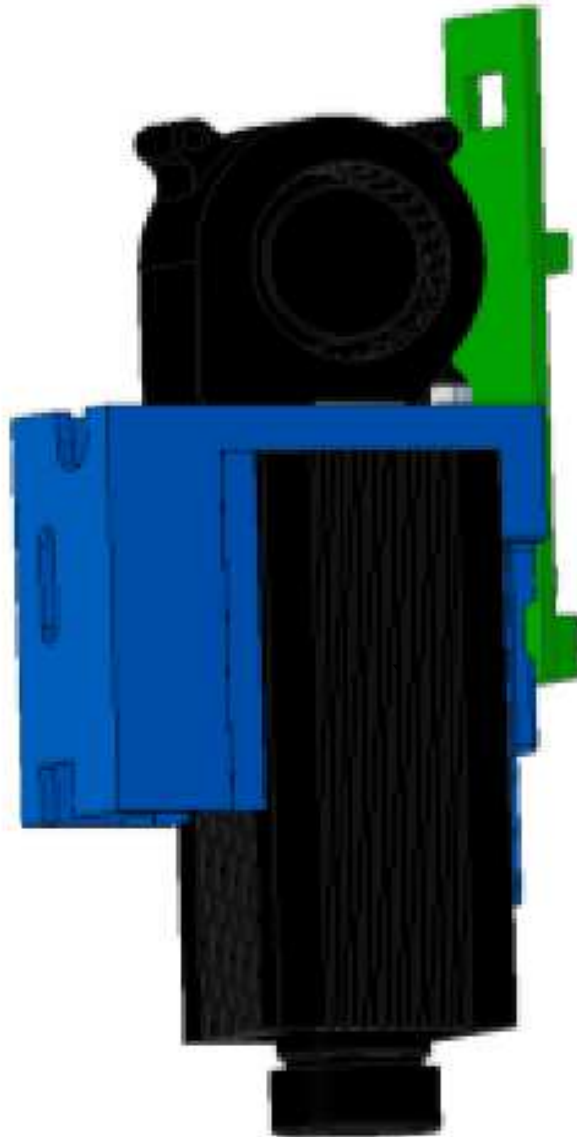
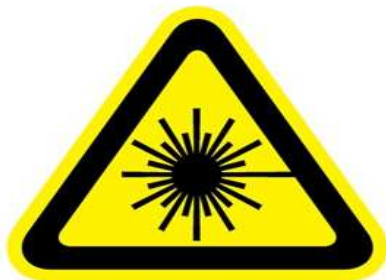


SHARK V LASER TOOL



DANGER



**Laser Radiation
Class 4.**

**Avoid eye or skin
exposure to direct or
scattered radiation.**

**Laser protective
eyewear required.**

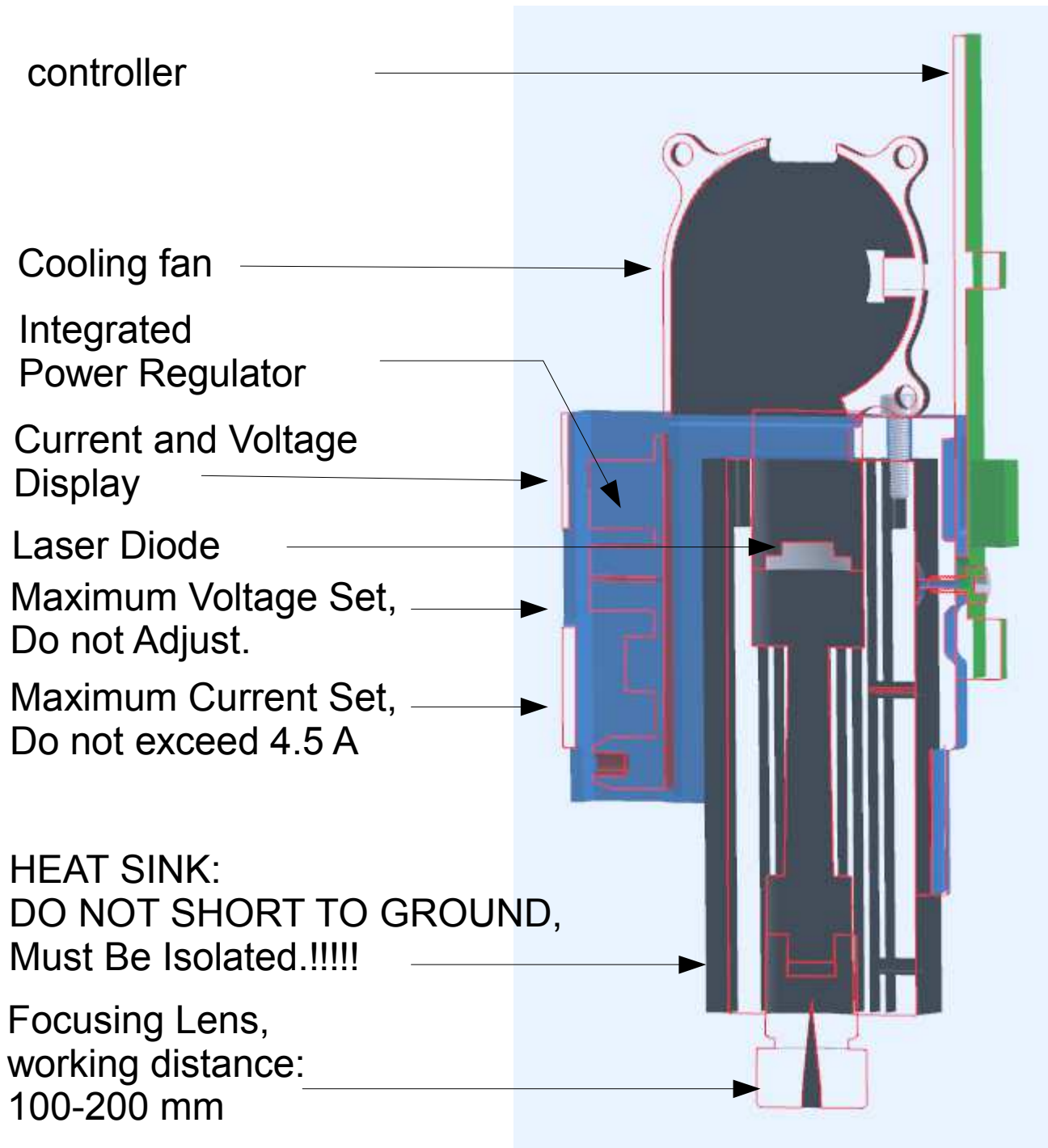
Specifications:

5 Watt Optical Power @4.5 amps +/- 20 %

808nm, with visible red fringe light

Solid State Laser, operate at Room Temperature.

On/Off Time <5ms



Theory of Operation:

The Shark V is a 5 watt Laser, 808nm wavelength.

USE EXTREME CAUTION:

Use Eye Protection, if you have no safety glasses,
Use your cell phone camera or web cam to avoid Directly
Looking at the laser beam.

NEVER try to cut Shiny or reflective objects.

The Shark V uses a 5Watt C-mount Laser Diode with special
Constant Current drive electronics. Normal power regulators
Will Destroy the Laser diode in fractions of a second, ONLY
Use with factory supplied Regulator.

High Power Laser Diodes are really a series of small laser
Diodes that are made on a silicon wafer. They are cut and
Usually have a 2 dimensional array of dots that are emitted
As parallel laser lines.

To help collimate the laser energy, there is a FAC lens,
(Fast Access Collimator).

Then the energy beams are focused to a point using a specially
Coated Lens, to match the frequency of the Laser Diodes.

The POWER of the Laser is determined by the Current flowing
Through the laser. Solid state lasers are less than 30% efficient
In most cases, so they will generate Heat as well as Light.
When the Diode Heats up, the resistance drops, that is why we
Use a special constant current power regulator.

We also use a Large cooling fan, and massive heat sink, to
Keep the laser Diode within a few degrees of ambient.

The Life of the Laser Diode is directly related to the operating
Temperature of the laser diode. A properly cooled laser diode
Can exceed 5000 hours of operation, which reduces your
Cost to use the laser to a few pennies an hour.

Using the Laser:

Caution!!!!!! this is a dangerous tool if not used properly, Use Proper eye-ware at all times, the frequency of this Laser is 808nm, use Correct glasses for direct viewing.

Uses:

This laser has been used to cut the following:

Dark Paper:

Dark Foam;

Dark Plastic:

Dark colored Solder board resist.

Wood Burning on most woods, with mixed results depending On the Color of the grain of the wood.

Nice Marks can be made using TherMark or Cermark type Spray coating, then lasing the desired mark or pattern.

TIPS:

NEVER CUT FOAM with PAPER under neath.

The Paper tiny sparks from the Paper will catch the Foam On Fire.

NEVER leave the laser to work unattended, there is ALWAYS A FIRE HAZARD:

ALWAYS USE good ventilation when using the laser, Many of the Plastics and other interesting materials to Cut, will emit toxic fumes.

The Shark Laser was designed to operate with a 3d Printer. It will be necessary to create Gcode to move the Laser Head And also to Turn on and Off the Laser, so that the pattern You desire can be created.

ON a Hyrel Printer, you will need to enable the Laser head Before it will respond to the ON/Off commands.

The M-Code is;

M106 Txx Pxxx

Where Txx is the tool location,

Pxxx is the desired POWER in Percent.

Note that simply executing the M106 command does NOT Turn on the laser. You must actually do a G1 Move with a "Ex" argument.

This was designed, so that you can use the same slicer Program that you normally use, to make good Code for Your laser, because the E argument will be automatically Generated by the slicer, and all you will need to do

There are several good DXF to G-Code applications online, That are free of charge.

All you need to do is include a "Ex" argument on a G1 move To make a mark with the shark V.

Example

M106 T11 P50 ;select head 1 in yoke 1, and set power to 50%.

G0 X50 Y50; go to start position.

G1 F1000 X100 E.1 ;mark line to X100, 1000mm/min Feedrate

G1 Y100 E.1

G1 X50 E.1

G1 Y50 E.1 ;complete lasing test box.

M107 ; disable off laser

M30 ;End of program. ALWAYS USE THIS.

Maintenance:

NEVER LOOK AT THE LASER UNPROTECTED!!!!

Do NOT remove the lens from the laser, it will allow Dust to get inside and Dust will cause Premature failure.

Do not operate the laser if the BODY of the laser is above 35 Degrees C.

Use excellent cross ventilation with cutting with the laser, This will keep the lens from getting a coating on it from The smoke and fumes, which will degrade the focus and Overall performance of the laser.

Additional Help:

Check on YouTube and look for key words SHARK V Laser for videos,

We are encouraging users to post often, how they have Used their SHARK V to make fun and useful projects.

DISCLAIMER:

You MUST BE 18 Years old to purchase or operate this laser. No warranty or guarantee is offered for the application of this Product,

Use at your own risk!!!!!!!

The user agrees to be ENTIRELY responsible for Safe Operation Of this product.