

Dynascan® M250 mobile mapping system



Reduce project timescales

Capture, process and deliver 3D mapping-grade point cloud data quickly and accurately in order to increase productivity.



Plan unique projects

Use the vehicle-mounted laser scanner to access challenging land- or marine-based environments safely.



Cut operating costs

Investing in this low-cost, easy-to-install mobile mapping solution reduces the need for a large survey crew.

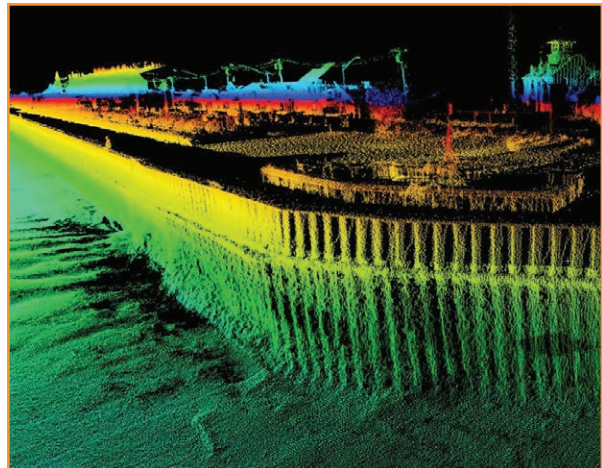


Key benefits of Dynascan M250

Renishaw's Dynascan M250 mobile mapping system provides eye-safe, long-range laser-scanning solutions for use in a range of challenging land and marine environments. The vessel- or vehicle-mounted unit enables users to collect, edit and analyse geospatial point cloud data quickly and accurately in order to plan and manage complex projects.

What the system offers

- Our data acquisition software enables you to integrate above-ground Dynascan M250 data with underwater data collected by hydrography equipment to create complete surveys above and below the waterline
- IP65 water and dust resistance
- A ruggedised PC loaded with data acquisition software, a solid state drive, bright screen technology, and a security dongle to ensure secure use of software
- Fully portable vehicle-mounted deployment on all-terrain vehicles, vessels, and small mobile platforms for access to challenging environments
- Remote diagnostics support anywhere in the world
- Training courses available on site or at one of Renishaw's facilities around the world



Dynascan M250's ease of integration with hydrography equipment lets you produce surveys that combine above-ground lidar and underwater sonar data to produce detailed surveys above and below the waterline.

Technology

Dynascan M250 combines a number of measurement sensors for the accurate, long-range mapping of vast areas in extreme environments. These technologies include a scanning laser sensor with a 250 m range capability, an inertial measurement unit (IMU) for position and orientation information, and a GPS system for geospatial positioning.

There are two Dynascan M250 variants available – the single-head and the dual-head – depending on the mapping application for which it is required. The lightweight and portable single-head model is suitable for use mounted on land vehicles or marine vessels for the fast, long-range collection of 3D point cloud data in a 360° field of view. The dual-head version includes all of the above but also features two laser heads mounted at 45°, reducing the amount of shadowing encountered during scanning, and enabling the capture of more points per second for more complete datasets.

Supporting planning and engineering teams

Our system has been designed and developed specifically for use in the most extreme environments and under the most challenging of conditions. Using the Renishaw Dynascan M250 mobile mapping system enables users to tackle large-scale industry-specific challenges with ease and confidence. The ability to harness otherwise difficult-to-access information means that with Dynascan M250 you can design increasingly complex, innovative, and therefore valuable unique ventures.

Rugged build quality, and deployment on board a wide range of multipurpose land- and water-based vehicles in under an hour, means Dynascan M250 can be used to reach otherwise dangerous or inaccessible locations quickly. Together with the ability to acquire 36,000 points per second per laser, with a 360° field of view, Dynascan M250 helps you to reduce project time scales as operators can arrive on site and immediately begin the safe, accurate and efficient acquisition of point cloud data.

Dynascan M250 applications



Unlike other systems that require permanent vehicle installation, Dynascan M250 is fully mobile.



Use the Dynascan M250 system to scan large rockfaces for fast and effective blast planning.



The system's 250 m range enables data acquisition from a safe distance in extreme areas.

Dynascan M250 is ideal for the long-range mapping of such extreme terrains as those presented by the quarrying and mining industry as well as the challenging scenarios associated with coastal and waterway environments. The system provides spatial data that enables you to identify, manage and complete projects safely and accurately.

Quarrying and mining

Dynascan M250 has a number of quarrying and mining applications that reduce the time spent in hazardous environments, thereby increasing worker safety and cutting operational costs.

The system's portability and long-range capabilities mean that a Dynascan M250 unit can be mounted to all kinds of quarry transport for the rapid, safe and accurate mapping of entire sites. The ever-changing nature of quarry landscapes means that sites often need to be scanned quickly to aid in the efficient planning of such operations as the re-routing of roads, positioning of heavy machinery, and surveying of blast materials and stockpiles. Using Renishaw's Dynascan M250 to quickly gain access to these challenging environments and extract the required spatial data makes it easier to manage activities and keep projects running.

Quarrying and mining applications include:

- Whole site mapping: quickly scan entire quarries for improved project management
- 3D rockface profiling: scan vast quarry walls in detail to help plan safer, more optimised blast designs
- Blast analysis: before-and-after blast mapping to monitor blast material
- Stockpile/volumetric surveys: measure stockpile volume, height, diameter and density to help calculate inventory, deliveries/collections, and prevent theft
- Limited and hazardous access surveys: long-range capabilities enable mobile mapping from a safe distance

Marine

Mapping the changeable and unpredictable marine environment can pose challenges for surveyors, but Dynascan M250 enables users to create complete surveys much quicker, making the process both easier and safer while also producing more useful information.

When using the incorporated hydrography software to combine above-ground lidar data with sonar-based bathymetry data, surveyors can create complete coastal datasets. The hydrographic nature of the Dynascan M250 acquisition software enables easy integration with multi-beam echo sounder equipment for the creation of a single survey of the terrain both above and below the waterline.

The system's 250 m range makes it ideal for those projects that require speedy scanning in locations where rocky outcrops, reefs, cliffs or a lack of landing facilities would otherwise make surveying impossible or hazardous.

The system's portability also means that you can switch between water-based vessels and small mobile platforms, and such land-based vehicles as quad bikes and 4x4s in order to plan your surveys around tidal changes if necessary. Coming in a single transit case the unit can be deployed quickly and securely in order to access these extreme environments.

Marine applications include:

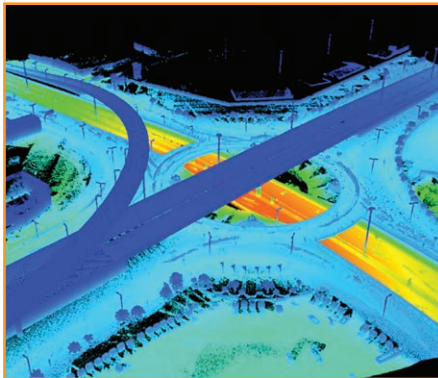
- Updating electronic navigation charts: use long-range laser scanning to create and monitor navigation charts without venturing into hazardous coastal zones
- Coastal mapping and erosion: compare old and new data to manage and monitor coastline changes
- Updating risk-management, maintenance and flood models: use historic data to predict future events
- River and canal surveys: scan and identify key features of canal and riverside areas to assist with urban planning
- Port and harbour surveys: collect detailed information above and below the waterline at the same time in these busy often highly populated waterways

Versatility for a range of applications

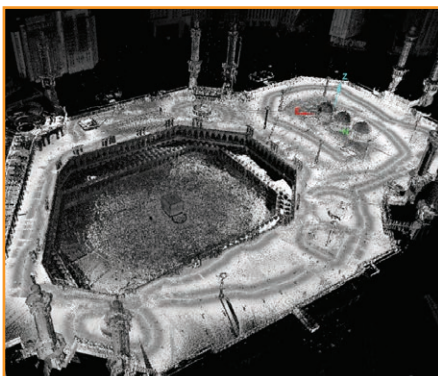
The Dynascan M250 system's low cost of ownership, ease of mobilisation and quality of mass data collection make it the ideal 3D mapping system for any other applications that benefit from the collection and analysis of mapping-grade spatial data. Dynascan data enables you to evaluate the feasibility of a variety of GIS engineering projects and plans, using digital terrain models and point cloud analysis to assess proposed route feasibility, cross-country pipeline surveys, and other planning and industrial design projects where inspections and terrestrial surveys would be less accurate and more costly.



The lightweight and portable Dynascan M250 offers the fast, long-range collection of 3D point cloud data in a 360° field of view.



Urban infrastructure can be mapped with high accuracy using the survey-grade Dynascan S250.



Use our Dynascan S250 system in the accurate mapping of topographical and heritage sites.

Dynascan S250 for accurate survey-grade 3D mapping

The accuracy and speed of Renishaw's Dynascan S250 survey-grade variant is ideal for 3D mobile mapping applications in the urban surveying and construction industries, in which objects need to be mapped quickly, safely and accurately.

The dual-head S250 Dynascan is designed for higher accuracy at road speeds, to enable greater use of the Dynascan S250 system on urban/highway surveying projects.

Dynascan S250 applications include:

- Utilities surveys
- Highway infrastructure surveys
- Cross-country pipeline surveys
- Urban mapping
- Bridge surveys
- Topographic mapping
- GIS data collection
- As-built surveys of oil and gas facilities
- Transport infrastructure surveys
- Scan to building information models (BIM)
- Bridge clearance surveys
- Industrial design and reverse engineering
- Brownfield updates and revamps
- Tunnel surveys
- Cut and fill earthworks surveys

To find out where the Dynascan S250 model is available, please contact us at spatialmeasurement@renishaw.com

Software and support

While laser measurement makes it possible to collect vast quantities of survey data much quicker than ever before, this can often be at the cost of increased data processing times. Renishaw's Dynascan mobile mapping system not only measures and records millions of geo-referenced data points efficiently and safely, but it also uses them to rapidly create detailed 3D maps, using a variety of CAD and point cloud processing packages.

Dynascan's software features include:

- Data cleaning and noise removal
- Digital terrain models (DTM) and contouring
- Volumetric calculations

Integration with third-party software enables:

- Vectorisation and feature extraction
- Preparation of CAD drawings and GIS datasets
- 3D modeling and texturing
- Image overlay and point cloud colourisation
- Visualisations and flythrough
- Change detection
- Bare earth and non-ground classification

Functionality

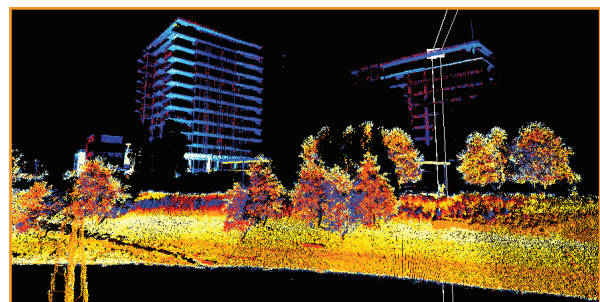
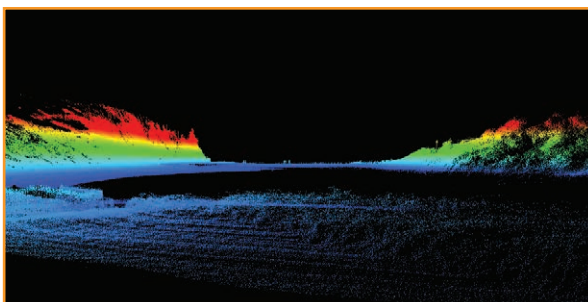
The system offers fast and easy integration with sonar and lidar equipment due to the hydrographic-based data acquisition software that enables simultaneous above- and below-waterline data acquisition for seamless data capture in challenging aquatic locations.

Useful software features include the replay function, which gives you the ability to replay data after changes have been made without losing the original raw data, offering operational flexibility and enhanced data capabilities.

Global support and training

Renishaw offers remote diagnostics support, which enables one of our experienced engineers to view your screen and perform instant software and hardware diagnostics wherever you are in the world.

Our customers also enjoy expert training and support provided by an experienced team of in-house surveyors. We offer training courses that are available at a venue to suit you, either on site at your location or at our offices in the UK, US, Canada and Australia.



Map offshore areas from a marine vessel or small mobile platform and dramatically reduce the time and money spent on surveying.

Dynascan M250's long-range capability ensures swift yet safe data capture, whether you're mapping a harbour or hazardous rocky outcrop.

About Renishaw

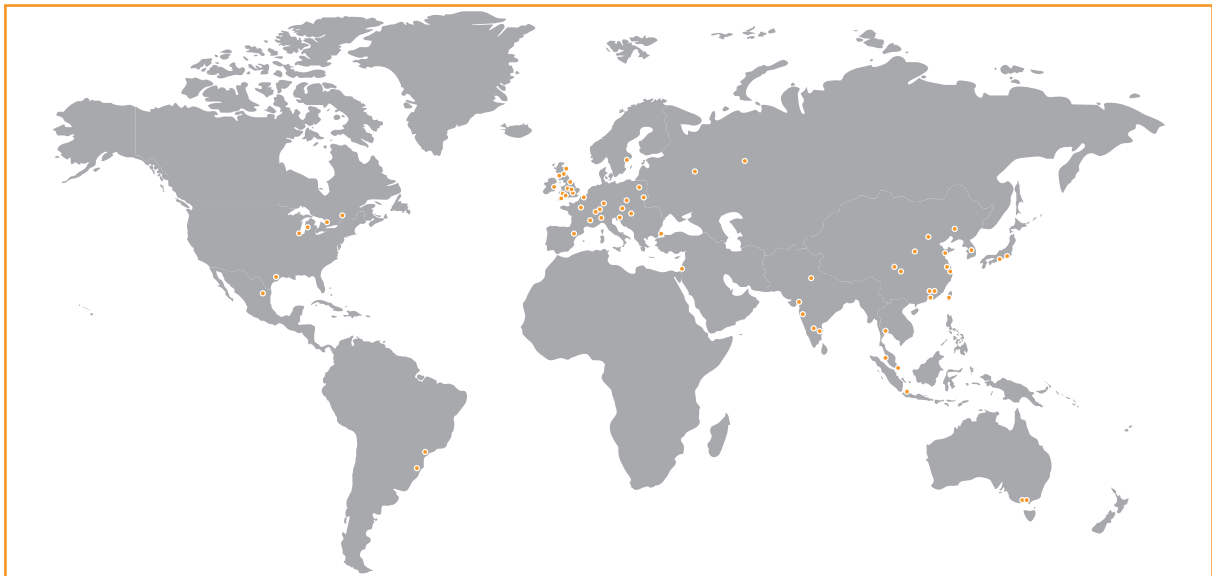
Renishaw is an established world leader in engineering technologies, with a strong history of innovation in product development and manufacturing. Since its formation in 1973, the company has supplied leading-edge products that increase process productivity, improve product quality and deliver cost-effective automation solutions.

A worldwide network of subsidiary companies and distributors provides exceptional service and support for its customers.

Products include:

- Additive manufacturing and vacuum casting technologies for design, prototyping, and production applications
- Dental CAD/CAM scanning systems and supply of dental structures
- Encoder systems for high accuracy linear, angle and rotary position feedback
- Fixturing for CMMs (co-ordinate measuring machines) and gauging systems
- Gauging systems for comparative measurement of machined parts
- High speed laser measurement and surveying systems for use in extreme environments
- Laser and ballbar systems for performance measurement and calibration of machines
- Medical devices for neurosurgical applications
- Probe systems and software for job set-up, tool setting and inspection on CNC machine tools
- Raman spectroscopy systems for non-destructive material analysis
- Sensor systems and software for measurement on CMMs
- Styli for CMM and machine tool probe applications

For worldwide contact details, visit www.renishaw.com/contact



RENISHAW HAS MADE CONSIDERABLE EFFORTS TO ENSURE THE CONTENT OF THIS DOCUMENT IS CORRECT AT THE DATE OF PUBLICATION BUT MAKES NO WARRANTIES OR REPRESENTATIONS REGARDING THE CONTENT. RENISHAW EXCLUDES LIABILITY, HOWSOEVER ARISING, FOR ANY INACCURACIES IN THIS DOCUMENT.

©2014 Renishaw plc. All rights reserved.

Renishaw reserves the right to change specifications without notice.

RENISHAW and the probe symbol used in the RENISHAW logo are registered trade marks of Renishaw plc in the United Kingdom and other countries. apply innovation and names and designations of other Renishaw products and technologies are trade marks of Renishaw plc or its subsidiaries. All other brand names and product names used in this document are trade names, trade marks or registered trade marks of their respective owners.



L - 5917 - 9002 - 01 - A

Issued: 0814 Part no. L-5917-9002-01-A