



**Solutions, When the Conventional Ones
Run Out of Breath**



SMART TRAFFIC MONITORING

Innovative Technology for Detecting Passing Vehicles

PROTECTION AGAINST

structural deformation
environmental effects
material aging and fatigue
natural disaster hazards

INTENDED FOR

municipalities
construction companies
project designers
architects

For a long lifetime of roads, it is necessary to have **prompt and intensive monitoring** in place to protect and maintain these infrastructures. Our unique system employs a **specially designed strain detector** that is suited for **installation in the asphalt layers or under the roads**. This detector flexes due to strain along any point of its length. The information obtained enables **efficient planning of maintenance**.

- ▶ embedded monitoring even in lower layers of the road
- ▶ balanced response with excellent sensitivity along its entire length
- ▶ measuring the weight of passing vehicles

FEATURES & BENEFITS

Embedded monitoring

Our system is designed to be embedded into the upper asphalt layer of the road during, ideally, the re/construction phase.

Balanced response

Our system uses a unique mechanical design that provides excellent sensitivity along its entire length to ensure a balanced response to a whole traffic lane.

Measuring various traffic parameters

Compared to magnetic loops our system also enables measuring the weight of passing vehicles. When used together with magnetic loops, the vehicle's metal chassis can be clearly identified.

No maintenance costs

Usually there is at least 10 cm of asphalt above the detector position. Thanks to this, there is no visible mark on the surface under which the sensor is installed. Moreover, it will not be damaged when milling the surface layer of asphalt. It is maintenance-free and long-lasting.

Fiber Bragg Grating (FBG) technology

FBG technology brings many advantages over the conventional sensing methods, such as immunity to EMI/RFI, high precision, durability, quasi-distribution and absolute measurement, compact size, and reduced cable requirement.

Insensitivity to environmental induced noise

Compared to magnetic loops, our system is inherently insensitive to environmental noise and is therefore suitable for measurements that could be distorted by ambient sound.

Special design

Special detector, designed with a minimal footprint, enables direct and fast installation in different layers of the asphalt infrastructure or under the roads.

Highly resistant

One of the biggest benefits is that the system withstands the repeated laying of hot asphalt layers and intensive machine rolling.

Simple installation process

The detectors can be installed into a small groove in asphalt cut by a standard cutting blade. There is no need to mill large areas or deal with power supply cables.

Multifunctional measuring platform

Several sensors with different functions can be connected in series on a single fiber without signals being confused and with the necessary cable length being considerably smaller. The comprehensive monitoring system can be configured this way.

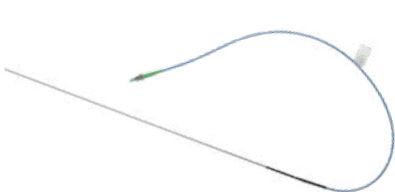
Alternative to conventional systems

Our system can easily replace conventional systems installed in the top layer of asphalt which may be prone to breakage and difficult to repair, and which may require replacement during periodic maintenance.

100% passive solution

The detector construction is fully passive without the need for power. Therefore it easily monitors places without access to power and hazardous or inaccessible areas.

PRODUCTS USED



Asphalt road detector

Sensitive detector for smart traffic



FBGuard 1550 FAST

Highly accurate monitoring system for industrial measurements



Data processing

Universal solution for your data analysis and processing needs

INSTALLATION

Proof of concept

The Asphalt road detectors have been installed in the different groove depths of asphalt to obtain information on optimum system installation for different road scenarios. The various road conditions were tested to determine the best installation method, with respect to using the right materials, to achieve the highest and most stable performance possible. Installations either into cold reactive asphalt filled grooves or hot asphalt withstanding grooves were performed.



Measurement results

The passing vehicles were successfully and clearly detected in both cases enabling us to apply the SigProc Data Processing software to automate the traffic monitoring. Traffic parameters, such as classification and vehicle speed, could be calculated by SigProc's Dynamic Threshold algorithms thus filtering impact of environmental noise and temperature.

Passing vehicle footprints, with different axle weight impacts, were observed and provided promising signs for new application developments in Weight in Motion (WIM) which combine benefits of the fiber optic approach, installation and maintenance requirements, and costs.

GET IN TOUCH WITH US
and we will recommend the most suitable
solution for your project.

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