

# X-Controller: Technical Information

**Note:** While the X-Controller has separate drivers for 4 stepper motors, the X-Controller is not 4-Axis because it runs [Grbl](#) only. Grbl is only a 3 axis controller.

## Features

- Built in [Grbl 3D carving controller](#). No external controller like Mach 3/4 is required.
- 3 axis design
- (4) 4A stepper drivers (Y axis has 2 ganged drivers for X-Carve-type machines)
- Microstepping (Full through 1/16th)
- Easy current adjustment via large, well-marked potentiometers
- Automatic idle current reduction independent for each axis
- Internal 24V 400W power supply for stepper motors
- Large internal heatsink and integrated cooling fan keeps system cool at all power loads
- Spindle speed control (0-5VDC PWM or 0-10V)
- Noise-filtered inputs for 3 axis home/limit switches
- Noise-filtered input for Z probe/touch plate
- 2 digital outputs to control external items like vacuums and coolant systems
- All inputs and outputs have their own ground terminals for clean and easy wiring.
- Labeled connections
- Rugged latching E-Stop that kills all power
- Feedhold, Cycle Start and Reset (Motion Cancel) buttons on front side
- All electrical interfaces use large, detachable terminal blocks
- USB connection
- Heavy aluminum chassis with mounting holes

## Operating Environment:

- Temperature: 0-40C
- Humidity: 0-90% (non-condensing)