



Quick Start Guide

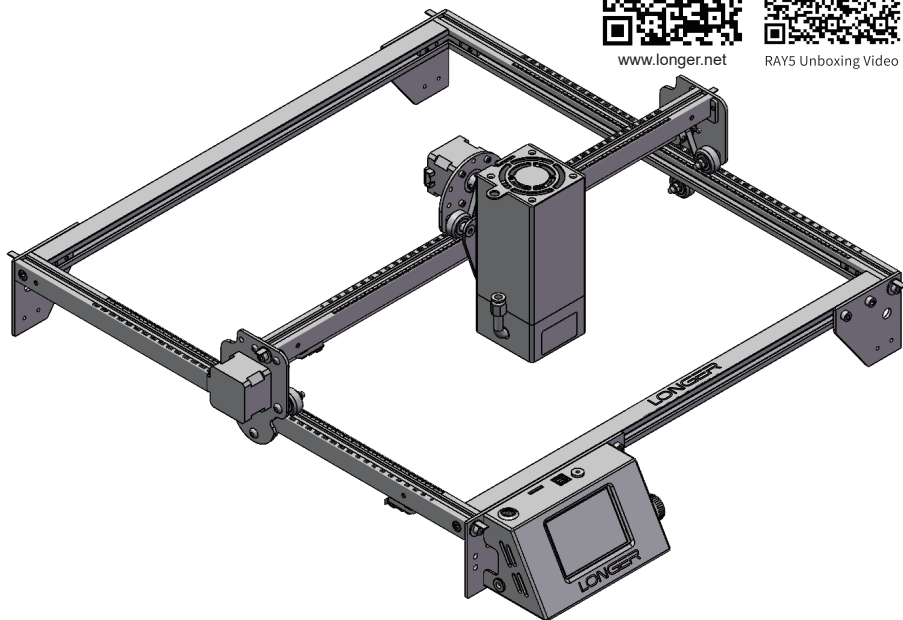
CE FC RoHS



www.longer.net



RAY5 Unboxing Video



LONGER LASER ENGRAVER **RAY5 20W**

! ATTENTION !

1. The RAY5 engraves and cuts materials using a high-energy diode laser beam. Hazards associated with this include the risk of fires generation of hazardous and/or irritating toxic fumes, and more importantly, potential damage to eyes and skin.
2.  Laser engravers are divided into several internationally valid classes based on their performance and the risk of injury. The RAY5 falls into the Class IV (Class 4 IEC standard focus on the American FDA classification).

Laser class	Class Definition
Class I	Class I laser radiation is not considered.
Class IIa	Class IIa laser radiation is not considered hazardous if viewed for periods less than or equal to 1×10^3 seconds, but may pose a chronic viewing hazard if viewed for periods longer than 1×10 seconds.
Class II	Class II laser radiation is considered to be a chronic viewing hazard.
Class IIIa	Class IIIa laser radiation is considered to be, depending on the irradiance, either an acute intrabeam viewing hazard or a chronic viewing hazard, and poses an acute hazard if viewed directly with optical instruments.
Class IIIb	Class IIIb laser radiation is considered to be an acute hazard to the eyes and skin from direct exposure.
Class IV	Class IV laser radiation is considered to be an acute hazard to the skin and eyes from both direct and scattered exposure.

The high-energy laser beam can cause severe eye injury, including blindness, and serious skin burns.

Improper use of the controls or modification of the safety features may result in eye injury and burns.



Please wear Personal Protective Equipment (PPE). Safety glasses are designed to filter specific ranges of laser wavelengths. The RAY5 comes with safety glasses specifically designed for the LONGER Laser Module.

DO NOT look directly into the laser beam;

DO NOT aim the laser beam at reflective surfaces;

DO NOT operate the laser without PPE for all individuals in the RAY5;

DO NOT allow unsupervised access to the RAY5 by children;

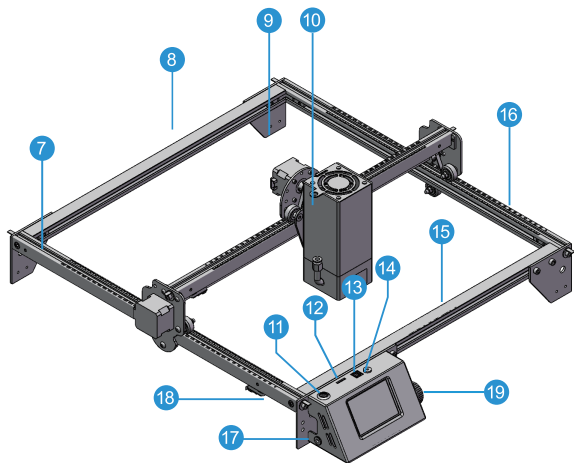
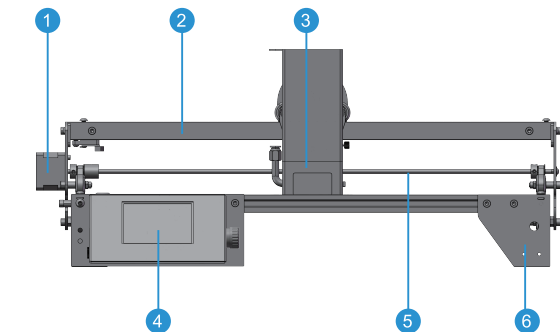
DO NOT allow pets near the RAY5;

DO NOT modify or disable any safety features of the laser system;

DO NOT touch the high-energy laser beam;

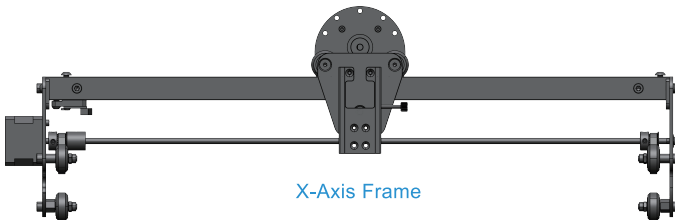
3. We strongly recommend placing the machine in a well-ventilated room. Ensure that the door seals properly and the windows have curtains to effectively prevent direct exposure to the laser beam, smoke, vapors, particles, and other potentially toxic substances. Additionally, you can consider Longer's protective covers for added safety in the future.
4. The high-energy diode laser beam can generate extremely high temperatures as it burns away material during engraving and cutting. Some materials are flammable and may catch fire, producing flames, fumes, and smoke.
5. During operation, ensure that any flare-ups or flames are immediately contained and extinguished.

LASER ENGRAVER INTRODUCTION



- 1 Y-Axis Motor
- 2 X-Axis Frame
- 3 Laser Module
- 4 Touch Screen
- 5 Synchronous Shaft
- 6 Support Feet
- 7 Left Frame
- 8 Rear Frame
- 9 X-Axis Motor
- 10 Laser Holder
- 11 Power Switch
- 12 TF Card Port
- 13 USB Port
- 14 Air Pump Port
- 15 Front Frame
- 16 Right Frame
- 17 Power Port
- 18 Limit Switch
- 19 E-Stop

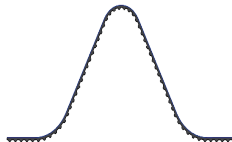
PACKING LIST



X-Axis Frame



Laser Module



Timing Belt



Control Box



Limit Switch

8 Rear Frame



Power Cable



Safety Glasses



USB Cable



Plywood



Card Reader
& TF Card



Cable Tie



Wooden Brush

Accessories



M5*10X4



M5*16X9



M5*20X4



Corner Groove X4



Flat Washer X4



Isolation Column x2



Support Feet



Antenna

Installation Parts



Wrench



Allen Wrench

Installation Tools

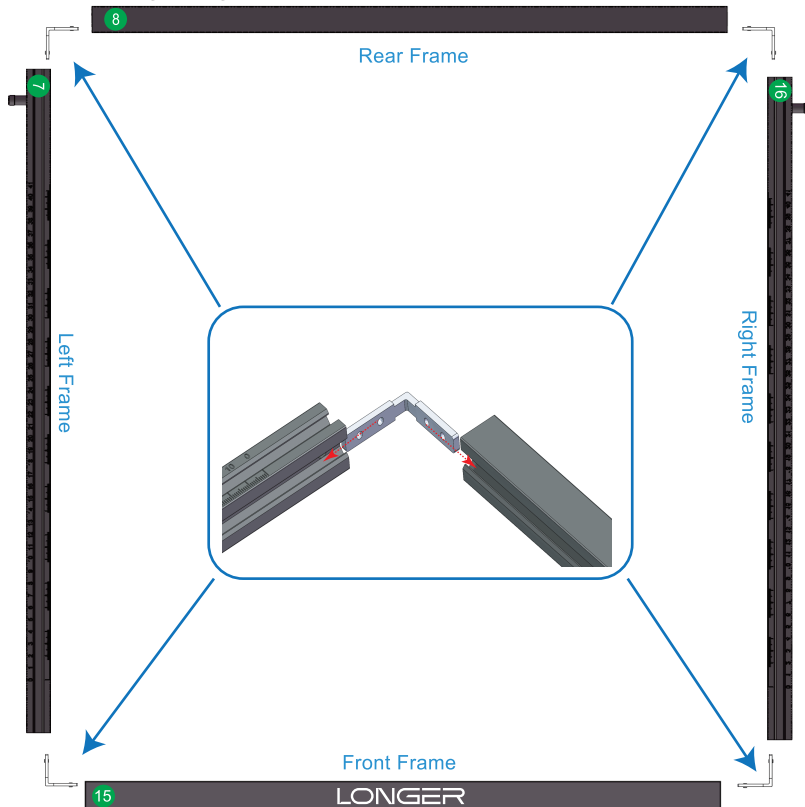
LONGER

15 Front Frame

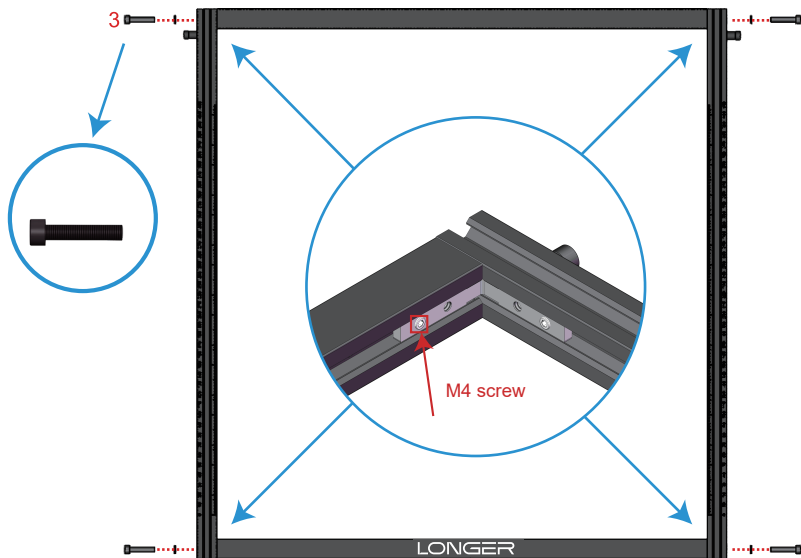
INSTALLATION STEPS

1

Place the profiles on a flat table in order, and place four corner grooves into the profiles referring to diagram. ▼

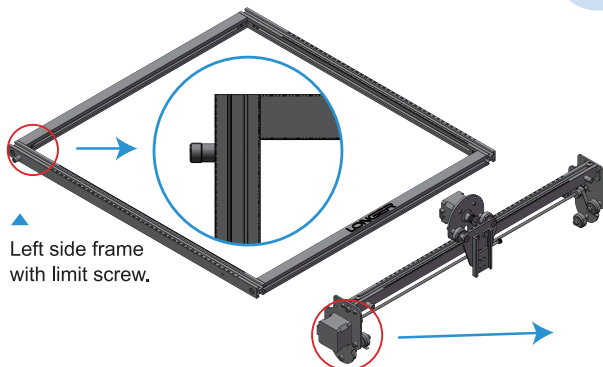
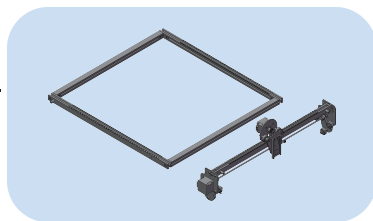


- ▼ Tighten the M5X20 screws into frames.
Tighten the M4 screws on the corner grooves.



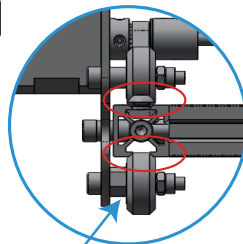
2 Preparation: X-Axis Frame, and the frame to complete the assembly.

Install the X-Axis Frame in the V-groove of the left and right Frames along the direction of the arrow.



Left side frame
with limit screw.

Pay attention to adjusting the
eccentric nut to prevent the
roller from being damaged
by the groove. ▼



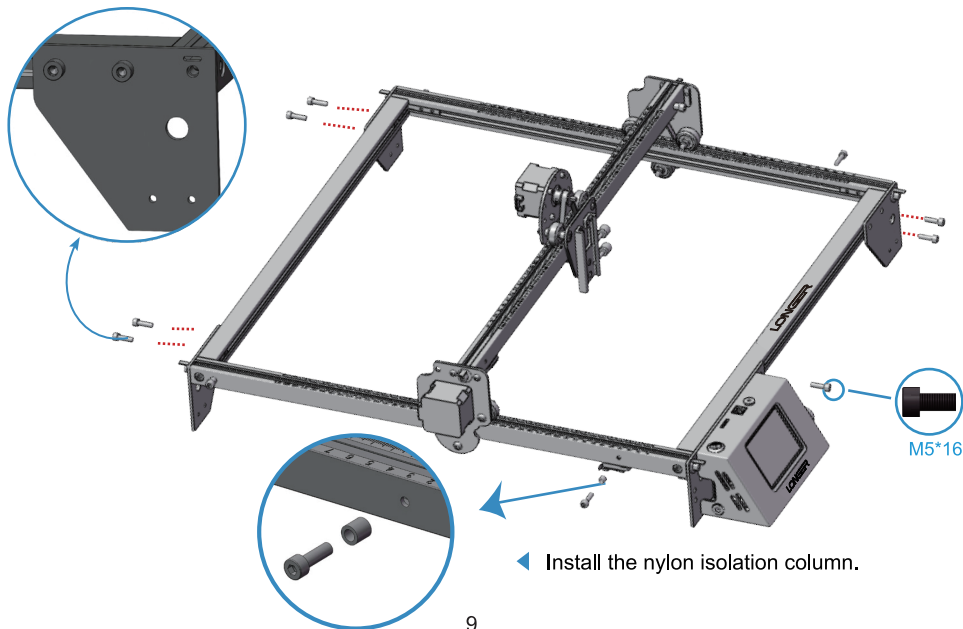
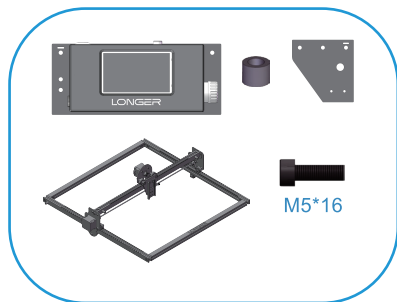
Eccentric nut

3

Preparation:

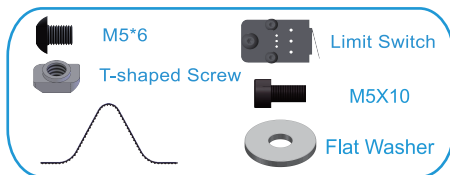
Preparation: Support feet x3, engraving machine control box, M5*16 hexagon socket cup head screw x9, nylon isolation column (7*5*6) x2.

According to the figure, install the supporting foot, the control box of the engraving machine, and the nylon isolation columns in the corresponding position.

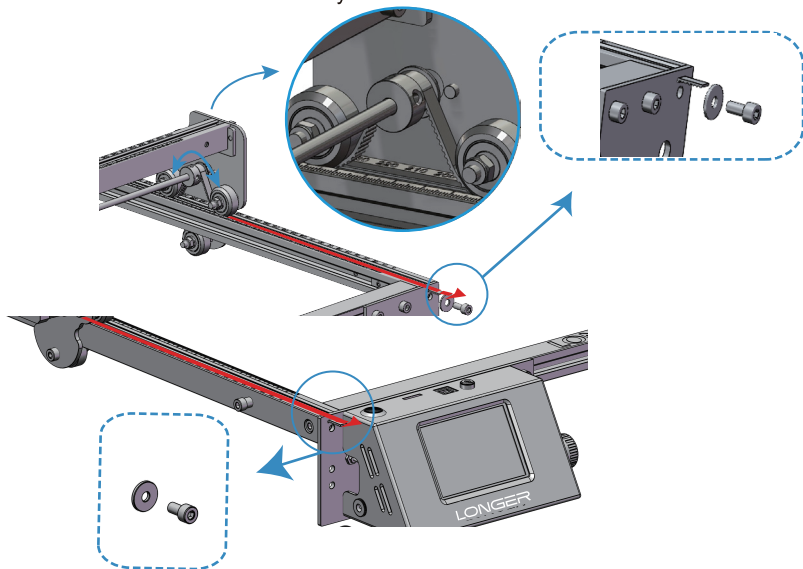


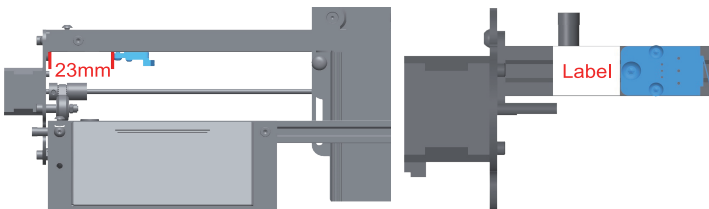
4

Preparation: Flat washer X4
Timing belt x2.
M5X10 hexagon socket head screw x4.

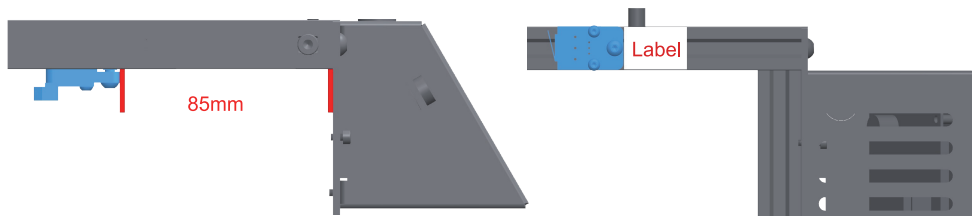


- 1). Place a timing belt along the red arrow with the tooth face down.
- 2). Put the flat washer on the M5X10 screw, press the timing belt with the flat washer and tighten the screw.
- 3). Tighten the belt by hand, then fix another end of belt in the manner of previous step.
- 4). Fix another belt on left frame in the same way.



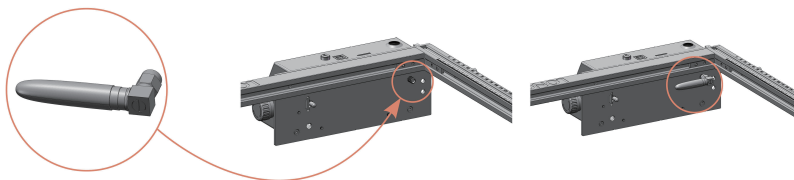


5. Turn the RAY5 engraver over, attach the limit switch to the edge of the label, and fasten it with a hex key allen wrench, then limit switch is about 23mm from the left sheet metal.



6. Attach the limit switch to the edge of the label, and fasten it with a hex key allen wrench, then limit switch is about 85mm from the right sheet metal.

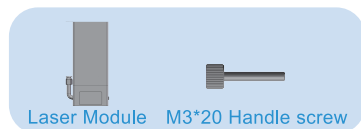
Note: Please install the limit switch attached with label, otherwise it will affect the engraving size or cause the laser head module to collide with the profile when homing.



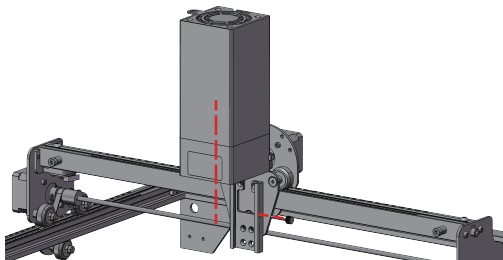
Mount the antenna on the back side of the control box.

5

Preparation:
Laser module, M3*20 Handle screw

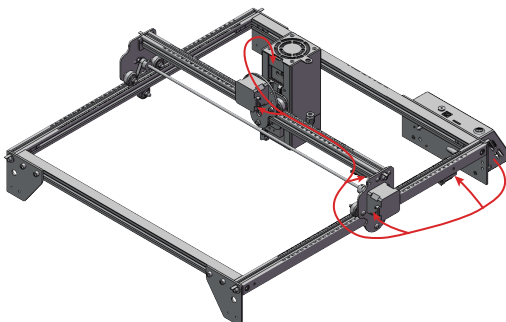


First install the laser module on the X-axis frame, then tighten the M3*20 handle screw to fix the laser module



6

Connect the cable to the motor, limit switch and the laser head as shown in the figure.

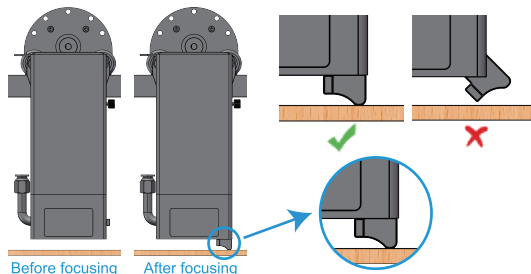


Note: Fix the cable to the sheet metal with cable ties where there is tape, and then move the laser head to the upper right corner to confirm that the cable has sufficient length

7

Adjust laser focus:

Pull out the focusing block, loosen the M3*20 handle screw, move the laser module down, tighten the M3*20 handle screw when the bottom of the focusing block touches the plywood, and close the focusing block



Please reference more details on digital manual in TF card about the operation of Laser Engraver and installation of LaserGRBL or LightBurn.

*

In order to increase the safety of the RAY5 engraver, an emergency stop switch is added on the right side of the control box and it is pressed by default. Before using the engraver, please rotate it clockwise to release the emergency stop switch, otherwise the RAY5 cannot be powered on normally, **and be careful not to rotate the emergency stop switch counterclockwise to avoid damage.**

Thank you for choosing our products.
Please read this manual carefully before use.

Please reference more details on digital manual in TF card about the operation of
Laser Engraver and installation of LaserGRBL or LightBurn.

MORE INFORMATION ▼



Support Email : support@longer.net



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Youtube channel: Longer Official

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