

# ScanWorks<sup>®</sup> V5<sup>™</sup>

3D Scanning Simplified



Scanning parts has never been easier or more affordable. ScanWorks<sup>®</sup> is a revolutionary scanning system that links design processes, CAD/CAM, prototyping and manufacturing. This versatile 3D scanning tool enables reverse engineering, point cloud-to-CAD comparison, 3D visualization and inspection applications. Markets for scanning include: automotive, animation, artefacts, aerospace, apparel, medical, manufacturing and many more.



 **perceptron**  
the focus on process

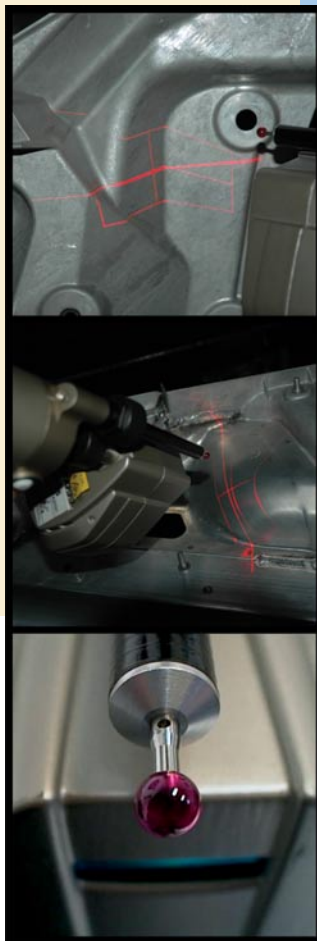
# ScanWorks®



## SENSOR SPECIFICATIONS

Dimensions	115 mm x 100 mm x 80 mm
Mass	438 g
Profile density	7640 points/line
Update frequency	60 Hz
Scan rate	458400 points/second
Mean point to point resolution	0.0137 mm
Stand-off	100 mm
Depth of field	110 mm
Near field width	93 mm
Mid field width	105 mm
Far field width	140 mm
Measurement accuracy <sup>1</sup>	0.0240 mm 2 $\sigma$ corner test
Feature resolution <sup>2</sup>	0.0045 mm 2 $\sigma$ sphere test
Sensor feature repeatability <sup>2</sup>	0.0050 mm 2 $\sigma$ sphere test
Safety	Class 2M, 660 nm laser
Certifications	UL, CSA, CE
Environmental	10°C to 40°C
Protection	Sensor IP64 / Enclosure IP31

<sup>1</sup> NIST standard  
<sup>2</sup> OSIS standard  
 Perceptron is registered to ISO9001:2000 standards  
 Specifications subject to change without notice



Perceptron is a global public company with offices in the Americas, Europe and Asia and over 25 years of experience in 3D non-contact applications. Producing over 5000 sensors each year, Perceptron has a worldwide base of installations in major manufacturing companies. We are committed to consistently exceed customer's expectations by providing continuous improvement in products, processes and services.

Formed in 1981 to help the automotive industry monitor and control the dimensional quality of automobile bodies and subassemblies, laser-based monitoring technologies have become the core competency of the company. Both in-line and end-of-line process measurement have grown into a group of flexible systems that provide monitoring and quality assurance throughout the entire manufacturing process. Perceptron's products are proven and reliable for improving productivity and quality, and reducing scrap, rework, and costs.

Today's computer power and innovation by software partners in CAD/CAM, inspection, solid modelling, rapid prototyping, reverse engineering and more are taking us to new and exciting places. We are involved with government-sponsored programs, such as NIST, for advanced product and process development. We are an active member of the OSIS group working to create industrial standards for scanning systems. We continue to look for better ways to design, produce, and deliver superior products that help our customers be more competitive in an increasingly global competitive environment.

Company Headquarters Perceptron Inc. 47827 Halyard Drive Plymouth, MI 48170 USA Tel: +1 734 414 6100 Fax: +1 734 414 4700 www.perceptron.com Copyright 2006	European Headquarters Perceptron GmbH Stahlgruberring 7 81829 Munich Germany Tel: +49 89 960 980 Fax: +49 89 960 98101 International Inquiries: European Inquiries:	Perceptron Asia Pacific Ltd 10 Mori Building 8F 1-18-1 Toranomon Minato-ku Tokyo 105-0001, Japan Tel: +81 3 3503 3466 Fax: +81 3 3503 3468 3dscanning@perceptron.com inquiry@perceptron.de	Perceptron Global Inc. Singapore Representative Office 3 International Business Park #04-02 Nordic European Centre Singapore 609927 Tel: +65 6890 6676 Fax: +65 6890 6675
---	---	--	---

## SCANWORKS® ADVANTAGES

### PRINCIPLE

The ScanWorks® portable scanning system combines the ease-of-use of portable CMM arms with the sophistication of Perceptron's scanning technology. The ScanWorks® V5 sensor uses solid state, non-contact, laser-based technology. Using triangulation, the scanner captures profiles generated by the intersection of a projected laser plane and the target topography. Users can easily control data collection through buttons on the portable CMM. For each profile, the arm position is used to translate the profile data into a common coordinate frame. Once translated, the profile is married with the other profiles to produce digital 3D part topography.

### SPEED

A maximum of 7640 points along the laser line at a rate of 60Hz provides the user with unparalleled scan data density. This incredible rate of up to 458400 points per second gives a minimum point to point resolution of 12µm.

### LARGE FIELD OF VIEW

Having a maximum width and depth of field of 140mm and 110mm, respectively, enables users of the ScanWorks® V5 sensor to rapidly capture large, geometrically complex, areas.

### PROJECTED RANGEFINDER

Several features are available to guide the user when scanning. Most notable is the ScanWorks® V5 proprietary field of view projection. The sensor projects an accurate trapezoidal representation of the field of view showing the extents as well as optimal scanning offset distance. This enables the user to quickly become familiar with good scanning practices and minimize redundant overlapping data. This system is backed up by an audible tone which changes frequency depending on depth of field and a graphical output.

### DYNAMIC RANGE

The ScanWorks® V5 sensor has just the same ability to capture accurate data on dark and reflective surfaces as the proven ScanWorks® V4i sensor. Its class-leading dynamic range negates the need for harmful white powder sprays and paints. The addition of advanced software filters enables dynamic reflection removal and hardware filters make the sensor impervious to ambient light.

### ACCURACY

Field calibration of the sensor is entirely independent of the hard probe. Within a few minutes, the user can precisely align the sensor to the PCMM co-ordinate frame without having to calibrate the hard probe first. Factory rectification of the V5 sensor ensures measurement accuracy of 24µm 2 $\sigma$  throughout the entire field of view.

### REAL-TIME INTEGRATIONS

Direct integrations with InnovMetric™ PolyWorks®, Geomagic®, Rapidform XO™ and Delcam PowerINSPECT allow the user to scan within a familiar interface. Time consuming file management becomes a thing of the past because the data is captured real-time within your preferred reverse engineering or inspection suite.

### USABILITY

The lightweight ergonomic design of the ScanWorks® V5 scanning solution makes easy work of even the most arduous measurement tasks. With the PCMM's hard probe exposed at all times, at the flick of a switch, the user can alternate between non-contact and contact measurement. This feature can be extremely useful when setting up alignments or datum features.

### PORTABILITY

The ScanWorks® V5 sensor is transported in a wheeled flight case similar in size to a small suitcase. Along with the PCMM and laptop computer, the entire scanning solution easily fits into a family car. Magnetic mounts on the PCMM base ensure a robust setup in a manufacturing environment. When a magnetic surface is not on hand, a range of tripods is available at extra cost.

### VERSATILITY

ScanWorks® V5 is suitable for numerous industries and applications, from the factory floor to inspection rooms and laboratories. Industries where ScanWorks® is delivering value and cost savings include: Aerospace, animation, automotive, consumer products, cultural heritage, forging, investment casting, mould & die, plastics, prototyping and stamping.

### SUPPORT

Perceptron provides unparalleled service and support to our scanning solution users. With both ISO9001 and QS9000TE certifications and through a network of qualified Value Added Resellers, Perceptron provides a combination of excellent large, medium and small enterprise support on a local level.