Full Spectrum LASER

# MUSE ULTRA VIOLET GALVO QUICKSTART GUIDE

# Safety Procedure

## Setup Precautions

Follow all safety protocols and procedures before operating any machinery. It is the responsibility of the operator to ensure all safety precautions are correctly followed and the machine is properly assembled and in working order.

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| CAUTION  | Always inspect the laser cutter for damage or breakage before each use. Do not operate machinery that is damaged or defective in any way. |
| | Always have a clean, level, and open work space to unbox and place your laser cutter. |
| | Never modify, disassemble, or in any way alter the construction of the laser and never start up a system that has been modified or disassembled. |
| | Keep your laser system clean and organized. |
| | Do not disassemble the machine or remove any of its protective covers. |
| | Always have on hand a first-aid kit designed for the initial treatment of burns and smoke inhalation. Be sure to store this kit in an area that is outside risk areas. |
| | Never operate the machine with any of the panels removed. Be aware that removal of any portion of the cabinet will expose the laser system and greatly increase the risk of injury and/or fire. |

## Eye and Lung Safety

The Muse Galvo Laser has an overall rating of Class 4. Class 4 lasers have the capability to damage eyes, burn skin, and start fires. Safety goggles must be worn when in operation.

**Follow these Safety Guidelines at all times:**

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| DANGER  | Always use provided safety glasses. Unshielded laser light is harmful to the eyes. |
| | It is recommended that when the laser is running, the user is at least 5 ft from the laser. |
| | Never aim any laser towards an aircraft or vehicle that is in motion.<br><br>The bright light can flash, blind, cause glare, or distract the pilot or driver |

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|---|---|
| DANGER  | Only operate Muse Galvo in a ventilated area larger than 10ft x 10ft. Excessive inhalation of fumes can be detrimental to health or fatal. |
| | Never engrave or cut any material containing PVC or vinyl under any circumstance. These materials (along with other materials that contain chlorine / chloride ) produce a highly toxic, corrosive vapor that is lethal to humans and will destroy your machine. Your warranty will be void if your machine is damaged by corrosion from engraving or cutting PVC or vinyl. |
| | Never engrave or cut any unknown material. The vaporization / melting of many materials, including but not limited to PVC and polycarbonates, can give off hazardous fumes. Please refer to the MSDS sheet from the material manufacturer to determine the response of any work material to extreme heat (burning/fire hazard). |

## Electronic Safety

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| CAUTION  | Do not open the machine while the unit is plugged in. Opening the machine may expose the operator to the unit's AC input power which is potentially lethal. |
| | Never make or break any electrical connections to the system while the unit is turned on. |
| | Never access the electronics area with hands or tools unless the unit is disconnected from power for at least fifteen minutes. |

The standard reference for laser safety is the American Standard for the Safe Use of Lasers, Z136.12000, developed by the American National Standards Institute (ANSI). This reference is the basis for many of the federal regulations for laser and laser system manufacturers, and for the Occupational Safety and Health Administration (OSHA) laser safety guidelines. It contains detailed information concerning proper installation and use of laser systems. While the ANSI standard itself does not have the force of law, its recommendations, including warning signage, training, and the designation of a laser safety officer, may be compulsory under local workplace regulations when operating laser systems above Class I. It is the operator's responsibility to ensure that the installation and operation of the Full Spectrum Laser Hobby Laser System is performed in accordance with all applicable laws. Copies of ANSI Standard Z136.12000 are available from: LASER INSTITUTE OF AMERICA 12424 RESEARCH PARKWAY, SUITE 125 ORLANDO, FL 32826 (407) 3801553

# Fire Safety

**Laser cutting and engraving systems can present a significant fire hazard due to the extremely high temperatures generated by the laser beam.** While the objective of most cutting and engraving operations is to vaporize material without burning, most materials capable of being cut or engraved are inherently combustible and can ignite. Usually this is a small flame of burning material issuing from the cut zone which self-extinguishes due to the air assist or depowering of the beam. However, it is possible for the flame to propagate and set fire to the machine and its surroundings.

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| CAUTION  | **Always keep a properly maintained and inspected 5lbs. or larger fire extinguisher on hand.** Full Spectrum Laser recommends a Halogen fire extinguisher or a multipurpose dry chemical fire extinguisher. Halogen extinguishers are more expensive than a dry chemical, but offer certain advantages should you ever need to use an extinguisher. The Halogen extinguisher discharges a clean, easily removable substance that is not harmful to the mechanics or wiring of the laser system. The dry chemical extinguisher discharges a sticky, corrosive powder that is very difficult to clean up. |
| | **Stacking materials (especially organic materials such as paper) can lead to increased risk of flame propagation or work piece ignition.** |
| | **Never operate your machine unattended.** There is a significant risk of fire if the machine is set improperly, or if the machine should experience a mechanical or electrical failure while operating. |
| | **Always keep the area around the machine clean and free of clutter, combustible materials, explosives, or volatile solvents such as acetone, alcohol, or gasoline.** |
| | **Be cautious when vector cutting.** Many materials have the potential to burst suddenly into flames – even materials that may be very familiar to the user. Always monitor the machine when it is operating |
| | **Vector cutting with the laser has the most potential to create an open flame.** Acrylic in all its different forms has been shown to be especially flammable when vector cutting with a laser. |
| | **Never cut PVC (polyvinyl chloride) under any circumstances:** fumes are highly toxic and potentially lethal. |
| | **Never store any flammable materials in the immediate vicinity of the device.** Debris and left over produced materials within the machine must be removed to prevent fire hazard. |

# Section II. Assembly & Connectivity

## Assembling your UV Galvo

**Hardware:**

M8x16 Button Head Screws: x 4

M6x20 Button Head Screws: x 3

M5x25 Socket Head Screws: x 4

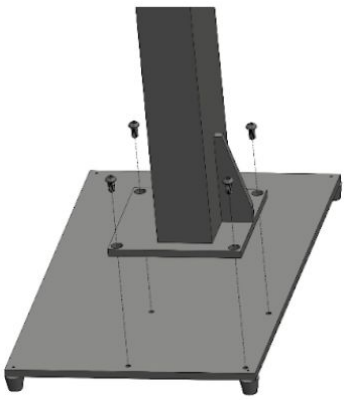
Sensor Flag: x 1

Flag Spacer: x 1

Spacers: x 2

**Tools:**
2.5 mm Hex Key
4mm Hex Key
5mm Hex Key
Phillips Screwdriver

1. Use the 8 x 16 screws to fasten the base to the stage.



**Note: Tool Not Provided!**

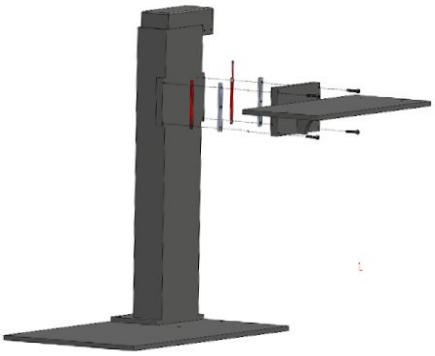
2.Use the hardware below to mount the mounting plate will be attached to the side of the stage.The flag spacer and the sensor flag are attached with the flag pointing upward.

Hardware: Flag Spacer x 1

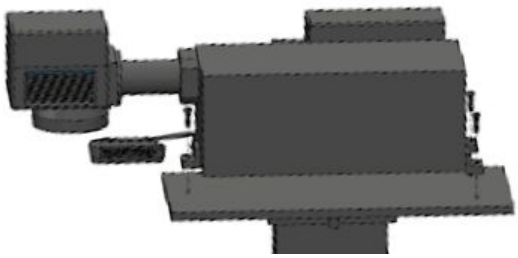
Sensor flag x 1

Spacer x 2

M5x25 screws x 4

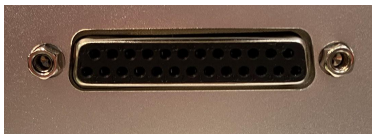


3.Place the source onto the mount and secure using the 6 x 20 screws.

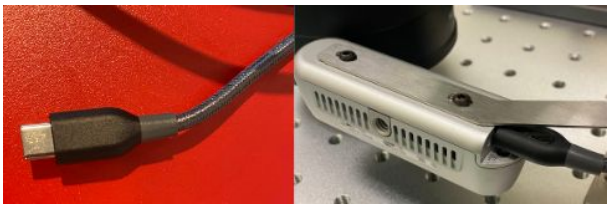


4. Connect wire loom to those following ports. Secure with a philips head.

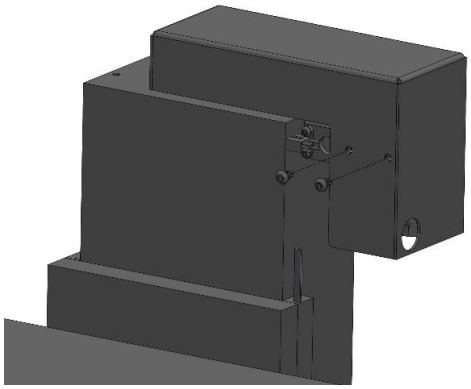
5. The look should have 1 more wire which connects to this port.



6. Next, we will connect the camera using the Type-C cord provided.



7. Remove the cover head use the 2.5mm hex key.



8. Attach the motor wire to the motor.

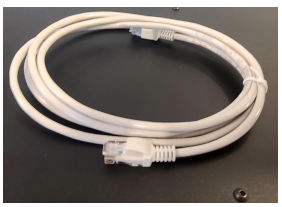
9. Attach the sensory wire to the white wire

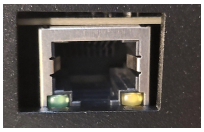
10. Replace the coverhead.

## Machine Connection

There are 3 ways to connect the machine.

1. Ethernet Cable to Router and Machine.

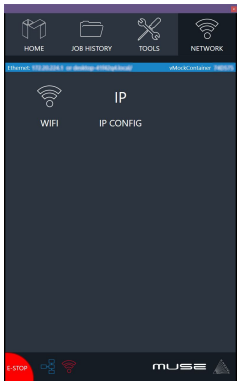




**Note: Ethernet port looks the same on all devices.**

2. WiFi through Touchscreen

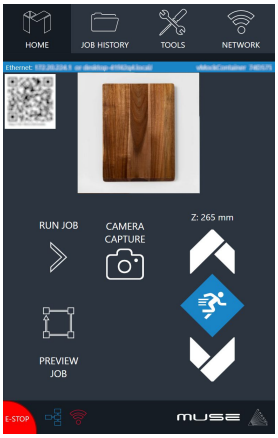

This chip controls the wifi
Make sure it's on the machine.




3. Connect Directly to Computer: This should only be done if the previous two options are not possible.
**Note: The location of the ethernet port varies on computer modes.**

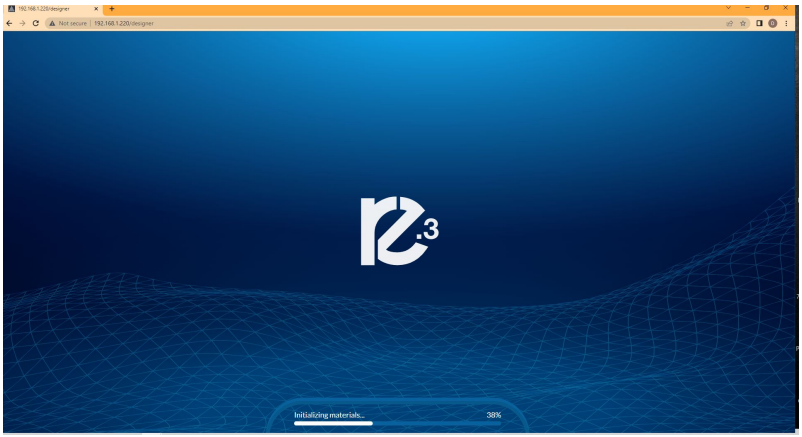
# Software Connection

1. Make sure machine is on and that the home screen is loaded.




2. Look at the blue line and type it into the web browser.


3. Hit enter and open RetinaEngrave V3.




# Project Workflow

Here is a flow chart to get you started on your first project. For more details refer to your user manual or the RetinaEngrave guide.

**1. Connect to Software**

Type in the IP address found on the touchscreen into your web browser (Google Chrome Suggested).

**2. Create or Import Design**

Create your design within Retina Engrave V3 or Import a file from another design software.

**3. Place Material**

Place your material into your laser bed workspace.

**4. Focus Lens**

Each machine focuses itself differently. Refer to the manuals focusing section for more information.

**5. Align Material to Engraving Area**

Using either the perimeter tool or camera function (see camera features) align your design on the appropriate area of your material.

**6. Adjust Object Properties**

Using the Properties Manager Windows, adjust your Vector or Raster settings for your cut, mark or engraving.

**7. Run Job**

Double check your safety precautions and accessories and press the “Play” button to start the job.

# Appendix A. Warranty

**Full Spectrum Laser will replace or repair any defective parts free of charge within the first 30 days. Ground shipping is free with overnight shipping available at extra charge.**

Full Spectrum Laser will replace or repair any defective part within the warranty period free of charge but shipping charges are the responsibility of the customer. Warranty includes parts and labor only. Shipping of defective and replacement components is excluded.

The customer may arrange their own shipping. Parts can be dropped off at our warehouse free of charge.

All defective parts must be returned to Full Spectrum Laser for evaluation before replacements are issued, unless otherwise authorized. The warranty is valid for normal use only and excludes uses not stated in manual. Parts damaged by fires are considered user error if the machine is left unattended. Always stand next to the machine with a fire extinguisher and be ready to turn it off in case of an emergency. Never operate the machine unattended.

**Products sold before 8/7/2012, had a 60-day base warranty on all items excluding shipping unless an extended warranty was purchased.**

Our lasers have a 60-day full warranty and include a 1-year extended warranty. The 1-year extended warranty excludes shipping and consumable items. All electronic items (control cards, power supplies, motors) and most mechanical items are covered under the extended warranty unless damaged by abuse/fires. Consumables not covered include, but are not limited to, rubber parts (such as tubing, belts, plastic wheels, lenses, mirrors, other optics, and laser tubes).

The original purchaser may transfer the balance of the warranty to anyone free of charge provided we are notified in writing within 30 days.After 30 days, we will only provide warranty and tech support services to the original purchaser unless a warranty transfer fee.

Warranty will remain valid if product is sold. However, the buyer must request RMAs and repairs from the original purchaser unless a warranty transfer fee is paid.

**NOTE: Full Spectrum Laser DOES NOT offer warranties or customer support for 3rd Party parts, including replacement laser tubes, as it may not be compatible with Full Spectrum Laser machines and can cause damage to your laser system.**

Visit https://fslaser.com/terms for most current warranty postings.

# Join the Full Spectrum Laser Community

Full Spectrum Laser invites you to join our community of hobby makers and professional manufacturers through our social media channels (Facebook, Instagram, Twitter, YouTube). We love being part of the hobby maker culture and the industry we work in. You can follow us to see what is new at FSL, and learn about the latest updates, projects, and more. Best of all, we offer countless FREE projects for you to make on your new laser. Join our community and see what all the excitement is about.