



Asphalt Road Detector

FBGS-01-AR

INSTALLATION INSTRUCTIONS

1 PRODUCT DESCRIPTION

The Asphalt Road detector is a specially designed strain sensor adapted for installation in upper layers of the asphalt and under the roads. This carbon fiber tube made detector with additional fiber lead in/out length can be installed directly in the road or after inserting in a stainless steel protective tube. The condition is that the detector can flex due to strain along any point of its length.

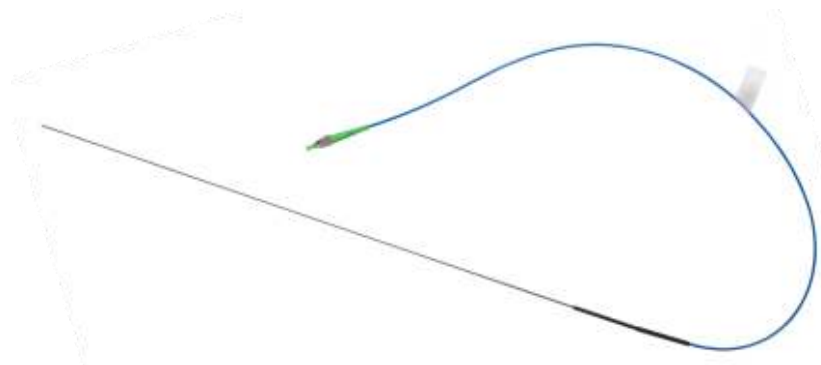


Figure 1.1 Asphalt Road detector

The sensors can be installed into a small groove in asphalt cut by standard cutting blade. In addition to this, the sensors can be designed and produced to be interconnected in series.

Note: Take into consideration when preparing for the installation, that the concrete pavements also must be overcome to access the sensors which are connected to the FO cable of the FBGuard interrogator from the side of the road.

2 NECESSARY TOOLS AND EQUIPMENT

- Standard cutting blade
- Reactive asphalt material

Note: No special tools are needed for installation of the detector.

3 BASIC PARAMETERS

Parameter	Description
No. of FBGs/lane	1-2 typ.
Outer diameter of carbon tube	1,5 mm
Outer diameter of stainless steel tube	2,5 mm

Max. outer diameter of the lead in/out joints with sensors	5 mm
Filling material	Biolast 2K
Maximum approach angle	11° from the perpendicular
Maximal load	35 tons/axel
Recommended detection distance of sensors pair for speed measurement	50 cm

4 BEFORE INSTALLATION

- It's absolutely necessary that the groove in the road as well as the sensor itself must be 100% dry and clean before starting the installation.
- Take your time to be 100% sure that the groove and installation components are according to the demanded installation temperature.
- If the temperature of the surrounding or the asphalt is below +8 °C, the groove over the total length of the sensor as well as the connection cable length in the asphalt must be heated.
- Heating of the equipment and the sensor above +60 °C must be prevented.
- We highly recommend using air heaters instead of burners if needed.
- As a precaution bring sufficient spare equipment with you.

5 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.

6 INSTALLATION

- Measure the place of the FO sensor installation well first.
- Highlight the asphalt where the grooves should be performed with indelible paint.
- Check the sensor's length with lead in/out cables compared to the length of the cut grooves.
- Mill the grooves for the sensor with cable as shown in following figures.

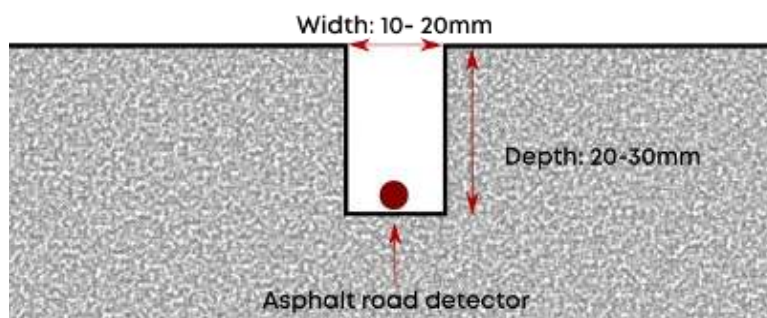


Figure 6.1 Fiber optic sensor groove

- Use compressed air to remove any loose parts and wipe clean recess.
- Optional: Use a porous asphalt cleaner to the water and remove the loose parts.
- Use a hot air blower to the groove to dry and check the dryness of it if needed.
- Clean up the fiber optic detector before installing if necessary.
- Place the asphalt road detector carefully into the middle of the bottom of the groove. Keep the sensor in a straight position.

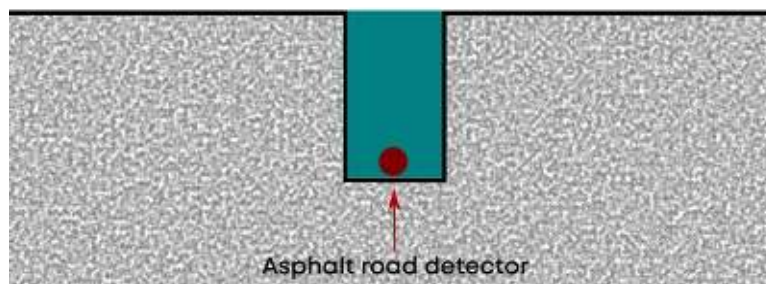


Figure 6.2 Filling with asphalt reactive material

- Prepare the reactive asphalt material according to the producer's instructions and recommendations. We highly recommend using the Biolast 2K material.
- Fill the prepared groove with the detector by the reactive asphalt material.
- Wait the recommended setting time before opening up the installation lane to traffic.

7 SUPPORT

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

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