

C-ALS

CAVITY AUTO SCANNING LASER SYSTEM



world leading laser measurement technology



MDL
Laser Systems

C-ALS

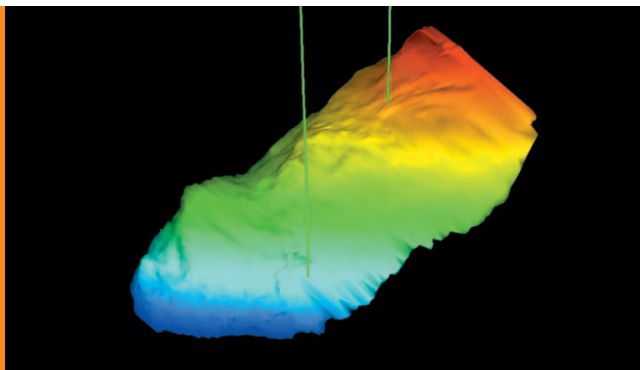
CAVITY AUTO SCANNING LASER SYSTEM

MDL's Cavity Auto scanning Laser System (C-ALS) is a miniaturised, 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 LEDs provide illumination for the onboard nose cone 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 scanned point cloud. A system of hinged lightweight 1m rods provide a fixed azimuth and enables easy deployment down hole, up hole or horizontally.

A load-bearing cable attached to the probe 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 scanned.



Multi borehole combination cavity scan

Key Features

- Survey remote, inaccessible voids and cavities safely
- 50mm diameter allows deployment along hundreds of metres of narrow boreholes
- Fast scanning rate (200 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
- Integrated pitch and roll sensors

Safe and fast precision scanning of voids and cavities

Mine Surveying

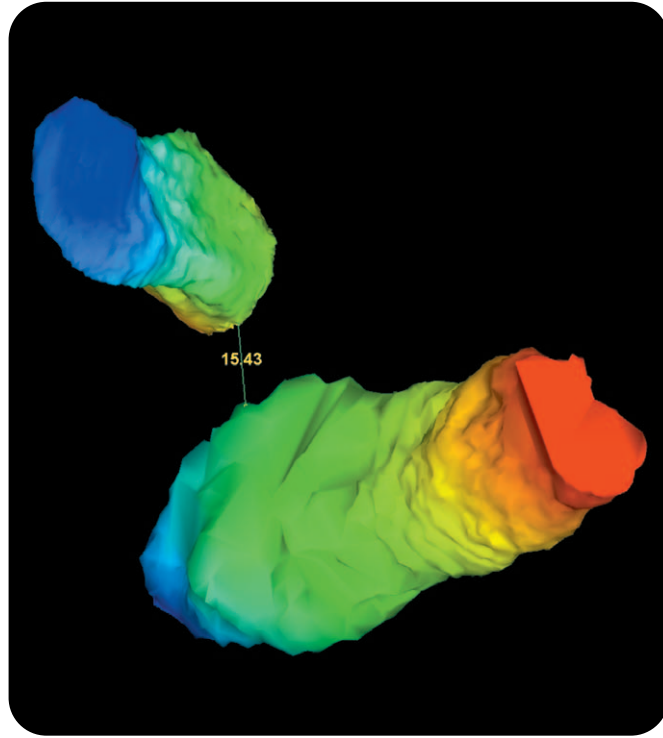
- Ore Pass Erosion Monitoring
- Stope Surveying
- Void Investigation
- Mine Rescue

Inspection

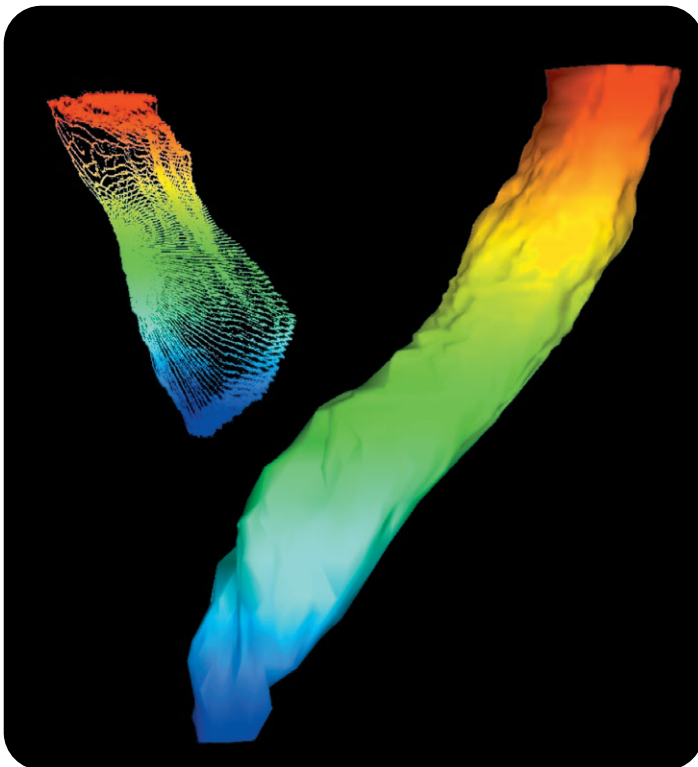
- Abandoned Mine Surveying
- Bridge Internal Void Surveys
- Nuclear Facilities
- Industrial Production Facilities
- Bunker Surveys

Geotechnical

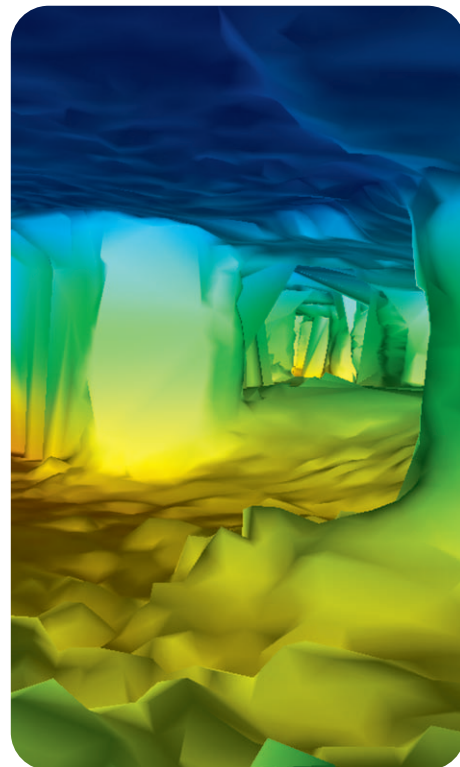
- Subsidence Investigations
- Tunnel Surveys
- Cavities Under Engineering Works



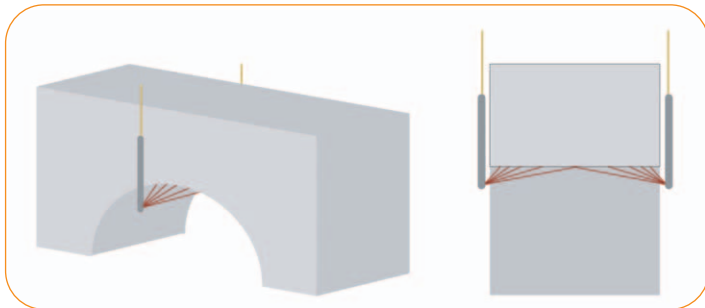
Plan view of two modelled cavities, scanned to calculate the clearance between them



Adjacent ore pass erosion monitoring



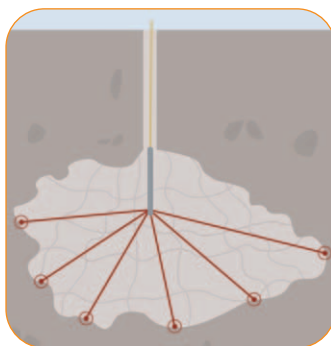
Mine fly through



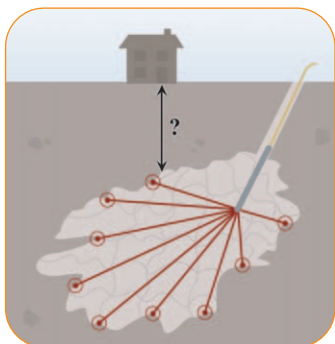
Bridge Surveys



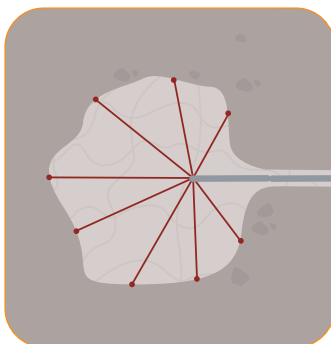
Ore-pass



Void



Subsidence Surveys



Slope Surveys

Technical Specifications

- Class 1 eye safe laser (FDA/IEC)
- 150m/500' passive range
- Accuracy typically 5cm/1.97"
- Range resolution 1cm/0.4"
- Scan rate 200 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 and dust resistant IP65
- Operating temperature: -10°C to +60°C /14°F to 140°F (probe)
- Sealed surface unit watertight

Power & Dimensions

- DC 12V (10.5V DC to 17V DC)
- Weight: 5.9kg/13.0lbs (probe)
- Weight: 3.5kg/7.7lbs (extension piece)
- Size (DxL): 5cm x 200cm/1.97" x 78.7" (with extension piece)

CLASS 1
LASER PRODUCT



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