



SHM OF RAILWAY TRANSITION ZONES

Monitor transition zones in railway tracks in real time

PROTECTION AGAINST

track degradation
temperature influences
environmental effects
material aging and fatigue
natural disaster hazards

Transition zones in railway tracks are usually **unstable areas between the railway embankment and rigid engineering structures**, such as bridges, road crossings, culverts and tunnels. At these locations, the **track degradation presumably accelerates due to high impact forces**. As a result, **differential settlements often occur** which may lead to the **damage of track components and loss of passengers' comfort**. Therefore it is necessary to **continuously monitor the structural health of the railway transition zones and detect the changes at an early stage**.

INTENDED FOR

geodesists
railway companies
structural engineers

- ▶ continuous evaluation of the safety of the railway operations
- ▶ minimization and control of dangerous changes
- ▶ reduced maintenance costs

ANALYZING TECHNIQUES



monitoring
of vertical level
of rails



measuring
the bending
properties



measuring the
variations in track
stiffness

FEATURES & BENEFITS

Prevention of catastrophic failures

Thanks to the structural health monitoring of railway transition zones you will be able to take appropriate action in advance and thus extend the operational life of railway structures, while not disturbing any railway operations.

Continuous real time monitoring

The system monitors any issues that may arise in real time, alerting you immediately if necessary. Furthermore, it enables you to work with collected data right away.

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.

Use of existing fiber optic network

Installation of an expensive sensor infrastructure or availability of electrical power is not necessary, which is very economical even for monitoring many objects spread over a large area.

Event notification and data exchange

The system is equipped with three direct alarm relays or relay unit for immediate VMS operation. The Notifications can be provided several ways - by e-mail, pushover apps or using any 3rd party integration protocol.

Customized solutions and adjustments

Our system can be modified in order to meet your project's needs, such as the desired functionality, interoperability, etc.

Service and maintenance planning

We will help you optimize your service and maintenance planning based on your specific needs, in order to ensure efficient operation.

Long term monitoring

The monitoring system is highly durable and reliable even in demanding environments. This makes it especially suitable for a long term monitoring including the tamping of the rail.

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, absolute measurement, compact size, reduced cable requirement, etc.

Measuring over long distances

The distance between the unit and sensors can be several kilometers. Therefore, you can cover a large area with one unit and a multitude of sensors.

Web interface

You will be able to manage the solution via a user friendly web interface remotely, which also provides all necessary information about the structure and Graflux reporting and data analysis features in accordance with your SLA.

Reporting and data analysis

Our system for monitoring bridges provides all necessary reporting and data analysis features using Graflux. The available level of service is in accordance with SLA.

PRODUCTS USED



FBGuard 1550

Highly accurate monitoring system for industrial measurements



ObjectGuard

Highly accurate vertical movement measurement



VideoGuard

Revolutionary camera fully operated over optical fiber



Data processing

Universal solution for your data analysis and processing needs



Grafux

Data visualization, storage and analysis service

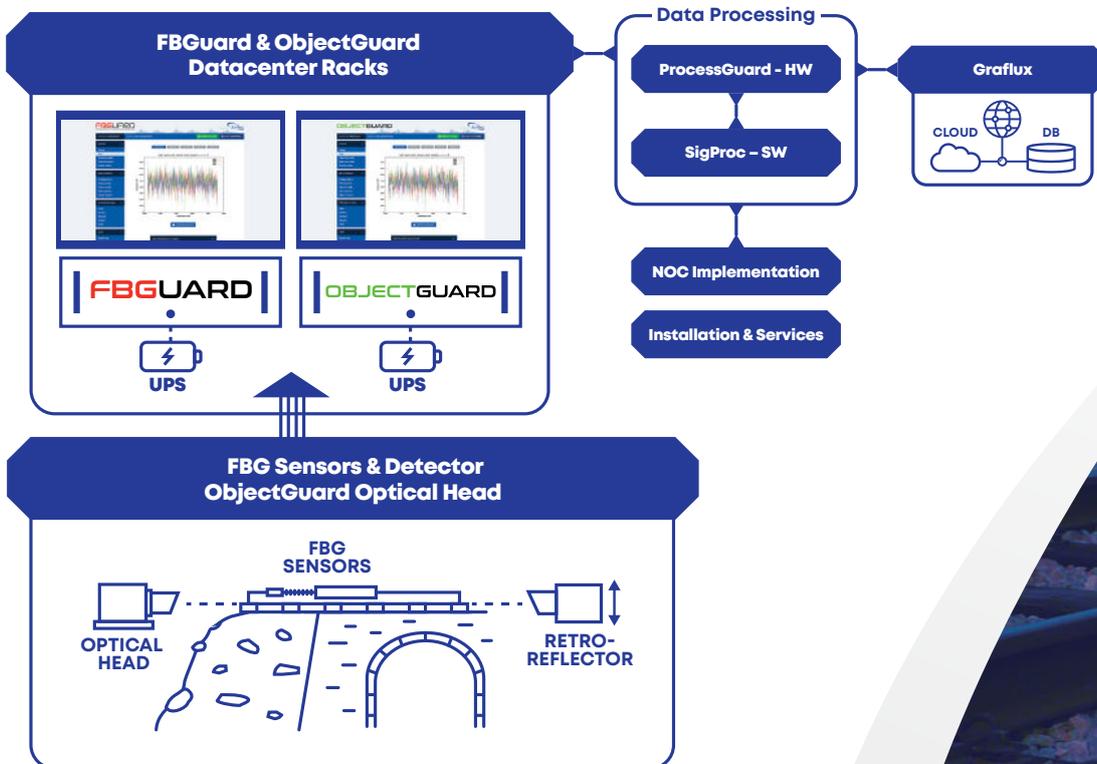


Bendline

Sensory profile for deflection monitoring of objects

APPLICATION SCHEME

Example of a typical setup. Choose the project scale that you prefer.



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

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