



Trimble MX2

MOBILE MAPPING SYSTEM

VERSATILE MOBILE MAPPING FOR GEOSPATIAL SURVEYS

The Trimble MX2 is a vehicle-mounted mobile mapping system which combines high resolution laser scanning and precise positioning to collect geo-referenced point clouds for a wide range of requirements. The system can be rapidly deployed onto on- and off-road vehicles of all sizes, and significantly reduces project field time and operator skill levels compared to traditional techniques. The MX2 is supplied with Trimble's proven Trident software to rapidly extract and analyze the raw data to turn it into useful geospatial intelligence.

Trimble MX2 Technology

The system has three main elements:

Sensor Head

A compact, lightweight, and rugged sensor package designed to be mounted on vehicles of all sizes. It contains two laser heads and a combined Trimble Applanix GNSS and inertial geo-referencing module for precise positioning. The dual head system uses a 'butterfly' LiDAR configuration to minimize shadowing. The sensor head can be rapidly installed in minutes and does not need a dedicated vehicle.

Operator Console

System control and data recording functions are provided by a ruggedized laptop PC running Trimble® Trident™ Capture software. This presents a clear, intuitive user interface, allowing the operator to rapidly set system parameters and manage data recording.

Analysis Software

To quickly transform point clouds into geospatial intelligence, the system includes the proven Trimble Trident software suite. Trident Imaging Hub is available with the

system and offers robust object positioning, measurement, and data layer creation, and is ideal for the analysis of mobile laser scanner data and geo-referenced imagery. The optional Trident Factory software enables high levels of automation and is optimized for more complex projects. For postprocessing options, the powerful Applanix POSPac MMS software is supplied.

High Productivity Capture and Analysis

Capable of collecting up to 72,000 points per second in its dual scanner configuration, the system offers high levels of accuracy due to the performance of its Trimble Applanix GNSS/inertial reference technology. The highly efficient, end-to-end workflow is based on Trimble's 'Collect, Extract, Analyze' methodology, and enables detailed 3D infrastructure geometries to be captured in a single pass and rapidly processed. The system is characterized by operational flexibility, ease-of-use, high productivity, and excellent performance—yet it offers a low cost of ownership.

Benefits

- ▶ Versatile system offers significant operational flexibility
- ▶ Outstanding performance and value with low cost of ownership
- ▶ Optimizes staff utilization and lowers skill requirements
- ▶ Reduces project timescales through fast deployment, data capture, and analysis
- ▶ Highly efficient, proven analysis workflows
- ▶ Enhances operational capabilities and expands market opportunities

Key Features

- ▶ High performance laser scanner captures fully synchronized point clouds
- ▶ Precision positioning using tightly coupled GNSS and inertial referencing system
- ▶ Rugged, reliable and lightweight design with low power consumption
- ▶ Deploys on all sizes of on- and off-road vehicles
- ▶ Use with Trimble Trident software for data capture, extraction and analysis



Trimble Mx2
Dual Head

PERFORMANCE AND SPECIFICATION

System	
Operating temperature	-10 °C to +50 °C
Power supply	12 V DC to 32 V DC
Environmental rating	IP65
Weight	Dual laser head: 25 kg
Laser(s) sub-system	
Type	Dual SLM-250 Class 1 lasers
Range	Up to 250 m
Accuracy	±1 cm at 50 m to Kodak white card ¹
Scanner FOV	360 degrees
Scan rate	Dual laser head: 2 x 20 Hz (1200 rpm)
Maximum effective measurement rate	Dual laser head: 72,000 points per second
Pulse rate	Dual laser head: 2 x 36 kHz
Positioning sub-system ² (RMS ERROR)	
Type	Trimble AP20 GNSS-Inertial System
Technology	Advanced Applanix IN-Fusion™ GNSS-Inertial integration technology
# of GNSS channels	220
Inertial Measurement Unit	Applanix IMU-42 (non ITAR) with 200 Hz Data Rate
Azimuth Determination	2 GNSS antennas, Applanix GNSS Azimuth Measurement System tightly coupled with IMU data
Position (m): No GNSS Outages ³ 1 km or 1 minute GNSS Outage ^{3,4}	0.02 – 0.05 (Postprocessed) ¹ 0.13 – 0.24 (Postprocessed) ¹
True Heading (deg): No GNSS Outages ³ 1 km or 1 minute GNSS Outage ^{3,4}	0.025 (Postprocessed) ¹ 0.030 (Postprocessed) ¹
Options	Distance Measuring Indicator (DMI)

Trident Imaging Hub	
Point Cloud viewing and navigation in 3D	3D Measurements
Imaging Playback, Image and Point Cloud blending	Point Selection & Classification Tools
Trajectory Import	Image Converter
Camera/Laser Boresight Calibration	RGB Point Cloud Colorization
Target Detection/Registration	SHP/DXF Import and Export
Database connectivity	Point Cloud Export (optional by Class) in LAS 1.1/1.2/1.4 or csv
Photogrammetric/Point Cloud Feature addition	Pavement Defects Report
Trident Factory (optional)	
Surface modelling	Road Modeller (DTM, Cross sections, Profiles)
Sign and Pole Detection	Horizontal/Vertical Line of Sight
Edge Detection	Horizontal/Vertical Clearances
Centerline Detection	Land XML Export

360° Panoramic Camera		
Camera Sub-system	Resolution	30 MP (5 MP x 6 sensors)
	Field of View	90% of full sphere
	Spherical Distance	Calibrated from 2 m to infinity
	Operating Temperature	0 °C to +45 °C
	Power Consumption	12 to 24 V, 13 W via GPIO
	Weight	3.0 kg
Analysis	Applanix POSPac MMS Trimble Trident Factory	
Positioning	Distance Measurement Indicator (DMI)	

¹ 1 sigma under calibration conditions

² Typical performance in a standard road vehicle with appropriate initialization and dynamics). Actual results are dependent upon satellite configuration, atmospheric conditions and other environmental effects.

³ With GAMS and 2m baseline between antennas.

⁴ With DMI Option.

Specifications subject to change without notice.

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