OPMMS®

OPEN PIT MINE MONITORING SYSTEM



Preventing Slope Failures
Before They Happen

Autonomous LiDAR monitoring to support decision-making, geotechnical analysis, and improve worker safety.

MULTI-AREA MONITORING
Multiple Region of Interest (ROI) at different resolutions

EARLY DETECTION
Identify movement before it becomes a critical issue

SCANS COMPARISON
Use any previous scan as a reference for comparison

AUTOMATIC ALERTS
Email & SMS notifications based on your thresholds

PEOPLE PROTECTION
Monitor hazardous areas remotely and reduce risk

VOLUME COMPUTATION
Extract total volume and cut-and-fill volume

CRITICAL FACTORS

UNDETECTED GROUND MOVEMENT
To prevent accidents in quarries, managers need to monitor ground movements and identify potential hazards before they become critical.

UNSAFE SURVEY CONDITIONS
Highwalls and unstable benches can become inaccessible precisely when accurate measurements are most critical.

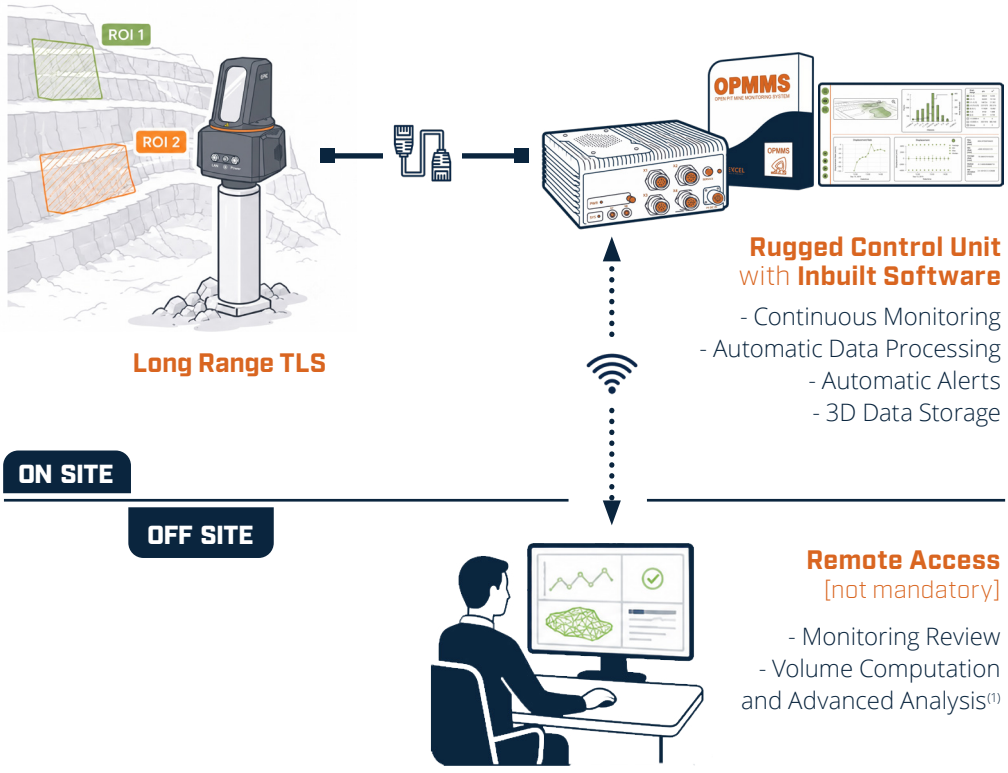
LIMITED SITUATIONAL AWARENESS
Many monitoring technologies can detect surface deformation but cannot quantify volume variations or assess large-scale changes.

SLOW DECISION-MAKING
Manual surveys and fragmented datasets delay analysis, reducing the time available to respond before conditions worsen.

UNEXPECTED PRODUCTION INTERRUPTIONS
Emergency evacuations and unplanned equipment shutdowns can significantly impact productivity and operational costs.

A SEAMLESS, AUTOMATED MONITORING WORKFLOW

OPMMS® CONFIGURATION



Long Range TLS

Rugged Control Unit with **Inbuilt Software**
- Continuous Monitoring
- Automatic Data Processing
- Automatic Alerts
- 3D Data Storage

Remote Access [not mandatory]
- Monitoring Review
- Volume Computation and Advanced Analysis(1)

GEXCEL GEOMATICS & EXCELLENCE

From reactive inspections to proactive monitoring
Reduce risk. Protect people. Perform better.

KEY CAPABILITIES

Continuous 24/7 Monitoring
Autonomous data acquisition in harsh environment

Automatic Alerts in Near-Real-Time
Email and SMS notifications based on defined thresholds(2)

Multi-Area Monitoring
Multiple Region of Interest (ROI) at different resolutions(3)

Target-Less Setup
No prisms, reflectors or control points required

Flexible Scanning Frequency
Customize based on risk level and operational needs

Historical Comparisons
Use any previous scan as the reference for comparison

Automatic Change Detection
Centimeter-level change detection over large areas

Masking Function
Exclude moving objects (vehicles, equipment, vegetation)

Remote Access
View changes and manage the system from anywhere(4)

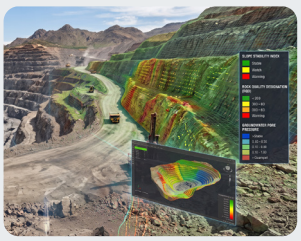
Secure Data Management
Reliable storage of scans and monitoring data

BUILT FOR...


SLOPE STABILITY ANALYSIS

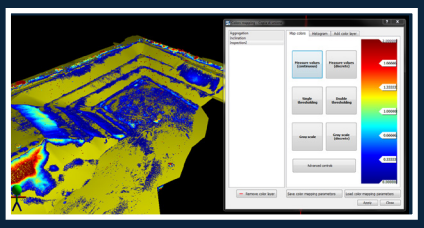

LANDSLIDE MONITORING


QUARRY ACTIVITY SUPPORT

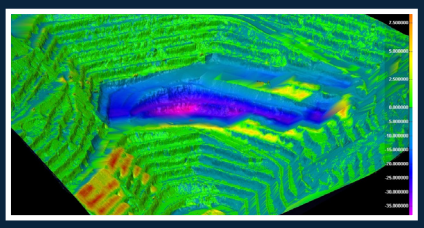

GEOTECHNICAL SUPPORT

OPTIONAL

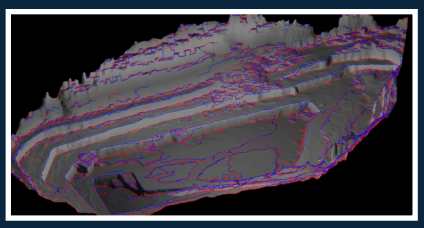
ADVANCED ANALYSIS



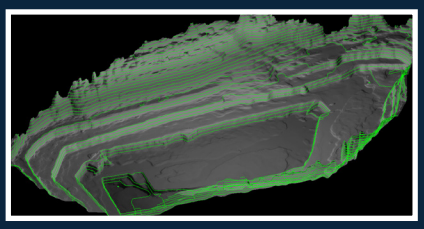
DISPLACEMENT & DEFORMATION ANALYSIS
Identification and tracking of unstable zones over time.



VOLUME COMPUTATION
Total volume and cut-and-fill volume extraction.



BREAKLINE DETECTION
3D polyline extraction for crest and toe delineation.



CONTOUR & PROFILE GENERATION
Automatic extraction of contour lines and terrain profiles.

INTEGRATES WITH YOUR ECOSYSTEM

OPMMS® can work with industry-leading software and platforms.

Add Reconstructor® software and get

- automatic targetless registration (cloud-to-cloud, cloud-to-mesh, mesh-to-mesh)
- DEM creation
- profiles and contours creation
- breaklines extraction
- cut-and-fill automatic volume computation
- **third-party tools and cloud platforms compatibility**
- **open data formats for maximum flexibility**

(1) Advanced 3D data analysis is available with the optional Reconstructor® software.

(2) Email alerts are included. SMS alerts are available on request and depend on the availability of a local SMS service provider. Subscription and messaging fees are not included.

(3) ROI (Region of Interest): User-defined rectangular areas where the LiDAR periodically acquires 3D data.

(4) Remote access to the OPMMS® Control Unit can be configured to allow users to view monitoring results from remote PCs connected to the same subnet.

OPMMS® helps improve open-pit mine management and worker safety.
Discover more. Contact Us.

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