SOLEXPERTS

Swiss Precision Geomonitoring

GeoMonitor-System

The leading choice for automatic data acquisition and monitoring for geotechnical, structural and hydrogeologic applications

The Solexperts GeoMonitor System provides a practical solution for automatically monitoring many instruments and sensors and handling large amounts of measurement data from complex sites.
The GeoMonitor offers much more than other data acquisition systems on the market; the capacity to integrate such a diversity of instruments, a single databus cable connecting all interfaces to the data acquisition center, sophisticated alarms, remote operation via modem, automatic calculations and reports, and geodetic net analysis. The flexibility, robustness and convenience of the system make it the ideal solution for monitoring structures and geotechnical and hydrogeologic projects of all sizes.

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Geomonitor System Hardware

Our data acquisition equipment is built to withstand harsh field conditions and to perform reliably throughout years of use.

Databus Line

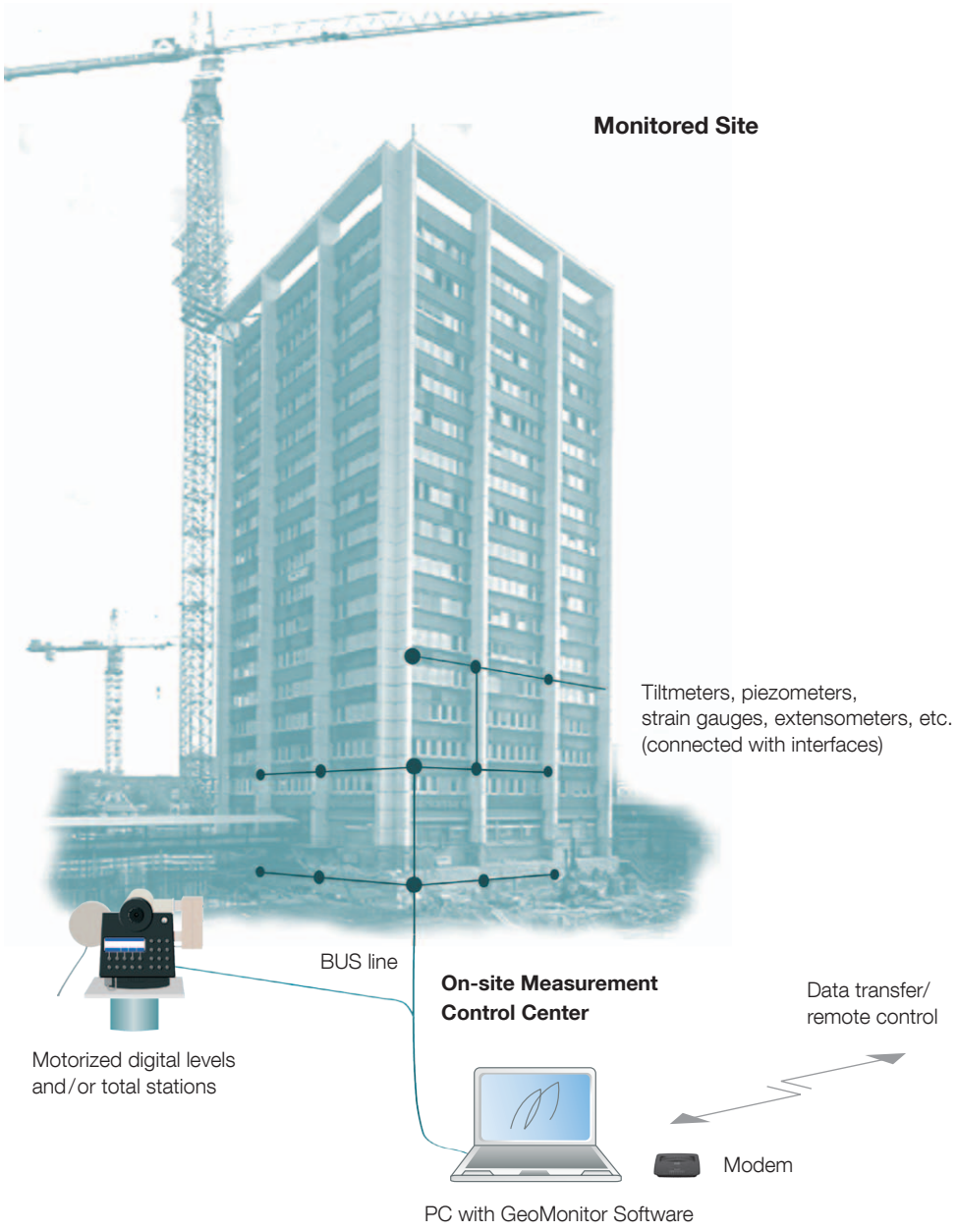
Unlike most other data acquisition systems, GeoMonitor requires only one cable (the databus) to connect all sensors to the system (through interfaces), which can span distances up to several kilometers. For data acquisition projects with a large number of sensors or sensors separated by long distances, the single cable GeoMonitor system can save the cost of purchasing, installing and maintaining thousands of meters of cables.

WatchDog

Security against system/sensor lockup and modem/remote access difficulties is provided by the WatchDog, which is housed within the SGC.
When problems arise with communications or suspended data acquisition, the WatchDog reinitializes the system and the auto-resume features allow data acquisition to continue.

Interface

Each sensor, or group of sensors, is connected to the GeoMonitor databus line via an interface, which passes the selected sensor signal to the SGC and provides power to the sensors when applicable. Interfaces are connected in a daisy-chain fashion allowing the databus line to be branched as required. Optionally, each interface is equipped with protection against over-voltage.



Sensors

Most digital, analog and vibrating wire sensors available on the market can be integrated into the GeoMonitor System:

- Pressure sensors
- Displacement transducers (extensometers, crack- and jointmeters, etc.)
- Strain gauges
- Tiltmeters, including vibrating wire
- Load cells
- Temperature sensors
- Motorized total stations (theodolites) (see separate brochure)
- Digital levels, including those with automated positioning (see separate brochure)
- Fixed Removable Micrometers (FIM)
- pH and conductivity meters
- Gas sensor
- Meteorological sensors
- Optical Fiber Flourimeter
- Optical positioning sensors

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GeoMonitor system Software

Since launching the GeoMonitor System in 1990, we have continually developed and refined a suite of software for the GeoMonitor System, providing our clients with ever more convenient, powerful monitoring capabilities.

GeoMonitor Software

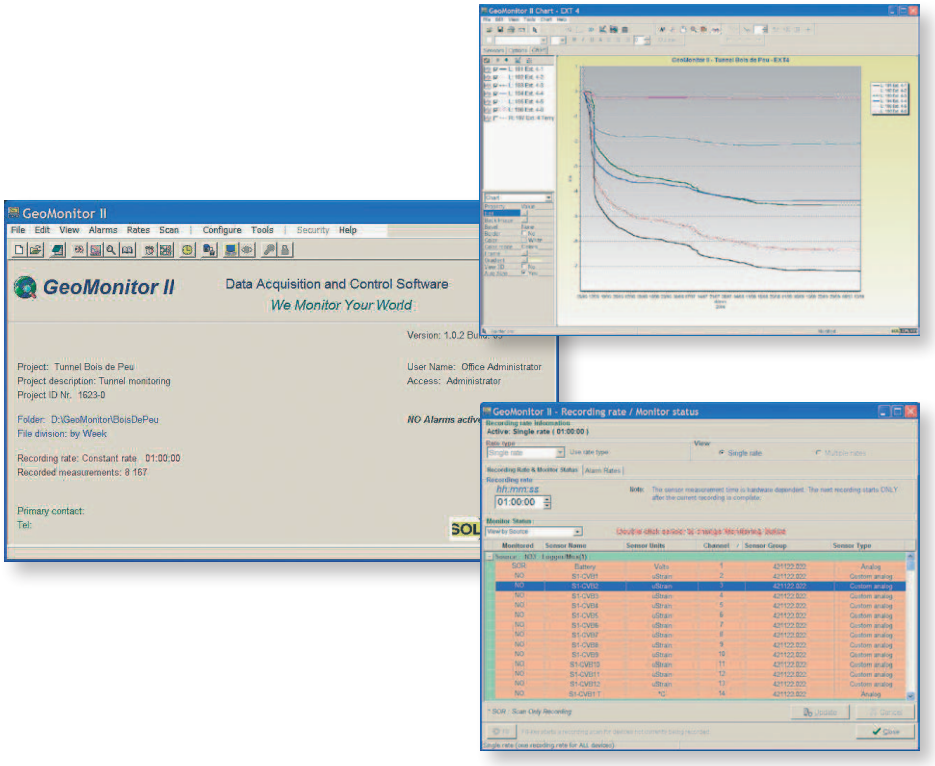
The GeoMonitor software plays a central role in the system, carrying out the following tasks:

- data acquisition with many options for optimization
- data file management
- real-time numeric and graphic data display
- instrument configuration and control, including operation of motion-control motors for digital levels and total stations
- real-time compensation and other complex calculations
- alarm definition and control
- automatic reports of desired data
- monitoring activity log

Optional: Remote Control Software

Allows communication and control of the system from an offsite location with these advantages:

- convenient access to current and earlier data from any location
- enables scheduled automatic transfers of up-to-the-minute data to remote offices
- easy remote system control and configuration
- enables quick reactions to changing site conditions
- enables backup of data to remote computers



Optional: GeoACE Geodetic Assistant

Software for evaluation of total station and digital level data that provides more reliable displacement results than other standard geodetic net calculations:

- automatic robust compensation using procedures developed by the Swiss Federal office of Topography
- easy configuration of instruments within the system
- detection of spurious measurements and calculation of results, even when one or more reference targets cannot be measured (due to construction activities, fog, etc.)
- automatic comparison of data to determine 3-D differential and total displacements

Optional: DAVIS Data Visualization Software

Software which enables a quick and easy visual review of monitoring activities, especially helpful on large projects with hundreds of sensors and a large quantity of data.

DAVIS offers the following features:

- a graphic representation of the site provides an overview of sensor locations and types
- a mouse click on a sensor symbol displays sensor configuration and measurement values in list and graphic forms
- advanced calculation options for determining regression and relational parameters
- multiple plotting options for individual sensors and groups of sensors
- extensive graphics customization options for creating presentation-quality plots
- handles data from the GeoMonitor as well as hand-entered data, and data from outside sources such as data loggers

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Solexperts has considerable experience in automatic monitoring with the GeoMonitor System. We would gladly provide references and further technical details, as well as recommendations for the design, installation and application of the system optimized to fit your needs.

Solexperts plays a leading role in the integration of geodetic instruments into cost-saving data acquisition systems. With our motion-control units developed for Leica and Zeiss digital levels, and the Geodetic Assistant software, these instruments are easily included in your automatic monitoring setup - see our separate brochure.

Monitoring of safety-relevant parameters during construction and renovation

Construction and long-term safety monitoring of the structure and underlying formations

Short- and long-term monitoring for safety concerns and for assistance with designing remediation measures

Hydrogeologic testing and long-term monitoring

Key features of the GeoMonitor System:

- GeoMonitor is a modular system that is easy to install, modify, expand and maintain
- The system can be controlled on location or from the office via modem
- The hardware and software components provide full-time, automatic data acquisition and sensor control with advanced, user-configured alarm features
- A wide variety of sensor types (analog and digital) can be controlled and monitored
- The system integrates geodetic instruments for automatic displacement measurements
- All sensors are connected via a single cable (the cable may be branched as needed)
- Software optimizes the monitoring system and measurement activities

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