

TRIMBLE MX2 MOBILE SPATIAL IMAGING

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



TRIMBLE MX2 SINGLE HEAD



TRIMBLE MX2 DUAL HEAD

VERSATILE MOBILE MAPPING FOR GEOSPATIAL SURVEYS

The Trimble MX2 is a vehicle-mounted spatial imaging 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 one or 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 bundled 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 post processing 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

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PERFORMANCE AND SPECIFICATION

System	
Operating temperature	-10 to +50 °C
Power supply	12 to 32 V DC
Environmental rating	IP65
Weight	Single laser head: 17 kgs Dual laser head: 25 kgs
Options	Single or dual laser head 360 degree panoramic camera

Laser(s) sub-system	
Type	Single or dual SLM-250 Class 1 lasers
Range	Up to 250m
Accuracy	±1cm at 50m to Kodak white card ⁵
Scanner FOV	360 degrees
Scan rate	Single laser head: 20 Hz (1200 rpm) Dual laser head: 2 x 20 Hz (1200 rpm)
Maximum effective measurement rate	Single laser head: 36,000 points per second Dual laser head: 72,000 points per second
Pulse rate	Single laser head: 36 kHz Dual laser head: 2 x 36 kHz

Positioning sub-system ⁶	
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 200Hz Data Rate
Azimuth Determination	2 GNSS antennas, Applanix GNSS Azimuth Measurement System tightly coupled with IMU data
Position (m): No GNSS Outages ³ 1km or 1 minute GNSS Outage ³⁺⁴	0.02 - 0.05 (postprocessed) ¹ ; 0.02 - 0.10 (RTK) ² 0.13 - 0.24 (postprocessed) ¹ ; 0.35 - 0.69 (RTK) ²
True Heading (deg): No GNSS Outages ³ 1km or 1 minute GNSS Outage ³⁺⁴	0.025 (Post Processed) ¹ ; 0.050 (RTK) ² 0.030 (Post Processed) ¹ ; 0.070 (RTK) ²
Options	Distance Measuring Indicator (DMI)

Notes: (1) POSPac MMS, (2) Applanix IN-Fusion Inertially-Aided RTK, typical results, (3) With GAMS and 2m baseline between antennas, (4) With DMI Option, (5) 1 sigma under calibration conditions, (6) Typical performance in a standard road vehicle with appropriate initialization and dynamics)

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TRIMBLE AUTHORIZED DISTRIBUTION PARTNER

Trident Imaging Hub (standard)	
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 Bore-sight 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
Pavement Marking Detection	Image Pavement Mosaic Generation

DELIVERABLES AND OPTIONS

	Standard	Options
Sensor Head	Single SLM-250 laser scanner or Dual SLM-250 laser scanners, Trimble GNSS Inertial System, RTK radio receiver	360 degree panoramic camera DMI (Distance Measurement Indicator)
Operator Console	Ruggedized Laptop PC Trimble Trident Capture	
Analysis	Trimble Trident Imaging Hub	Applanix POSPac MMS processing software, Trimble Trident Factory

EUROPE

Trimble Germany GmbH
Am Prime Parc 11
65479 Raunheim
GERMANY

NORTH AMERICA

Trimble Navigation Limited
10355 Westmoor Dr
Westminster CO 80021
USA

ASIA-PACIFIC

Trimble Navigation
Singapore Pty Limited
80 Marine Parade Road
#22-06, Parkway Parade
Singapore 449269
SINGAPORE

MIDDLE EAST

Trimble Export Limited
LOB 18 1606 / 1607
Jebel Ali Free Zone View
Dubai
UNITED ARAB EMIRATES

