

FARO® 8-Axis Design ScanArm 2.5C

Breakthrough Color Scanning and Unmatched Efficiency for 3D Design

High-Performance 3D Scan-to-CAD Solution for Product Development and Computer Graphics

The FARO 8-Axis Design ScanArm 2.5C is the only integrated remote axis portable 3D visualization and rendering solution, capable of measuring in full color for 3D modeling, reverse engineering and CAD-based design applications across the product lifecycle management (PLM) process. FARO's advanced 3D scanning technology with the 8-Axis Design ScanArm now features the new FARO PRIZM Laser Line Probe offering a turnkey solution to deliver high-resolution color point-cloud data. Users now have more insight into the object's design and creation, geometry, surface composition and visual differentiation between materials. Captured scan data can be used for high-quality 3D visualizations of real-world objects in gaming and movies. The eighth-axis offers an unprecedented ergonomic experience with real-time rotation of the object being scanned – eliminating wasted time, reducing risk to delicate objects, and supporting more complete scan output. The 8-Axis Design ScanArm 2.5C is the ideal solution for any organization that may have the need to develop or manufacture parts and after-market products characterized by different coatings, materials, co-molded parts or surfaced finishes without existing CAD models. Users can also reverse engineer legacy parts to design changes or replacement, create digital libraries to decrease inventory and warehouse costs, design aesthetically pleasing free form surfaces or leverage the power of rapid prototyping.



Features & Benefits

Full Color Capture

The FARO PRIZM Laser Line Probe provides full color values to the point cloud.

Rapid Scanning Speed

The FARO PRIZM Laser Line Probe HD provides expanded coverage and high speed scanning up to 600,000 points per second; while the eighth-axis allows for capture with only small user movements, reducing repositioning needs and reducing time it takes to scan.

High Precision Scanning

Features volumetric accuracy up to 75 microns for confidence that real world designs match the dimensions and detail of the source objects.

Optimized Measurement Volumes

Available in lengths of 2.5 m, 3.5 m and 4.0 m, to deliver the highest precision and easiest handling for the specific application needs.

Ultimate Portability

Optional dual hot swappable batteries enabling continuous operation anywhere without the need for external power.

Lightweight, Maneuverable and Ergonomic

Enhanced ergonomics and an overall weight optimization increases maneuverability and productivity over extended periods of operation. With the ability to rotate, in real-time, the component being measured, the optional 8-axis dramatically improves ergonomic functionality and ease-of-use.

Ideal Applications

Historical Preservation and Digital Archiving

Create digital libraries with greater detail for preservation and virtual display or decrease mold inventory and warehouse costs that can be reproduced as needed in the future.

Industrial Design / Clay Modeling

Easily digitize complex, organic, challenging shapes for quick iterations to design aesthetically pleasing and functional freeform surfaces.

Product Visualization

Create a color 3D model for visual display such as web catalogs, competitive analysis and product marketing.

Special Effects, Movies and Games

Capture and digitize objects and props in full realistic detail to be used in digital visualization for entertainment projects such as movies and gaming.

3D Printing / Rapid Prototyping

3D scan data can easily produce a watertight, 3D printable mesh or scale model to feed directly into a 3D printer.

Aftermarket Products

Quickly and accurately scan OEM parts enabling the efficient design of aftermarket products in CAD based directly on the geometry of the mating part.

Maintenance, Repair, and Overhaul (MRO)



Conduct wear and tear analysis and create as-built documentation on parts and tooling prior to maintenance efforts and create custom fit replacements for critical repairs.

Reverse Engineering and CAD Reconstruction

Quickly digitize legacy parts to support design changes, replacements, incorporation into new designs, or to perform competitive analysis.

Software

The FARO Design ScanArm 2.5C can be bundled with FARO RevEng™, 3D System's® Geomagic® software as well as other 3rd party software packages.

Software Package Key	Capabilities
 FARO RevEng	FARO RevEng provides a complete scan capture to mesh solution with advanced tools to edit and refine meshes to prepare for 3D printing or export to CAD modeling software. Additional features include offsetting and extracting curves from mesh and cutting cross-sections for use as sketches in the model development process.
 Geomagic Software	Geomagic Wrap provides an effective scan-to-mesh solution. Design X creates a model that can be transferred to most popular CAD systems. Geomagic for SOLIDWORKS enables direct scanning into SOLIDWORKS where automated wizards easily create accurate feature-based solid parts (not capable of texture capture).

Laser Line Probe Specifications

Scan Modes:	3D Points HDR ON/OFF Texture ON/OFF Texture in Color or Grayscale
Scan Rate:	Up to 2,000 points per line/frame x up to 300 frames per second (fps) = 600,000 points per second (pps)

Model Types		HDR Scan Mode	Texture Scan Mode	Frame Rate	Scanning Speed
2.5	2.5C				
X	X	OFF	OFF	Up to 300 fps	600,000 pps
X	X	ON	OFF	Up to 150 fps	300,000 pps
	X	OFF	ON	Up to 120 fps	240,000 pps
	X	ON	ON	Up to 60 fps	120,000 pps

Stand Off:	115 mm
Depth of Field:	115 mm
Effective Scan Width:	Near field 80 mm Far field 150 mm
Minimum Point Spacing:	40µm
Laser:	Class 2

Hardware Specifications

Design ScanArm 2.5C

Operating Temp Range:	10°C - 40°C (50°F - 104°F)
Temperature Rate:	3°C/5 min (5.4°F/5 min)
Operating Humidity Range:	95%, non-condensing
Power Supply:	universal worldwide voltage; 100-240VAC; 47/63Hz

ScanArm Weight:	2.5m: 9.5kg/20.9lb, 3.5m: 9.6kg/21.2lb, 4.0m: 9.8kg/21.5lb
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8-Axis

8-Axis Weight:	8-Axis with plate 9.35lb/4.24kg 8-Axis without plate 6.6lb/2.99kg
8-Axis Height:	230mm (9.0 in)
Plate Diameter Width:	250mm (9.8 in)
Max Load (Centered):	220lb/100kg

Performance Specifications

ScanArm Accuracy	
Measurement Range	System Accuracy ¹
Design ScanArm 2.5C 2.5 m (8.2 ft)	0.075 mm (0.0030 in)
Design ScanArm 2.5C 3.5 m (11.5 ft)	0.110 mm (0.0043 in)
Design ScanArm 2.5C 4.0 m (13.1 ft)	0.130 mm (0.0051 in)

All values represent MPE (Maximum Permissible Error)

¹ System accuracy: determined by scanning / probing a single sphere from multiple orientations and represented the maximum deviation of sphere position or by comparing measured versus nominal values between two points within the arm volume.



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