LUMEN X

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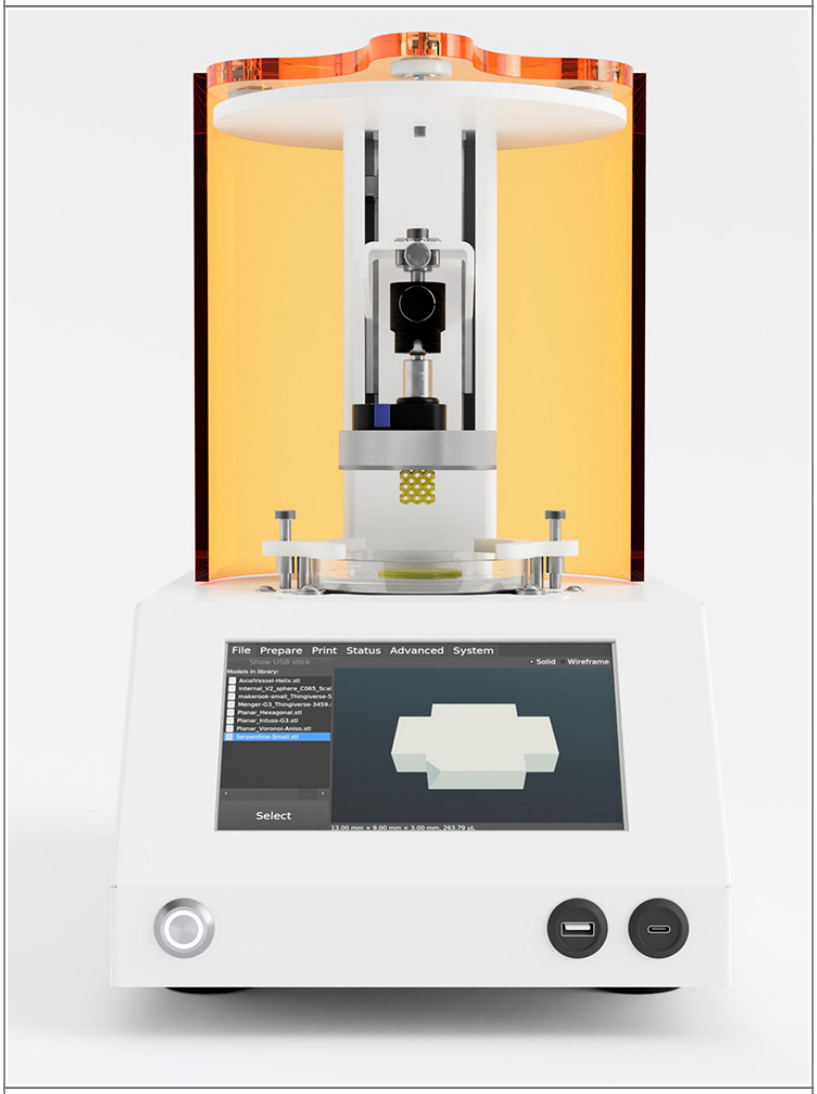
Tool Type: “3D Printer”
Location: “Elings Hall 2436”

Supervisor	Tool Lead
Juan Manuel Urueña	“WW Name”
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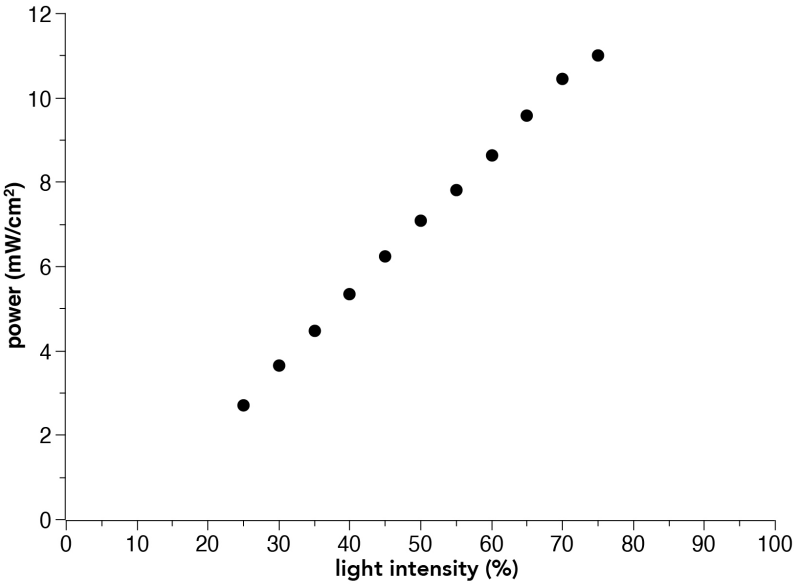
Description: “Lumen X”
Manufacturer: “CELLINK Life Sciences”

About

The Lumen X, leverages digital light processing (DLP) printing to offer users high resolution, high throughput and high fidelity. The Lumen X divides 3D models into stacks of horizontal layers in the form of black and white image files. Using an industrial-grade visible-light projector, each image is projected onto a droplet resin on a polydimethylsiloxane (PDMS) vat. The illuminated regions react and solidify, then the build platform moves the cured layer up and out of the way, so that more resin can be cured with the next image.

Detailed Specifications

* **Projected image:** 1280 x 800 px
* **Pixel resolution (XY):** 50 µm
* **wavelength:** 385 nm
* **Power:** 10 - 30 mW/cm^2
* **Z-precision (motor-driven):** 5 µm
* **Heated Platform:** Max 37 ºC
* **Max build volume:** 64 X 40 X 50 mm (128 mL)



Safety Concerns

Read the manufactures manual before first use. If the Lumen X acts in a way that is not described by the manual, turn off the printer and contact CELLINK.

- Never reach into the instrument when parts are moving
- Always wear protective goggles, gloves, and lab coat while handling hazardous materials
- Always ensure that the light shield covers the print area when the printer is in operation. Wear protective safety goggles when using the printer. Do not look directly at the light projected during printing
- The printer has heated surfaces that can reach temperature up to 50 degrees Celsius. Never touch these surfaces when using the heating function. Allow things to cool before opening, touching the printer
- Always ensure that equipment is correctly mounted before use. Improperly mounted print beds and cables can be dangerous. If any equipment appears damaged, turn off the printer, unplug all connections and contact CELLINK.
- Make sure the build platform is not secure when preparing it for your print. As the build platform is lowered to your substrate damage might occur if the build platform is rigidity fixed to the stage.

Operating Procedures

To load your object to the printer you will need to export the your object as an STL file onto a USB drive and load it to the printer by navigating to your folder and uploading it onto the file's tab.

The touch screen of the printer is layout out as a series of tabs from left to right.

File tab click Show USB stick to browse your file drive to upload it to the printer. Once you find your object select it and load it to the Models in library folder in the printer. To select your part navigate to your file name and click on it

Prepare tab* Under this tab set the build platform and slice your object. You have two options for the layer thickness. Standard res witch is 100 µm per layer and High res witch is 50 µm. Once you select your layer thickness you can slice your object by clicking on Slice. Prior to starting the print you need to bring the build platform down to your substrate to make sure the build platform is parallel to your substrate (PDMS or FEP film). Warning! Once you click Prepare the build platform will go down several centimeters and can damage the printer if anything is directly under it. Make sure all the adjustments screws for the build platform are loosen prior to clicking Prepare Print **In this one can adjust some of the print settings, such as Exposure (sec), first layer time scale factor, and Projector power level (%) Print Settings for Commercially Available Resins Exposure: 1.000 sec Fist layer time scale factor: 2 Projector power level: 50%** Status tab **In this tab you can start your print by clicking Print** Advance tab **Here you can adjust the build platform offset (µm), set a temperature for heating the print bed, and project a black page as well as a focus image.** System tab** This tab shows the printer software version

Reference Documentation

lumenx.pdf

Training Documentation