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Genmitsu CFL55P 5.5W Compressed Spot Fixed Focus Laser Module User Manual

Home » Genmitsu » Genmitsu CFL55P 5.5W Compressed Spot Fixed Focus Laser Module User Manual 🔊

Contents

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Genmitsu CFL55P 5.5W Compressed Spot Fixed Focus Laser Module

Welcome

Dear customer,

- Thank you for purchasing the Genmitsu 5.5W compressed spot laser fixed focus module.
- This 5.5W diode laser with a wavelength of 445nm is especially designed for use with the Jinsoku LC-60A, LE-1620 Laser Engraver, and Genmitsu PROVerXL 4030 CNC Machines.
- However, it can also be used with a large number of other CNC machines.
- The current version of this user manual can be found at **https://docs.sainsmart.com/**
- You can also get help and support in our Facebook group (SainSmart Genmitsu CNC Users Group, **https://www.facebook.com/groups/SainSmart**.GenmitsuCNC).
- In addition, as always, competent SainSmart support is available to you at the e-mail address **support@sainsmart.com**.

Safety Instructions

- Always exercise safety and caution when working with laser marking systems. Consider the listed recommendations to minimize risk.
- You must be at least 13 years old to operate the laser engraver.
- Direct exposure to the laser beam can cause severe burns and eye damage. Ensure that you are wearing proper laser safety goggles when working in the vicinity of the laser equipment.

- When you focus the laser do so only on the lowest power setting.
- Keep a fire extinguisher nearby since use of the laser may lead to an unexpected fire.
- Never leave an operating laser unattended.
- Fumes and smoke generated during the engraving/cutting process must be extracted from the room as some can be poisonous; make sure there is a ventilated system to the outdoors.
- Make sure the cutting area under the laser is metal or non-flammable.
- Ensure that the room or area you are operating the laser in is sufficiently labeled to prevent someone from unknowingly walking into an active work area.
- Be sure to disconnect the power when cleaning, maintaining or servicing the laser equipment.
- DO NOT stare at the bright and intense light appearing during the engraving process. Doing so can cause serious eye damage.
- Never use the laser except for the purpose intended.
- SainSmart does not accept any responsibility or liability for any use or misuse of the Laser.

Package List

① Laser Module with Air Assist Nozzle

② Connection Cable (XH2.54-3P 2.0m)

③ Connection Cable for PROVer XL 4030, 1.5

④ Focus Calibration Tool, Φ16*30mm

⑤ Safety Goggles (Green), FDA-Certified

⑥ Adapter Plate 1 for LE-1620, 62mm

⑦ Adapter Plate 2 for LC-60A, 72mm

⑧ (5) Screw, M3*6

⑨ User Manual

Product Specifications and Performance

1. **Application:** Suitable for desktop laser engravers, CNC routers, laser cutters and 3d printers
2. **Engravable materials:** cardboard, plastic, PCB, aluminium alloy, stainless steel, black metal, etc.
3. **Cuttable materials:** wood, acrylic, cardboard, non-woven fabric, bamboo,laser safe plastic etc.
4. **Laser power:** 5.5W
5. **Spot size**: 0.1*0.1mm
6. **Focal length:** 30mm
7. **Laser wavelength:** 455 ± 5nm
8. **Input:** 12V / 2.5A

9. **Electrical interface**: XH2.54-3Pin terminal (three-core cable, a: PWM +, b: GND, c: 12VDC)
10. **Laser shield:** A movable laser shield that effectively shield the laser beam without affecting its working position.
11. **Air assist system:** When performing laser cutting jobs, an air assist system blows air through the air nozzle, enhancing the cutting performance and reducing the burn marks. You can remove the air assist nozzle when you are doing non-cutter jobs. This laser kit only comes with an air assist nozzle, to make full use of the air assist feature, you may need to prepare an air assist pump and air tubing yourself
12. **Recommended Air Tubing:** inner diameter Φ4.0mm, outer diameter of Φ7.0mm)
13. **Recommended air pump:** flow rate 5-8L/min.

## Size Diagram
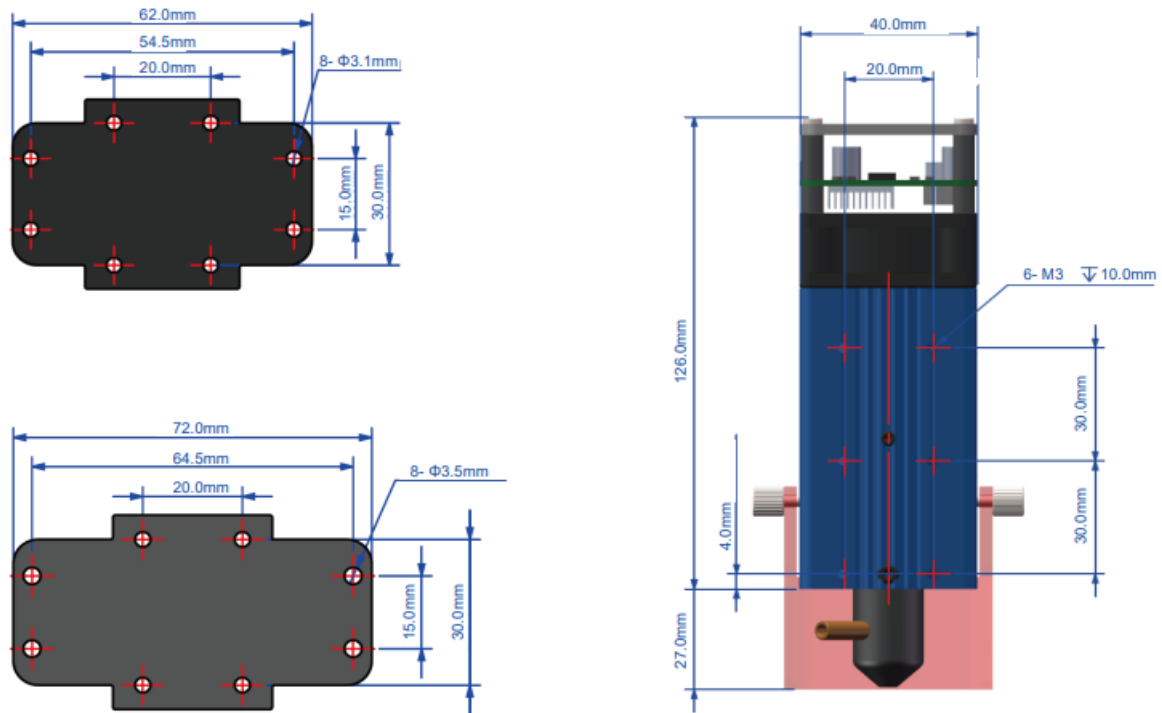
Precautions

1. Please read the instruction carefully before use.
2. Direct exposure to the laser beam can cause severe burns and eye damage. Ensure that you are wearing proper laser safety goggles when working in the vicinity of the laser equipment.
3. Know the compatibility of the laser module and its maximum input voltage and current so as not to damage the laser.
4. When engraving reflective materials such as mirror stainless steel, it is recommended to paint the material surface black with a marker before engraving, preventing laser damage and unwanted laser exposure from the reflective laser beam.
5. After long hours of laser working, residue from smoke and dirt will accumulate on the laser lens, cleaning the lens regularly is needed. After working with oily materials, such as pine boards, cleaning the lens in time is necessary.
   Cleaning method: use a cotton swab dipped in alcohol to wipe the lens.
6. Please use a smoke exhaust device and ensure that the room or area you are operating the laser is well-ventilated.

Laser Module Installation

### STEP 1: Install the Lasr Module on Jinsoku LC-60A/LE-1620

1. Prepare your 4mm ID (7mm Outer Diameter)Air line tubing first. Connect one end of the tubing to the air assist nozzle and the other end to the air pump. If you don't have an air pump or flexible tubing, you can ignore this step.
2. Choose the correct laser module adapter plate according to your machines. Fix the laser module onto the adapter plate with four M3*6 screws, and then install the plate on your machines with four M3 screws.
3. Choose the corresponding connection cable for your models, and connect it to the machine's controller.
   Note: We recommend removing the air assist nozzle when operating non-cutting jobs. To remove the nozzle, you need to unplug the air tubing first and then loosen the screw fixing the nozzle, turn the nozzle counter-clockwise to remove it.
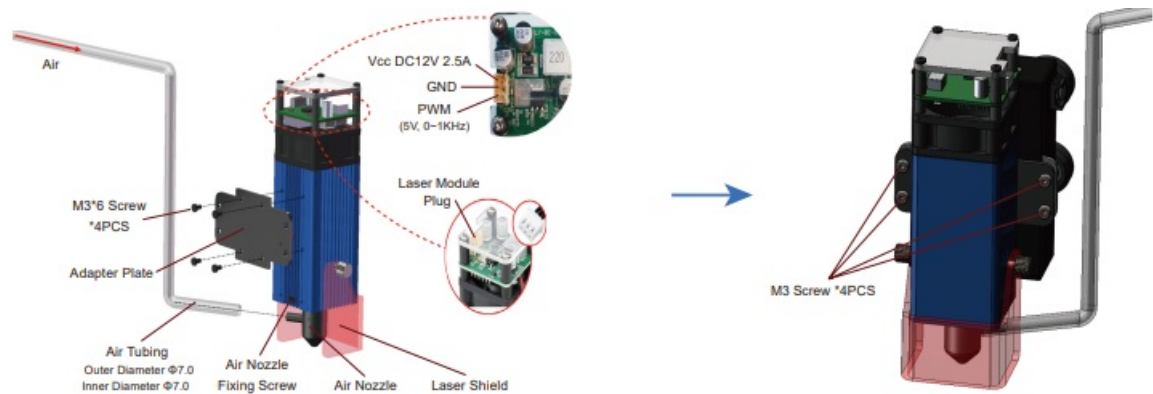
STEP 1: Install the Lasr Module on Genmitsu PROVer XL 4030

1. Find the Adapter Plate for PROVer XL 4030 (comes stock with the machine), Fix the laser module onto the adapter plate with four M3*6 screws and then install the plate on your machines with four M5*10 screws.
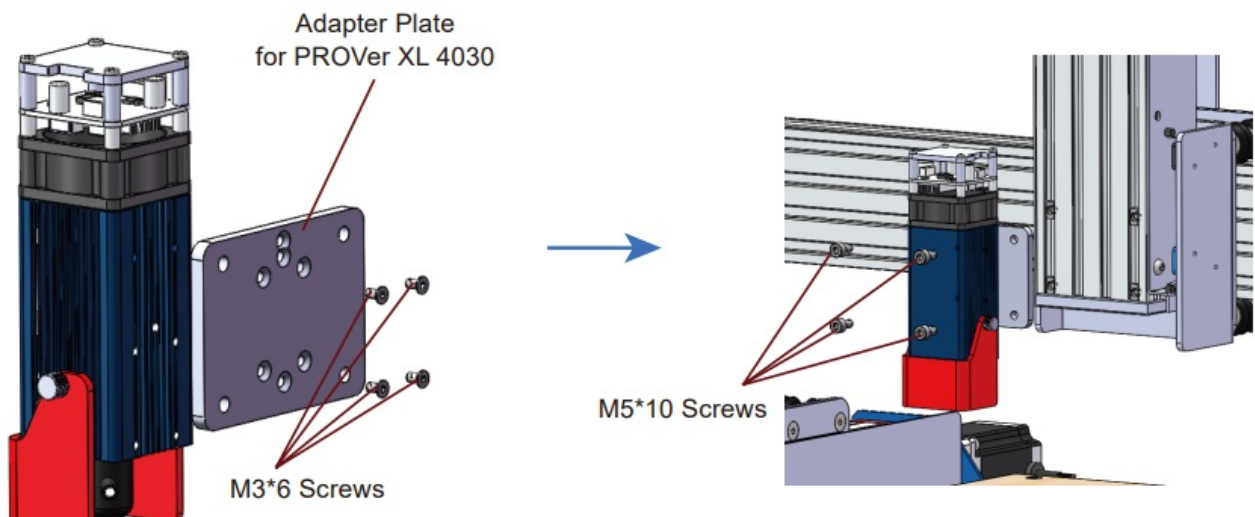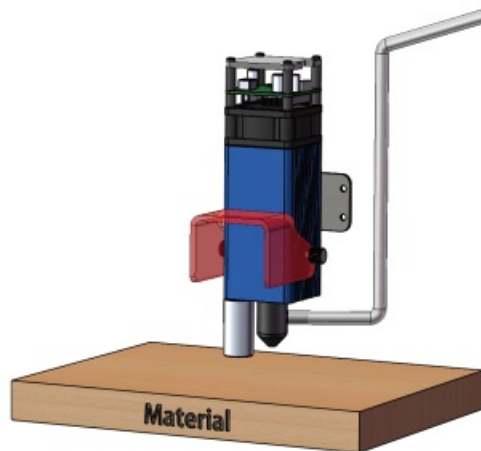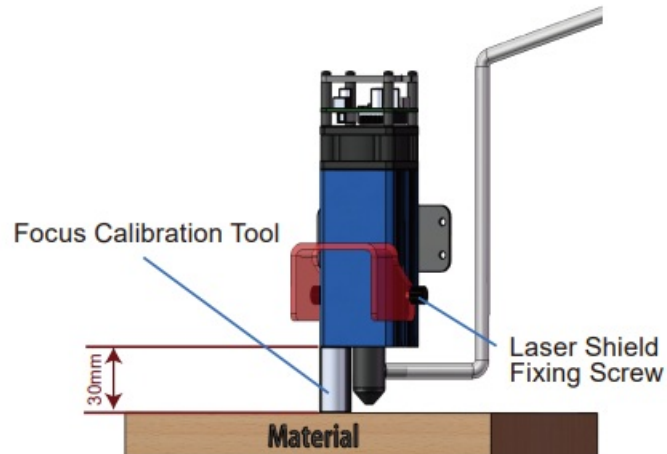

Connecting to a PROVerXL 4030
Connecting the Laser Control Module to a PROVerXL 4030 using the 3-pin cable for GND and PWM and +12v for the Laser Control Module.

STEP 2: Laser Focus

Focus Calibration Tool

30mm

Laser Shield
Fixing Screw

Material

Material

1. Loosen the two screws fixing the laser shield, move the shield to the angle illustrated below and then tighten the screw.
2. Place the focus calibration tool between the laser module and the workpiece. You can quickly set the focal length to 30mm by dropping the laser module down to the calibration tool.
3. Remove the focus calibration tool and make sure not to move the laser module in the meantime, pull the laser shield down.

Installation is now finished.

1. If you find that the fan or the laser is not working when the machine is powered on, please check to ensure you use the correct cable to connect the laser module and the machine controller. Please also check whether the

connection cable is plugged in correctly.

Installing LaserGRBL

LaserGRBL is a free program that works with Grbl-based routers fitted with Laser and Laser Engravers. It will be used here to assist with setting up the Laser, though it is capable of both sending GCode and converting images to G-Code for Laser Engraving It can be downloaded from **https://lasergrbl.com/download/**
After installation and connecting to the router the screen should look like this:
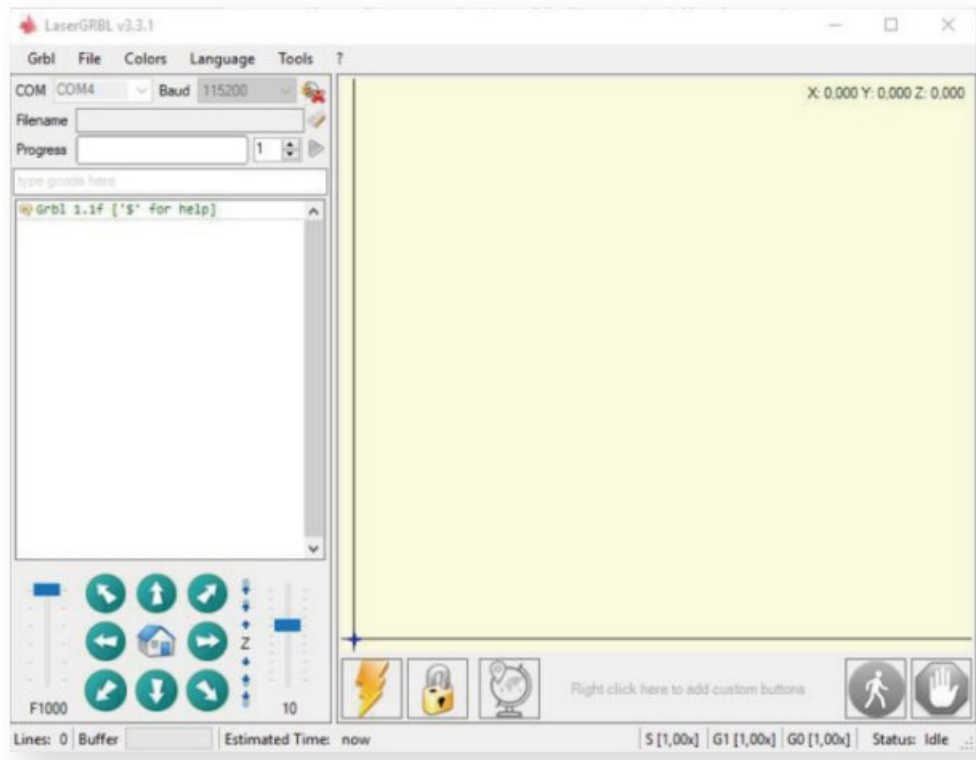
There are a couple of customizations to be made before proceeding.

Enable Z axis Jog

Select 'Grbl" → 'Settings" and click on the 'Jog Control" Tab. Make sure the 'Click'n Jog" box is ticked and saved.
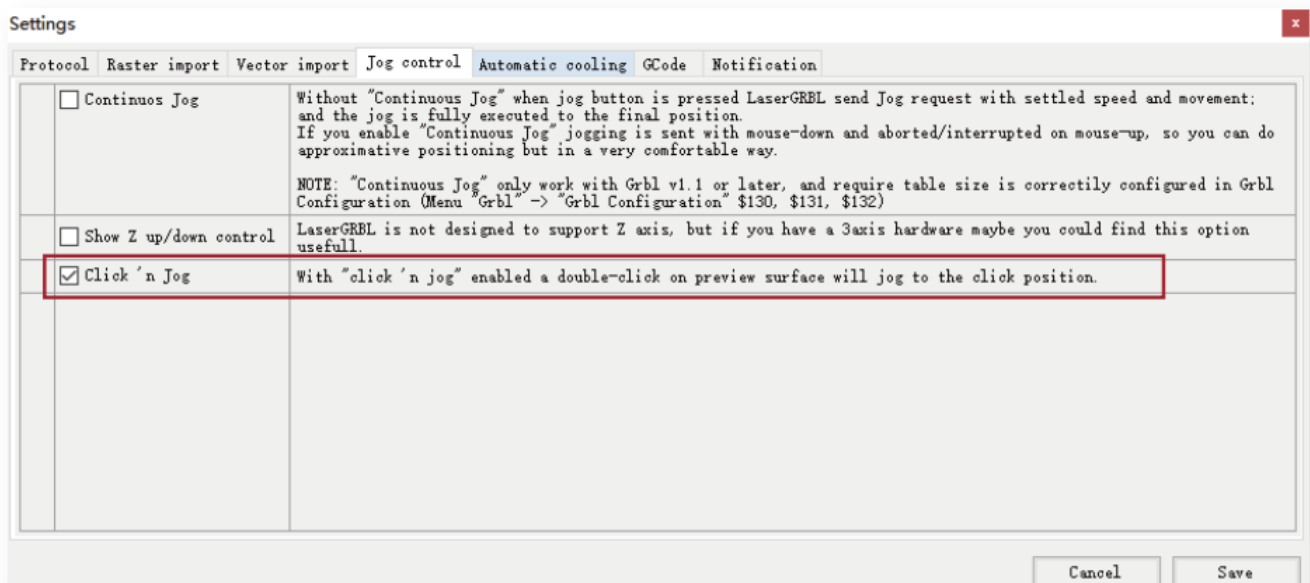
Add Custom buttons FIX URL

Download the file CustomButtons.gz from our SainSmart WIKI at the following URL:
https://lasergrbl.com/usage/custom-buttons/. Right-click on the text 'Right-click here to add custom buttons' in the Buttons pane and select 'Import Custom buttons'. In the Open Window select the downloaded file and click Open. The dialog box of the Import custom button will appear.
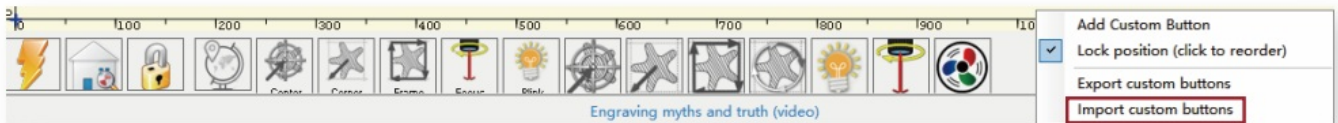

- A short dialog is displayed for each of the three additional buttons. You can now select for each individual button contained in the archive file whether it should be imported or not. Select 'Yes' for each button.

- The LaserGRBL window should now look like this. The three added buttons are arranged from left to right and contain the following functions:

- **NOTE:** The laser power is set by 'S30' in the custom button commands but this is dependent on the Maximum spindle speed ($30) set on the router If your maximum spindle speed has been changed you may need to adjust the laser power by editing the buttons to change the S100 value. When the Laser is on the power should be set so you can see the dot the laser beam makes while wearing the Laser Goggles, normally the S value should be 10% of the $30 set.
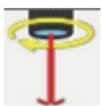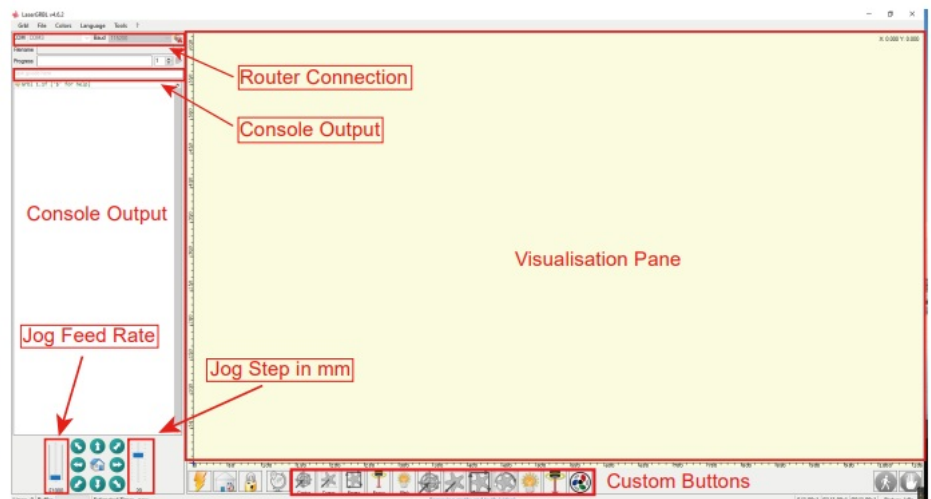

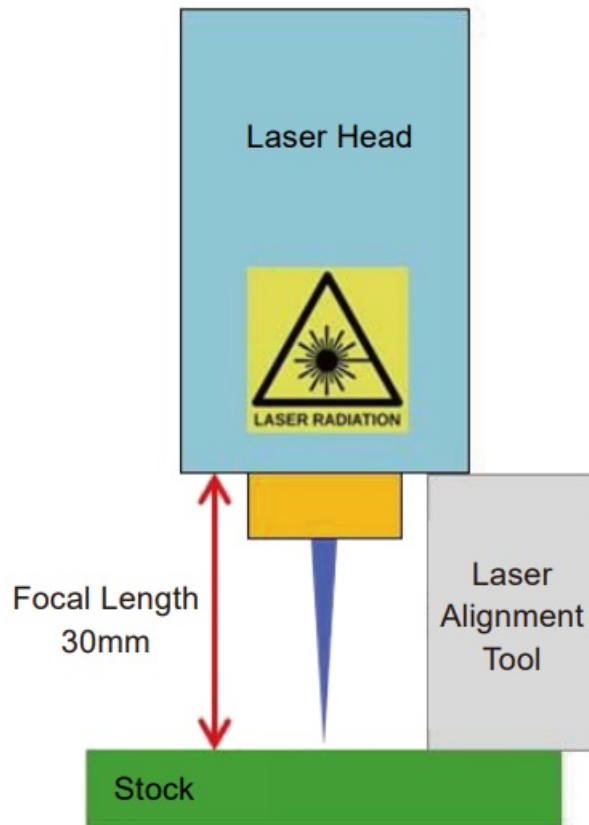Tun on laser at low power (S100), press again to turn off.

Set for Laser mode ($32=1)
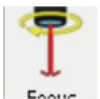
Turn on the laser at low power (S30) for 2 seconds, then turn it off again (useful when setting an origin position)

Use LaserGRBL to Focus the Laser

To cut or engrave efficiently we want the laser beam to be tightly focused into the smallest possible point at the top of the stock. Although the focus point of the Laser is fixed the height of the laser above the stock needs to be set correctly. Do not forget to wear the Safety Googles.

- Place the Laser Alignment tool on the top of the stock at the side of the Laser, not underneath.
- Usw the Z-axis adjustable knob to move the laser up and down until the laser calibration tool will just slides underneath the heatsink.
- Set the zero point at this position by clicking the globe icon.
- If using very thin stock place a flat material underneath it to bring the top of the stock higher and in the range of the Laser.
- If using a thick stock it is possible to slacken the bolt clamping the laser in the motor mount and slide it upwards to give more clearance.
- If desired test the focus of the laser by placing something which will not burn of a known thickness on top of stock underneath the laser.

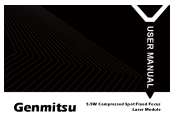Click the Laser Fire button to turn the Laser On
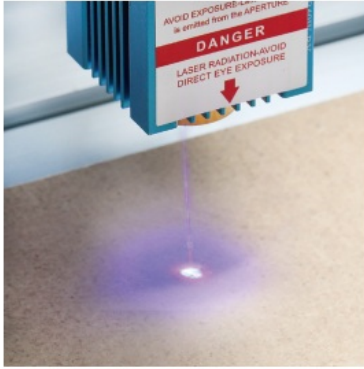
No focused
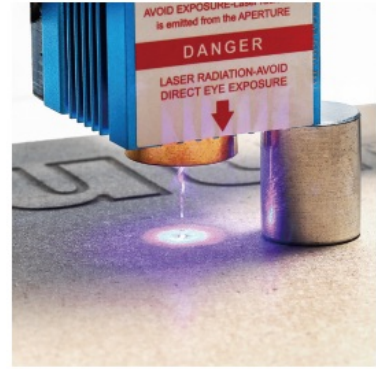
Focused

- If necessary use the Z-Axis Adjustable Knob to move the Laser up and down to achieve the smallest possible laser dot.
- **Then click the Laser Fire button once more to turn the Laser Off.**
- **www.sainsmart.com**
- **support@sainsmart.com**
- **Vastmind LLC, 5892 Losee Rd Ste. 132, N. Las Vegas, NV 89081**

Documents / Resources

 Genmitsu CFL55P 5.5W Compressed Spot Fixed Focus Laser Module [pdf] User Manual
CFL55P 5.5W Compressed Spot Fixed Focus Laser Module, CFL55P, 5.5W Compressed Spot Fixed Focus Laser Module, Fixed Focus Laser Module, Focus Laser Module

References

- 🛸 **[SainSmart | Desktop CNC, 3D Printing & DIY Tools | Power to the Makers – SainSmart.com](#)**
- 🛸 **[SainSmart Resource Center](#)**
- ⚙ **[Download – LaserGRBL](#)**
- ⚙ **[Custom buttons – LaserGRBL](#)**