Trimble MX50

MOBILE MAPPING SOLUTION

The Trimble® MX50 is a **practical field-to-finish mobile mapping solution** for asset management, mapping, and road maintenance.

- Mobile Mapping system combining precise LiDAR data and immersive panoramic imagery
- State-of-the-art Trimble LiDAR technology integrated within a proven and reliable mobile platform
- Accurate point cloud for applications such as road surfaces, highway maintenance, or asset management
- Simple system installation and intuitive browser-based operation
- Complete field-to-finish workflow, provided by Trimble—Capture, process, extract, share
- Established Trimble mobile mapping software workflow

CAPTURE

Use the Trimble MX50 to quickly obtain asset data:

- Simple operation with any smart device
- High quality point cloud
- 360° immersive imagery
- Single cable connection from sensor to control unit

PROCESS

Process vehicle trajectory using tightly coupled GNSS and inertial data:

- Trajectory processing incorporated into Trimble Business Center
- Data blurring to address privacy concerns
- Point cloud registration, for optimum accuracy
- Term based software licences to address project peak demand

EXTRACT

Produce high-quality deliverables for your customers and stakeholders:

- Create survey, engineering, CAD, and GIS deliverables
- Use existing data schemas
- Deliver colorized point clouds and imagery
- Connect to existing asset databases

SHARE

Publish data for sharing across the internet:

- Share point clouds and images
- Collaborate with other project stakeholders
- Share and overlay exisiting asset data
- Avoid site revisits

TAKE PRODUCTIVITY ON THE ROAD

The system delivers a very accurate point cloud of the environment along with complementary immersive imagery providing substantial gains in productivity.

The MX50 typically mounts on the roof of a vehicle and captures LiDAR and panoramic imagery at highway speeds. The system employs accurate LiDAR technology developed by Trimble.

The MX50 utilizes Trimble's established mobile mapping and software workflows. Following data capture, integrated office software tools generate deliverables that can be published to an audience within or outside of your organization.

ACROSS MANY APPLICATIONS

Whether you are a first time mobile mapping user looking for a step change in productivity or an experienced mobile mapping professional considering adding extra capacity to your fleet the Trimble MX50 will generate reliable deliverables for many applications:

- Highway assets
- Utility assets
- City assets
- Accurate ground models
- Engineering profiles and cross-sections
- Road surface information

The MX50 solution from Trimble extends your data capture capabilities to include very large projects previously only possible using many survey crews. Avoiding road closures not only reduces costs but also alleviates safety concerns associated with vulnerable field crews working along busy highways.

ASSET MANAGEMENT—HIGHWAY, UTILITIES, CITIES

The practical Trimble MX50 mobile mapping system, with its combination of point clouds and immersive imagery, is the ideal solution for many asset management applications or for populating a GIS. Whether for highway management, utilities, or local government the MX50 puts you in control of your data capture project. The system is simple to install and operate and does not require specific expertise. Complementary point clouds and images provide you with all you need to extract asset location, size, condition, and other inspection and attribute information. The MX50's accurate point cloud underpins your ability to locate and measure your assets whilst 360° imagery allows for the determination of inspection and feature attribute data. Site revisits can be minimized as, once captured, you will have all raw data to hand.

With the addition of Trimble MX Publisher software, data can be shared with non expert users across your organization by simply sending a URL which can be viewed in a web browser.

ROAD MAINTENANCE

For Departments of Transportation and Highways Agencies, the Trimble MX50 provides flexible capabilities. This solution is not only a comprehensive method of maintaining asset databases but the very clean, accurate, low noise point cloud of the road surface provides a rapid way of building existing road pavement ground models from which cross-sections and profiles can be derived. Whether for surveys related to road re-surfacing, routine maintenance, or simply a reconnaissance survey to determine road rehabilitation cost estimates—the Trimble MX50 puts you in charge of gathering data to determine the next steps in maintaining this most valuable of assets.

The complementary roading capabilities of Trimble Business Center™ provide the necessary tools to analyze existing ground along with future design or re-habilitation schemes.

MOBILE MAPPING WITHIN YOUR REACH

For ease and consistency Trimble MX50 utilizes the same field and office software as the rest of Trimble's mobile mapping portfolio. Data capture is simple using a tablet and a Wi-Fi connection to the MX50 sensor. System installation is straightforward with minimal cable connections. At only 23 kg, the sensor can easily be mounted and dismounted as needed to the roof mounting system.

OTHER APPLICATIONS

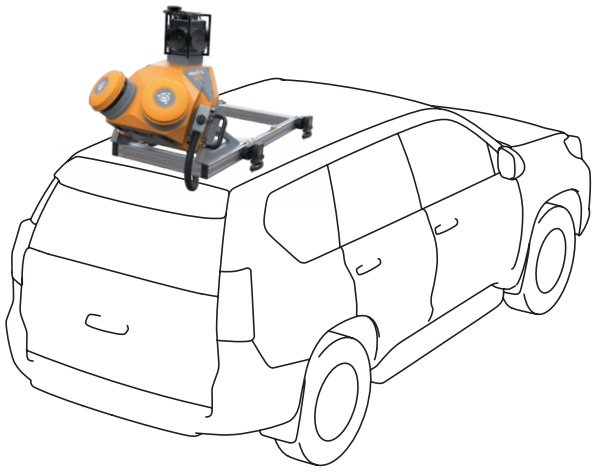
- Airports
- Telecommunications
- Environment & Natural Disasters

Trimble MX50 MOBILE MAPPING SOLUTION

ELECTRICAL DATA	
Power supply input voltage	12 V-DC (12 V–16 V)
POWER CONSUMPTION	
Typical	150 W (max 350 W @ startup)

SYSTEM COMPONENTS	
Sensor unit	Included
Control unit	Included
Power unit	Included
GNSS Azimuth Measurement System	Included
Roof rack	Included, standard cross bars not included
Transport box	Included
Field software	TMI, browser-based, no installation necessary
Cable, battery to power unit	5 m
Cable, power unit to control unit	3 m
Cable, control unit to sensor unit	5 m
Data storage	1 set (1 x 2 TBytes SSD, removable)
Control interface	Tablet or Notebook, Wi-Fi or LAN cable, BYOD

MX50 LASER SCANNER	
Number of laser scanners	2
Laser class	1, eye-safe
EFFECTIVE MEASUREMENT RATE[1]	320 kHz and 960 kHz
Scan speed (Dual Head system)	240 scans/sec
Maximum range, target reflectivity > 80%[2]	80 m
Minimum range	0.6 m
Maximum number of targets per pulse	1
Accuracy[3]/precision[4]	2 mm/2.5 mm @ 30 m
Field of view	Full 360°[5]



EMBEDDED TRIMBLE GNSS-INERTIAL SYSTEM	
ACCURACY—NO GNSS OUTAGES (POST PROCESSED)[6]	
X, Y Position (m)	0.020
Z Position (m)	0.050
Velocity (m/s)	0.005
Roll and Pitch (deg)	0.015
Heading (deg)[7]	0.025
ACCURACY—60 SECOND GNSS OUTAGE (POST PROCESSED)[6]	
X, Y Position (m)	0.320
Z Position (m)	0.130
Roll and pitch (deg)	0.020
Heading (deg)[7]	0.030
ACCESSORIES	
DMI[6,8]	Yes, optional

CAMERAS				
Camera type	No	Mounting	FoV	Focal Length
Spherical camera, 30 MP (6 x 5 MP)	1	Fixed	90% of full sphere	4.4 mm
Capture modes	By distance or by time at 10 fps max.			

3RD PARTY HARDWARE INTEGRATION OPTIONS	
Synchronization output at sensor unit	1 (NMEA + PPS)

ENVIRONMENTAL CHARACTERISTICS	
Maximum vehicle speed for data acquisition	110 km/h (68 mph)
IP rating	IP64 (sensor unit)
System operating temperature	0 °C to +40 °C
Storage temperature	–20 °C to +50 °C
Relative humidity (operating)	20 % to 80 %
Relative humidity (storage)	20 % to 95 %

PHYSICAL CHARACTERISTICS	
Dimensions sensor unit	0.54 m x 0.55 m x 0.57 m
Weight sensor unit	23 kg
Dimensions roof rack	1.13 m x 0.60 m x 0.31 m
Weight roof rack	18 kg

1 Rounded values
2 Typical values for average conditions.
3 Accuracy is the degree of conformity of a measured quantity to its actual (true) value.
4 Precision is the degree to which further measurements show the same results.
5 Dual head system provides a full 360° field of view. Each laser covers 346°.
6 With DMI option.
7 With GAMS option, 2 m baseline.
8 One sigma values, with DMI option, post-processed using base station data. Typical performance. Actual results are dependent upon satellite configuration, atmospheric conditions and other environmental effects.

Specifications subject to change without notice.

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