

# FARO® 8-AXIS QUANTUM SCANARM

The All-In-One Contact/Non-Contact Portable Measurement Solution

Through simple plug-and-play, users can attach the FAROBlu™ or Prizm™ Laser Line Probe to the FARO Quantum FaroArm®, creating an all-in-one measurement solution: The Quantum ScanArm. The FAROBlu or Prizm Laser Line Probe can be used in conjunction with the FARO 8-Axis Quantum FaroArm, the first – and only – eight-axis portable metrology solution available on the marketplace. The resulting FARO 8-Axis Quantum ScanArm offers a comprehensive, contact/non-contact metrology solution, which allows users to significantly speed up and simplify their measurement and scanning activities. Both the 8-Axis Quantum ScanArm and the Quantum ScanArm provide point cloud capture with rapid speed, superior resolution and high accuracy. They are ideal for inspection and quality control, offering a perfect solution for point cloud comparison with CAD, rapid prototyping, reverse engineering and 3D modeling of free-form surfaces.

The FAROBlu Laser Line Probe uses optically-superior blue laser technology. Users can choose between two different options for their FaroArm: The Quantum combined with the FAROBlu Laser Line Probe HD (High Definition) delivers unparalleled non-contact measurement capabilities, providing the highest fidelity point cloud data at high speed. The Quantum in combination with the FAROBlu Laser Line Probe SD (Standard Definition) offers an entry-level ScanArm solution featuring the same best-in-class FAROBlu technology at an excellent price/performance ratio. The FARO Prizm Laser Line Probe delivers high-resolution, 3D color scanning and allows users to view, inspect and manipulate detail-rich, 3D color point clouds of parts or assemblies. The Quantum combined with the Prizm Laser Line Probe provides the high fidelity required for accurate color point cloud data capture and is ideally suited for inspections where color data and visualization of surface texture are essential for analysis and documentation. Additionally, users can switch to grayscale or monochromatic modes, which provide options for higher scanning rates. The accuracy specifications for the complete Quantum FaroArm product line with FAROBlu or Prizm are certified according to ISO 10360-8 for non-contact CMMs. FARO is the only portable measurement arm manufacturer that publishes its non-contact accuracy specifications according to this standard.



Prizm Laser Line Probe



FaroBlu Laser Line Probe

## FAROBlu and Prizm Features

### Blue and Green Laser

The FAROBlu Laser Line Probe leverages an optically-superior blue laser technology. The blue laser has a shorter wavelength compared to red laser and delivers improved scanning results with higher resolution thanks to its greater ability to discover smaller details in an object. The blue laser also provides a 50% reduction in speckle noise compared to a red laser. In contrast, the Prizm Laser Line Probe takes advantage of green laser technology's ability to provide high color visual definition to deliver color scanning capabilities for high resolution color point cloud data capture and analysis.

### Advanced Sensor

The FAROBlu and Prizm LLP camera uses the most advanced CMOS technology to deliver fast frame rate (the number of times per second that the camera gathers new data on the part being scanned) of up to 300 frames per second (fps) (FAROBlu HD).

### Laser Line Width

The FAROBlu and Prizm Laser Line Probes feature laser line width of 150mm. The extensive line width scans a larger area, delivering fast and efficient scanning. Additionally, the Laser Line Probes feature solid, blue or green laser beam generated without the use of moving components which can be sensitive to vibration, potentially inducing errors in accuracy.

## Benefits

### Fast Scanning Speed

The extra wide scan stripe and fast frame rate boosts productivity by increasing coverage and reducing scanning time. Combined with the 8-Axis rotation of objects in real-time, the scanning process itself is even faster.

### Scan Challenging Materials

Seamlessly scan across diverse surface materials regardless of contrast, reflectivity or part complexity without any special coatings or target placement.

### High Definition Data

Intricate components can be captured in fine detail as a result of the 2,000 actual points per scanline (FAROBlu HD) and the FAROBlu Laser Line Probe featuring noise reduction technology.

### Color Scanning

High resolution, 3D color scanning for vivid, real world visualization and CAD reconstruction of parts and assemblies with the FARO Prizm Laser Line Probe.

## Specifications

FAROBlu Non-Contact Measurement (ScanArm)* L <sub>DIA</sub>			
Measurement Range	HD	SD	Prizm
Quantum <sup>S</sup> 2.5m (8.2ft)	0.048mm (0.0019in)	0.048mm (0.0019in)	0.055mm (0.0022in)
Quantum <sup>S</sup> 3.5m (11.5ft)	0.080mm (0.0031in)	0.080mm (0.0031in)	0.092mm (0.0036in)
Quantum <sup>S</sup> 4.0m (13.1ft)	0.092mm (0.0036in)	0.092mm (0.0036in)	0.106mm (0.0042in)
Quantum <sup>M</sup> 2.5m (8.2ft)	0.058mm (0.0023in)	0.058mm (0.0023in)	0.068mm (0.0027in)
Quantum <sup>M</sup> 3.5m (11.5ft)	0.090mm (0.0035in)	0.090mm (0.0035in)	0.115mm (0.0045in)
Quantum <sup>M</sup> 4.0m (13.1ft)	0.115mm (0.0045in)	0.115mm (0.0045in)	0.120mm (0.0047in)
Quantum <sup>E</sup> 2.5m (8.2ft)	0.075mm (0.0030in)	0.075mm (0.0030in)	0.082mm (0.0032in)
Quantum <sup>E</sup> 3.5m (11.5ft)	0.110mm (0.0043in)	0.110mm (0.0043in)	0.130mm (0.0051in)
Quantum <sup>E</sup> 4.0m (13.1ft)	0.130mm (0.0051in)	0.130mm (0.0051in)	0.155mm (0.0061in)

All values represent MPE (Maximum Permissible Error)

\* Non-Contact Measurement (ScanArm and ScanArm + 8-Axis):  
Full System performance based on ISO 10360-8 Annex D

L<sub>DIA</sub> – Sphere Location Diameter Error (Diameter of the spherical zone containing the centers of a sphere measured from multiple orientations)

## Hardware Specifications

Operating temp range:	10°C - 40°C (50°F - 104°F)
Temperature rate:	3°C/5min (5.4°F/5min)
Operating humidity range:	95%, non-condensing
Power supply:	Universal worldwide voltage; 100-240VAC; 47/63Hz

## Applications

Alignment | Dimensional Analysis | CAD-Based Inspection | First Article Inspection | Incoming Inspection | In-Process Inspection | On-Machine Inspection | Part Inspection | Final Inspection | Part Certification | Prototype Part Scanning | Reverse Engineering | Tool Building & Setup | Mold and Die Inspection

## Typical Industries

Aerospace | Automotive | Metal Fabrication | Molding/Tool & Die | Woodworking | Plastics | Toy Manufacturing

## Laser Line Probe & Color Laser Line Probe Specifications

	FAROBlu HD	FAROBlu SD	Prizm		
Accuracy	±25µm (±0.001in)	±25µm (±0.001in)	±30µm (±0.0012in)		
Repeatability	25µm, 2σ (0.001in)	25µm, 2σ (0.001in)	30µm, 2σ (0.0012in)		
Stand-off	115mm (4.5in)	115mm (4.5in)	115mm (4.5in)		
Depth of field	115mm (4.5in)	115mm (4.5in)	115mm (4.5in)		
Effective scan width	Near field 80mm (3.1in) Far field 150mm (5.9in)	Near field 80mm (3.1in) Far field 150mm (5.9in)	Near field 80mm (3.1in) Far field 150mm (5.9in)		
Points per line	2,000 points/line	1,000 points/line	2,000 points/line		
Minimum point spacing	40µm (0.0016in)	80µm (0.0031in)	40µm (0.0016in)		
Scan rate	300 frames/second, 300 fps x 2,000 points/ line = 600,000 points/sec	120 frames/second, 120 fps x 1,000 points/ line = 120,000 points/sec	Color	Grayscale	Monochromatic
			120 frames/second, 120 fps x 2,000 points/line = 240,000 points/sec	120 frames/second, 120 fps x 2,000 points/line = 240,000 points/sec	300 frames/second, 300 fps x 2,000 points/line = 600,000 points/sec
Laser	Class 2	Class 2	Class 2		
Weight	485g (1.1lb)	485g (1.1lb)	485g (1.1lb)		

Accuracy and repeatability specified at Full Field of View (FOV)

Certifications: Meets OSHA requirements, NRTL TÜV SÜD C-US Listed, Complies with Electronic Code of Federal Regulations 47 CFR PART 15, 17 CFR Parts 240 and 249b-Conflict Material, 21 CFR 1040 Performance standards For Light-Emitting Products, and 10 CFR Part 430 -Department of Energy; Energy Conservation for External Power Supplies. Complies with the following EC Directives: 93/68/EEC CE Marking; 2014/30/EU Electrical Equipment; 2014/53/EU Radio Equipment Directive; 2011/65/EU RoHS2; 2002/96/EC WEEE; 2006/66/EC WEEE; 2006/66/EC Batteries and Accumulators; 2014/35/EU Low Voltage Directive; 2009/125/EC Ecodesign requirement. Conforms to the following standards: EN 61010-1:2010 / CSA-C22.2 No. 61010-1; EN 61326-1:2013 EMC; ETSI EN 300 328 V2.1.1; ETSI 301 489-1 V1.9.2; ETSI 301 489-17 V2.2.1; ETSI EN 62311:2008; IEEE 802.11 b/g; FCC Part 15.247 (WLAN and Bluetooth); Japanese Radio Law MPT No. 37 Ordinance (MIC classification WW); UN T1-T8; IEC 62133 2nd ed.; IEC 60825-1:2014 ed3.0; FDA (CDRH) 21 CFR 1040.10 / ANSI 2136.1-2007; EN 50581:2012; 21 CFR 1002 (Records & Reports); 21 CFR 1010 (Performance Standards).

Shock and Vibrations Testing per International Electrotechnical Commission (IEC) Standards: IEC 60068-2-6; IEC 60068-2-64; IEC 60068-2-27 Extreme Temperature Cycling (-20°C to 60°C). Based on: IEC 60068-2-1; MIL-STD-81 OG; ISTA

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