

Prism monitoring specialists

Softrock can tailor a system to suit your requirements, providing fully automated technology that collects data 24/7, alerting you should movement occur.



Monitoring of the movement in open pit walls has become a major safety issue for the international mining industry. Softrock Solutions is addressing this problem with its latest release of Quikslope & Analyzer. This slope monitoring software is widely used on mine-sites around Australia and internationally. Its success is due to the high level of data integrity, easy database maintenance, graphing, and reporting functions. Quikslope accepts most modern data types with special emphasis on robotic instruments like the Geodimeter ATS and Leica TCA1100. Graphing is simple and there are many different graph types available. Analyzer has added a CAD function with full 3D capability. Analyzer is newly developed and will eventually supersede Quikslope.

PRISM MONITORING

Since the introduction of electronic distance measuring devices in surveying instruments, prism monitoring has been an effective method of checking pit wall movement. Survey prisms are set in the wall and accurate measurements made to compare its xyz position over time. Although this method allows the coverage of large areas of suspected wall movement, there are some associated problems. These are the affect on data by temperature variations, achieving best available accuracy, maintaining the data and graphing prism movement.

At Softrock Solutions, we think that we have solved these problems in a practical way. There are various entry levels for your particular site and budget, and each level is upgradeable to the next.

FIELD DATA

Whether data is collected using a robotic instrument or manually, all measurements are vetted for inaccuracies. This is done either manually or automatically depending on the system used. Standard deviations and ppm settings are all recorded. Automated systems use weather stations to ensure that the atmospheric ppm values are true.

REF PRISM

Prism coordinates are calculated by comparing all measured data to the data measured to a known solid point called a reference (REF) prism. Thus, all horizontal angles, vertical angles and distances can be adjusted to achieve an accurate xyz coordinate. The positioning of this REF prism is important. It should sight through the same body of air as all the prisms. This method has the affect of minimizing distortions due to atmospheric conditions.

DATABASES

Quikslope uses a single MS Access database, while Analyzer uses an SQL database.

GRAPHING

There are many powerful graphing tools available to you. Prisms can be graphed in single graph, stacked graphs, multiple prism graphs, A4 location plots, scatter plots. Data can be graphed as 2D, 3D, xyz, distance, field data, velocity, control check. Extra data can be stored and graphed for rainfall, crack data, and seismic events. Analyzer can plot data in plan and 3D, and has a "presentation" mode to show movement by size and colour.

BASIC SITE

The basic entry level site uses a normal total station theodolite to manually measure the wall prisms. Data is imported in Quikslope and all associated calculations, reporting and graphing are all carried out by Quikslope.

SEMI-ROBOTIC

With a semi-robotic site data is recorded in a TCA1100 or similar instrument. The resultant data file can span days and can be easily imported into Quikslope for reduction of xyz data and movements.

FULLY AUTOMATED

Utilising the control software called Autoslope, this installation has the capacity of scheduling from 1 to 6 instruments over a 24 hour period. It can turn the instruments on and off remotely and will calculate the prism coordinates accurately using the Quikslope reference prism adjustments. Raw data and calculated data are added automatically to the current Quikslope database. Autoslope can run from any location anywhere on the network (LAN). Data processing is fully automated with checks on spurious data. Anybody on the local net can view prisms graphs as the measurements progress.

ALARM FEATURES

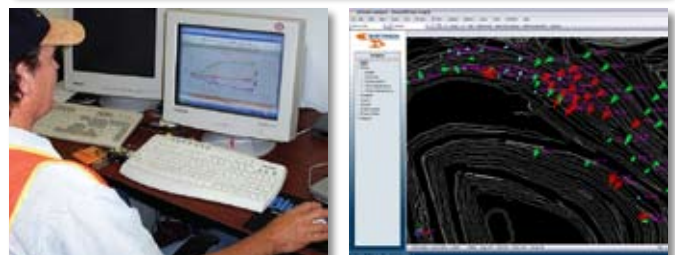
When pre-determined movements have been perceived, a check routine is activated to validate the data. This checks the instrument calibration, re-measures the current prism readings. The threshold movement amounts can be set by the user. There is the capability to activate subtle alarms in the form of emails and SMS messages to mobile phones. This sends details concerning the prism and area. Email alerts can be sent with graphics.

WEATHER STATION

To increase distance accuracies, we can also add a weather station to measure air temperature and pressure at the monitoring location. Weather station data is also required where automatic control checking, like resections, are being performed.

SUPPORT

At Softrock, we try to provide a pro-active level of support. What is that? All automated sites send us on-going emails with attached logs of how each system is operating. We use tools to enable us to spot any potential problems before they happen, and Softrock will contact site to report the problem and see if we can help.



MAINTENANCE

Our software is always being advanced and downloads are always available on our web site.

INSTALLATION

TRAINING

Full installation of automated systems is provided. The installation & commissioning can take up to 5 days. A comprehensive training program is available to staff. Documentation & training videos are also provided.