Surveying Solutions for Engineering Applications

Software is a core component of any monitoring system. It controls the measurements, manages the data, analyzes movement and provides decision support. The Trimble® 4D Control software brings the latest technology to monitoring and analysis systems. Advanced and easy to use, the Trimble 4D Control software fits a wide range of monitoring needs.

- Attract new clients and new business by providing monitoring services
- Measure, analyze, visualize, and report on your monitoring projects
- Manage your system from remote locations
- Scale as required to address a wide range of applications

MEASURING MOVEMENT OVER TIME

In monitoring you need to detect changes and motion in your project. You need to understand the speed, direction, and amount of motion. Trimble monitoring systems handle even the most complex monitoring projects. Whether you are monitoring ten points once per month or hundreds of points every hour, the Trimble 4D Control software meets your needs.

MODULAR SOFTWARE GIVES POWER AND EASE OF USE

The Trimble 4D Control software uses modern software architecture to create a system that is quick to set up and easy to manage. It is all tightly integrated for consistent operation and seamless data flow. The software is organized to keep important functions at your fingertips.

Use the Trimble 4D Control software to manage the Trimble S8 total stations and measurements. You can define point groups, set measuring schedules and collect data. Advanced communications ensures reliable data links with the Trimble S8 total stations. You can control up to five total stations simultaneously from a single computer. And the scalability of the Trimble 4D Control software allows you to add more instruments and sensors as your needs grow.

The real-time terrestrial engine computes coordinates using measurements from the total stations and temperature sensors. It uses rigorous methods to give you high accuracy and precision. The postprocessing capability allows you to add campaign monitoring data to your project using information from the Engineering Option in the Trimble Survey Controller™ software.

The deformation analysis operates using data from the terrestrial engine. Changes in position can be reported relative to a user-defined axis of expected motion. The deformation analysis software contains tools for visualizing the data. You can produce charts, tables and reports.

The routines for alarm management send messages and alerts when necessary. You set the tolerances and conditions for alarms and tell the system who should be alerted. The Trimble 4D Control software sends e-mail alerts to the specified people.

MEETING A VARIETY OF NEEDS

The Trimble 4D Control software manages your monitoring system for a variety of applications. Its flexibility and survey-based workflow make it easy to put your monitoring system into action:

- Mining – Trimble monitoring systems can be used in open pit and underground mines for monitoring highwalls, tunnels, subsidence and stockpiles.
- Construction – monitor motion in buildings and structures adjacent to construction sites. Monitor cut and fill slopes and incomplete structures.
- Structural – track the movement of dams and levees, bridges, buildings, and other man-made objects.
- Transportation – monitor highway structures, cut and fill slopes and railways. You can also monitor structures adjacent to transportation corridors.
- Utilities – monitor pipelines, transmission structures, production, and storage facilities.
- Geophysical/Geotechnical – monitor landslides, landfills, subsidence and natural structures.

THE TRIMBLE 4D CONTROL SOFTWARE HANDLES THE WORK FOR YOU

With high-level functions for control and analysis, the Trimble 4D Control software gives you the information when and where you need it. It controls the Trimble S8 total stations, making precise measurements to monitoring targets. Fully automatic operation eliminates frequent site visits or operator interaction.

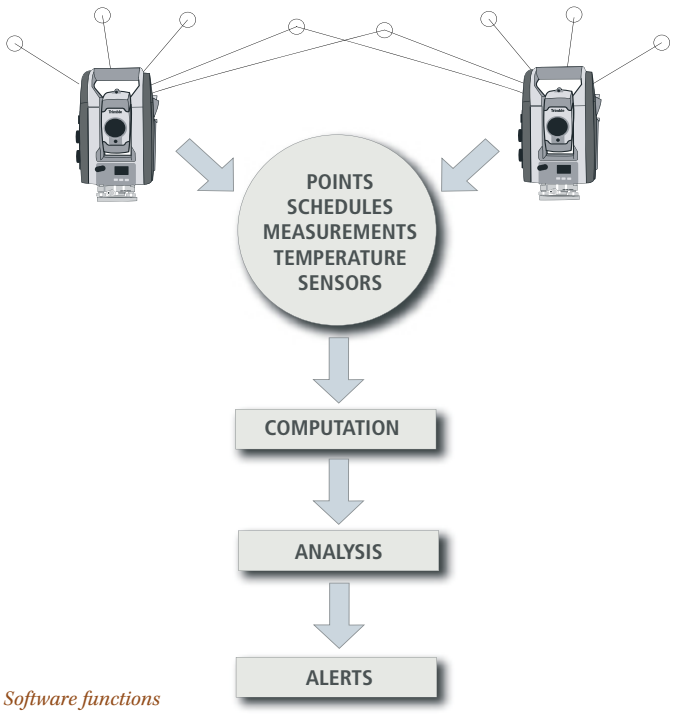
Automated Measuring 24/7

With the Trimble 4D Control software you can define groups of points to be measured. You can simply 'train' the system by aiming the Trimble S8 total station to each point when setting up your project. The system then automatically measures to the points according to schedules that you have defined.

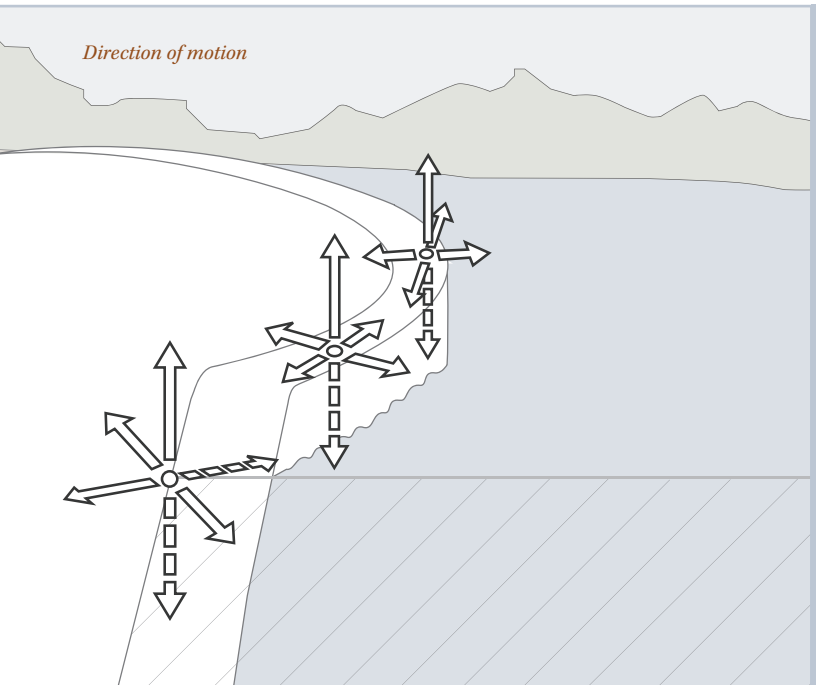
Complete Sensor Management

The Trimble 4D Control software manages your Trimble S8 total station for you. It commands the instrument to aim toward a target, and then uses FineLock™ technology to point precisely to the prism. It measures and stores angles, distances, and instrument settings. Each group of points is measured as often as you wish.

The Trimble 4D Control software can manage temperature and pressure readings. Information from external temperature sensors is collected with each measurement cycle and recorded with the total station data. You can make barometric readings using the pressure sensor built into the Trimble S8 total station.



Software functions



TRIMBLE S8 TOTAL STATION

The Trimble S8 Total Station is the key to high precision measurements in your Trimble monitoring system. Built on Trimble's advanced total station platform, the Trimble S8 total station gives reliable performance 24 hours per day.

- Frictionless MagDrive™ servo technology measures up to 40% faster than conventional servo instruments.
- Silent operation allows you to measure unobtrusively—even in highly populated settings.
- Trimble FineLock technology provides a narrow field of view for the tracker sensor, giving you greater flexibility in placing your prism targets.
- Long-Range FineLock extends distance to 2500 meters.
- 1" accuracy in angles and 1 mm + 1 ppm in distance.

Advanced Data Analysis and Visualization

The Trimble 4D Control software gives you sophisticated tools to analyze your data. At the core are Trimble's cutting-edge algorithms for network deformation analysis. Trimble provides detailed analysis of your data and highlights points that are moving. You can identify random or systematic measurement errors and spot movement in your points. You can see cyclic movement as well as sudden or unexpected changes in your project.

Visualization tools in the Trimble 4D Control software give a versatile overview of your monitoring network. You can inspect the entire network at a glance. Information is color-coded to highlight motion or changes. You can select specific points for detailed inspection and see charts showing the displacement of the points over time.

With the Trimble 4D Control software you can define the direction of movement expected for each point. The point's motion is computed along or across this axis as well as in the vertical plane. It's a powerful tool in understanding the behavior of your monitoring project.

Keeping You Informed

The Trimble 4D Control software provides automatic alerts when needed. You can define a set of conditions for alarms, including tolerances for displacement for any point. You also define who should receive the alarms. When a tolerance is exceeded, the Trimble 4D Control software immediately sends alarms via e-mail messages.

Control the System from Remote Locations

The remote User Interface allows you to operate the Trimble 4D Control software from any location. You can log in from any computer that has the interface installed. You can inspect data, make changes to measurement schedules, and perform other operations. The interface allows you to control access permissions. You can give some users full control of the system, while limiting others to looking at status and motion data only. It's an important tool for sharing information and keeping your monitoring system secure.

Reporting Your Results

You can output information from the Trimble 4D Control software in several ways. Printed reports and charts are available in PDF and XML formats. Advanced users can use SQL to retrieve raw data directly from the database. They can then conduct custom analysis using information collected and stored by the system. And you can use the interface and visual tools to get up-to-the-minute information at remote locations.

A System That Grows With Your Needs

The state-of-the-art technology in the Trimble 4D Control software makes it easy for you to grow. As your monitoring projects grow you can add instruments and sensors, install additional targets, and set up new alarms. With Trimble's distributed computing functionality, you can use one computer for data management and analysis, and other computers to manage measurements and data collection.

COMMUNICATIONS OPTIONS SIMPLIFY MONITORING PROJECTS

Deciding where to place measurement sensors is crucial in setting up a monitoring system. Communications is often a troublesome constraint. The Trimble 4D Control software can eliminate many restrictions due to communications. You can place monitoring sensors where they are needed. You can connect to the Trimble S8 total station using fast USB connections. Or you can use the built-in 2.4 GHz radio for license-free communications. It's a simple, low-power and reliable way to connect to the Trimble S8 total station. It's a good solution for large job sites or in locations where wired connections are not convenient. You can build your Trimble monitoring system to ensure that you get the measurements and deliver results wherever they are needed.

A NEW WAY FOR YOUR BUSINESS TO GROW

You can use the Trimble 4D Control software to provide valuable services to your clients. They will be pleased when you deliver accurate, timely information directly to their desktop. Your business can then grow as you create customized solutions to solve demanding requirements in monitoring.

DEFORMATION MEASUREMENT CAMPAIGN MONITORING

Here's another way that the Trimble 4D Control software adds value to your existing Trimble survey system. Many monitoring projects don't need continuous measurement. Survey teams can visit the sites at defined intervals and make measurements to specified targets. Using the Engineering Option in the Trimble Survey Controller software, the system automatically makes rounds of measurements using the Trimble S8 or Trimble S6 total station connected to a Trimble TSC2® or Trimble CU controller. The data is ready for transfer into the Trimble 4D Control software for computation and analysis. Before leaving the site, the crew knows that all the needed measurements have been made.

GEOTOPO
ZAC des Grillons
208, rue de l'Ancienne Distillerie
69400 GLEIZE
Tel : 04 74 699 400
Fax : 04 74 699 401
Courriel : info@geotopo.fr

TRIMBLE AUTHORIZED DISTRIBUTION PARTNER

NORTH AMERICA
Trimble Engineering and
Construction Group
5475 Kellenburger Road
Dayton, Ohio 45424-1099
USA
800-538-7800 (Toll Free)
+1-937-245-5154 Phone
+1-937-233-9441 Fax

EUROPE
Trimble GmbH
Am Prime Parc 11
65479 Raunheim
GERMANY
+49-6142-2100-0 Phone
+49-6142-2100-550 Fax

ASIA-PACIFIC
Trimble Navigation
Singapore PTE Limited
80 Marine Parade Road
#22-06, Parkway Parade
Singapore 449269
SINGAPORE
+65-6348-2212 Phone
+65-6348-2232 Fax

Trimble

www.trimble.com