

Quarryman[®] Pro

The Carlson Quarryman Pro is the 3D laser-scanning system of choice for quarries around the world. It is intuitive to use, portable and rugged, and carefully designed and tested to make it robust enough to operate in the toughest environments.

Improves safety. Increases profitability. Made for the demanding quarry environment.

- Safe, long-range reflectorless surveying for blast planning, stockpile measurement, and whole site mapping
- Easily operated by one person, with very little training needed to use the system or the associated intuitive software
- Durable and reliable in tough environments – certified water and dust resistance with operating capabilities from -20 °C to +45 °C
- Light and portable for easy, one-man operation that can quickly be moved around and between sites by operators
- Scans entire rock faces in minutes as it measures and records thousands of data points, which can be sent directly to a USB drive
- Provides a manual point-and-shoot mode and an automatic laser-scanning mode (250 points per second) and can be integrated with blast design software packages and with LiDAR data collected from mobile mapping systems and UAVs
- Processes the collected data to create detailed 3D models, which can be edited, analyzed, and exported to specialist packages or other CAD software



Blast design, optimization, and evaluation

Scan a full rock face quickly with the Quarryman Pro and then use the data to plan:

- More accurate blasts, which eliminates the costs associated with over-using explosives
- Safer blasts that keep workers safe
- Legally compliant blasts, which have less impact on the external environment by minimizing noise and vibration
- Blasts with optimal fragmentation, which cuts transport costs for quarried rock and minimizes the waste associated with over-fragmentation
- Improved floor control, minimizing wear on tires and heavy mobile equipment

Detailed mapping

Use Quarryman Pro data to measure bench heights, level of crest and toe, slope angle, and maximum/minimum burden. This detailed mapping of a rock face increases safety as it enables the determination of actual burden across the face. This helps to avoid the problems associated with underestimating the burden, such as vibration and over-sized rock, and overestimating the burden, which can result in flyrock and airblast.

Plan blast layout

Determine the layout of the blast hole pattern using data from the Quarryman Pro, taking into account safety parameters, vibration limits, explosives to be used, and design floor elevations. The resultant blast design plan will specify the collar elevations, burden, spacing, drill hole diameter, type and quantity of explosives, and type and delay of detonations.

Drilling

Utilize Carlson Boretrak® borehole deviation tool to check that drilling has been carried out correctly as per the blast design, verifying the hole depth, heading, and inclination, to increase safety and improve final results.



Quarries around the world rely on **Quarryman Pro** to plan safer, quieter, more effective blasting operations.



Perform safer, quieter, more effective blasting using data acquired from **Carlson** laser systems.

Features and Applications



Quarryman Pro is dust-resistant and waterproof for performance even in extreme conditions



When used in combination with our **Boretrak** borehole deviation tool, **Quarryman Pro** enables the design of more productive blasts.

The must have on-site system for quarries for more than three decades, the Quarryman Pro has transformed on-site safety and improved post-blast workflow and minimized costs.

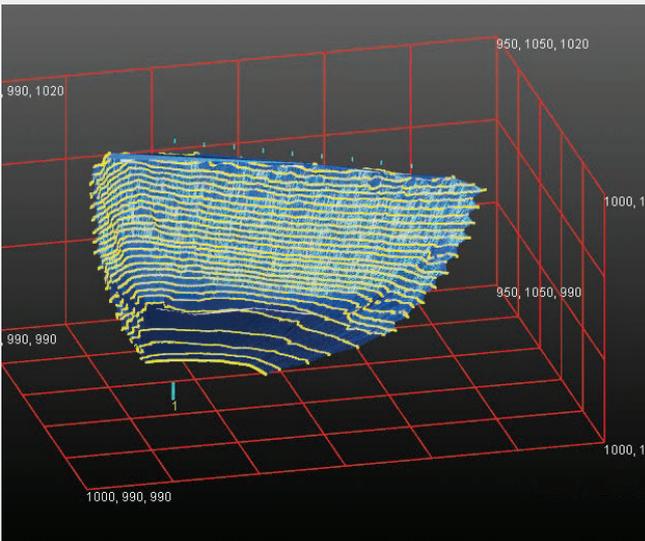
3D Map entire quarry or mine site

Fast, portable and rugged, the Quarryman Pro system provides scans that can be stitched together for a complete model of a site or for a quick and simple way to conduct necessary stockpile and volumetric surveys. The long range of the Quarryman Pro minimizes the number of instrument setups required and also reduces the operator time needed to complete surveys.

Utilize the Quarryman Pro to compile a complete 3D map of a constantly evolving, open-pit site to plan such operations as truck routes, siting of generators, crushers, or other equipment, and to report to local residents or other stakeholders at update meetings.

The Carlson Quarryman Pro offers the following features:

- A highly visible, full color sun-readable screen
- Data is saved to a USB for ease of data transfer, and enables holding many more files
- A GPS mount is built into the handle so that the Quarryman Pro can be geopositioned quickly, and easily maps point cloud data to other quarry surveys
- Minimal clicks for each operation greatly enhances work speed
- Auto date and time stamping helps users find files without needing to enter details.
- The battery issues a warning when low, but shuts down automatically if not recharged, retaining data for retrieval later
- The lightweight Li-ion battery provides at least four hours of scan time



Rock faces that are mapped by **Quarryman Pro** allow users to plan effective operations.



Quarryman Pro helps calculate stockpile surveys and plan deliveries and collections.

Quarryman Pro (short range)	Quarryman Pro (long range)
Scans up to 750 m	Scans distances up to 1200 m
Hardware designed and optimised for shorter range quarry applications	Hardware designed and optimised for longer range quarry applications and improved results against coal and other dark materials
Class 2M and Class 3R laser safety rating	Class 2M and Class 3R laser safety rating

Quarryman® Viewer Software

The intuitive Quarryman Viewer software offers increased flexibility and functionality as it speeds workflow:

- Clear, precise visuals enable quicker interpretation of data
- Automated point coding, traverse processing, and surfacing of single scans save time
- Ability to store most commonly completed functions makes it quick and easy to retrieve them for future projects
- Project tree gives easy access to, and control of, all data: scans, surfaces, observations, and stations
- Versatile import and export options together with user-preset filters reduce operator programming time

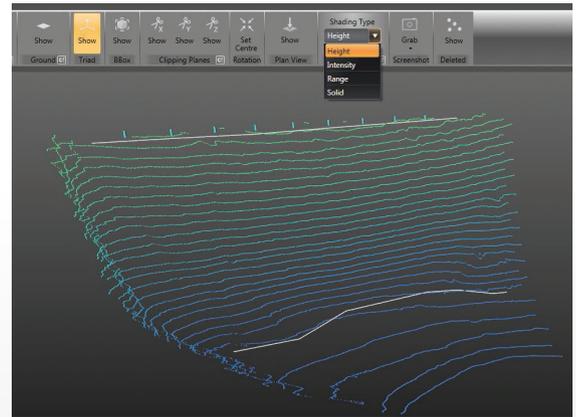
ABOUT CARLSON

Carlson Software is a global market leader in the production of comprehensive software for Mining, Civil Engineering, Land Surveying, Machine Control, GIS, and Accident Reconstruction as well as instruments with GNSS, optical, and laser technology. Its Laser Measurement Devices (LMD) division has three decades of industry experience designing and manufacturing laser products.

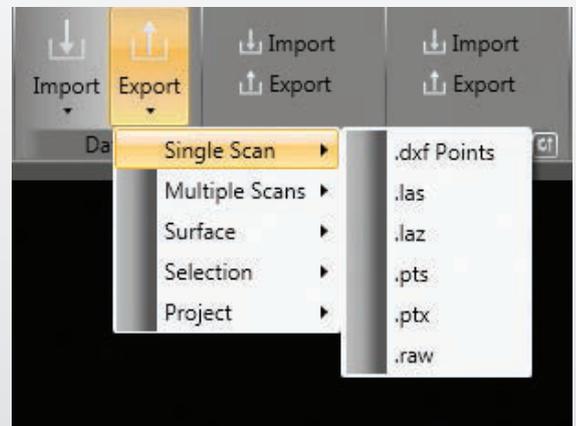
Founded in 1983, Carlson Software is headquartered in Maysville, Kentucky, U.S.A. Its worldwide network of subsidiary companies and distributors provides exceptional service and support for its customers.

Carlson LMD products include:

- Cavity Auto-scanning Laser System (C-ALS®)
- Cabled Boretrak®
- Rodded Boretrak®
- Quarryman® Pro
- Merlin
- Industrial Laser Module (ILM)
- Void Scanner



Quarryman software provides clear visuals for quicker interpretation of data.



Filters can be defined to obtain the data required. Data is then exported in multiple formats to all major CAD and point cloud packages.



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