



MAKING MINING SAFER

+ GMS

Designed as a long-term, background monitoring tool, the GMS (Geotech Monitoring Station) monitors vast mine areas for long periods of time of many months to many years.

It specialises in background monitoring in open cut pits and highly vegetated slopes, and detecting and measuring deformation on tailings dams, dumps and cuttings.

PRISM AND PRISMLESS MONITORING

Providing total monitoring flexibility, the GMS monitors using both prisms (Prism Points) and virtual points (Pixel and Precision Points) placed directly on the rock.

Prism Points are highly accurate, can be scanned from long ranges, and are the fastest to scan.

A Pixel Point allows for the measurement of areas that are difficult, dangerous or even impossible to reach using prisms. Their quantity and placement is at the whim of the user, with the capacity to use as many points as required, in as many locations as required.

Precision Points are ideal for pinpointing and observing key areas of concern, especially on rough, jagged rock faces and areas on the wall with a low incidence angle to the laser. Although taking longer to scan, the resultant accuracy in these scenarios is unmatched.

REMOTE VISUAL INSPECTIONS

Users can control the unit from the software to carry out a visual inspection in real time. The GMS laser uses a high power telescope that is also used for camera imaging, with an extreme level of zoom not found in traditional cameras. This allows customers to remotely inspect areas from their desk, at a level often not possible in a standard pit inspection.

DUAL CAMERA IMAGING

The GMS is also equipped with dual cameras offering three levels of zoom. The wide-angle camera captures broader scope images of the points while monitoring occurs. SSR-Viewer then automatically aligns all photographs into one panoramic scene to produce a vivid, high definition image. With the second camera attached to the telescope, users can not only precisely see and control the location of their points, but also capture its details.



Features and Benefits

BEST-IN-CLASS SOFTWARE

The GMS is fully integrated with SSR-Viewer, GroundProbe's patented, market-leading analysis software. It offers the rapid, precise analysis of data to detect trends, and the ability to send alerts for immediate action. Its powerful data visualisation, charting and analysis tools take the GMS well beyond the capabilities of typical robotic total stations.

ACCURATE POINT MEASUREMENTS

The GMS measures and displays deformation for all types of points with high accuracy. Multiple streams of deformation data are collected, with different atmospheric timeframe processing. All measurements are processed and ready for analysis at the end of each scan, enabling the early detection of movement.

For additional accuracy, the vector movement in 3D is also measured for prisms, empowering users to better understand ground conditions and get the benefits of both readings. Users can analyse individual points, or average groups of points in any configuration.

FLEXIBLE POINT SELECTION AND INTERLACING

Providing ultimate flexibility, wall folders can be created using any types of points in any combination, as chosen by the user. Prism, Pixel and Precision Points can be selected and interlaced in a single scan to suit the required accuracy and scan time. Existing prism locations can be imported, or points can be selected using the on-board cameras.

AUTOMATIC GRID SCAN

For immediate analysis, the GMS can be rapidly deployed using the automatic grid scan feature. Once the scan area is specified, the software automates a grid of Pixel Points, allowing users to begin scanning straight away. Using up to 1000 Pixel Points with dense pixel spacing, it ensures that no point of interest is overlooked..

AUTOMATIC PRISM COLLIMATION

The GMS automatically tracks and locates its Prism Points with every scan, known as collimation. There are two lasers on board; one for measuring deformation, and one solely dedicated to prism collimation.

Even if a prism is moving, this functionality ensures that its location is never lost, without ever relying on historical data

for coordinate information. The GMS hunts for, finds and locks Prism Points into their exact position with each and every scan.

MONITORING NEVER STOPS

With a built-in failsafe for increased robustness, the GMS will never miss a scan, much unlike other systems on the market. Through its on-unit processing and our software's trusted datasync feature, the GMS will continue to collect data, even if the Wi-Fi is lost or the Primary Monitoring Point is shut down.

LARGE SCANNING CAPABILITIES FOR LARGER AREAS

An ideal broad-area monitoring tool, the GMS can capture the entire width of a pit with its 360° scanning capabilities. With its ability to look up 45° and down 55° in elevation, the GMS can be easily and rapidly deployed to monitor any part of a pit, tailings dams or dump.

LONG-RANGE MONITORING CAPACITY

The GMS is capable of monitoring at long ranges, allowing it to be deployed in varying locations on site, dependent on the needs of each mine or application.

Prism Points can be monitored from the ultra-long range of 5000 metres. Pixel and Precision Points can reach 2000 metres on a white surface, making for reliable monitoring at ~1000m for a typical rock face.

MULTI-SENSOR MONITORING

All data collected by the GMS can be directly imported into GeoExplorer, allowing data from a range of monitoring sensors to be viewed and analysed on the one dashboard. By incorporating its data alongside data from radars, InSAR, piezometers, extensometers and more, a holistic view of the pit can be realised.

DATA AND IMAGE CO-REGISTRATION

In SSR-Viewer, high-definition images are co-registered with the data generated by the GMS. The data is visualised as a deformation heatmap and draped directly over the image, providing spatially co-located information of every point.

By clicking on any part of the image, movement can be reviewed and assessed live.