of L-brackets.
- Return the L-bracket cover back to its original position and fix it securely using M3 hex screws. Use the M3 hex key standoffs instead if you consider installing a protective cover.
- Use the No. 19 mounting wrench to fine-tune the sensor length depending on your measurement range demands. The fine tuning can be performed at any side of the sensor. First loosen the outside nut of the L-bracket. Use the wrench to tighten the inner nut of the L-bracket for fine tuning. Then tighten the outside nut after the fine tuning.

Note: It is highly recommended to use the FBGuard system, i.e. the FBG interrogator, because of the very precise setting of the compression/elongation measurement ranges during the fine tuning.

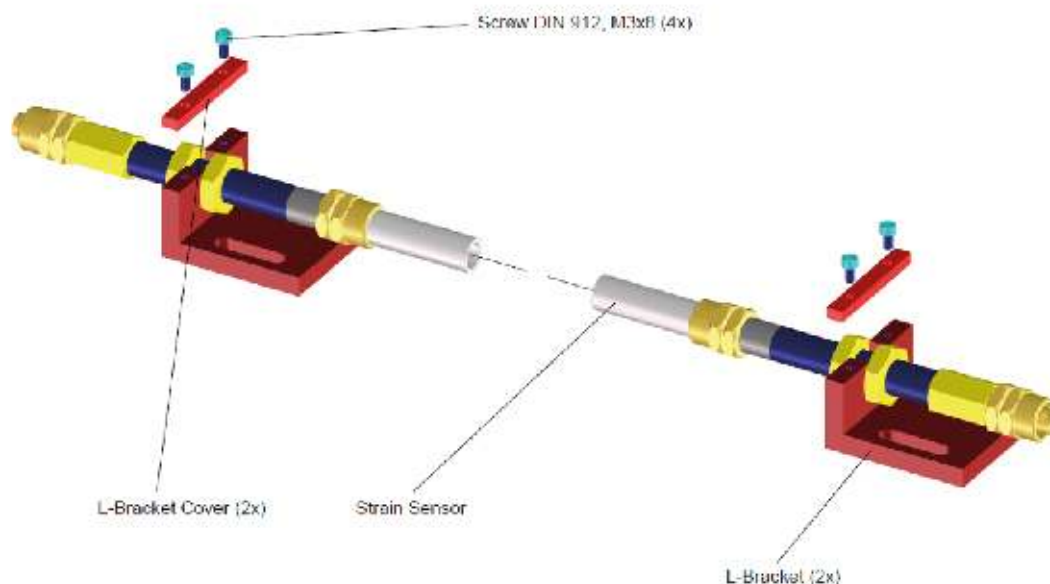


Figure 4.1 Installation

5 OPTIONAL

5.1 Temperature Compensation

The temperature compensation sensor is used for elimination of impact temperature to strain measurement.

The sensor is an integrated part of the strain sensor located behind the mounting part of the sensor. The sensor is equipped with the L-bracket for fixing, the same one that is being used for strain sensor installation. Please, follow the installation instructions for the strain sensor.

The fiber between the strain and the temperature sensor is loose to prevent the strain from affecting the temperature sensor.

Note: Do not stretch the fiber on both sides of the temperature sensor.

5.2 Protective Cover

Cover is designed to protect the long-gauge sensor against the direct impact of the environment, like direct sunlight, frozen rain, etc. The cover is equipped with an insulation layer to minimize the impact of temperature to strain measurement. For precise temperature impact elimination use the additional temperature compensation sensor.

5.2.1 Necessary Tools And Equipment

- No. 2,5 Hex-key wrench
- Drill

5.2.2 Installation

- Check the positions of mounting holes with the L-bracket strain sensor standoff M3x5 located on top of the aluminum L-bracket.
- Take care of putting the sensor lead in/out cables into the cover throughputs.
- Use the M3x8 (10) screws with flat washer M3 to mount the cover to the sensor's standoff using the No. 2,5 hex-key wrench.
- Tighten the screws securely.

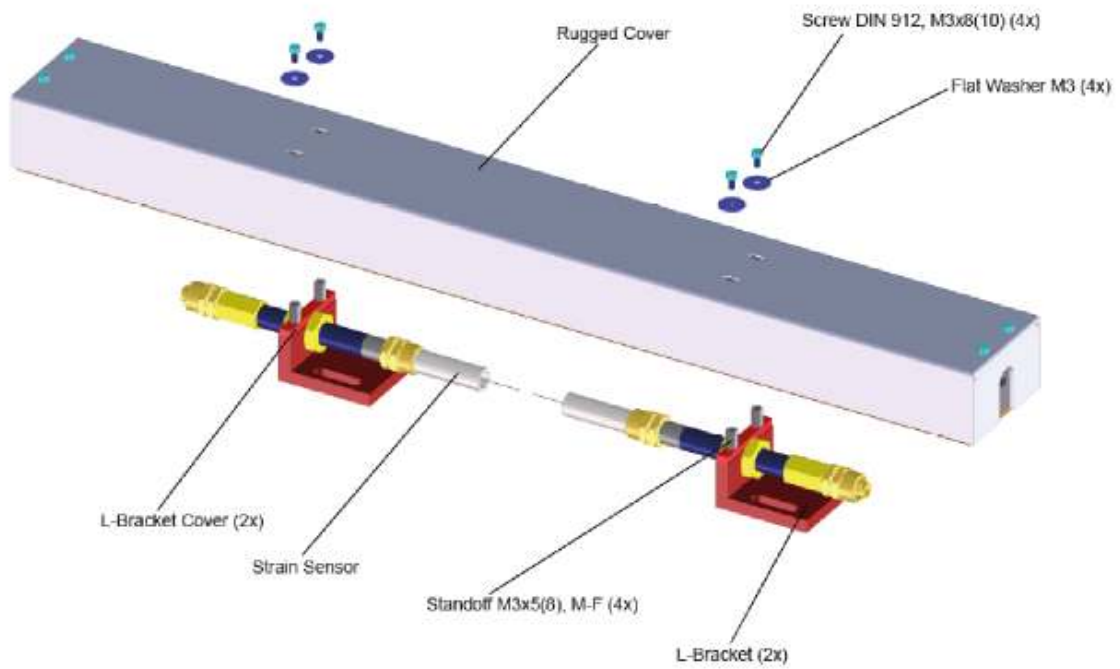


Figure 5.1 Installation

6 SUPPORT

Feel free to contact us for more information or additional support:

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