

# Merlin

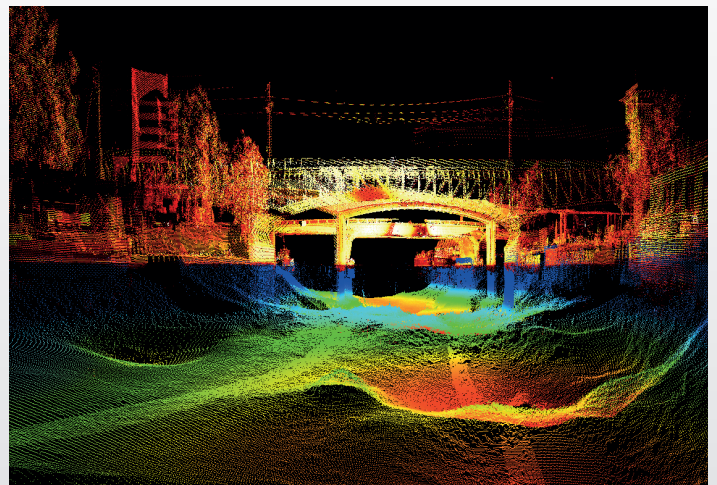
## Vessel-Based Laser Scanner



Merlin is the marine LiDAR (Light Detection and Ranging) system developed specifically for cost-effective and safer coastal, offshore and inland waterway surveying. Extremely robust, portable, and well-engineered, Merlin provides eye-safe, long-range laser scanning that enables the capture, processing, and analysis of geospatial point cloud data quickly and accurately.

### **Safer, faster, more efficient surveying with Merlin**

Seamless integration with existing echosounder technology enables the fast and effective acquisition of time-tagged survey data above and below the water simultaneously.



BREAK NEW GROUND

## Map the full environment in a single survey

Information acquired by Carlson's time-tagged Merlin marine laser scanner combines seamlessly with bathymetric echosounder data for complete datasets that reveal the full landscape above and below the waterline in the same survey.

Obtaining a full 360° point cloud with Merlin quickly and safely:

- **Speeds up** project timescales,
- **Minimizes the amount** of time crew spend in potentially hazardous areas, and
- **Reduces the surveying costs** associated with complex vessel-based surveying assignments.

### Key Features

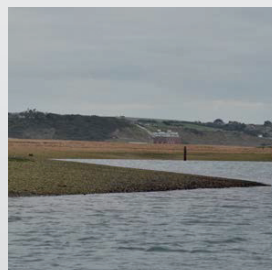
- **IP66 (EN 60945)** water and dust resistance
- **250 m** laser range (maximum)
- **±1 cm** laser accuracy
- **360°** field of view

### Key Benefits

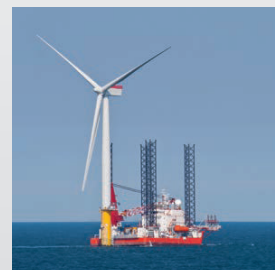
- **Saves on setup:** Seamless integration with existing hardware and software means no need to duplicate equipment, infrastructure, or technologies already owned.
- **Minimizes training costs:** The low maintenance plug-and-play Merlin system is easy to install and operate, eliminating the need for specialist training. It is also compatible with industry-standard software packages.
- **Improves worker safety:** Fast installation, deployment, and speed of data capture reduce the amount of time spent in potentially hazardous marine environment.



The custom-made mounting plate ensures rapid installation and deployment



Accurately manage and monitor coastal erosion by comparing new and old data with ease.



The portable Merlin laser scanner can be deployed for offshore surveying in remote locations.



The marine surveying industry needs a dedicated marine laser scanner for high-performance data acquisition in extreme environments.



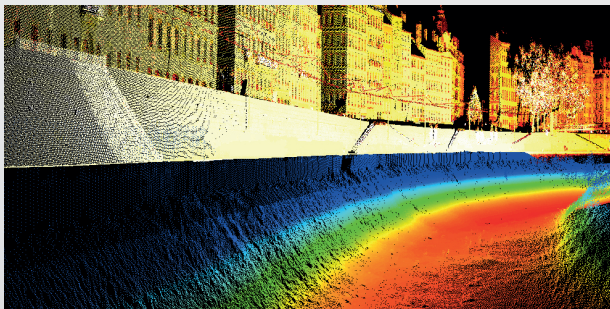
## Safe, flexible, and easy to operate for a wide range of applications

Merlin is ready to install out of the box with no customization required. The mounting plate can either be permanently welded into place or attached temporarily to a mast or cabin roof by three simple screws.

Merlin's 250 m range\* addresses the challenges of safely and accurately mapping the full landscape above the waterline – including the shoreline, coastal features, manmade structures, and more – as it enables accurate data acquisition from a safe distance. These challenges include avoiding hazardous natural features and dealing with unpredictable weather conditions.

Merlin also comes with its own diagnostic tool, which can be used to set up the system with existing infrastructure, such as port numbers and IP addresses. It also enables operators to select and test a timing source and troubleshoot.

\* Passive range limit is target (reflectivity) dependent (to a 90% reflective target where the entire laser spot falls upon the target).



Merlin supports faster and more accurate data collection, minimizing the amount of time operators need to spend in the field.

### Many uses for Merlin's high-quality 3D data

- Monitoring coastal change by comparing old and new information
- Creating navigation charts without venturing into hazardous coastal zones
- Updating risk management and flood models to predict future events by using historic data
- Assisting with urban planning with identification of key marine features
- Collecting detailed information safely and quickly from high traffic waterways

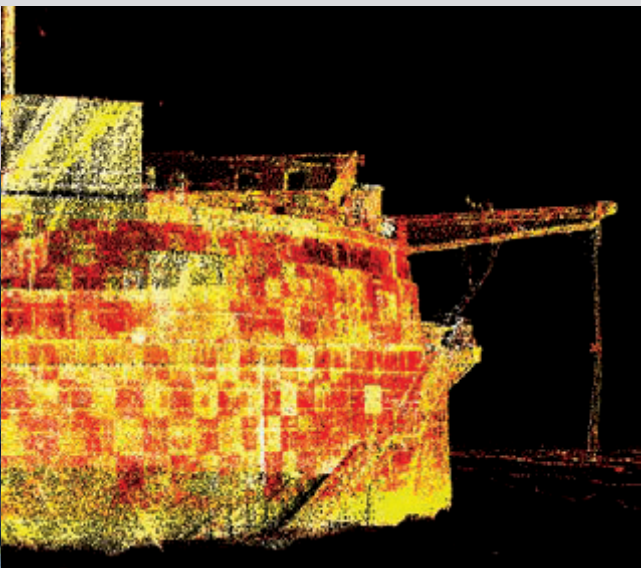
### Connect an additional sensor

The option to connect a second Merlin unit via a specialized top-side interface box further helps to reduce project timelines and improve point cloud density. Benefits of deploying two Merlin units on one vessel include:

- Reducing the amount of shadowing encountered during scanning
- Enabling the capture of more points per second for more detailed datasets in a shorter amount of time
- Increasing the quality and quantity of scan data that can be captured, for improved decision making



The Merlin marine laser scanner provides high-performance range accuracy and marine resistance.



With improved data you can better analyse the landscape for complex mapping projects with ease and confidence.

## Merlin: Compatible with all major software

The Merlin vessel-based lidar system quickly measures and records time-tagged geo-referenced data points, which can then be calibrated and processed into a finished point cloud by the following packages:

- HYSWEEP® multibeam collection and editing software from HYPACK®
- NaviScan and Kuda sonar and laser data acquisition software from EIVA
- QINSy hydrographic data acquisition software from QPS
- Teledyne PDS software for hydrographic survey and dredging operations



The processed point cloud can then be exported in formats such as LAS or XYZ into a CAD package such as Carlson Point Cloud, to Carlson P3D Topo to produce a 3D model, create surfaces, or to export to other file formats including DXF or DWG.

Merlin's universal interface ensures operator familiarity and ease of use.

## Global support and training

Carlson provides expert training and support provided by our team of in-house surveyors and engineers at your location or at our offices in the UK, USA, Canada, and Australia. We also offer remote diagnostics support to perform instant software and hardware diagnostics from our offices to yours anywhere in the world. Please contact us at [lasermeasurement@carlsonsw.com](mailto:lasermeasurement@carlsonsw.com) for more information.

## 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 is renowned for providing exceptional service and support for its customers.

## Companion products suggested for Carlson Merlin include,

- **Carlson Point Cloud** - powerful automation for large data sets; gives laser scanner users the ability to process millions of data points.
- **Carlson Precision 3D Topo** - import point clouds, lidar and survey data, from a wide variety of programs to create usable 3D surfaces.
- **Carlson Civil** - provides robust automation, ease-of-use, and true, easy-to-use 3D; works with AutoCAD® or IntelliCAD®.

For worldwide contact details, visit [www.carlsonsw.com](http://www.carlsonsw.com)

**CLASS 1  
LASER PRODUCT**