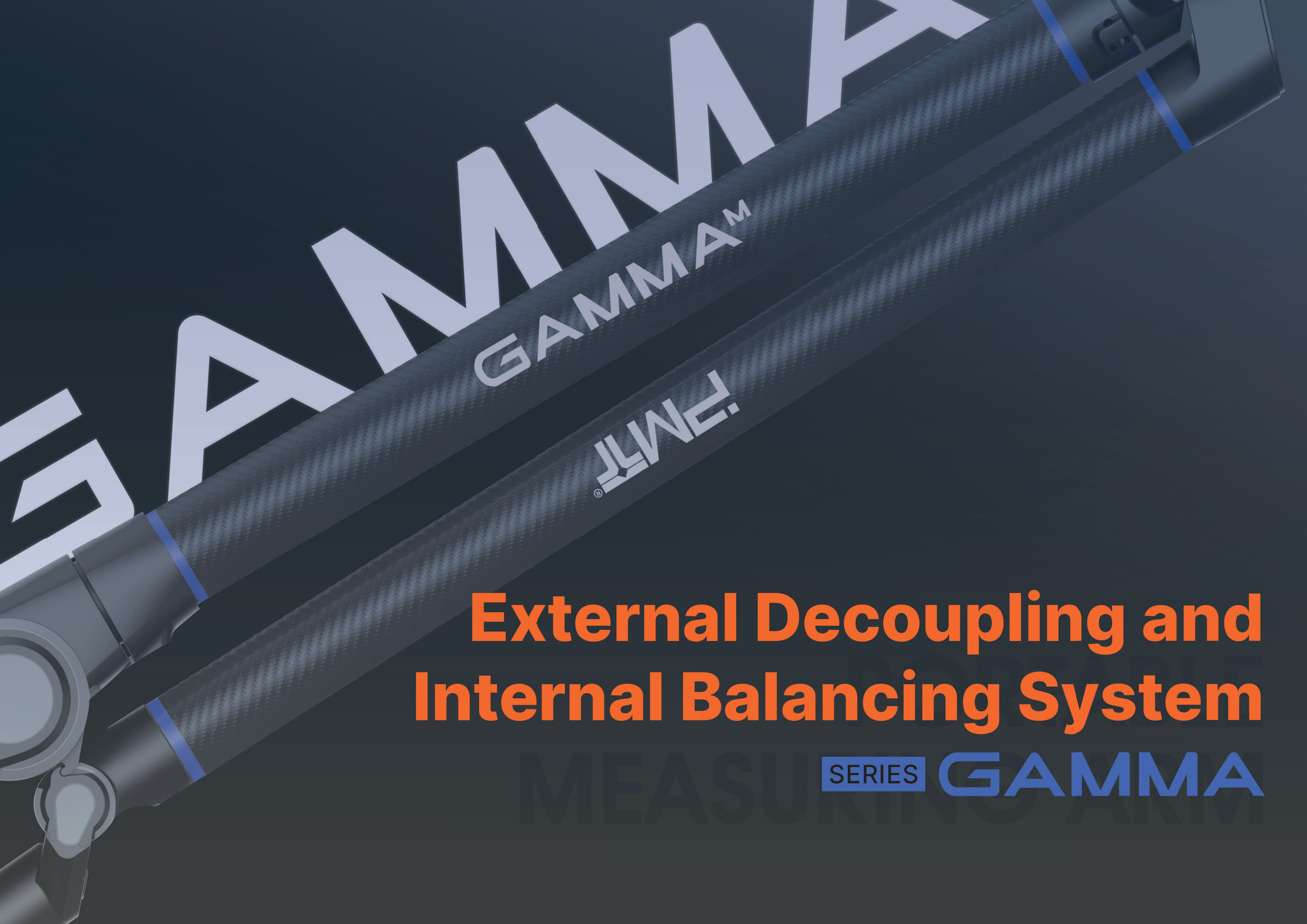
Northern Metrology

ARTICULATED ARM COORDINATE MEASURING MACHINE

PMT®



External Decoupling and Internal Balancing System

SERIES GAMMA

PMT GAMMA

SERIES ARM

From: £16,500 +VAT

With the simple dual suspension support structure design that brings greater structural stability, the PMT GAMMA series arm is regarded as the revolutionary benchmark in the field of portable measurement. Designed with the world's first external decoupling and built-in balancing mechanism, GAMMA features high performance, great flexibility, low power consumption, reduced joint loads and ultra-long standby time, and is deemed the most stable, reliable and portable measurement machine.

Flagship Series **GAMMA^{P}**

Standard Series **GAMMA^{M}**

Economic Series **GAMMA^{E}**

ADVANTAGES

The New-generation Portable Measurement System

World's First

External Decoupling and Internal Balancing System

Greater 「 **Stability** 」
Better 「 **Balance** 」
Lighter 「 **Weight** 」
Lower 「 **Deformation and Cost** 」

Revolutionizing the Measurement Experience

NEW

Dual Suspension Support Structure

Greater 「 **Stability** 」

NEW

Four-jaw Quick-Mount Base Collar

「 **Double Handle** 」
Easier Installation and Dismantling

NEW

Specialized Wi-Fi Module

Customized 5G Wi-Fi Module
Faster 「 **Transmission Rate** 」

NEW

Smart Sensing Probe System

Integrated Smart Probe with Lighter Weight,
Quick Replacement without Recalibration,
Compatible with Versatile Probe System

High-speed Wired USB Connection

More Stable 「 **Data Transfers** 」
Wider 「 **Transmission Bandwidth** 」

8-Axis Rotary Worktable

Increase Efficiency by 「 **40%** 」
Reduce Measuring Dead Zone

Temp Monitor | Simulated Mouse | Tilt Diagnosis | External Synchronization Mode | Device Drivers

Aerospace-grade Carbon Fiber

Newly Designed Layer
Connecting Rod
Better 「 **Anti-torsion** 」
Stronger 「 **Anti-bending** 」

Force-Isolation Design

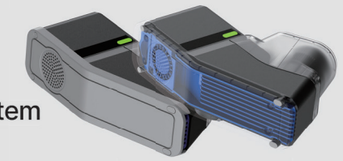
Drawing inspiration from the method of 'breaking the whole into parts', force-isolation refers to the mechanism that separates the hand grip from the scanning head in order to decouple the force between the holding pressure and the gravity of the scanning head. This helps enhance overall scanning accuracy and stability.

Optimized Structural Design
Substantial Weight Reduction

90-degree Elevated Scanning
Top Position Scanning and Wider Measurement Scope

Optimized Optical Design
More Stable Scanning Accuracy

Multiple Scanning Modes
Easily Handle Complex Scenes



Eye-protection Mode
Adjustable Laser Brightness

Advanced Thermal Management System
Keeps the Scanner in Optimal Condition

Laser Line Probe Specifications

Item		GH	GS
Accuracy		15μm	28μm
Stand-off	Far Field	220mm	
	Mid Field	157mm	
	Near Field	110mm	
Scan Width	Far Field	150mm	
	Mid Field	110mm	
	Near Field	80mm	
Depth of Field		110mm	
Max Points Per Line		4000	
Max Scan Rate		300HZ	
Point Acquisition Rate		1200000/s	
Laser Type		450nm, Class 2	
Weight		435g	

GAMMA SCANNER

Targets the Inspection of Special-shaped Workpieces to Improve Quality Control.

Choose your GAMMA blue laser scanner for your GAMMA series arm.

PMT's GAMMA SCANNER features an optimized optical design that ensures more stable scanning accuracy. The scanning mode can easily cope with various complex usage scenarios and cover all required features. It helps solve the bottlenecks that traditional contact probes face, such as being unable to precisely measure the dimensions of massive special-shaped workpieces, while maintaining optimal function.

From: £11,500 +VAT

The PMT GAMMA 8-Axis is a complete rotary axis that can be directly connected to the GAMMA ARM. This integration enables a fully enclosed, high-accuracy add-on axis to the portable arm, saving time and effort during hardware setup. Unlike turntables, the 8-Axis is fully transparent to the measurement software and requires no software upgrades.

This innovative feature allows the real-time rotation of the workpiece relative to the measuring arm without needing to move around it. Furthermore, because the workpiece is placed on a stable platform, the GAMMA 8-Axis can inspect positions that are often difficult to reach, while significantly reducing measurement time and errors compared to manual methods.

Scan More Confidently and Quickly
An 8-axis rotary worktable offers an extended measuring range, enabling users to scan, measure and digitize features on both small and large parts using a single arm position. As a result, measuring time can be reduced by up to 40% compared to a standard 7-axis arm.

Improve Operator Efficiency
It removes the concern of measuring dead spots, ensuring minimal disruption to inspection tasks. It also helps digitize complex parts more fully and quickly.

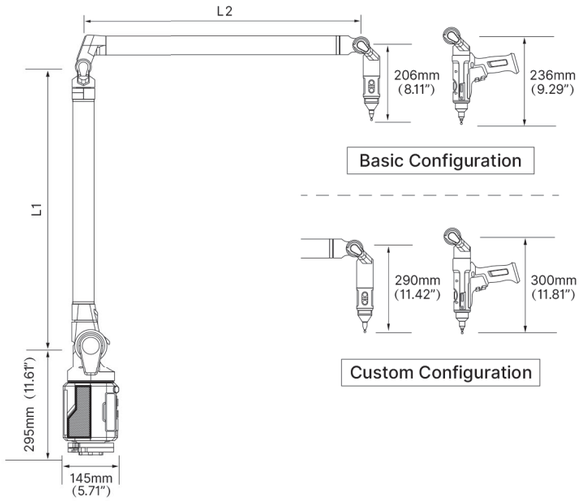
Accelerate Subsequent Processing Tasks
Subsequent processing tasks are simplified and sped up due to the reduced number of scans that need to be aligned, as there is no need to move the measuring arm around the part or reposition the part to capture all the necessary features.

GAMMA 8-Axis

Price: £6,000 +VAT

GAMMA Measurement Range

Range	L1	L2
1.5m	375mm（14.76”）	375mm（14.76”）
2.0m	500mm（19.69”）	500mm（19.69”）
2.5m	625mm（24.61”）	625mm（24.61”）
3.0m	750mm（29.53”）	750mm（29.53”）
3.5m	875mm（34.45”）	875mm（34.45”）
4.0m	1000mm（39.37”）	1000mm（39.37”）
4.5m	1125mm（44.29”）	1125mm（44.29”）



SPECIFICATIONS

Accuracy - Contact Measurement (PMTArm)

▶ All values represent MPE (Maximum Permissible Error)

▶ Contact Measurement (PMTArm): In accordance with ISO 10360-12; defined as E_{UNI} (Unilateral Error) - Distance error between two points comparing measured versus nominal. Values are +/-.

GAMMA^{P} From: £23,000 +VAT

Range	[1]SPAT		[2]EUNI		[3]PSIZE		[4]PFORM		[5]LDIA	
	6-Axis	7-Axis	6-Axis	7-Axis	6-Axis	7-Axis	6-Axis	7-Axis	6-Axis	7-Axis
1.5m	0.012mm	0.015mm	0.022mm	0.023mm	0.007mm	0.008mm	0.012mm	0.018mm	0.024mm	0.038mm
2.0m	0.016mm	0.018mm	0.024mm	0.025mm	0.008mm	0.010mm	0.015mm	0.019mm	0.030mm	0.042mm
2.5m	0.018mm	0.020mm	0.026mm	0.028mm	0.009mm	0.011mm	0.018mm	0.022mm	0.032mm	0.046mm
3.0m	0.026mm	0.032mm	0.038mm	0.047mm	0.012mm	0.016mm	0.025mm	0.032mm	0.045mm	0.071mm
3.5m	0.036mm	0.043mm	0.052mm	0.057mm	0.016mm	0.020mm	0.034mm	0.039mm	0.060mm	0.091mm
4.0m	0.045mm	0.054mm	0.063mm	0.073mm	0.020mm	0.026mm	0.038mm	0.044mm	0.075mm	0.112mm
4.5m	0.055mm	0.065mm	0.080mm	0.095mm	0.028mm	0.036mm	0.050mm	0.065mm	0.101mm	0.132mm

GAMMA^{M} From: £20,000 +VAT

Range	[1]SPAT		[2]EUNI		[3]PSIZE		[4]PFORM		[5]LDIA	
	6-Axis	7-Axis	6-Axis	7-Axis	6-Axis	7-Axis	6-Axis	7-Axis	6-Axis	7-Axis
1.5m	0.018mm	0.020mm	0.025mm	0.024mm	0.009mm	0.011mm	0.016mm	0.020mm	0.028mm	0.043mm
2.0m	0.020mm	0.022mm	0.026mm	0.030mm	0.010mm	0.012mm	0.018mm	0.022mm	0.032mm	0.047mm
2.5m	0.023mm	0.026mm	0.029mm	0.032mm	0.012mm	0.013mm	0.022mm	0.025mm	0.037mm	0.051mm
3.0m	0.034mm	0.042mm	0.041mm	0.053mm	0.015mm	0.020mm	0.031mm	0.035mm	0.051mm	0.073mm
3.5m	0.043mm	0.055mm	0.055mm	0.066mm	0.019mm	0.024mm	0.038mm	0.043mm	0.066mm	0.094mm
4.0m	0.052mm	0.065mm	0.066mm	0.082mm	0.023mm	0.029mm	0.043mm	0.048mm	0.083mm	0.120mm
4.5m	0.061mm	0.073mm	0.089mm	0.099mm	0.038mm	0.043mm	0.078mm	0.082mm	0.108mm	0.137mm

GAMMA^{E} From: £16,500 +VAT

Range	[1]SPAT		[2]EUNI		[3]PSIZE		[4]PFORM		[5]LDIA	
	6-Axis	7-Axis	6-Axis	7-Axis	6-Axis	7-Axis	6-Axis	7-Axis	6-Axis	7-Axis
1.5m	0.028mm	0.030mm	0.036mm	0.040mm	0.015mm	0.020mm	0.029mm	0.035mm	0.038mm	0.048mm
2.0m	0.030mm	0.035mm	0.040mm	0.045mm	0.018mm	0.025mm	0.035mm	0.040mm	0.041mm	0.052mm
2.5m	0.035mm	0.040mm	0.045mm	0.050mm	0.020mm	0.030mm	0.038mm	0.045mm	0.050mm	0.058mm
3.0m	0.055mm	0.060mm	0.065mm	0.070mm	0.028mm	0.035mm	0.048mm	0.050mm	0.080mm	0.091mm
3.5m	0.075mm	0.080mm	0.080mm	0.085mm	0.035mm	0.040mm	0.058mm	0.065mm	0.098mm	0.115mm
4.0m	0.090mm	0.095mm	0.100mm	0.105mm	0.044mm	0.050mm	0.068mm	0.075mm	0.116mm	0.140mm
4.5m	0.112mm	0.115mm	0.120mm	0.125mm	0.048mm	0.055mm	0.086mm	0.095mm	0.128mm	0.158mm

[1]SPAT Single Point Articulation Test

[2]EUNI Distance Error between two points comparing measured versus nominal values

[3]PSIZE Sphere Probing Size Error comparing measured versus nominal values

[4]PFORM Sphere Probing Form Error

[5]LDIA Sphere Location Diameter Error (Diameter of the spherical zone containing the centers of a sphere measured from multiple orientations)

Accuracy - Contact Measurement (PMTArm + 8-Axis)

▶ Contact Measurement (PMTArm + 8-Axis): In accordance with ISO 10360-12; defined as L_{DIA} (Sphere Location Diameter Error) - Diameter of the spherical zone containing the centers of a sphere measured from multiple orientations.

Range	GAMMA^{P}		GAMMA^{M}		GAMMA^{E}	
	6-Axis+8-Axis	7-Axis+8-Axis	6-Axis+8-Axis	7-Axis+8-Axis	6-Axis+8-Axis	7-Axis+8-Axis
1.5m	0.024mm	0.038mm	0.028mm	0.043mm	0.038mm	0.048mm
2.0m	0.030mm	0.042mm	0.032mm	0.047mm	0.041mm	0.052mm
2.5m	0.032mm	0.046mm	0.037mm	0.051mm	0.050mm	0.058mm
3.0m	0.045mm	0.071mm	0.051mm	0.073mm	0.080mm	0.091mm
3.5m	0.060mm	0.091mm	0.066mm	0.094mm	0.098mm	0.115mm
4.0m	0.075mm	0.112mm	0.083mm	0.120mm	0.116mm	0.140mm
4.5m	0.101mm	0.132mm	0.108mm	0.137mm	0.128mm	0.158mm

Accuracy - Non-Contact Measurement (PMTScanArm)

▶ Non-Contact Measurement (PMTScanArm): In accordance with ISO 10360-8 Annex D; defined as L_{DIA} (Sphere Location Diameter Error) - Diameter of the spherical zone containing the centers of a sphere measured from multiple orientations.

Range	GAMMA^{P}		GAMMA^{M}		GAMMA^{E}	
	GH	GS	GH	GS	GH	GS
1.5m	0.035mm	0.040mm	0.038mm	0.045mm	0.045mm	0.050mm
2.0m	0.038mm	0.043mm	0.040mm	0.050mm	0.051mm	0.058mm
2.5m	0.042mm	0.048mm	0.045mm	0.055mm	0.057mm	0.065mm
3.0m	0.047mm	0.055mm	0.052mm	0.062mm	0.065mm	0.075mm
3.5m	0.060mm	0.068mm	0.065mm	0.076mm	0.085mm	0.095mm
4.0m	0.074mm	0.079mm	0.081mm	0.090mm	0.105mm	0.110mm
4.5m	0.120mm	0.125mm	0.131mm	0.139mm	0.150mm	0.185mm

Accuracy - Non-Contact Measurement (PMTScanArm + 8-Axis)

▶ Non-Contact Measurement (PMTScanArm + 8-Axis): In accordance with ISO 10360-8 Annex D; defined as L_{DIA} (Sphere Location Diameter Error) - Diameter of the spherical zone containing the centers of a sphere measured from multiple orientations.

Range	GAMMA^{P}		GAMMA^{M}		GAMMA^{E}	
	GH	GS	GH	GS	CH	GS
1.5m	0.035mm	0.040mm	0.038mm	0.045mm	0.045mm	0.050mm
2.0m	0.038mm	0.043mm	0.040mm	0.050mm	0.051mm	0.058mm
2.5m	0.042mm	0.048mm	0.045mm	0.055mm	0.057mm	0.065mm
3.0m	0.047mm	0.055mm	0.052mm	0.062mm	0.065mm	0.075mm
3.5m	0.060mm	0.068mm	0.065mm	0.076mm	0.085mm	0.095mm
4.0m	0.074mm	0.079mm	0.081mm	0.090mm	0.105mm	0.110mm
4.5m	0.120mm	0.125mm	0.131mm	0.139mm	0.150mm	0.185mm

Hardware Specifications

- **Operating Temp Range:** 5°C - 45°C (41°F - 113°F)
- **Temp Rate:** 3°C/5mins (37.4°F/5mins)
- **Operating Humidity:** 0-95%, non-condensing
- **Weight:** 8.8kg to 10.6kg
- **Battery Life:** 16h+ for one battery;32+ for two batteries (base on contact measurement)
- **Power Supply:** Universal worldwide voltage; 100-240VAC; 50/60Hz
- **Data transmission mode:** USB or Wi-Fi

Northern Metrology

Contact us on **+44 (0)7415 810 777** to find out more or to place an order.

Northern Metrology Ltd
EKGTA, Law Place, East Kilbride, Glasgow G74 4PP
+44 (0)7415 810 777 | northernmetrology.co.uk