

Big Red Laser checkout

Laser light

Big Red and the Glowforge are both CO2 Lasers. The main high energy light that these tubes emit are in the high frequency wave length of around 9000 to 11000nm. This is in the non-visible range for humans. There are also other types of light that gets produced and these are the lights that you might see when you are watching a job run on the machine.

Both the Glowforge and Big Red have covers made of a material that blocks /refracts most of the laser light in the non-visible range. There is little to no danger of high power laser light getting out of the machine as long as all the doors are closed on the machine.

The covers however allow lower frequency/visible light to get through. The Glowforge has tinted glass and Big Red has fully transparent Plexi-Glass. Visible light is also produced and is similar to the intensity of the light seen when welding without a mask. Sunglasses are recommended when watching laser operations.

The Laser machines should never be operated at any level with the covers open. Sun glasses will not necessarily protect your eyes from the laser light.

Check Out

Checkout is only available to users that have had some experience using either the Glowforge or the X-tool lasers.

How to turn on the machine

- Location of the key
- Power switches (main and laser)
- Power connection
- Water cooler (water flow)
- Air assist

Manually operating the laser

- Basic functions of the Ruda controller
 - Do not change any of general settings in the controller; it will impact the usability of the machine. Doing so may result in loss of membership privileges.
 - Moving the laser head
 - Point activation (Pulse)
 - Will activate the laser at full power while being held.
 - Setting Origin
 - Sets the current position as the rest origin position
 - Using the FRAME
 - Moves the laser head around the edge of the loaded part file
 - Using the Start Pause button
 - Will start or pause operation of the loaded part file
 - Reset button
 - Will cause a restart of the controller and home the laser head

Light Burn

Software Tutorial

Big Red uses a Ruida DSP controller for its operations. The laser engraver is already properly configured in Light burn on both of the Prototyping computers. You should not need to adjust any settings related to the Laser controller in the Light Burn software. If you feel something needs to be adjusted, please discuss with the Prototyping manager prior to making the change. You may also request the configuration file to import into a personal instance of Light burn. You can request this in slack from within the Prototyping channel.

YouTube Tutorials to watch and follow along.

- [Lesson #1](#) this link will skip ahead to 3:30 as a starting. The details relevant to this lesson stop at the 10 min point.
 - **This lesson can be done anywhere. You do not need access to the laser to follow this guide.**
 - The information before 3:30 min and after 10 minutes is all about setting up various Lasers in the software. It's not relevant to Big Red. Do not change any settings on the machine or the makerspace laptops in relation to the machine configuration. Making changes could damage the machine or cause harm to yourself or another member. Making changes to these settings could result in loss of membership privileges.
 - Link in case the above line does not work. Copy and paste this into the browser address bar. <https://www.youtube.com/watch?v=BkNeVjbZncc&t=185s>
- [Lesson #2](#) start at beginning and watch the entire video. It's just 18 minutes
 - **You do not need to be at the laser to do this. Go sit on the couch and be comfortable.**
 - Link in case the above line does not work. Copy and paste this into the browser address bar. <https://www.youtube.com/watch?v=uzFsrUwONbw>
- [Lesson #3*](#) about 30 minutes.
 - You will want to be at the laser for this. It is a tutorial type lesson where you follow steps to make a simple project. Completing this lesson is a requirement to be "checked out" to use Big Red without supervision.

Link in case the above line does not work. Copy and paste this into the browser address bar. <https://www.youtube.com/watch?v=ZPyLuLcuIE>

Member checked out (sign and print) : _____

Volunteer guide (sign and print): _____

Date: _____