

# RPS LASER PROBES

www.laserdesign.com

The Leader in 3D Laser Scanning Since 1987



## LINE-RANGE LASER PROBES FOR:

- *2D profile measurement*
- *3D scanning*
- *Complex profile measuring*
- *In-line process measuring*
- *Part-checking against CAD*
- *Flexible gauging*
- *Height checking*
- *Flatness checking*
- *Steep side wall and deep groove scanning*
- *Sharp edge determination*

### PROBE FEATURES

Our patented, award-winning technology has led to the development of a family of line-range laser probes that are ideal for complex profile contour scanning. Capturing up to 14,400 points per second, the Rapid Profile Scanning (RPS) probes are your answer for high-accuracy, high-speed, non-contact scanning. The RPS probe line features digital (ASCII) coordinate output, a visible beam, a Class II rating for safe and easy-to-see operations and a long standoff to prevent crashes during dynamic part scanning. Its large measurement range, enhanced specularly performance and automatic adjustments for surface color and finish ensure excellent results time after time. Dual CCD receptors are standard to assist with steep sidewall and recessed geometry capture. Other features include PC-based electronics for easy integration and a Non-Gaussian, beam spreader design to eliminate hot spot syndrome. With no moving parts and a completely solid-state construction, the RPS probe line is built to last with minimum maintenance.

### SYSTEM INTEGRATION

RPS laser probes are fully integrated with Laser Design's Surveyor 3D scanning systems. Offering 3-5 axes of programmable CNC motion control, Laser Design offers a broad range of Surveyor systems in varying sizes and accuracies. RPS laser probes are also available individually for in-line applications and for system integration. Refer to Laser Design's Surveyor spec sheets for further information on integrated solutions.

### APPLICATION TOOLS LIBRARY

The Application Tools Library contains all the tools essential for data capturing, buffering, and outputting profile data. It can accommodate many diverse applications, from 2D, real-time production control, to 3D, offline, scanning and inspection applications. The library is written in standard ANSI C and is available in object form for all the popular PC-based development environments. The library provides an easy integration path for application software developers and system integrators, with flexible features such as free running, on demand, and master or slave triggering modes for data collection. It also supplies a comprehensive set of profile geometry analyzers including line slopes, circle, radius, height, angle measurement, and more.

### SOFTWARE

The user interface software (RPS-WIN) included with the RPS probes, is an ideal tool for integrators who want to understand and optimize the performance of the laser probe. RPS-WIN's graphical user interface (GUI) provides access to gathering and analyzing scan data by connecting them graphically with the measurement and analysis functions of the Application Tools Library. The GUI enables users to quickly and thoroughly understand the function of probe parameters, geometric computations, and the effect of parameters on measurements. RPS probes are also fully compatible with Laser Design's popular Surveyor Scan Control software program for 3D scan data collection and data processing applications. Refer to Laser Design's Surveyor Scan Control spec sheet for additional information.

### PC INTERFACE

RPS laser probes interface to standard PCs using a proprietary ISA card. A high-end PC with ample memory, Windows 2000 and an Open GL graphics video is recommended. Refer to the Laser Design website for current PC specifications.

# RPS LASER PROBE SPECIFICATIONS

	 <b>RPS-120</b>	 <b>RPS-150</b>	 <b>RPS-450</b>
Laser Type	Laser diode	Laser diode	Laser diode
Laser Power Output	<1 mW, Class II	<1 mW, Class II	<1 mW, Class II
Laser Wavelength	670 nm (visible red spectrum)	670 nm (visible red spectrum)	670 nm (visible red spectrum)
Beam Spreader	Passive optical, uniform dispersion, no moving parts	Passive optical, uniform dispersion, no moving parts	Passive optical, uniform dispersion, no moving parts
Standoff Distance			
Near	2.67" (68mm)	4.00" (100 mm)	3.38" (86 mm)
Mid	3.07" (78mm)	4.72" (120 mm)	5.58" (142mm)
Far	3.50" (89mm)	5.50" (140 mm)	7.83" (200 mm)
Depth of Field (Measuring Range)	.83" (21mm)	1.57" (40 mm)	4.30" (110 mm)
Line Length			
Near	.43" (11mm)	.51" (13.0 mm)	1.18" (30 mm)
Mid	.47" (12mm)	.59" (15.0 mm)	1.57" (40 mm)
Far	.51" (13mm)	.67" (17.0 mm)	1.97" (50 mm)
Accuracy (per point with averaging)	+/- .00025" (.00635 mm)	± .00035" (.0089 mm)	± .001" (.0254 mm)
Sample Count	480 points per line	480 points per line	480 points per line
Sample Rate	14,400 points per second	14,400 points per second	14,400 points per second
Sample Density (point spacing)	.001" (.025 mm)	.0012" (.031 mm)	.0037" (.094 mm)
Detectors (dual)	760 x 480 digital CCD array	760 x 480 digital CCD array	760 x 480 digital CCD array
Weight (probe only)	4.250 lbs. (1.931 kg) *	4.125 lbs. (1.875 kg) *	4.125 lbs. (1.875 kg) *
Minimum angle of incidence of laser beam to scanned surface	20°	20°	20°
Typical Application	Small and medium-sized parts with fine detail features	Small and medium-sized parts	Medium and large-sized parts

Specifications subject to change without notice. \* Includes pigtail cable

