

Genmitsu CFL55

Genmitsu CFL55 Compressed Spot Laser Module User Manual

Model: CFL55

1. SAFETY INFORMATION

This Genmitsu CFL55 Laser Module is a Class 4 laser product. Class 4 lasers are high power lasers that can cause severe eye and skin injuries from direct or scattered radiation. Adherence to all safety precautions is mandatory.

- **Always wear appropriate laser safety goggles** that filter the 455nm wavelength during operation.
- Never look directly into the laser beam or its reflection.
- Ensure the work area is well-ventilated to remove smoke and fumes generated during laser processing.
- Keep flammable materials away from the laser's operating area.
- Do not leave the laser module operating unattended.
- Ensure all users are trained in safe laser operation procedures.
- The laser module generates heat; avoid touching it during or immediately after operation.



Image: Genmitsu CFL55 Laser Module with its integrated laser shield and visible safety warnings. The shield helps to filter laser radiation and prevent accidental exposure.

2. PRODUCT OVERVIEW

The Genmitsu CFL55 Compressed Spot Laser Module is a high-precision laser accessory designed for engraving and cutting applications on compatible CNC machines. It features a compact design and advanced laser technology for improved performance.

Key Features:

- **0.1mm x 0.1mm Compressed Laser Spot:** Provides enhanced precision and cutting capability, allowing for finer details and cleaner cuts.
- **5.5W Optical Power:** Delivers sufficient power for cutting materials like 4mm plywood in a single pass and for various engraving tasks.
- **Fixed Focus Design:** Simplifies setup by eliminating the need for manual focus adjustment. The optimal focal distance is 30mm.

- **Integrated Air Assist Nozzle:** Improves engraving and cutting quality by clearing smoke and debris from the laser's path, also protecting the lens.
- **UV Laser Shield Protection:** A red acrylic shield is included to filter harmful laser radiation and reduce the risk of accidental exposure.



Image: Visual representation of the Genmitsu CFL55 Laser Module's key features, including its precise compressed spot, air assist nozzle, fixed focus, and protective shield.

Compatibility:

This laser module is compatible with the following Genmitsu CNC machines:

- Genmitsu 3020-PRO MAX V2
- Genmitsu 3020-PRO Ultra
- Genmitsu 3030-PROVer MAX
- Genmitsu PROVerXL 4030
- Genmitsu PROVerXL 4030 V2
- Genmitsu PROVerXL 6050 Plus

- Genmitsu 4040-PRO
- Genmitsu 4040-PRO MAX
- Genmitsu 4040 Reno
- Genmitsu PROVerXL 4x4
- Genmitsu PROVerXL 2x2 CNC Machine
- Jinsoku LC-60A

Note: For PROVerXL 4030 V2 users, contact Sainsmart support if adaptation problems occur; a replacement cable may be provided.

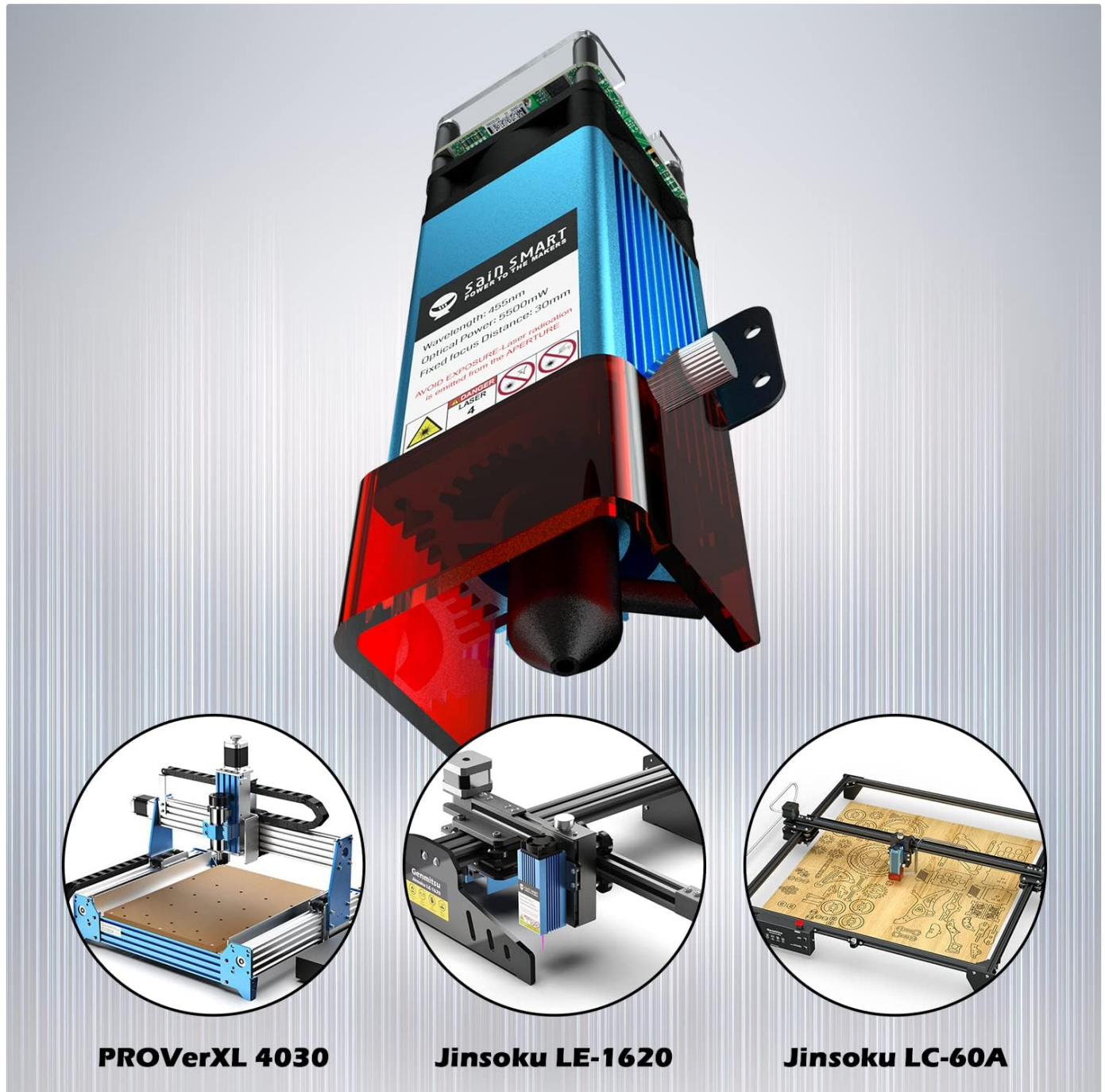


Image: The CFL55 laser module positioned above various compatible Genmitsu CNC machines, illustrating its broad compatibility.

3. SETUP AND INSTALLATION

Before beginning installation, ensure your CNC machine is powered off and disconnected from the power source. Always wear safety goggles during installation to protect against accidental laser activation.

3.1 Unpacking and Inspection

- Carefully remove the laser module and accessories from the packaging.
- Inspect all components for any signs of damage. Contact support if any parts are damaged or missing.





Image: Front view of the Genmitsu CFL55 Laser Module, showing its main body, label, and protective shield.

3.2 Mounting the Laser Module

1. Identify the mounting bracket on your CNC machine designed for laser modules.
2. Attach the CFL55 laser module to the CNC machine's mounting bracket using the provided screws. Ensure it is securely fastened.
3. *Note: Some users of PROVerXL 4030 and similar models have reported issues with adapter plate compatibility or screw length. If you encounter this, contact Genmitsu/SainSmart support for assistance.*

3.3 Electrical Connection

1. Connect the laser module's cable to the designated laser port on your CNC machine's control board. Refer to your CNC machine's manual for the exact port location.
2. Ensure the connection is firm and correct to prevent damage to the module or control board.

3.4 Air Assist Connection (Optional but Recommended)

The CFL55 module includes a stock air assist nozzle. Connecting an external air pump (not included) to this nozzle is highly recommended for optimal performance, especially during cutting operations.

1. Locate the air assist inlet on the laser module.
2. Connect a suitable air hose from your external air pump to this inlet.
3. Ensure the air pump is capable of providing a consistent airflow.

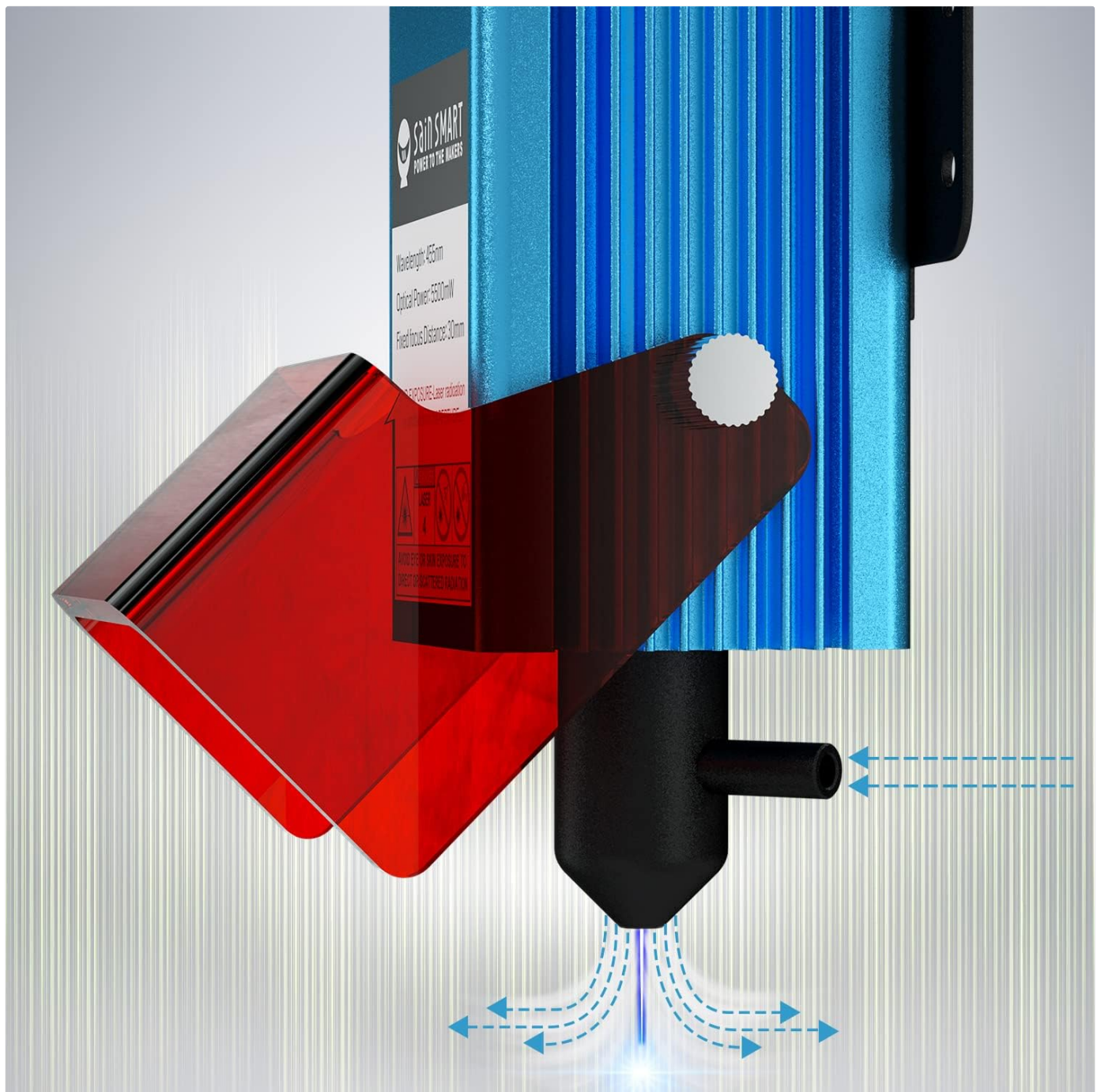


Image: Close-up of the integrated air assist nozzle on the CFL55 module, illustrating how air is directed to clear debris during operation.

4. OPERATING INSTRUCTIONS

Operating the Genmitsu CFL55 Laser Module requires careful attention to safety and proper software configuration.

4.1 Software Configuration

- The laser module is typically controlled via CNC software such as LaserGRBL or LightBurn.
- Configure your software with the correct laser power settings and movement speeds for your desired material and operation (engraving or cutting).
- The optimal fixed focus distance for the CFL55 is 30mm. Ensure your Z-axis offset in the software accounts for this distance from the material surface.

4.2 Material Preparation

- Place the material to be processed securely on the CNC bed.

- Ensure the material is flat and level to maintain consistent focus across the work area.
- Always perform small test cuts or engravings on scrap material to determine optimal power and speed settings before processing your final piece.

4.3 Starting Operation

1. Power on your CNC machine.
2. Launch your laser control software and connect to the CNC machine.
3. Load your design file.
4. Position the laser head to the starting point of your project.
5. **Ensure you are wearing laser safety goggles.**
6. If using air assist, activate the air pump.
7. Initiate the laser operation from your software.
8. Monitor the process closely. In case of any issues or fire, immediately stop the machine.

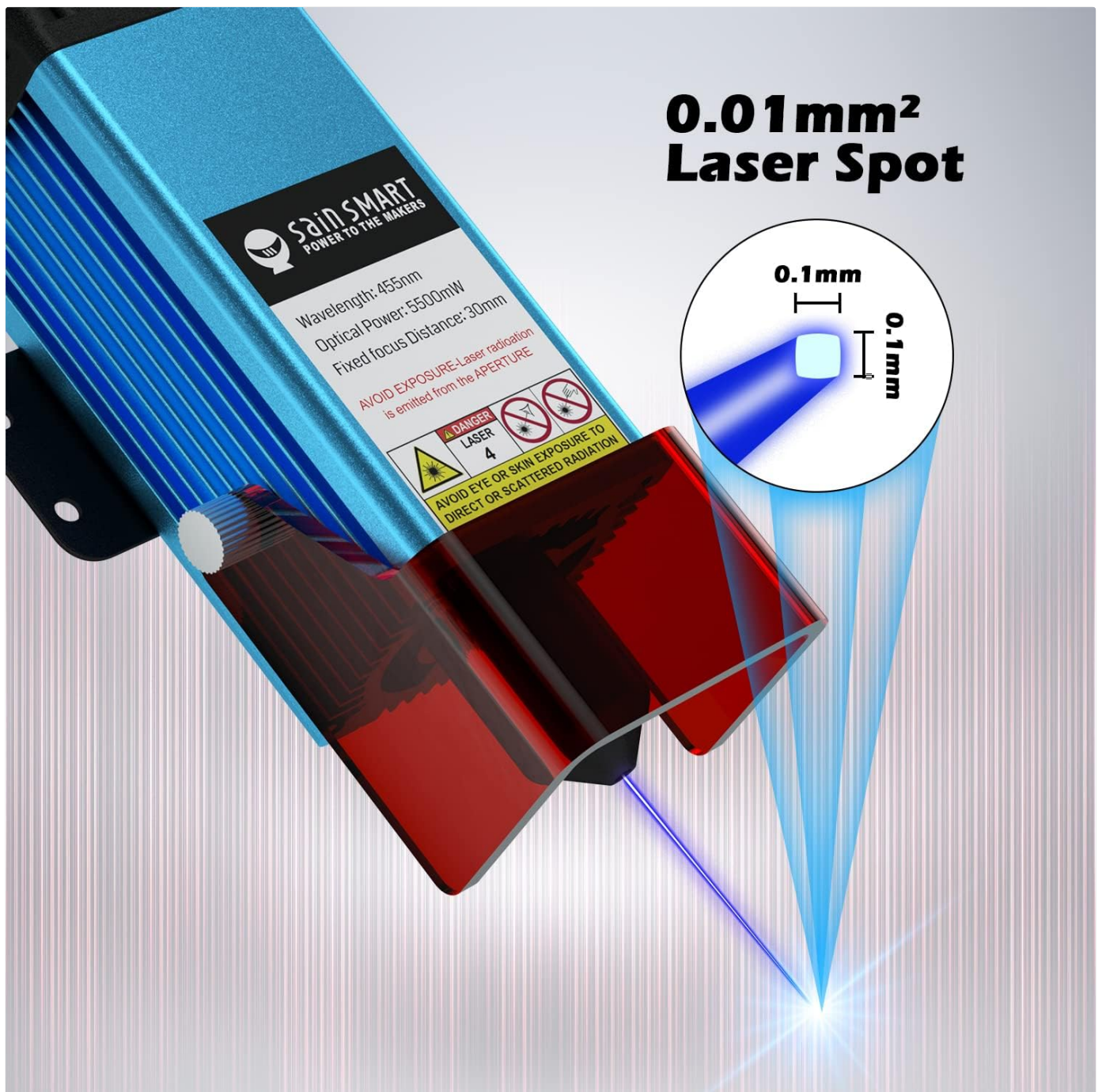


Image: A diagram showing the precise 0.1mm x 0.1mm laser spot, highlighting the module's capability for fine detail.

5. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your Genmitsu CFL55 Laser Module.

5.1 Cleaning the Laser Lens

- Over time, smoke and debris can accumulate on the laser lens, reducing its effectiveness.
- With the machine powered off, gently clean the laser lens using a lint-free cloth and a small amount of isopropyl alcohol or specialized lens cleaning solution.
- Avoid abrasive materials or excessive force, which can scratch the lens.

5.2 Inspecting Connections

- Periodically check all electrical and air assist connections to ensure they are secure.
- Loose connections can lead to intermittent operation or damage.

5.3 Heat Dissipation

- The laser module is designed with upgraded heat dissipation. Ensure the cooling fins are free from dust and obstructions to maintain efficient cooling.
- A clean module operates more reliably and has a longer lifespan.

6. TROUBLESHOOTING

This section addresses common issues you might encounter with the Genmitsu CFL55 Laser Module.

Problem	Possible Cause	Solution
Laser not firing or weak output	Loose electrical connection. Incorrect software settings (power, speed). Dirty laser lens. Laser module defect.	Check all cable connections. Verify power and speed settings in your software. Clean the laser lens as described in Maintenance. If issues persist, contact Genmitsu support.
Poor engraving/cutting quality	Incorrect focus (Z-axis height). Suboptimal power/speed settings. Lack of air assist. Material not flat.	Ensure the fixed focus distance (30mm) is correctly set in your Z-axis offset. Adjust power and speed settings based on material tests. Connect and use an air assist pump. Ensure material is securely clamped and flat.
Module not mounting correctly	Incompatible adapter plate or screws.	Contact Genmitsu/SainSmart support for specific adapter plate or screw requirements for your CNC model.

For further assistance, refer to the Support section.

7. SPECIFICATIONS

Feature	Detail
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Feature	Detail
Brand	Genmitsu
Model Number	CFL55
Optical Power	5.5W (5500mW)
Laser Spot Size	0.1mm x 0.1mm
Wavelength	455nm
Fixed Focus Distance	30mm
Material	Aluminum
Item Weight	0.56 kg
Operation Mode	Automatic
Laser Class	Class 4

8. WARRANTY AND SUPPORT

Genmitsu products are designed for reliability and performance. For specific warranty details, please refer to the warranty information provided with your original purchase or visit the official SainSmart website.

Customer Support:

If you encounter any issues or have questions regarding your Genmitsu CFL55 Laser Module, please contact SainSmart's support team. They can be reached via email or through their official website.

- **SainSmart Support Contact Page:** <https://bit.ly/3ZMnr3h>

When contacting support, please provide your product model (CFL55), purchase date, and a detailed description of the issue.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details.](#)

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question