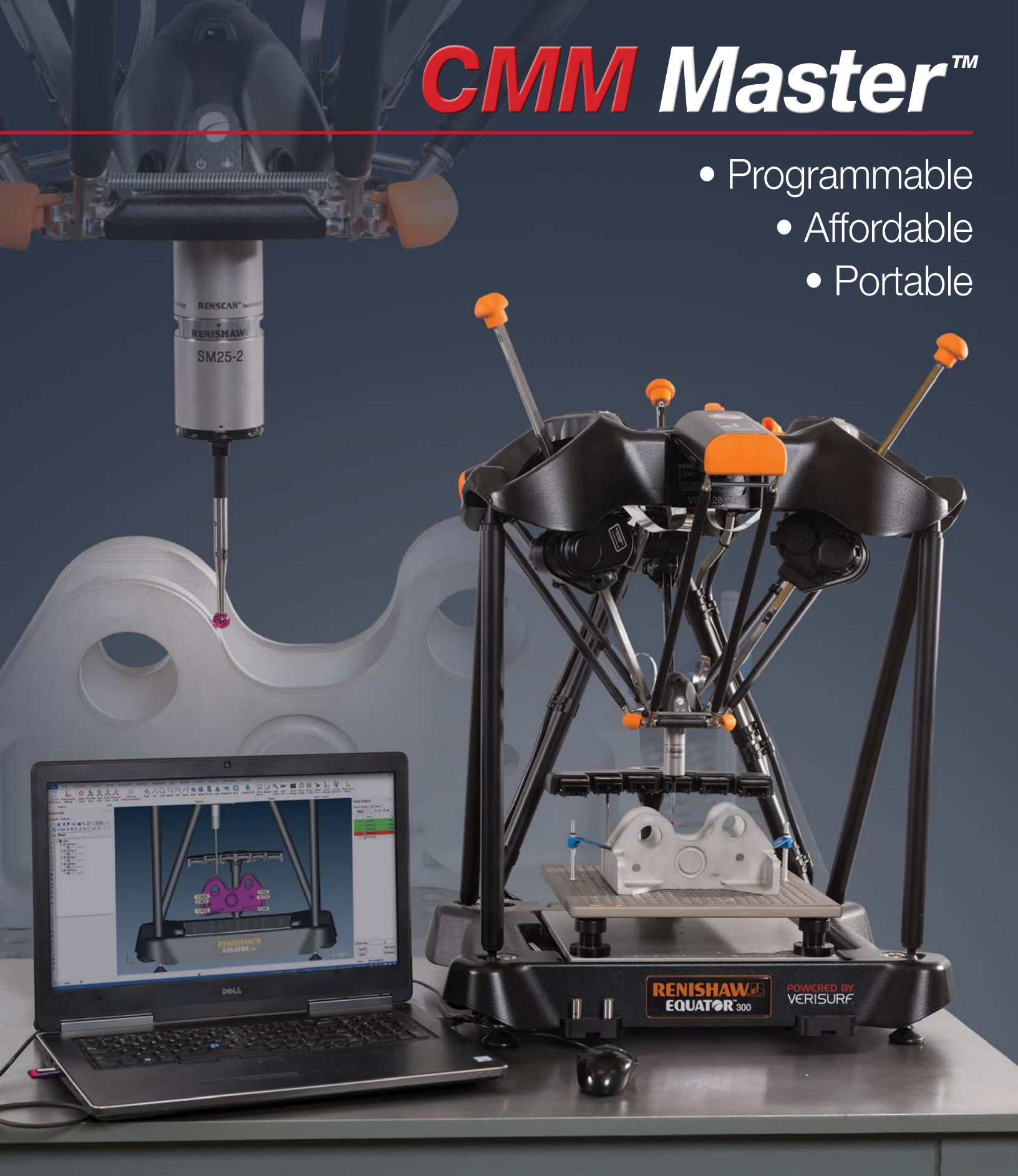


CMM Master™

- Programmable
- Affordable
- Portable



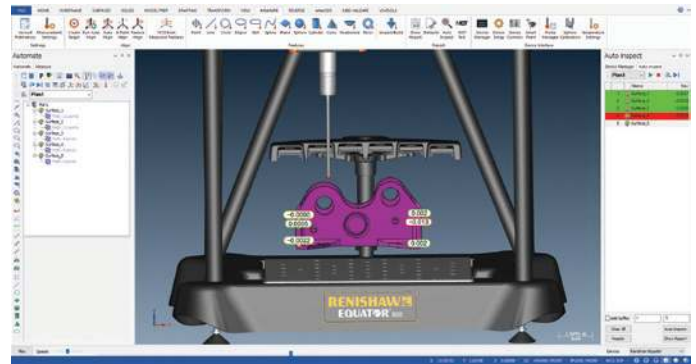
Automated Shop Floor Inspection

POWERED BY
VERISURF.

Flexible Shop Floor Inspection System

The CMM Master™ based on the Renishaw Equator™ and powered by Verisurf AUTOMATE software increases shop floor productivity, reduces scrap and replaces multiple single use fixture gages at a fraction of the cost of traditional CMM systems. Portability, compact footprint, single phase power and no compressed air requirement makes this system ideal for flexible shop floor inspection and automated production cells.

- Lightweight, portable—goes where you need it
- Plug and play for ease of setup and use
- Joy stick for teach mode or manual inspection
- Parallel Kinematic Machine design for high speed measurement, superior repeatability, and low power consumption



routines probe points and paths can be created and edited dynamically on CAD features or surfaces including specialized routines for helical and radial features. An intuitive user interface helps users learn quicker, program routines faster and automate their inspection process.

- **Online and Offline Part Programming**—Programs can be created offline from CAD or online in “teach” mode using the CMM joystick
- **Multiple Part Alignment Methods**—Align parts from simple 3-2-1, feature fitting or iterative best fitting
- **Full Simulation and Collision Detection**—Verisurf AUTOMATE can simulate all measurement routines including probe scanning to identify and repair work piece collisions before they occur.
- **Flexible Reporting Options**—Verisurf AUTOMATE can automatically generate AS9102 First Article Inspection Report; inspection data can also be exported to other popular presentation formats including, Microsoft® Word®, PowerPoint® and Adobe® 3D PDF Viewer™.



VERISURF SOFTWARE INCREASES ACCURACY

Verisurf software increases the accuracy of the Renishaw Equator with Cubic Volumetric Mapping. The unique software technology utilizes a 24 parameter calculation to volumetrically error map the 3D measurement volume, making the CMM Master more accurate than the standard Equator. Every CMM Master comes with calibration certificate and 12 month factory warranty.

SOFTWARE DRIVEN COMPARATOR PROCESS

CMM Master includes a unique software driven gaging comparator process by measuring a ‘known to be good master reference part’ then comparing subsequent production parts to the master. This further reduces costs and increases inspection flexibility by replacing hundreds of single use hard gages.

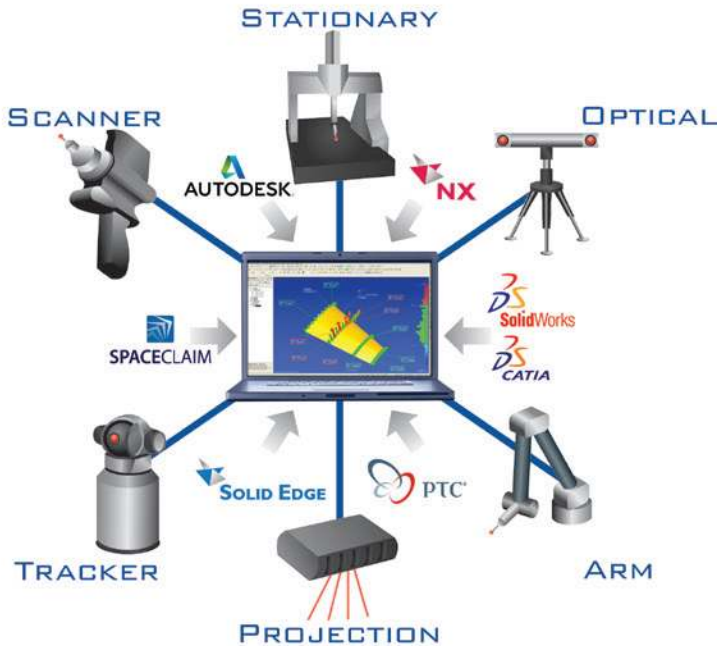
THE POWER OF VERISURF AUTOMATE SOFTWARE

Verisurf AUTOMATE provides a 3D programming environment that includes an object oriented operations manager, CAD feature extraction and solid model associativity. Ease of use and productivity is enhanced with file recognition, logical right mouse click options, customizable user configurations and drag and drop reordering of operations. When creating inspection



BASED ON A CAD PLATFORM

Verisurf AUTOMATE is a complete coordinate measurement CAD system with 3D surface modeling, traditional 2D drafting and 3D model associative GD&T. With Verisurf you can open any CAD model, including STL files to create inspection routines for 3D printed prototypes and additive manufactured parts. The same measurement plan used to run the CMM Master can be used with all brands and models of portable CMM Arms, Scanners, Laser Trackers,



VERISURF IS TESTED TO INTERNATIONAL STANDARDS

Verisurf software supports the National Institute of Standards and Testing (NIST) Algorithm Testing and Evaluation Program for Coordinate Measuring Systems (ATEP-CMS).

ASME B89.4.10-2000, Methods for Performance Evaluation of Coordinate Measuring System Software—provides the specification for testing basic least squares fitting algorithms for CMM software.

Verisurf is tested by the Physikalisch-Technische Bundesanstalt (PTB) which is the supreme authority for accurate and precise measurement in Germany.



VERISURF SOFTWARE FLEXIBILITY

Verisurf software modules are configured into unique solution suites designed to fit any 3D metrology application or budget.



Optical Trackers and stationary CMM's. Whether the measurement job is on the shop floor or in the QA lab this high level of interoperability empowers the inspection technician to choose the ideal measurement system for each job.

STANDARD OR EXTENDED VOLUME

There are four models and a variety of accessories to customize your CMM Master™ system.



Working Volume (X x Y x Z)	300mm x 300mm x 150mm (11.81in x 11.81in x 5.90in)	300mm x 300mm x 300mm (11.81in x 11.81in x 11.8in)	500mm x 500mm x 250mm (19.7in x 19.7in x 9.8in)	500mm x 500mm x 400mm (19.7in x 19.7in x 15.7in)
Footprint (W x D)	570mm x 500mm (22.44in x 19.68in)	570mm x 500mm (22.44in x 19.68in)	924mm x 920mm (36.4in x 36.2in)	924mm x 920mm (36.4in x 36.2in)
Max Workpiece & Fixture Weight	25 kg (55.11lb)	25 kg (59.52lb)	100kg (220.5lb)	100kg (220.5lb)

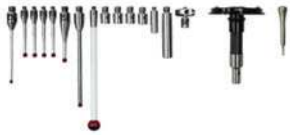
CMM MASTER SPECIFICATIONS

Volume accuracy specification (Vertical probe styli and Verisurf CVM)	+/-0.0127 mm (.0005 in)
Maximum scanning speed	100 mm/s (3.937 in/s)
Maximum movement speed	500 mm/s (19.685 in/s)
Scanning rate	1000 points/s
Scale resolution	+/- 0.0002 mm (.0000079 in)
Machine air supply requirement	No air required
Operating temperature	+10 to +40 C (+50 to +104 F)
Storage temperature	-25 to +70 C (-13 to +158 F)
Relative humidity operating range	Maximum 80% RH at 40 C (104 F), non-condensing
Machine electrical supply requirements	100-240 V AC \pm 10 %, 50-60 Hz
Maximum power consumption	190 W
Typical power consumption	80-100 W
Probe type	Renishaw 3-axis SP25 analogue scanning
Fixture plate	305 mm x 305 mm (12 in x 12 in) aluminum
Maximum work piece weight	25 kg (55 lb)

PROBE ACCESSORIES

Commonly used probes are available in three versions, at package prices lower than the sum of the contents. The kits have been designed to provide a storage solution for up to six assembled probe tools. With all the kits contained within the same box, extra probes can be stored in the spare locations. All probes are also available separately. M3 probes are intended for use in straight configurations, while lighter M2 probe and adaptors are included for cranked and star probe applications.

Basic Probe Kit– Contains the most commonly used probes.



Intermediate Probe Kit– Includes all the probes in the basic kit, plus more specialized probes and accessories.



Advanced Probe Kit– Includes all the probes in the intermediate kit, plus more specialized probes and accessories.



Verisurf Authorized Distributor

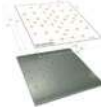
STANDARD ACCESSORIES



Warranty– 12 months



6 Position Probe Rack– The standard 6 position auto change rack can automatically change probes while retaining full repeatability and does not require probe calibration between measurement sequences or different parts.



Fixture Plates– The standard system comes with your choice of M6 or 1/4" - 20 plate. Additional fixture plates for mastering or calibration are available.



MCUlite-2 Joystick– This ergonomic joystick manually controls the probe within the working volume and includes speed override and the ability to lock movement in x, y or z directions.



SP25 Probe– SP25 5mm ruby ball straight stylus 3-axis analog scanning probe.

OPTIONAL ACCESSORIES



Stop Button

The large stop button is an alternative configuration to the joystick. It is easily attached to the front of the CMM Master.



Enclosure Accessories

The optional CMM Master enclosure provides a self-contained gauging station with an optimized footprint, configurable to individual customer requirements.

- **Standard top unit**– with high level access door for cleaning.
- **Standard base unit**– with levelling feet and shelf for controller.
- **Monitor bracket**– height adjustable on left or right side of top unit.



Fixture Accessories

Fixture components can be easily positioned for minimal contact on and around the part, providing an unobstructed probe path for inspecting every detail.



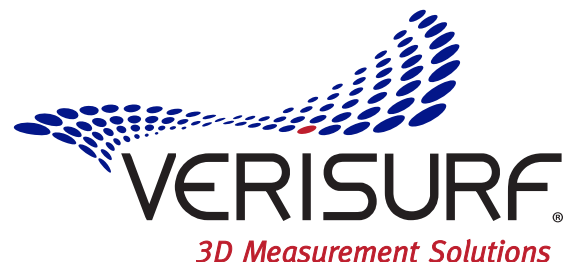
- **Fixture plates**– Two fixture plate spacer options raise the kinematic location of the fixture plate by 55 or 150 mm— ideal if gauging small parts or using short probe.



- **Modular kits**– Using modular fixtures can improve the throughput, reproducibility and accuracy of your inspection process with quick and repeatable fixture set-ups that are easy to configure.



Cleaning Kit– The cleaning kit provides everything needed to ensure the clean and reliable running of the CMM Master. The cleaning kit includes replacement dust filters and cleaning products are non-abrasive and non-corrosive.



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