3D Laser Scanning Technology

Rugged hardware and powerful software combined with streamlined survey workflow
I-Site XR3 laser scanner

The Maptek I-Site XR3 laser scanner represents the latest laser imaging technology in a smaller and lighter extra long range survey system. Faster scan acquisition and selectable multi-point returns make this the system of choice for surveyors, geologists and engineers.

The system includes a new, improved high dynamic range panoramic camera. It produces imagery that is ideal for high resolution geotechnical analysis and visualisation. Snapshot imagery is another new feature.

I-Site laser scanners provide the fastest field to finish performance. Acquired scans can be reviewed in the field, so there is no need to repeat work to fill in gaps. Multiple scans can be queued for maximum efficiency. Surface, point and global scan registration ensure accurate results.

The I-Site XR3 is compatible with I-Site Drive, Maptek Sentry and Maptek PerfectDig. Modular design allows you to order a configuration to suit your applications.

Applications
- Open pit and quarry survey
- Topographic survey
- Stockpile volumetrics
- Monitoring and rockfall analysis
- Design conformance
- Pre/post blast analysis
- Geological mapping
- Geotechnical/kinematic analysis
- Erosion and deformation studies
- Civil engineering survey
- Architecture and heritage mapping
- Agricultural and erosion studies

New features
- 25% improved range (2400m max.)
- 25% lighter
- 30% smaller
- 50kHz, 100kHz, 200kHz acquisition rates
- High dynamic range panoramic camera
- Snapshot imagery
- Selectable multi-point returns

Hallmark features
- Range accuracy of 5mm and repeatability of 4mm
- Automated, streamlined survey registration
- IP65 protected for tough conditions
- Ergonomic industrial design
- Integrated standard controls
- Flexible system configuration
- Quality certified under ISO 9022
The I-Site LR3 laser scanner is 30% smaller and 25% lighter, with 2.5 times faster data acquisition than the earlier I-Site 8800 series. The system is protected to IP65 for reliable operation in rugged environments.

The system includes a new, improved high dynamic range panoramic camera for better digital panoramic imagery. This produces high resolution images for geotechnical analysis and visualisation.

The new I-Site LR3 laser scanner possesses the hallmark survey workflow that helps boost productivity for mines, quarries and civil engineering projects. Matched with dedicated software it generates accurate survey deliverables for civil, forensic, architectural and infrastructure applications.

Integrated software and hardware provide the optimal workflow, tailored for mining, civil engineering, bulk handling and quarry operations. Fast, accurate processing provides the deliverables for stockpile reconciliation, CAD drawings, as-builts and 3D modelling.

I-Site laser scanning systems can be set up on a tripod or mounted on a vehicle for stop-go or continuous survey. The I-Site LR3 laser scanner is ideal for stockpile and infrastructure survey.

A modular design allows sites to order a configuration to suit their application.

**Applications**
- Medium and small open pit survey
- Quarry survey
- Topographic survey
- Indoor stockpile volumetrics
- Civil engineering survey
- Architecture/facade mapping
- Agricultural and erosion studies
- Design conformance
- Geological mapping
- Geotechnical/kinematic analysis
- Forensic applications

**New features**
- 25% improved range (1200m max.)
- 25% lighter
- 30% smaller
- 50kHz, 100kHz, 200kHz acquisition rates
- High dynamic range panoramic camera
- Snapshot imagery
- Selectable multi-point returns

**Hallmark features**
- Range accuracy of 4mm and repeatability of 3mm
- Automated, streamlined survey registration
- IP65 protected for tough conditions
- Ergonomic industrial design
- Integrated standard controls
- Quality certified under ISO 9022
The Maptek I-Site 8200 laser scanner is a versatile laser scanner for surface and underground survey applications. The I-Site 8200 laser scanner can quickly survey stockpiles, silos and underground drives. Streamlined survey workflow is a feature.

Advantages
- Scanner for underground survey tasks
- Fast, easy setup for underground stope scanning
- Reliable, safe operation in challenging underground environment
- Integrated software for fast results and accurate models
- Scan drives, tunnels, stopes, stockpiles and silos with the one system
- Pick up development headings and map faces and backs
- Simple setup for void measurement
- Automatic levelling of scans at any angle

Features
- Range up to 500 metres
- 125 degree scanning aperture
- 3D view in scan control software
- Rated to IP65 for reliable operation underground
- On-board, simple scan controls
- USB scan storage for easy file transfer
- Intuitive software for modelling laser scan data
- Range of mounting kits for mobile scanning
- Extendable 10 metre carbon fibre boom

The Maptek I-Site 8200 laser scanner is a portable, ruggedised 3D imaging system which can be configured to your survey requirements. The integrated digital camera enables simultaneous capture of 3D laser point clouds with overlaid photo pixels. The system features an integrated GPS and digital compass. Surveyor productivity is streamlined using the enhanced interface and wireless toughbook controller.

Advantages
- Optimised for topographic survey
- Designed for stop-go vehicle survey
- Built to operate in tough conditions
- Configured for mining, topographic and general survey
- Ideal for indoor and outdoor stockpile survey
- Rapid registration of multiple setups for faster survey workflow
- Rated to IP65 for environmental protection

Features
- 6mm accuracy
- Range from 2.5 to 2000 metres
- Ruggedised tablet PC for scan setup, management and viewing
- Built-in survey grade alignment telescope for backsighting (optional)
- Integrated 70 megapixel panoramic digital camera (optional)
- Instant image texturing requires no calibration or alignment

I-Site 8820 laser scanner

The Maptek I-Site 8200 is a versatile laser scanner for surface and underground survey applications. The I-Site 8200 laser scanner can quickly survey stockpiles, silos and underground drives. Streamlined survey workflow is a feature.

Software tools and hardware accessories have been developed alongside the scanning equipment, providing a truly integrated solution for a wide range of survey applications. There is no need to change tools when coming up from underground, or to change standard setup or work practices.

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I-Site 8820 laser scanner
Maptek I-Site™ Studio offers all the tools to successfully apply laser scanning to survey, geotechnical and engineering tasks within the mining, civil, quarry and forensic industries. The software improves efficiency, productivity and workflow.

I-Site Studio integrates data from high performance laser scanning instruments with conventional survey and mapping. Surveyors can complete tasks efficiently, with a workflow matching many common survey applications.

I-Site Studio combines a user friendly interface with 2D and 3D modelling options. Outstanding processing power handles large datasets with ease and ensures fast and accurate deliverables for mining applications.

**Features**
- Generate high resolution images of data
- Global registration registers multiple scans and objects together
- Repeated acquisition and averaging to improve data accuracy
- Fully interactive rotation, zoom and pan of view
- End-of-month pit update tool integrates new scan data
- Intuitive CAD tools for working in 2D and 3D
- Easily register data to coordinate systems, including local mine grid coordinates
- Common formats for seamless export to other packages

**I-Site Void**
Modelling and CAD tools for underground survey applications

**Applications**
- Calculate volumes between surfaces, within a void, and between solids
- Register, model and extract CAD from surveyed drives
- Visualise, map development headings
- Create solid triangulations, check and fix triangulations, join drive intersections

**Tools**
- Locate scans from GPS
- Design points, lines and polygons, create contours and section lines
- Topographic, minimum separation and range filtering
- Apply colour schemes to highlight areas of interest
Geotechnical Module
Powerful tools for analysing structures and performing kinematic analysis
- Extract discontinuities and analyse persistence across structural domains
- Customisable, interactive stereonet
- Waviness tool for stability analysis
- Full kinematic analysis for planar, wedge and toppling failures

Reporting Module
Automated workflow and fully customisable templates for productive reporting

Volumes
- Apply base surface, stockpile surfaces and polygons
- Generate volumes for multiple regions
- Attach photographs, documents

Design Conformance
- Compare design surface to as-built and other surfaces
- Summarise sections, report on underdig, overdig and percentage of volume variance by block

Resource Recovery Module
Report on loss and dilution volumes for strip mining
- Report on loss and dilution and compare to actual surfaces
- Export and report on thickness
- Report on tonnages
- Summarise sections with summary of results

Geology Module
Intuitive tools for defining geology directly from 3D point cloud data
- Split surfaces into separate facet networks
- Apply pattern to denote rock types
- Extract new surface based on digitised polygon
- Colour surface by polygon to define geology
I-Site Drive allows the continuous acquisition of laser scan data, using an I-Site laser scanner mounted on a moving vehicle. Mining, quarry and civil operations can quickly measure stockpiles for reporting and comparing daily or weekly volumes.

The Inertial Navigation System (INS) allows the laser scanner to acquire data continuously and automatically assigns real world coordinates to the data, ready for processing.

Continuous or stop-go survey modes can be deployed.

Captured data can be viewed on the tablet PC in real time. Easily identify missing scenes and re-survey the area while in the field.

I-Site laser scanners can also be mounted and transported on common site vehicles for stop-go scanning without the INS.

More efficient use of time and resources, faster setup and greater coverage over undulating ground combine to increase survey productivity and safety.
Maptek PerfectDig is intuitive software for evaluating and supporting design conformance. It takes 3D digital image data and compares it with a mine design to generate scenes that clearly show areas of conformance, underdig and overdig.

PerfectDig Field works with ‘real time’ data from an I-Site laser scanner. A ruggedised tablet has an easy to use interface for immediately comparing mining to design in the field and creating conformance reports.

PerfectDig Office uses existing I-Site laser scan or surface data and compares this with the mine design on a desktop computer. Users can create conformance reports with an easy-to-use wizard interface and share results online.

Maptek Sentry is a risk monitoring solution for wall stability.

Sentry combines an I-Site laser scanner with sophisticated software to gather accurate data, identify trends and analyse the cause of failures.

Sentry is quick and simple to setup and operate, allowing critical information to be sent to geotechnical staff or mine managers for managing site safety.
Industry Leading Global Solutions

Maptek is the leading global provider of innovative software, hardware and services for the mining industry. More than 2000 customers in 75 countries rely on Maptek.

Our solutions help reduce operating costs and improve performance, productivity and profitability. Maptek provides expert consulting, training and support services to ensure you get the most from your investment in our products.