**HIGHLIGHTS:**

- Well proven performance record in small, medium and even ultra-large projects
- Modula design enables customized applications for project or customerspecific tasks
- Automatic data acquisition with open interfaces for import and export of data
- Comprehensive reporting and alarming functions
- Accessible from anywhere via internet

**BENEFITS:**

- Risk management tool: Control of alert and alarm limits, monitoring frequencies
- Project management tool: Configurable reporting, real-time monitoring and construction progress information from site
- Quality management and process control tool
- Data management tool: one single platform
- High availability: Server infrastructure for 24/7 operation
- Secure Data Storage: Central and secure data archive
FIELD OF APPLICATION

Today’s quality requirements in underground construction demand the efficient administration and documentation of all essential data. Immediate availability and clear visualisation and presentation of data are the premises to deliver high-quality projects of different scales.

But it is not only the collection of monitoring data, all related project data from building condition surveys to data and reports from geological and geophysical site investigation are available in KRONOS and turn KRONOS into a powerful project management tool.

Clients and contractors of some of the most outstanding infrastructure projects rely on the functionality and features of KRONOS and use it as monitoring database system and valuable source of project information. KRONOS provides a graphical user interface (GUI) that allows quick and easy interpretation and visualisation of a large amount of instrumentation and survey data in relation to construction progress info from many different sources. No matter the scale of the project - KRONOS will improve the efficiency and effectiveness of the geotechnical, structural and environmental monitoring works.

APPLICATIONS

- Tunnel Projects
- Metro and Underground Structures
- Railway Track Monitoring
- Slopes, Dams and Bridges
- Hydro Power Projects
- Mining
- Industrial Buildings
- Harbours

OPERATION

KRONOS is available as Windows Client Application (KRONOS Client with automatic update function) and as WEB Client (KRONOS WEB), which is optimized for the use of mobile devices.
FUNCTIONALITY

△ Data Storage
- Modern and efficient relational database (MS SQL Server)
- Combination of data from different sources in a consistent data scheme
- Storage of images, drawings, graphs, bore logs etc. by integrated hierarchical data management system
- Traceability from data changes due to a history system
- User-specific allocation of access authorisation

△ Data Interfaces
- Manual and automatic data acquisition
- KRONOS Collect format for import and export of data
- Interface to Hermes service for secure data transmission from automatic monitoring systems, TBMs and data provided on FTP
- Interface for import and export of data (e.g. AGS, UCIMS, Geoform, CSV, XLS, KML, TUGIS.NET, different text formats)
- SQL Interface
- Web Interface

△ Analysis and Reporting
- Generation, administration and monitoring of measuring and monitoring programs (Monitoring Plan Manager)
- Visualization of measuring data and related information (construction progress, meteorological data)
- Integrated reporting functionality with export options in different formats (XLS, PDF, CSV, KML)
- Report Manager for automatic creation of reports using customized report templates (daily, weekly, monthly reports)

△ Alarming
- Multiple alarm levels available
- Alarm notification targets will be informed by e-mail or SMS (option) in case of exceeding thresholds or malfunctioning of a monitoring system.
- Customized notification rules meeting the requirements of project action plans
- Automatic report creation and creation of monitoring schedules based on alarm state and construction progress
AVAILABLE SERVICE PACKAGES

△ Local System
- Installation of KRONOS components (Client, Server, Service) on a standard workstation (MS Windows 7 or higher)
- Installation of MSSQL Server 2012 Express edition (limited database size and user access according to MS restrictions)
- Setup of KRONOS database
- Basic KRONOS training
- Updates for KRONOS Client software upon request

△ Hosted System
- Project setup on Geodata servers in a high-available data centre
- Monitoring of servers and provision of backups
- KRONOS Client software and / or KRONOS WEB
- Automatic updates
- No limitations regarding number of users or sensors
- KRONOS support hotline

△ Project System
- Hardware design according to project requirements
- Setup of customized KRONOS system on site
- Monitoring of Servers and Services
- Provision of Database Manager
- Establishing of project data structure and organization
- Provision of Method Statements and Specifications
- Implementation of specific interfaces to TBM or Third Parties
- KRONOS support hotline
- Automatic updates