

RhinoLaserGRBL

QUICK START GUIDE

Install, connect and run your first laser job

Version 1.0.1 | Rhino 8 for Windows

Design -> Prepare -> Preview -> Send -> Machine

Scope: This guide covers the shortest safe path from installation to a first FRAME and SEND. Read the Safety Guide before operating a laser.

1. Requirements

- Rhinoceros 8 for Windows.
- A USB/serial laser controller using the GRBL 1.1 family protocol. GRBL 1.1f is the primary physically tested target.
- A correctly configured laser machine, USB driver and physical safety system.
- A valid work area (workspace) that matches the machine you intend to use.

2. Install RhinoLaserGRBL

Recommended - Rhino Package Manager

1. Open Rhino 8.
2. Run the command `_PackageManager`.
3. Search for RhinoLaserGRBL.
4. Install version 1.0.1 or later.
5. Restart Rhino when prompted or before first use.

Direct .yak download

If you downloaded the .yak package directly, the Yak CLI supplied with Rhino 8 can install a local package file:

```
"C:\Program Files\Rhino 8\System\yak.exe" install "C:\path\to\rhinolasergrbl-1.0.1-rh8_0-win.yak"
```

Note: A new Rhino package is loaded the next time Rhino starts.

3. Open the panel and check the trial

6. Open the RhinoLaserGRBL panel from the plug-in command/menu.
7. Confirm that the license status shows TRIAL and the remaining days.
8. The trial is 15 days and is full-featured while active.
9. If you already purchased a license, go to TOOLS -> LICENSE and import the signed .rlglicense file.

License behavior: When the trial ends, machine-control actions are blocked. Preview, configuration, G-code preparation and diagnostics remain available.

4. Create or load a machine profile

Go to TOOLS -> MACHINE. A machine profile stores the essential connection and workspace settings.

Setting	What it means
Port	USB serial port for the laser controller, for example COM6.
Baud	Serial speed. 115200 is common for GRBL 1.1 and is the default.
Width / Height	RhinoLaserGRBL workspace dimensions in millimeters.
Max S	Controller laser-power scale used to convert percentage to S values.
Origin mode	Manual origin, or Homing / limit switches for a machine that is physically configured for homing.

Important: Do not enable Homing / limit switches unless the physical machine and GRBL controller are actually configured for homing.

5. Connect the USB controller

10. Connect the laser controller to the computer by USB.
11. Select the correct COM port for the laser controller.
12. Connect and allow RhinoLaserGRBL to identify the endpoint.
13. Confirm the controller changes from detecting / unknown to GRBL 1.1 or GRBL-compatible.
14. Do not send raw commands to an unverified port.

Port safety: Automatic startup connection uses the saved preferred COM port only. RhinoLaserGRBL does not silently fall back to another COM port.

6. Establish position reference

Manual-origin machine (no homing switches)

15. Use RELEASE MOTORS if you need to reposition the head by hand.
16. Move the head to the physical work origin, typically the lower-left corner.
17. Click SET ORIGIN.
18. Wait for the status to show READY. The current head position becomes work X0 Y0.

Manual mode: HOME 0,0 returns to a known work origin. It does not execute \$H.

Homing machine

19. Verify the machine has working limit switches and GRBL homing is correctly configured.
20. Enable Homing / limit switches in the machine profile.
21. Use HOME MACHINE.
22. Wait for homing to finish and status to show READY.

Controller settings: RhinoLaserGRBL does not automatically rewrite persistent GRBL settings such as \$20, \$21, \$22, \$30 or \$32.

7. Confirm the workspace

In MOVE, use the WORKSPACE / VIEW controls to show or hide the bed and live head overlays. RECREATE BED synchronizes the Rhino document workspace rectangle with the active machine profile.

- The viewport overlay and the document workspace rectangle use the same width and height settings.
- Jog limits, FRAME/SEND validation, raster bounds and material-test bounds use the same workspace.
- Changing the workspace invalidates the position reference for safety. Re-establish the origin before running a job.

8. Prepare a simple vector job

23. Create or select curves in Rhino inside the configured workspace.
24. Open COLORS.
25. Assign a process such as CUT, MARK, ENGRAVE or FILL to the selected curves.
26. Set speed, power, passes and any fill / kerf options required by the process.
27. Use PREVIEW / toolpath tools if you want to review the generated path.

9. FRAME before SEND

28. Click FRAME to trace the outer job boundary with the laser output intended to remain off.
29. Confirm the physical position and clearance on the machine.
30. Click SEND to run preflight and stream the prepared job.
31. During a running job, PAUSE and STOP become available. PAUSE changes to RESUME while held.

Safety: FRAME is a positioning check, not a substitute for physical machine safety. Keep the enclosure/PPE, extraction and fire supervision required by the machine manufacturer.

10. If FRAME or SEND is disabled

FRAME and SEND are intentionally disabled until all primary conditions are satisfied:

- Serial connection is open.
- The endpoint has been identified as GRBL-compatible.
- The position reference is valid.
- The controller is Idle.
- No job, cancel or homing operation is active.

11. Support

Website: <https://osbase.com.br/rhinolasergrbl>

Support and licensing: grbl@osbase.com.br

When reporting a technical problem, use TOOLS -> ABOUT / diagnostics to export a support report when available.