8-Axis Quantum^{E} FaroArm® / ScanArm V2

The New Standard for Cost-Effective Factory Inspection

The FARO® 8-Axis Quantum^{E} FaroArm® V2 offers a comprehensive, contact/non-contact metrology solution, allowing users to significantly speed up and simplify their measurement and scanning activities. The system provides rapid data capture, superior resolution and high accuracy. It is 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 FARO 8-Axis Quantum^{E} ScanArm V2 combines a Quantum^{E} FaroArm V2, a FAROBlu® or PRIZM™ Laser Line Probe, and an 8-Axis Scanning Platform; making it the first and only eight-axis portable metrology solution available in the marketplace!

The FAROBlu LLP uses best-in-class blue laser technology, providing the highest accuracy point cloud data with unparalleled non-contact measurement capabilities at high speed.

The FARO PRIZM LLP represents a great value, utilising green laser technology to deliver high fidelity colour scanning and allows users to view, inspect and manipulate detail-rich, true colour point clouds of parts or assemblies.

Both the FAROBlu and PRIZM, Quantum ScanArms, are certified according to ISO 10360-8 for non-contact CMMs. FARO was the first portable measurement arm manufacturer to publish its non-contact accuracy specifications according to this standard.

FAROBlu and PRIZM Features

Blue and Green Laser

The FAROBlu LLP leverages blue laser technology which has a shorter wavelength than red or green lasers and delivers improved scanning results with higher fidelity. This means smaller details are captured, along with a vast improvement of the scan-ability of dark and shiny surfaces. When the highest precision is a must, only the FAROBlu will do.

The PRIZM LLP takes advantage of green laser technology. This wavelength is superior to red lasers by producing less speckle and resulting in greater detail. Green lasers are best suited to provide visual colour definition, delivering full-spectrum colour scanning capabilities for high-resolution colour point cloud data capture and analysis. Additionally, users can switch to grayscale or monochromatic modes, which provide options for faster scanning rates. The PRIZM offers a great balance of speed and accuracy, with the added benefit of colour scanning.

Laser Line Width

The FAROBlu and PRIZM LLPs feature a laser line width of 150mm. The extensive line width scans a larger area, delivering fast and efficient scanning.

Advanced Sensor

The FAROBlu and PRIZM LLP cameras use the most advanced CMOS technology to deliver incredibly fast frame rate (the number of times per second that the camera gathers new data on the part being scanned).

Ergonomics

Designed with ergonomics in mind, our LLPs are aligned with natural wrist position in mind. The natural position of the wrist is similar to the way you hold a coffee mug or hammer, and the intuitive scanning flow is left to right (not top to bottom). FARO has designed the scanning beam to be vertically oriented to minimise fatigue and drive scanning efficiency.

8-Axis Features

An industry exclusive, the integrated 8-Axis rotary scanning platform decreases scan time up to 40%, while maintaining accuracy. Rotate the part to you, with the ultimate CMM system available today. The 8-Axis unit is available with all Quantum models.

Benefits

Fast Scanning Speed

The extra-wide scan stripe and fast frame rate boost 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.

High-Definition Data

Intricate components can be captured in fine detail as a result of dense point data on each scanline.

Scan Challenging Materials

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

Colour Scanning

High resolution, 3D colour scanning for vivid, real-world visualisation and CAD reconstruction of parts and assemblies with the FARO PRIZM Laser Line Probe.

Specifications

Contact Measurement (Arm)*					
Measurement Range	7 Axis				
Quantum^{E} V2	SPAT[1]	E_{UNI}[2]	P_{SIZE}[3]	P_{FORM}[4]	L_{DIA}[5]
2.5 m (8.2 ft)	0.035 mm (0.0014 in)	0.046 mm (0.0018 in)	0.020 mm (0.0008 in)	0.040 mm (0.0016 in)	0.055 mm (0.0022 in)
3.0 m (9.8 ft)	0.055 mm (0.0022 in)	0.066 mm (0.0026 in)	0.028 mm (0.0011 in)	0.051 mm (0.0020 in)	0.088 mm (0.0035 in)
3.5 m (11.5 ft)	0.075 mm (0.0030 in)	0.082 mm (0.0032 in)	0.036 mm (0.0014 in)	0.062 mm (0.0024 in)	0.110 mm (0.0043 in)
4.0 m (13.1 ft)	0.095 mm (0.0037 in)	0.100 mm (0.0039 in)	0.044 mm (0.0017 in)	0.075 mm (0.0030 in)	0.136 mm (0.0054 in)

Non-Contact Measurement (ScanArm)***			8-Axis System**
Measurement Range	System Accuracy[6]		
Quantum^{E} V2	FAROBlu HD	PRIZM	7 Axis
2.5 m (8.2 ft)	0.063 mm (0.0025 in)	0.068 mm (0.0027 in)	0.055 mm (0.0022 in)
3.0 m (9.8 ft)	0.080 mm (0.0031 in)	0.085 mm (0.0033 in)	0.088 mm (0.0035 in)
3.5 m (11.5 ft)	0.097 mm (0.0038 in)	0.102 mm (0.0040 in)	0.110 mm (0.0043 in)
4.0 m (13.1 ft)	0.116 mm (0.0046 in)	0.121 mm (0.0048 in)	0.136 mm (0.0054 in)

All values represent MPE (Maximum Permissible Error)
*Contact Measurement (Arm): In accordance with ISO 10360-12 | **8-Axis System (Arm + 8-Axis): Full system performance based on ISO10360-12 Sphere Location Diameter Error (L_{DIA}) | ***Non-Contact Measurement (ScanArm and ScanArm + 8-Axis): Full System performance based on 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) | [6] System Accuracy – Based on Sphere Location Diameter Error

Laser Line Probe Specifications		
	FAROBlu HD	FARO PRIZM Color
Accuracy	±25 µm (±0.001 in)	±30 µm (±0.0012 in)
Repeatability	25 µm, 2σ (0.001 in)	30 µm, 2σ (0.0012 in)
Stand-off	115 mm (4.5 in)	
Depth of field	115 mm (4.5 in)	
Effective scan width	Near field 80 mm (3.1 in); Far field 150 mm (5.9 in)	
Points per line	Maximum 4,000 points/line	2,000 points/line
Minimum point spacing	20 µm (0.00079 in)	40 µm (0.0015 in)
Scan rate	Maximum 600 Hz	Maximum 300 Hz
Point acquisition rate	Points per second	
	Up to 1.2 million	Color: 240,000 Grayscale: 240,000 Monochromatic: 600,000
Laser	Class 2	
Weight	485 g (1.1 lb)	

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

Arm Hardware Specifications

FaroArm weight (range): 8.2kg (18.0lbs) to 9.3kg (20.4lbs)

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; 100-240 VAC; 47/63 Hz

8-Axis Hardware Specifications

Max operating weight: 100kg (220 lbs)

Rotary plate size options: 250 mm (9.8 in) / 500 mm (19.6 in)

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