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Geotechnical monitoring

We make structures talk

Photo: helmutvogler/stock.adobe.com

About geotechnical monitoring

Geotechnical monitoring is a digital solution for monitoring structures. Sensors can be used to monitor built assets cost-effectively and reliably over their entire life cycle, from construction through to the use phase.

Simple and straightforward

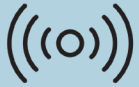
- Geotechnical monitoring facilitates the continuous monitoring of displacements, gradients, strain, acceleration and climatic effects.
- The system can be used for nonbuilding structures, buildings, railway embankments, slopes, tracks, etc.
- Wired measurement systems or IoT systems can be implemented, depending on the measurement task.
- The data recorded is made available to the customer online via a browser application and visualized in real time.

Our services

Consulting

- Risk and threat assessment and requirements analysis in accordance with Guideline 883.8000
- Creation of monitoring concepts and measurement programs
- Monitoring phases 1 to 5 of the DBV data sheet "Brückenmonitoring" [Bridge monitoring]
- Functional assistance during the design and tendering process
- Guideline conformity
- Comprehensive project management of the monitoring throughout the entire life cycle

Our sensors



- Tachymeters
- Laser distance meters
- Electronic water levels
- Inclinometers
- Potentiometers
- Displacement sensors, crack monitoring
- Fiber optic strain measurement (BOFDA, BOFDR) up to 20 km
- ... and more, depending on customer needs

Planning

- Drafting, verification of geotechnical monitoring measurement concepts and tender documents

Operation

- Installation, operation and maintenance of sensors and dismantling of sensor technology
- SMS, e-mail and automated call alerts when limit values are exceeded
- 24/7 access on mobile devices, desktops or tablets
- System compliance in accordance with Guideline 883.8000
- Special analyses

Optional

- Narrow-band transmission
- NarrowBand IoT, LP-WAN (LORA)
- High-frequency measuring instruments
- Battery-powered solutions
- ... and much more, depending on customer needs

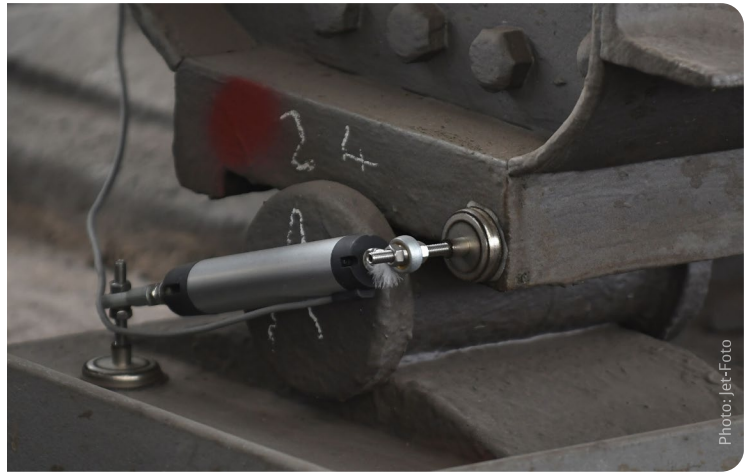
Geotechnical monitoring in action

Berlin Ostbahnhof station

Continuous monitoring of the support structure as well as wind and snow loads

System highlights

- 94 potentiometers for monitoring the support structure (accuracy < 0.01 mm)
- 5 weather stations for observing wind speed and direction
- Snow scale for real-time determination of snow load



Emden bridge

Monitoring of a bascule bridge

System highlights

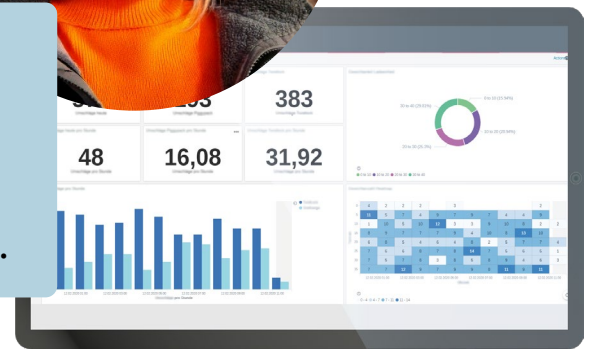
- 16 water level sensors, 6 dual axis inclinometers 1.5 m variant,
  2 dual axis inclinometers short variant, 4 inductive displacement transducers, 1 level measuring point,
  3 temperature sensors, 2 ultrasonic distance meters, 2 tachymeters incl. data acquisition hardware, 20 monitoring prisms, 10 fixed point prisms, 1 data logger

One tool – many users

As the **construction supervisor**, I need on-site live data throughout the construction phase to manage decision-making processes.

As the **designer**, I want to record the actual behavior of a structure from the outset to be able to make data-driven design decisions.

As the **construction site manager**, I would like to obtain monitoring data for claims management purposes once construction is complete.



Your contacts for geotechnical monitoring

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More information

Our video on YouTube