HEXAGON

Data sheet

MARVELSCAN

Scan where you want | Inspection in your hands

From Hexagon's first-ever range of handheld 3D scanners, the MARVELSCAN allows you to easily scan whatever you want, wherever you want – just use your hands. Multi-mode and dynamic scanning put you in control of adapting the scanning workflow to specific application needs without interruption.

The additonal top camera provides the target-free functionality of the MARVELSCAN, making it ideal for the scanning of large or delicate parts as well as repetitive scanning processes. With this built-in photogrammetry system, scanning accuracy is enhanced for larger part sizes.

Freedom of movement

Reach into hidden areas and cavities, get the right inspection angle without line-of-sight restrictions, scan at height, at distance, on the shop floor or in the field

Galaxy mode

Thanks to the dual-camera system and built-in software algorithm, volumetric accuracy can be simply controlled by scanning the rectangle scale bar to allow quick changes during an inspection task

Unstable measurement

Even challenging environment conditions with extreme noise and vibration are no problem for Dynamic Scanning

3 scan modes

Standard, fine and single line scanning modes let you tailor your scanner performance to the application at hand, for greater efficiency or resolution as needed

Multi-size target recognition

Maximise efficiency by using different target sizes (3/6/12/16 mm) for different applications during the scanning process

Combine scanning mode results

Data collected with different scanning modes is seamlessly combined within the same point-cloud/mesh for ease of analysis and reporting

Hole flash capture technology

Rapid simultaneous inspection of multiple circular and slotted features speeds up the workflow for a key industrial inspection challenge

Instant visual feedback

Know you're scanning correctly without returning to the control computer with built-in LED feedback system on the handset

Large standoff

Collect data from further away from the part, making it easier to access internal inspection areas such as tooling cavities, as well enabling automation system integration with lower collision risk



Lightweight ergonomic design

Fits perfectly in the hand and light enough to take anywhere and use comfortably for long inspection projects

Built-in photogrammetry

The MARVELSCAN boasts a unique photogrammetry system that offers a number of key benefits:

Target-free scanning
With the use of built-in photogrammetry that provides referencing using a specially installed target wall, the MARVELSCAN can inspect with no need for targets place on the part

Large-scale accuracy
By using the MARVELSCAN's photogrammetry system, measurement accuracy is significantly increased for larger parts

Change modes on-the-fly

Switch between scanning modes during measurement, directly from the handset, allowing you to fine-tune performance not just to the application but individual sections of the application

Truly handheld scanning

Take the part in your hand and the scanner in the other for a very quick scan process that requires no complex part fixturing thanks to Dynamic Scanning

Wireless scanning module

Set yourself free from movement limiting cables and referencing hardware with the option of full wireless functionality

Automation-ready

The MARVEL SCAN is ready for straightforward third-party integration within automated inspection systems

Certification

System is certified in line with the VDI/VDE 2634-3 to assure reliability and comparability with an ISO 17025-certified laboratory

Technical specifications

Scanning modes		Standard, single line, fine, edge detection and hole flash capture
Measurement rate (by scanning mode)		Standard and single line: 2 100 000 pts/s Fine: 900 000 pts/s
Scanning area		Up to 600 × 550 mm (single line mode: 300 mm)
Light source		22 blue laser lines + single blue laser line + 5 parallel blue laser lines
Resolution		Up to 0.02 mm
Accuracy [1]		Up to 0.02 mm
With targets	Volumetric accuracy-standard [2]	0.02 + 0.04 mm/m
	Volumetric accuracy with scale bar [3]	0.02 + 0.03 mm/m
	Volumetric accuracy + photogrammetry	0.02 + 0.02 mm/m
	Hole accuracy [4]	Up to 0.03 mm
	Hole volumetric accuracy [4]	0.03 + 0.04 mm/m
Target-free	Volumetric accuracy-standard	0.05 + 0.02 mm/m
	Hole volumetric accuracy	0.06 + 0.02 mm/m
Built-in photogrammetry [5]	Volumetric accuracy	0.020 mm/m
	Average deviation	0.007 mm
	Depth of field	600-2500 mm
Part size range (recommended)		0.1-6 m
Stand-off distance		Standard and single line: 300 mm/Fine: 150 mm
Depth of field		Standard and single line: 450 mm/Fine: 150 mm
Depth of field (at furthest range)		550 mm
Weight		1.3 kg
Dimensions		300 × 150 × 75 mm
Connection standard		USB 3.0
Working temperature		-10 to 40°C
IP rating		IP50
Working humidity (non-condensing)		10%-90%
Export formats		.stl, .ply, .obj, .txt, .xyz, .asc. etc., customisable
Compatible software		Hexagon (Inspire, PC-DMIS, DESIGNER, Geomagic, BendingStudio XT) Third-party software (PolyWorks, Metrologic and any other software that can import point clouds or STL file format)

Defining accuracy: Having a reliable basis for the stated accuracy of our handheld 3D scanner systems is vital. That is why we measure every scanner against our defined Scanner Acceptance Test. Based on VDI/VDE Guideline 2634 Part 3, this Scanner Acceptance Test uses these quality parameters to ensure users have full confidence in the accuracy of their Hexagon handheld 3D scanner.

[1] Probing error size [PS]: Local quality parameter. Deviation from the fitted sphere radius to the calibrated radius.
[2] Sphere spacing error [SSE]: Global quality parameter. Deviation from distance of fitted spheres to calibrated distance.
[3] Rectangle scale bar for Galaxy mode.
[4] Hole flash capture mode.
[5] Scale bar included in standard package.

Typical industry sectors


Railway


General manufacturing


Industrial equipment


Automotive


Marine


Non-manufacturing

Hexagon is the global leader in measurement technologies. We provide the confidence that vital industries rely on to build, navigate, and innovate. From microns to Mars, our solutions ensure productivity, quality, safety, and sustainability in everything from manufacturing and construction to mining and autonomous systems.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 24,800 employees in 50 countries and net sales of approximately 5.4bn EUR.

Learn more at hexagon.com

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