

# 3D Scanner

<b>Name:</b>	Roland Picza 3D Laser Scanner LPX-600
<b>Produced:</b>	Roland DG Corporation
<b>Description:</b>	A 3D scanner is a device that will scan and record the three-dimensional form of a real world object and convert it to a 3D digital model.
<b>Homepage:</b>	<a href="#">Roland LPX</a>
<b>See also:</b>	<a href="#">Generative Design</a>
	<a href="#">Autodesk</a>
	<a href="#">CAD</a>
<b>Link:</b>	<a href="#">LEARN, The Catalogue</a>
	<a href="#">Official Support</a> <a href="#">Post a question to Media Centre</a>
<b>Introduction:</b>	The 3D scanner has only limited functionality in that it performs a very specific purpose. However, it can be an invaluable tool especially for those whose design practice moves readily between analogue and digital methods. The 3D printer acts as an interface between these two by transferring real-world objects (form) into 3D digital solid models.
<b>Capabilities:</b>	As noted, the 3D scans real world forms and converts the scanned data to a digital model. However, there are certain constraints to the scanners capacities which are default. These have primary impact on the type and size of the model which can be scanned, and therefore, to an extent, on the successfulness of the scan itself in digital format. <ol style="list-style-type: none"> <li><b>Size</b> The 3D scanner has an internal scanning chamber measuring 250mm in diameter and 400mm high. The object that you wish to have scanned must therefore be able to fit inside these parameters.</li> <li><b>Materials</b> The 3D scanner scans using laser. As such the material of the object to be scanned must be opaque so as to be readable by the laser. Therefore, any glossy, mirrored or translucent materials will not scan properly. If you are working in this material or have a section of your model which is made using them, you have two options. Either you can powder coat or paint that surface so as to render it opaque. Or you can submit the material to scan as it is and simply recreate the void/partial scan areas in your digital model later.</li> </ol>
<b>Use:</b>	In order to use the digital scanner you will need to follow the guidelines here. <ol style="list-style-type: none"> <li><b>Appointment</b> Scanning is by appointment only. To organise a time contact the Media Centre Helpdesk staff in person or send an email to <a href="#">Media Centre</a> at.</li> <li><b>Conduct Scan</b> Scanning is performed by the student with assistance from Media Centre staff. You will need to bring along your model making sure it meets the dimension specifications outlined above. The software used to scan is Dr. Piczar which is similar in layout and usability to any standard 2D scan interface.</li> <li><b>Scan Time</b> The length of time to scan your real world object is not easily predicted. It more or less depends on the size and complexity of the object and also the resolution required of the digital model. Dr. Piczar offers preview functions from which the student can determine resolution desired. Having said that, the average scan time would roughly be around 20 minutes. There can be delays though, and especially in the busy season (leading up to crit).</li> <li><b>Output</b> There are various filetypes and outputs available. By default the 3D scanner outputs a surface but a solid can easily be created from this, either in Dr. Piczar or later on in the likes of <a href="#">Max</a>. The 3D scanner will give you a model in STL format or as a POINT CLOUD or in TXT which is mainly of use in <a href="#">Rhino</a>. The most common of all filetype outputs is DXF which almost all 3D programs can read. Media Centre recommends you use this last filetype when you are using the 3D scanner.</li> </ol>
<b>Costs:</b>	The 3D scanner is free to use.
<b>Strengths/weaknesses:</b>	Over and above those strengths and weaknesses listed already, the 3D scanner at present is: <ul style="list-style-type: none"> <li>++ Much faster when compared to digital modelling. The scanner is fast and offers great experimentation opportunities.</li> <li>++ Excellent in that it provides a good and easy interface between analogue methods and digital modelling.</li> <li>+ Good at providing a nice, easy reference model from which to continue building in your 3D modelling program of choice.</li> <li>- Poor in accuracy when scanning, - be prepared to lose some detail.</li> <li>- Poor in material selection as it cannot scan shiny materials.</li> <li>- Poor in scanning internal space. For example, if you have vase or vase type model, the 3D scanner will only scan the external surfaces. As yet, we have nothing which can scan both the external AND internal surfaces.</li> </ul>
<b>Learning support:</b>	To get you started Media Centre suggest the following tutorials: <ul style="list-style-type: none"> <li><a href="#">Beginner A: Scanning</a></li> <li><a href="#">Beginner B: Editing</a></li> <li><a href="#">Beginner C: Manual</a></li> <li><a href="#">Intermediate A: Fusion</a></li> <li><a href="#">Advanced A: Post-processing</a></li> </ul>
<b>Additional:</b>	You will also likely find interesting: <ol style="list-style-type: none"> <li><a href="#">Artec</a></li> </ol>
<b>References:</b>	
<b>External links:</b>	
<b>Published:</b>	First published Mon. 1 Mar. 2010, substantive revision: Tue. 16 Mar. 2010