

# Leica GeoMoS

Are you interested  
in movements?

Monitoring  
Solutions



PART OF  
HEXAGON

- when it has to be **right**

**Leica**  
Geosystems

# Leica GeoMoS – The only automatic monitoring system you will ever need

For monitoring professionals who need to quickly understand and react to complex demands of today's monitoring projects, Leica GeoMoS is a solution that provides needed flexibility to their projects. With scalable softwares and options and various licensing packages, the Leica GeoMoS family adapts to specific needs of any user. Suitable for continuous, periodic or campaign projects, it is a complete monitoring solution offering the highest accuracy and reliability.

With over 20 years of monitoring experience and support from a team of highly experienced engineers, Leica GeoMoS is a vital partner in a wide range of monitoring challenges.



## Data

Leica GeoMoS supports connection to any monitoring sensor or software, either Leica Geosystems or any third party. Flexible communication options allow seamless connection, sensor control and instant data storage and analysis. Leica GeoMoS API allows the combination of GeoMoS data into your own system. Automated data streams using numerous open-interface standards enable simple, yet powerful sensor fusion. GeoMoS Monitor ensures a round-the-clock measurement cycle with sensor scheduling and can store all important data in just one SQL database.



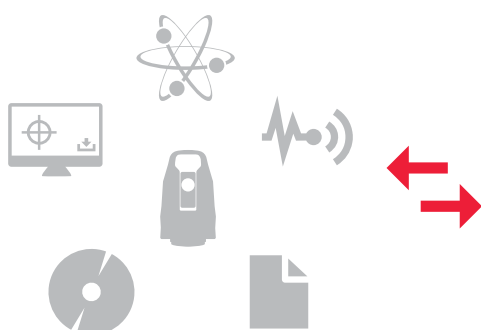
## Core software

Geodetic, geotechnical, environmental, or any other sensor data acquisition is accurately and reliably ensured via outlier detection, data validation, filtering and automatic remeasurement. If the system status and the limit check of critical observations is active, responsible people are informed in a timely matter using various messaging options (email, SMS, alert). Advanced mathematical computation and a combination of observations from different sensors ensure the most accurate stability of your monitoring.



## Visualisation & reporting

Powerful, versatile and highly customisable, the GeoMoS Now! service can be installed locally or used in the cloud, allowing you to access results anytime and anywhere. Receive accurate and timely overviews on the status of projects by using a range of easy-to-configure graphs, images, maps, tables and deformation scans with no knowledge of web design needed. Add external links to your project or use the GeoMoS Now! API to securely include project visuals to any web page. Assign multiple viewers to a single project and distribute customised reports to any number of users.



**Monitor**  
Collect  
Control  
Process  
Combine



Visualise  
Report



Message  
Alert  
SMS



# Leica GeoMoS solutions

Leica GeoMoS is scalable and customisable solution suitable for a wide range of monitoring applications.



## ■ MAN-MADE STRUCTURES

Dams, airports, roads, bridges, railways, skyscrapers, historic buildings and monuments, tunnels, watergates, cable cars, power plants



## ■ NATURAL STRUCTURES & EVENTS

Landslides, rockslides, volcanos, settlements, coastlines, glaciers, earthquakes, seismic activity



## ■ CONSTRUCTION

Building, infrastructure, foundation, excavation, retaining wall, TBM tunnelling, evidence preservation



## ■ ENVIRONMENTAL DATA

Climate change, water, soil and air quality, gas, oil, fracking, flooding, heatwave, permafrost, pollution



## ■ INTERNET OF THINGS

Energy consumption, smart cities



## ■ MINING

Open pit mines, underground mining combining with other mining softwares

## Leica GeoMoS family

The Leica GeoMoS software family consists of the core GeoMoS Monitor program, from which users can select and combine modules to create a software package that suits best their project needs. Leica Geosystems' flexible licensing concept lets users choose from Leica GeoMoS Adjustment, GeoMoS Now!, GeoMoS Analyzer or GeoMoS HiSpeed as well as from any of the numerous options these modules offer. Package can also extend to Leica CrossCheck or Leica GNSS Spider.

### GEOMOS MONITOR

- Central monitoring unit for data acquisition and multiple sensor control
- Automatic, round-the-clock monitoring software
- Real-time event management, action and messaging

### GEOMOS NOW!

- Intuitive and easy configuration of graphs, images, maps, tables and deformation scans
- Manage, analyse and distribute key information in one simple setup
- Use with any web device (PC, tablet, smart phone) anywhere, anytime



## Leica Geosystems - when it has to be right.

Revolutionising the world of measurement and survey for nearly 200 years, Leica Geosystems creates complete solutions for professionals across the planet. Known for valuable products and innovative solution development, professionals in a diverse mix of industries, such as aerospace and defence, safety and security, construction, and manufacturing, trust Leica Geosystems for all their geospatial needs. With precise and accurate instruments, sophisticated software, and dependable services, Leica Geosystems delivers value every day to those shaping the future of our world.

Leica Geosystems is part of Hexagon (Nasdaq Stockholm: HEXA B; hexagon.com), a leading global provider of information technologies that drive quality and productivity improvements across geospatial and industrial enterprise applications.



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**GeoMoS  
Monitor**



**GeoMoS  
Now**



**Leica M-Com**



**GeoMoS  
Adjustment**



# Sensor Network

## Seamlessly integrated into the software

Our sophisticated monitoring solutions combine a wide array of geodetic, geotechnical and environmental sensors with fully customisable software. Regardless of whether your projects are short or long term, straightforward or challenging, be assured with Leica Geosystems monitoring solutions you can always find the best solutions for your projects.



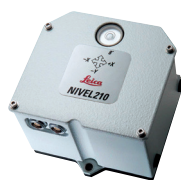
### Total Stations and MultiStations

Choose from world-renowned Leica Geosystems' total stations and MultiStations for accurate and reliable monitoring with imagery suited for all environments.



### Communication Devices

Compact plug and play solutions provide field to internet connectivity with increased mobility for sensors and external devices.



### Inclination Sensors

In the top of its class, Leica Geosystems'two-axis high precision inclinometers provide a resolution of 0.001 mrad and can be used in both single and network applications.

### Other sensors



Vibrating wire



Crack meter



Weather station



Piezometer



Data logger



Extensometer



In-place inclinometer



Webcam



Tilt meter



CSV import



### GNSS Receivers

Equipped with the latest GNSS technology, our receivers and smart antennas exceed all your monitoring needs.



### Radar Support for Monitoring

Seamlessly integrated solutions from Leica Geosystems Monitoring and IDS GeoRadar benefit users with added complimentary functionalities.



### Digital Levels

Alleviate demanding levelling tasks with automated functions and minimised errors done in quick time.

### Leica Geosystems – when it has to be right

Revolutionising the world of measurement and survey for nearly 200 years, Leica Geosystems, part of Hexagon, creates complete solutions for professionals across the planet. Known for premium products and innovative solution development, professionals in a diverse mix of industries, such as aerospace and defence, safety and security, construction, and manufacturing, trust Leica Geosystems for all their geospatial needs. With precise and accurate instruments, sophisticated software, and trusted services, Leica Geosystems delivers value every day to those shaping the future of our world.

Hexagon is a global leader in digital solutions that create Autonomous Connected Ecosystems (ACE). Hexagon (Nasdaq Stockholm: HEXA B) has approximately 20,000 employees in 50 countries and net sales of approximately 3.5bn EUR.



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Leica TM50  
Leica M560



Leica GM30  
Leica GMX902  
Leica GMX910



Leica M-Com



Leica GeoMoS Now!  
Leica CrossCheck



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# Monitoring Solutions

Trust a partner with **experience**

No other company can provide the depth of experience in the acquisition, management and analysis of spatial data for deformation monitoring. Leica Geosystems has 200 years of experience in precise measurement and over 30 years of experience with automatic deformation monitoring systems. Every year monitoring solutions releases high-end hardware and software innovations, creating new standards for deformation monitoring.

# Applications

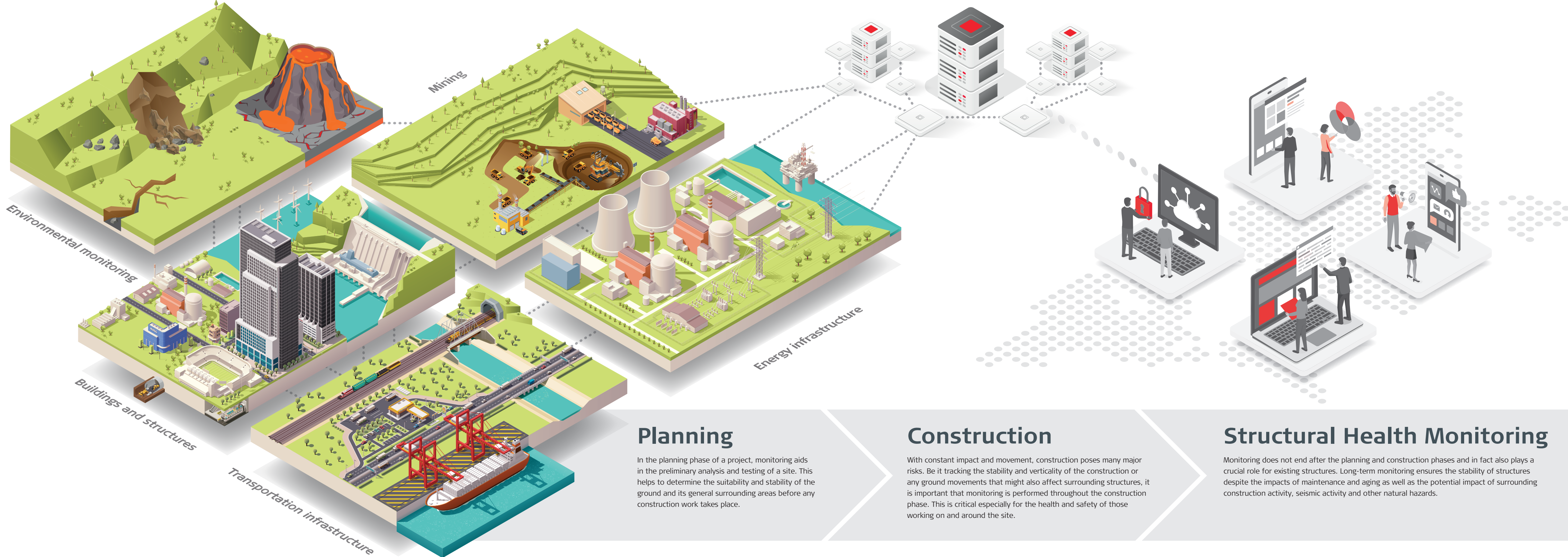
For all your **needs**

Every monitoring project is different and unique. Leica Geosystems monitoring solutions combine versatility and flexibility in adapting to your project's requirements, regardless of the object of monitoring or its environment. Whether it is human activity or natural process, you can rely on the proven solutions from Leica Geosystems to always provide the highest performance and sustainability.

# GeoMoS

Sensor to **browser**

Leica Geosystems monitoring solutions provide seamless integration of hardware and software. Simple to install in the field, the sensors are promptly connected to the cloud or on-premise GeoMoS solution, which informs you about all the movements and changes instantaneously. The comprehensive visualisation of results is easily accessible over the browser from any mobile device, at any time.



## Planning

In the planning phase of a project, monitoring aids in the preliminary analysis and testing of a site. This helps to determine the suitability and stability of the ground and its general surrounding areas before any construction work takes place.

## Construction

With constant impact and movement, construction poses many major risks. Be it tracking the stability and verticality of the construction or any ground movements that might also affect surrounding structures, it is important that monitoring is performed throughout the construction phase. This is critical especially for the health and safety of those working on and around the site.

## Structural Health Monitoring

Monitoring does not end after the planning and construction phases and in fact also plays a crucial role for existing structures. Long-term monitoring ensures the stability of structures despite the impacts of maintenance and aging as well as the potential impact of surrounding construction activity, seismic activity and other natural hazards.



# Leica GeoMoS Scanning

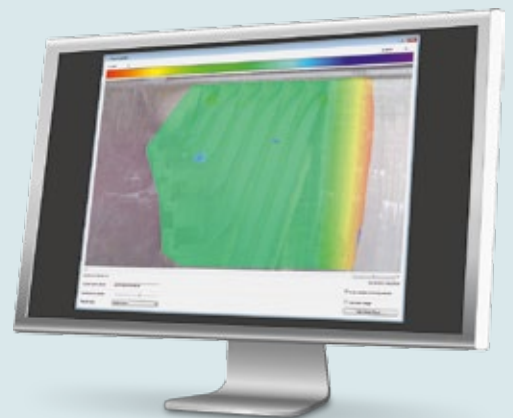
## Absolute control in deformation monitoring

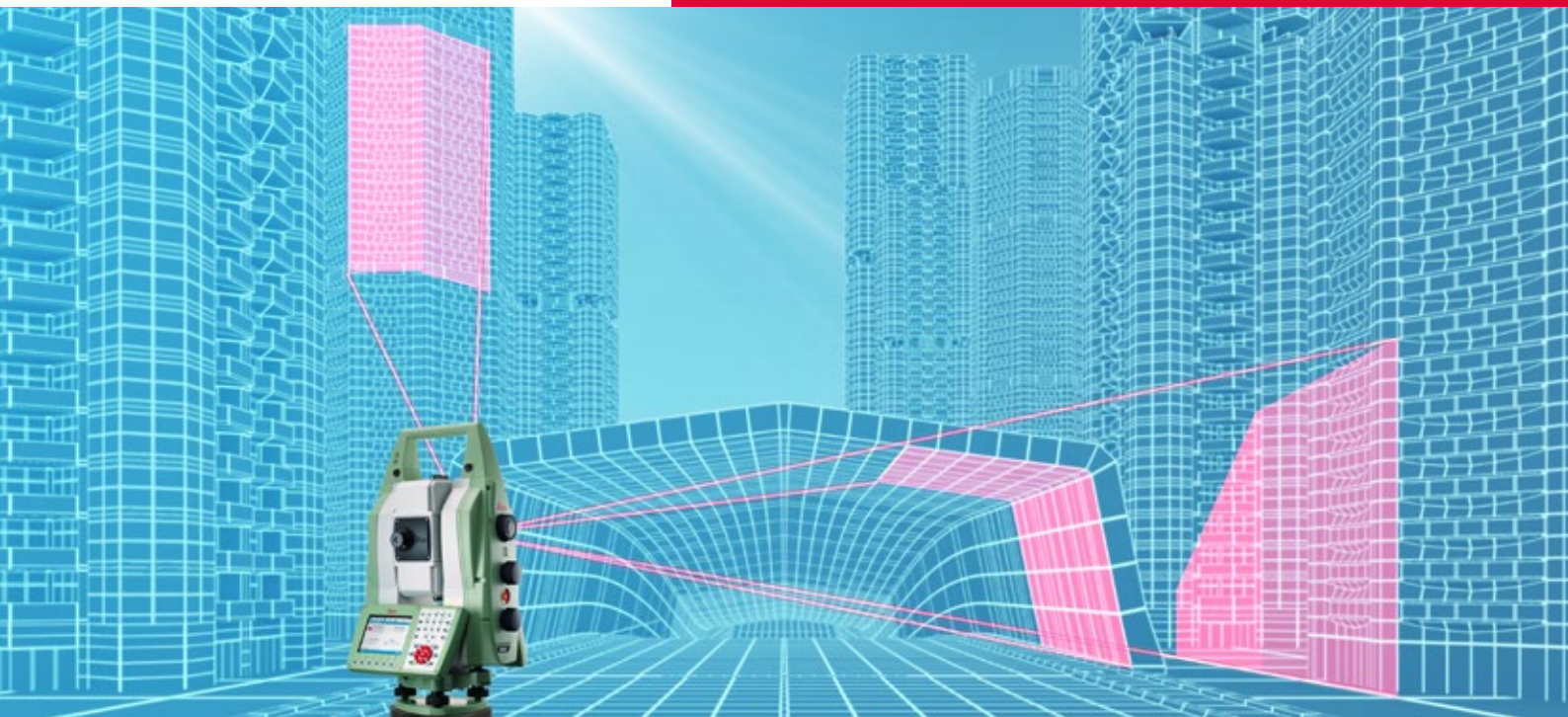
Monitoring  
Solutions



### Leica GeoMoS automatic scanning module with n.Vec technology: A breakthrough in deformation monitoring.

- First-ever automatic scanning solution in an integrated monitoring system
- New n.Vec Technology provides the automatic scan cloud processing to deliver the real-time deformation information
- Highly detailed surface monitoring and wide area coverage
- Laser scanning and prism monitoring combined for enhanced accuracy, quick data interpretation and easy decisions
- Powerful 3D visualisation and traceable history of deformations in the scanned area
- Scan clouds combined with high resolution image information
- Automatic deformation limit checks inside the scan area and real-time alerts via e-mail and/or SMS





# GeoMoS Scanning – Read between the lines

The Leica Nova MS50 with Leica GeoMoS: A break-through in deformation monitoring

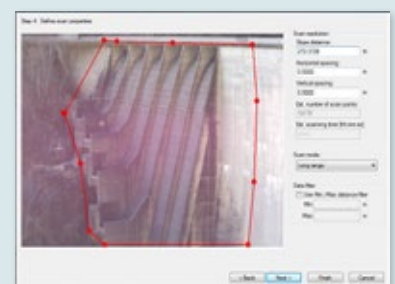
## Automatic deformation scanning

Leica Geosystems creates another chapter in their long history of innovation by presenting the most advanced deformation monitoring solution! For the first time, Leica GeoMoS enhances conventional monitoring methods with automatic scanning of surfaces. Be it a bridge, a roof, a building or a natural structure – Leica GeoMos real-time scanning solution monitors any deformation and makes sure that no movement goes undetected.



## Seamless workflow with brand new n.Vec Technology

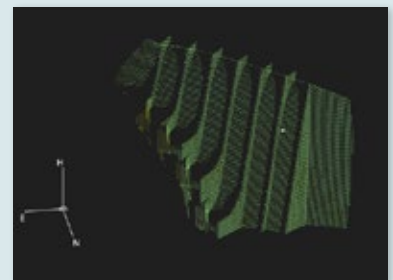
Leica GeoMoS scan wizard guarantees fast, image-assisted definition of a scan area. It can even be defined between prisms or where it is impossible to mount them (roads, monuments, inaccessible constructions, etc.). Leica GeoMoS n.Vec Technology provides automatic deformation analysis. Once defined, a scan area can be added to the automatic measurement cycle, ensuring fast integration with existing GeoMoS projects and an easy start for new users.



## 3D visualisation of deformation clouds

Leica GeoMos Scanning technology visualises all results using colour-coded deformation clouds within a panoramic 3D viewer. High resolution images and traceable deformation history ensures clear presentation of information.

Leica GeoMoS Scanning together with the Leica Nova MS50 are designed to complete every monitoring task imaginable.



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