

### Key Features

- Measurements to non-cooperative targets
- User-friendly operation and georeferencing
- Real-time data and image visualization
- Automated leveling
- Fast data acquisition rate
- 360° × 320° field of view
- Fast, accurate and precise 3D models of cavities
- Safe monitoring of inaccessible areas

### Benefits

- Increase stope production
- Reduce dilution
- Calculate backfill volume
- Investigate backfill and blast efficiency



### New Features for the World's Most Widely Recognized and Used Cavity Monitoring System

The Optech CMS (Cavity Monitoring System) is an ideal scanning solution for dangerous and inaccessible cavities, letting the operator stand safely clear while surveying. CMS collects thousands of points to determine the cavity's size, orientation and volume, and this insight into the mine's actual structure improves mine efficiency and operations. Easy to transport, set up and georeference, the fully-programmable CMS also lets users optimize their scan parameters and produces data in universally adopted formats for efficient workflow integration.

Developed for practical operation by leveraging real-world experience, the Optech CMS has become synonymous with accurate underground surveying. With hundreds of systems shipped worldwide, CMS is the standard for fast, reliable and efficient scanning and monitoring of underground cavities.

The new and improved V500 model continues this standard with features such as resection/backighting, a smaller insertion profile and wireless operation. The new built-in camera makes CMS V500 an inspection tool as well, enabling the operator to visualize and record ore passes, raises, storage bins, ventilation shafts and other inaccessible areas.

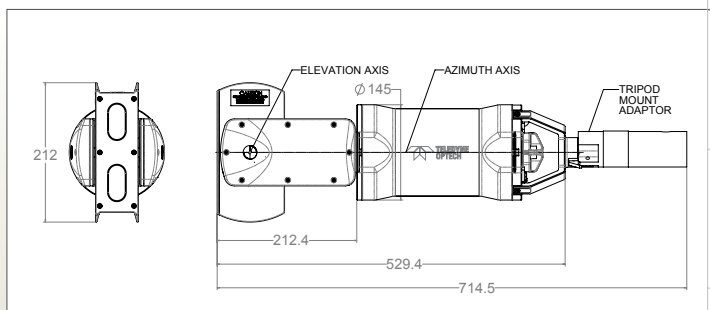
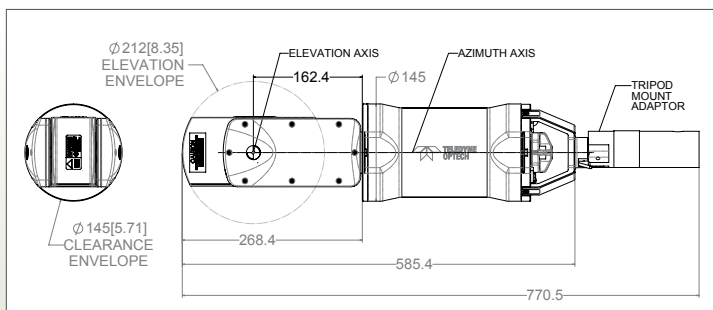
- Accurate 3D models of cavities, to compare data quickly and easily
- Real-time data visualization, to check data quality immediately before leaving the site
- Wireless operation, to monitor operation from a safe area
- Windows-based PC operation, allowing for portable and flexible operation
- Export CMS data into any mine planning software and CAD platform for analysis

Parameter	Metric	Imperial
Range capability	200 m @ 20%; 500 m @ 90%	656 ft. @ 20%; 1640 ft. @ 90%
Minimum range	50 cm	20 in
Range accuracy <sup>1</sup>	±2 cm	0.79 in
Range resolution	1 cm	0.4 in
Operating temperature	-20° to +60°C	-4°F to +140°F
Weight, scanning head	7kg	15 lbs
Scanner diameter	145 mm	5.75 in
Scan time (1 x 1°)	6 min	6 min
Points per scan (360 x 320°)	57,600	57,600
Horizontal angular range	360°	360°
Vertical angular range	320°	320°
Angular accuracy	0.1°	0.1°
Angular resolution	0.022°	0.022°
Min step size (azim and elev)	0.25°	0.25°
Wireless/Wired connectivity	Yes	Yes
Operating power	15 VDC (self-contained rechargeable battery)	15 VDC (self-contained rechargeable battery)
Relative humidity	0-95% non-condensing	0-95% non-condensing
Water and dust protection	IP65 <sup>2</sup>	IP65 <sup>2</sup>
Internal Camera	1 MP jpeg (720p /5fps)	1 MP jpeg (720p /5fps)
<b>Optional Accessories</b>		
Ruggedized Tablet PC	Boom Support Set	Mast Support Set for Booms
Tripod Mounting Bracket	Vertical Insertion Package	Cart with extension rods

1. Performed under Teledyne Optech test conditions  
 2. Designed to meet IP65




Emissions: EN 61000-6-4:2007+A1:2011  
 EN 55011:2009+A1:2010  
 Immunity: EN 61000-4-2:2009  
 EN 61000-4-3:2006+A2:2010  
 EN 61000-4-6:2014  
 EN ISO 12100:2010  
 Safety of machinery: IEC 60825-1:2014




 Bottom Access with Cart



 Stope Method



 Caving Method



 Vertical Method