

FARO® QUANTUM™ FAROARM® & FARO® QUANTUM™ SCANARM HD

The Standard for Cost-Effective Factory Inspection



Overview

The FARO Quantum^M FaroArm is a portable coordinate measuring machine (PCMM) that meets the most rigorous ISO 10360-12:2016 measurement standard in the world – an industry first.

The Quantum^M is ideal for companies that want to maximize their manufacturing productivity, reduce scrap and waste and improve their production and quality control efficiencies.

The Quantum^M is extremely durable and has been tested to withstand the harshest shop-floor environments. Additionally, the Quantum^M delivers market-leading reliability, portability, and ergonomics along with plug-and-play 3D laser scanning integration with optically-superior FAROBlu™ technology.



Features & Benefits



Certified to Meet the Most Rigorous ISO 10360-12:2016 Measurement Standard

Quantum Arms are the first Arms in the market that are certified against ISO 10360-12:2016, setting a new industry performance bar, and ensuring maximum measurement consistency and reliability.



Innovative Design for Highest Performance and Factory Stress-Tested for Reliability

An all-new design ensures superior performance and confidence in measurement results in every working environment, while the FaroBlu featuring blue laser technology ensures best-in-class scanning capability. Every Quantum is tested for ruggedness and is factory ready to ensure accuracy and performance.



Excellent Ergonomics and Usability

New ergonomic design, overall weight optimization, combined with new features such as tool-less quick-change, kinematic intelligent probes, provide unequaled freedom of movement and an unparalleled measurement experience.



High Speed Wireless Operation (Robust Wi-Fi)

New sophisticated and robust electronic design delivers superior reliability and guarantees optimal wireless operation for scanning and probing, allowing unmatched reach across the manufacturing floor.



Extended Battery Use

Dual hot-swappable batteries support prolonged cable-free operation of the device, making it easy to go to the part without the need for external power.



FAROBlu™ Laser Line Probe HD

The FAROBlu Laser Line Probe HD leverages optically-superior blue laser technology. The blue laser has a shorter wavelength than a red laser, and delivers improved scanning results with higher resolution, thanks to its ability to discover smaller details in an object. The blue laser also provides a 50% reduction in speckle noise compared to a red laser. Speckle noise is proportional to wavelength and degrades measurement accuracy.

Performance Specifications

Contact Measurement Arm*										
Measurement Range	SPAT ¹		E _{UNI} ²		P _{SIZE} ³		P _{FORM} ⁴		L _{DIA} ⁵	
	6 axis	7 axis	6 axis	7 axis	6 axis	7 axis	6 axis	7 axis	6 axis	7 axis
Quantum ^M 1.5 m (4.9 ft)	0.018 mm (0.0007 in)	-	0.028 mm (0.0011 in)	-	0.012 mm (0.0005 in)	-	0.020 mm (0.0008 in)	-	0.034 mm (0.0013 in)	-
Quantum ^M 2.5 m (8.2 ft)	0.023 mm (0.0009 in)	0.027 mm (0.0011 in)	0.034 mm (0.0013 in)	0.038 mm (0.0015 in)	0.015 mm (0.0006 in)	0.018 mm (0.0007 in)	0.030 mm (0.0012 in)	0.035 mm (0.0014 in)	0.045 mm (0.0018 in)	0.053 mm (0.0021 in)
Quantum ^M 3.5 m (11.5 ft)	0.044 mm (0.0017 in)	0.055 mm (0.0022 in)	0.066 mm (0.0026 in)	0.085 mm (0.0033 in)	0.025 mm (0.0010 in)	0.029 mm (0.0011 in)	0.050 mm (0.0020 in)	0.060 mm (0.0024 in)	0.080 mm (0.0031 in)	0.110 mm (0.0043 in)
Quantum ^M 4.0 m (13.1 ft)	0.053 mm (0.0021 in)	0.065 mm (0.0026 in)	0.078 mm (0.0031 in)	0.100 mm (0.0039 in)	0.034 mm (0.0013 in)	0.036 mm (0.0014 in)	0.060 mm (0.0024 in)	0.080 mm (0.0031 in)	0.096 mm (0.0038 in)	0.132 mm (0.0052 in)

Non-Contact Measurement (ScanArm)**	
Measurement Range	L _{DIA} ⁵
Quantum ^M 2.5 m (8.2ft)	0.063 mm (0.0025 in)
Quantum ^M 3.5 m (11.5ft)	0.100 mm (0.0039 in)
Quantum ^M 4.0 m (13.1ft)	0.115 mm (0.0045 in)

All values represent MPE (Maximum Permissible Error)

* Contact Measurement (Arm): In accordance with ISO 10360-12

** Non-Contact Measurement (ScanArm): Full System performance in accordance with ISO 10360-8 Annex D

¹ SPAT – Single Point Articulation Test

² E_{UNI} – Distance Error between two points comparing measured versus nominal values

³ P_{SIZE} – Sphere Probing Size Error comparing measured versus nominal values

⁴ P_{FORM} – Sphere Probing Form Error

⁵ L_{DIA} – 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/5 min (5.4°F/5 min)
- ▶ Operating humidity range: 95%, non-condensing
- ▶ Power supply: universal worldwide voltage; 100-240VAC; 47/63Hz



Laser Line Probe Specifications

- ▶ Accuracy: ±25µm (±0.001 in)
- ▶ Repeatability: 25µm, 2σ (0.001 in)
- ▶ Stand-off: 115mm (4.5 in)
- ▶ Depth of field: 115mm (4.5 in)
- ▶ Effective scan width: Near field 80mm (3.1 in); Far field 150mm (5.9 in)
- ▶ Points per line: 2,000 points/line
- ▶ Minimum point spacing: 40µm, (0.0015 in)
- ▶ Scan rate: 300 frames/second, 300 fps x 2,000 points/line = 600,000 points/sec
- ▶ Laser: Class 2M
- ▶ Weight: 485 g (1.1 lb)

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 Z136.1-2007; 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-810G; ISTA



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