

Source

This version of the grbl firmware is derived from the Inventables/grbl Master branch as of 8/31/2016. The Master branch is based on grbl version 1.0c, which is currently in development, and is not released as a stable product as of this date 9/4/2016.

Modifications in this version:

- 1) Added \$32 grbl parameter, updated settings version to 11.
- 2) Both standards, that grbl is based on, specify that S0 should turn the spindle off. Grbl versions prior to 1.0c Edge do not turn the spindle off, but set the spindle speed to minimum. This has been fixed in version 1.0c Edge. The S0 fix is also included in this version of the firmware.

This version of grbl will output a logic low signal (spindle/laser off) on the PWM pin when the RPM is set to 0 (zero).

- 3) The parking code has been removed by its configuration parameter (config.h).
- 4) Support for dynamically changing from spindle mode to laser mode.
- 5) Changed dwell (G4) floor and step size to 1 millisecond.

Why have another version of grbl?

Some people have added a J Tech laser module to their X-carve. The firmware changes made here are to allow switching back and forth between the spindle mode of the X-carve and laser mode, without having to re-flash the firmware into the Arduino.

The goal, at this point, was to provide J Tech support in the leading edge version of grbl with minimal changes to the firmware.

How do I use the J Tech Laser?

Selection of spindle mode or laser mode is controlled by three of the grbl parameters, namely, \$30, \$31 and \$32.

To use the laser mode: \$30 (rpm max) must be set to 255, \$31 (rpm min) must be set to 0 (zero), and \$32 (laser mode) must be set to 1 (one). These settings for the three parameters are the only settings that utilize laser mode. All other settings are spindle mode.

Notes:

Save your current grbl parameter values before installing this version of grbl. Any tuning you have done to the grbl parameters will be overwritten when this version is installed. This is due to the fact that a new parameter has been created to select laser mode. Once you have installed the firmware you can restore your modifications and they will be retained.

Since the selection of laser mode depends on the min (\$31) and max (\$30) rpm settings, those settings have to be correct before you can set laser mode (\$32). This becomes important for those that have automated procedures for updating the grbl parameters.

Mode switching is dynamic and near real-time. It is highly recommended that you only change any of the three settings when the machine is idle with the spindle/laser off.

Please remember that you are responsible for following safe operating procedures when using your laser. Only switch to laser mode when all safety devices are in use.

Examples:

For example: laser mode = 0 => spindle mode

For example: laser mode = 1; min rpm = 0; max rpm = 255 => laser mode

Release Notes:

9/01/2017 - minor update

- 1) Changed dwell (G4) floor and step size to 1 millisecond.

11/12/2016 – minor update

- 1) Changed spindle mode to use 1kHz PWM frequency
- 2) Performance updates for G1,G2,G3 command setup
- 3) G2, G3 S command error correction

10/12/2016 – Bug fix

- 1) Laser turn on command occasionally occurred out of step resulting in ghosting of the image.

9/28/2016 – Original Release