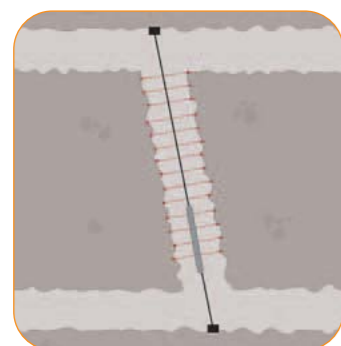
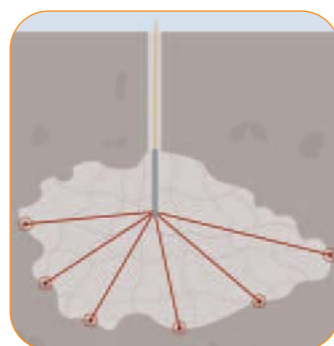


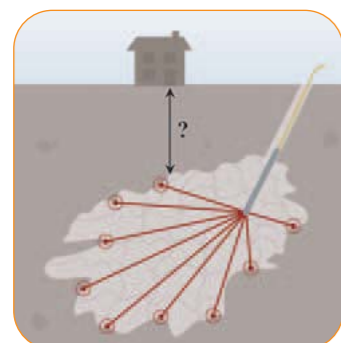
Bridge Surveys



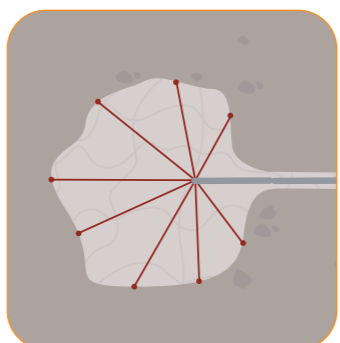
Ore-pass



Void



Subsidence Surveys



Slope Surveys

Technical Specifications

- Class 1 eye safe laser (FDA/IEC)
- 150m/500' reflectorless range
- Accuracy 5cm/1.97"
- Resolution 1cm/0.39"
- 240 points per second
- 50mm/1.97" diameter (probe)

Sensor

- Opto electronic encoder:
Vertical range: -90° to +90°
Horizontal range: 0° to 360°
Accuracy: 0.2°
Resolution: 0.1°

Environmental

- Water & dust resistant (IP65)
- Operating temperature: -10°C to +60°C /14°F to 140°F (probe)
- Sealed surface unit watertight

Power & Dimensions

- 12V DC power input
- Weight: 5.9Kg/13.0lbs (probe)
- Weight: 3.5Kg/7.7lbs (extension piece)
- Size: 5cm x 200cm/1.97" x 78.7" (with extension piece)

CLASS 1
LASER PRODUCT



For more information on C-ALS:



Certificate Number: 160263
BS EN ISO 9001 : 2000

Sea and Land Technologies Pte Ltd

65 Tuas Avenue 1
Singapore 639508
Email: enquiry@sea-landtech.com.sg
Website: http://www.sea-landtech.com.sg

Tel : +(65) 6518 0777
Fax : +(65) 6563 0366

Canada Sales & Service Office
tel: +1 613 692 0132 • fax: +1 613 692 0131
email: info@tec-eng.on.ca
web: www.tec-eng.on.ca

Australia Sales & Service Office
tel: +61 3 9310 2011 • fax: +61 3 9364 9011
email: info@laser-measurement.com.au
web: www.laser-measurement.com.au

Information contained is believed to be accurate. However, no responsibility is assumed for its use. Technical information is subject to change without notice.

9001/2000 Certified

C-ALS Rev-04 02/08

C-ALS



CAVITY AUTO SCANNING LASER SYSTEM



world leading laser measurement technology





C-ALS

CAVITY AUTO SCANNING LASER SYSTEM

MDL's Cavity Autoscanning Laser System (C-ALS) is a miniature, ruggedised 3D laser scanning system.

With a diameter of just 50mm/ 1.97", the sensor can be deployed through boreholes for surveys of inaccessible spaces, underground voids and cavities. Red LED's provide illumination for the onboard nosecone camera. This permits a view of the borehole and any obstructions encountered. It also identifies the opening into the void. Once into the void, the laser head opens out to measure the three-dimensional shape of the void and its surface reflectivity.

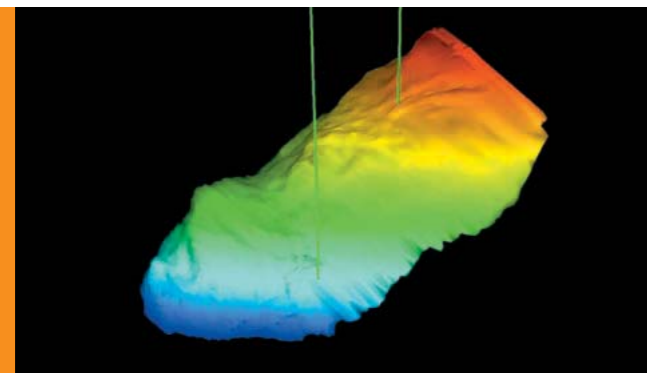
The motorised 2-axis scanning head ensures a complete 360° scan covering the entire void up to a range of 150m/ 500'. The C-ALS probe incorporates 'pitch and roll' sensors and has the option of an internal compass. These sensors ensure accurate orientation and positioning of the laser scanned point cloud. A linked system of lightweight 1m rods provide distance, a fixed azimuth and enable up- hole and horizontal deployment.

The cable telemetry system transmits all measured data back to the surface control unit. A ruggedised computer is used for set up, control and data acquisition. MDL's control software provides an in-screen video from the C-ALS camera and a real-time 3D view of the void as it is created from the laser scan.



Key Features

- Survey remote, inaccessible voids and cavities safely
- 50mm diameter allows deployment along hundreds of metres of narrow boreholes
- Fast scanning rate (240 points per sec)
- 360° spherical coverage with no blind spots
- Nosecone camera to assist borehole deployment
- Orientation sensors ensure scan is automatically geo-referenced to fit into existing 3D mine data



Multi borehole combination cavity scan

Safe and fast precision scanning of voids and cavities

Mine Surveying

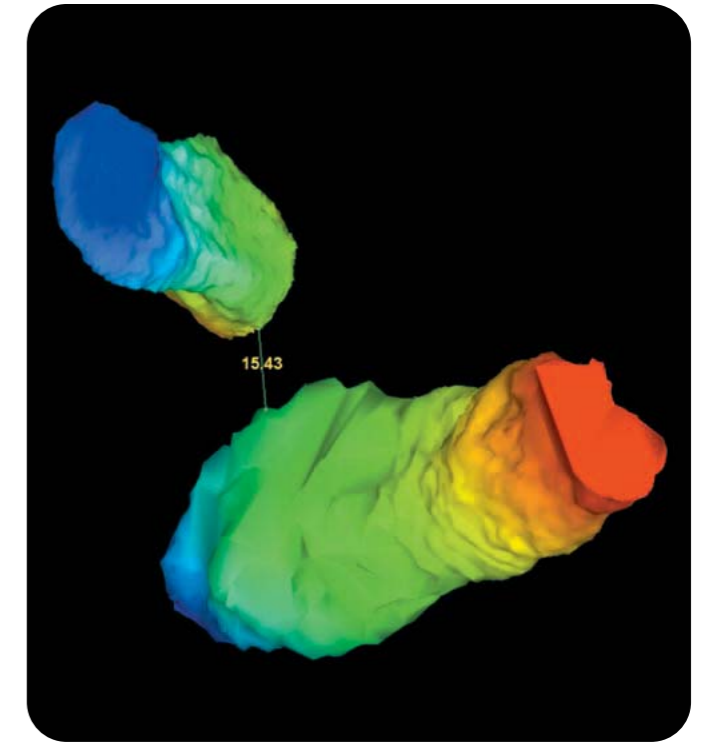
- Ore Pass Erosion Monitoring
- Stope Surveying
- Void Investigation
- Mine Rescue

Inspection

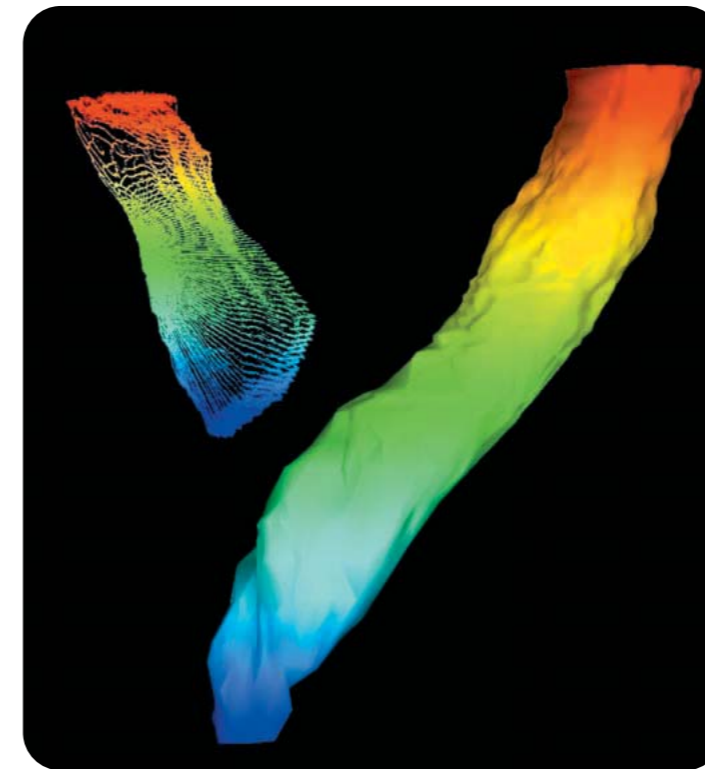
- Abandoned Mine Surveying
- Bridge Internal Void Surveys
- Nuclear Facilities
- Industrial Production Facilities
- Bunker Surveys

Geotechnical

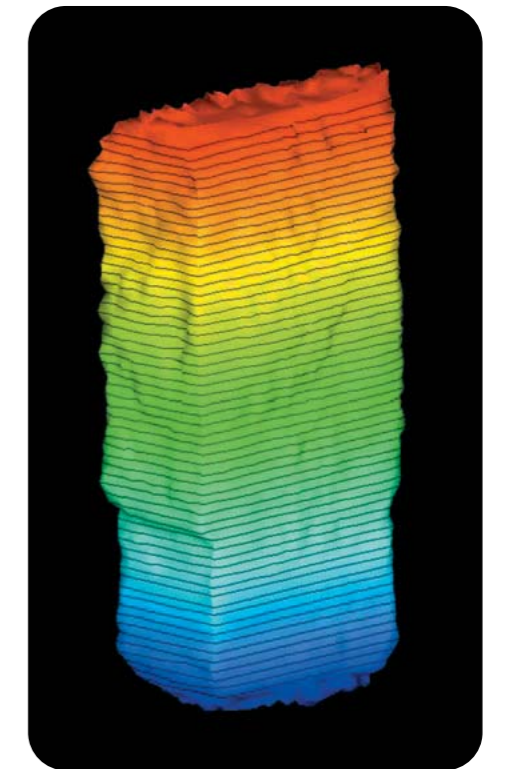
- Subsidence Investigations
- Tunnel Surveys
- Cavities Under Engineering Works



Plan view of two modelled cavities, scanned to calculate the clearance between them



Adjacent ore pass erosion monitoring



Bridge internal survey

