3D Laser Scanner
PICZA LPX-250
New Product Information

Overview

The LPX-250 is the world's first 3D scanner to combine both plane and rotary scanning. It is also the first PICZA scanner to use laser technology instead of RAPS (Roland Active Piezo Sensor). Combined with the LPX's rotating bed, this technology offers faster scanning and the ability to scan around an entire object. The Desktop 3D scanner features a complete 3D scanning package - scanning unit and software - in an integrated format. With the addition of a graphics workstation, the system includes everything you need to make fast, high-quality scans.

In addition to the hardware, the LPX-250 comes with a professional, reverse engineering software package called PixForm. PixForm gives users the ability to repair holes, decimate (reduce size), remesh, and most importantly, generate a NURBS model that can be exported as an IGES file. To date, these IGES files have been tested successfully with SolidWorks, Inventor, MasterCAM, VX, SurfCAM and Rhino software.

The target market for the LPX-250 is the reverse engineering (RE) and computer graphics (CG) market. For the RE market, the LPX-250 is targeted at the design engineering companies that currently contract out to service bureaus. As stated above, the PixForm software allows users to export as IGES files which can be imported into MCAD software. This is a very important feature for the RE industry. For the CG market, the LPX-250 is targeted at animators and the entertainment industry. A typical application for the CG market is to scan a clay model and import that file into their animation program.

Our main competitor for the LPX-250 is the Cyberware model 15 desktop scanner that sells for $22,900. In addition to a significant price advantage, the LPX-250 offers a larger scan volume and superior resolution to the Cyberware scanner.

Availability – November   **Price- $9995.00**
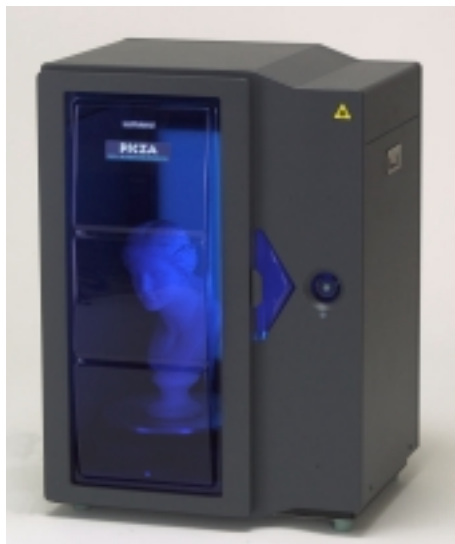
Key features

- Rotary scanning up to 1800 steps or .20 degrees
- Plane scanning up to 0.008 inches
- 10-inch (diameter) by 16-inch (height) scanning area
- Fast and accurate non-contacting laser sensor
- Fully automated NURBS surfacing software included
- Easy-to-use, single-button interface Windows® 95/98/Me/NT4.0 and 2000 Drivers
- Scanning software included

Features

❑ **Software and Drivers**

- **Dr. Picza3** - Dr. PICZA3 is a comprehensive, dedicated scanning software. Packed with easy-to-use functions, it can reduce data volume by reducing the resolution of all or part of the captured data, and it can rescan part of the object at a finer scanning pitch and automatically combine it with the original data. Dr. PICZA3 is designed as an input GUI software controller for the LPX-250 laser scanner. All the scanning motions and other settings are controlled completely by the software that comes with the LPX-250. This software has been designed to give even non-technical users a quick and easy way to capture the shape of an object.

  Dr.Picza3 software supports two different kinds of scanning methods:
  - **Rotary** – Suitable for scanning circular or whole objects by rotating table in one direction.
  - **Plane** – Allows you to scan maximum of six surfaces by plane mode to achieve multi-angle or flat scans.
- **3D Editor -** Application software for editing points of scanned data.
- **PIXform -** PixForm a professional level, reverse engineering software package that gives users the ability to repair holes, decimate (reduce size), remesh, and most importantly, generate a NURBS model that can be exported as an IGES file.

  PIXform features:
  Remeshing- Bad mesh data such as spiky or singularity face can be automatically changed into the normal mesh model just by using the remesh feature.

  Hole filling- A limitation of laser scanning technology that it cannot effectively capture the dark-colored and blocked regions -- is not a problem with PIXForm. Curvature-based hole filling effectively fills big holes exactly by considering the shape of the surrounding region.

  Smoothing- An effective tool for removing the surface deviation and bumps in the original scan data. PIXForm's curvature-based smoothing operation guarantees the preservation of original global shape characteristics while removing all the microscopic surface deviation.

  Decimation- PIXForm controls the number of polygons while preserving the original shape characteristics. Sharp edges and carved regions are automatically recognized and preserved in the process to provide excellent polygon mesh count control, not only for organic or free from models, but also for exact geometric models such as mechanical parts. The effective management of massive polygon data is an indispensable capability to meet the current 1,000,000-polygon era's market needs. PIXForm's novel "memory-less decimation" functionality allows you to reduce large-scale models with limited platform resources.

  NURBS- Convert's polygon meshes to high quality untrimmed or trimmed NURBS surfaces. NURBS can be used to represent a wide variety of geometric objects including not only conic sections and free-form curves and surfaces, but also more conventional shapes such as straight lines and cubes. Once the

part is converted to NURB surfaces, it can then be exported in IGES format to the more popular mechanical CAD packages.

❑ **Multi-Functional Mechanical Scan Modes**
- Rotary scanning mode –Scans the object with high-speed by rotating the table.
- Plane scanning mode – Scans the object by rotating the base and the laser at a right angle.

❑ **Non-Contact Spot Beam Laser and Sensor Technology (Class 1 Laser)**
A pulsed laser beam hits the surface to which one wants to measure the distance. The reflected light is collimated by an optical system and recorded by one light sensor mounted at fixed distances from the laser. The optical system creates images of the laser spot on the detectors surfaces allowing the direction of the reflected light beam hitting the sensor to be determined. The distance to the laser spot is obtained by a geometric calculation and registered in Picza3 software.

❑ **Single Button LED Set-up**
The LPX-250 is simple to set-up. There is only one button on the scanner that turns it on and off.

❑ **Interface**
Standard RS-232C Serial, D-Sub 25 pin.

❑ **Power Consumption**
Exclusive AC adapter (DC 19V, 2.1 A)

The LPX-250 is available for shipping in November. For any specific questions on this product, please contact Matt Owens, Associate Product Manager – 3D & Engraving Devices at Ext 281 or Mowens@rolanddga.com.

Model	LPX-250
Table size [diameter]	(10.0") 254.0 mm
Max. working area [diameter x height]	(10" x 16") 254.0 mm x 406.4 mm
Scan pitch	[Rotary Scanning Mode] 1800 steps or .20 degrees" Circumferential Pitch: 0.2 to 60 [Plane Scanning Mode] Plane scanning up to 0.008 inches Width: 0.2 to 254 mm, Height 0.2 to 406.4 mm
Max. table load weight	5 kg (11 lb.)
Laser	Wave length: 600 to 700nm, Power: less than 0.39W, Pulse frequency: 2857 Hz
Sensor	Non-contacting laser sensor
Scanning method	Spot beam triangulation
Scanning speed	Table revolution speed: 15 r.p.m., Laser head revolution speed: 15 r.p.m., Laser head feedrate: 50 mm /
Interface	Serial (RS-232C specifications, D-Sub 25 pin) Forwarding method: Asynchronous / duplex data transmission, Transmission speed: 9600 / 115200 bps, Data Bits: 8 bits (fixed), Stop Bits: 1 bits (fixed), Parity: None, Handshake: Hardwire
Control keys , LED	STANDBY key STANDBY LED , Movement LED
Power	Exclusive AC adapter (DC 19 V, 2.1A)
External dimensions	20-13/16 x 29-3/16 x 16-15/16
Weight (unit only)	32 kg
Operation temperature	5 - 40
Operation humidity	35 - 80 % (no condensation)
Accessories	AC adapter: 1, Power cord: 1, Hexagonal wrench, Cap: 3, Roland Software Package CD-ROM: 1, USER'S MANUAL: 1