

LONGER

RAY5 Rotary Roller User Manual V1.0



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1. Security Statement

Please read our manual carefully before operating our Ray5 Rotary Roller, which shows all the situations, including warnings of the unsafe behavior which may cause some property losing even harmful for your personal safety.

1) Security of Laser

LONGER RAY5 Rotary Roller used with RAY5 laser engraver is Level 4 laser product. The power of laser head is high, it may cause injury of the eye and skin burning.

- ① Please **wear on the laser protect safety glasses** when you are operating the laser engraver and RAY5 Rotary Roller.
- ② Avoid exposing your skin under a Class 4 laser beam, especially at close range.
- ③. When teenagers operate laser equipment, they must be supervised by a parent or other adult.
- ④ **DO NOT touch the laser module when it is activated.**

2) Security of Fire Safety

- ①. When a laser engraver cut or engrave the material, the high-intensity laser produces extremely high temperature. Some materials will burn during cutting or engraving and produce some gas or fumes.
- ②. When the laser beam hits the material, some flames are produced at the illumination point. The operation must be supervised during cutting or engraving.
- ③ Remove debris, scraps and flammables after cutting or engraving.

Make sure there are fire extinguishers in the operating area.

④ When the laser engraver is working, there are some fumes, vapors or particles that may be toxic (plastic or some flammable materials), and which may be harmful to your health, please use fume extraction equipment to filter the smoke or dust out of the room.

3) Security of Material

① Do not cut or engrave any unknown material.

② Recommended materials: wood, bamboo, leather, plastic, fabric, paper, non-transparent acrylic, glass, etc.

③ Reflective and transparent materials are not recommended for direct engraving or cutting, which need to be coated with light-absorbing material or pasted with colored paper before engraving or cutting.

4) Security of Operational safety

① The RAY5 Rotary Roller can only run on a horizontal plane, and make sure that the roller must be firmly fixed to avoid fire caused by falling or moving during operation.

② It is prohibited to target people, animals or any flammable objects with laser head, whether running or not.

2. Disclaimer and Warning

Longer RAY5 product is a Level 4 laser product, which is not suitable for the people who is younger than 15. Make sure DO NOT allow the children to use any the laser product without adult supervision. LONGER will not be liable for any damages caused by any conduct not in accordance with our instructions.

Before using our product, please be sure to read this document carefully to understand your legal rights, responsibilities and safety instructions, otherwise it may cause property damage, safety accidents and personal safety hazards. Once you use this product, you should be deemed to have understood and accepted all the terms and contents of this manual.

The user agrees to use the product only for lawful purposes, and agrees to all the terms and contents of this document and any related policies or guidelines that longer may establish.

Longer does not assume any responsibility for any loss caused by the wrong use of our products. Longer has the final right of interpretation and the right to comply with legal provisions. Longer reserves the right to update, modify or terminate the terms without notice.

3. Install the Software

The RAY5 Rotary Roller can replace the Y-axis and coordinate with the X-axis to complete the engraving of rotating objects. The roller adopts a 6-level adjustable structure design, which can be used for engraving of rotating objects with a diameter of 16-200mm. At the same time, it is equipped with two kinds of Y motor extension lines of different line sequence, which can be adapted to most of the laser engravers, such as Atomstack, Xtool, Sculfun, Ortur, Neje, etc.

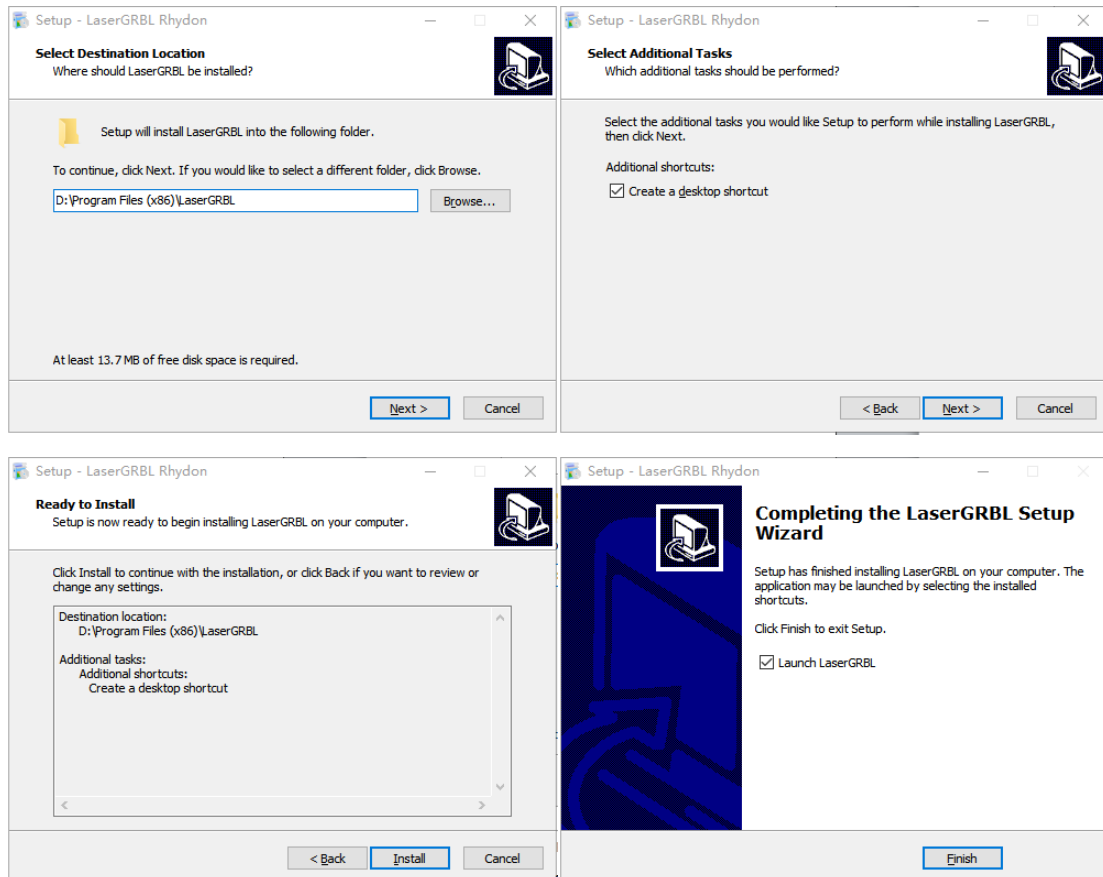
1) GRBL Software Installation and Use

① Download the GRBL software

GRBL is a free laser engraving software that can be downloaded from <http://lasergbrl.com/download>.

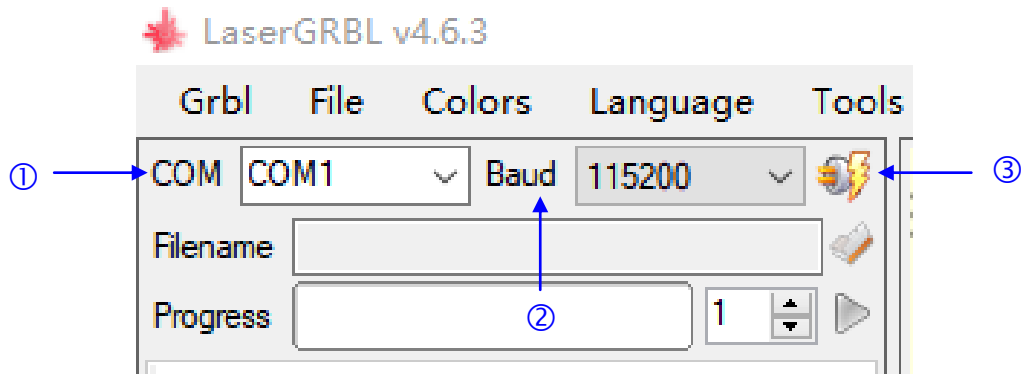
② Install the GRBL software

Double-click the installation file, select the installation directory, click **NEXT** twice and **Install** once, wait for the software installation, then click **FINISH** to complete and start the software.

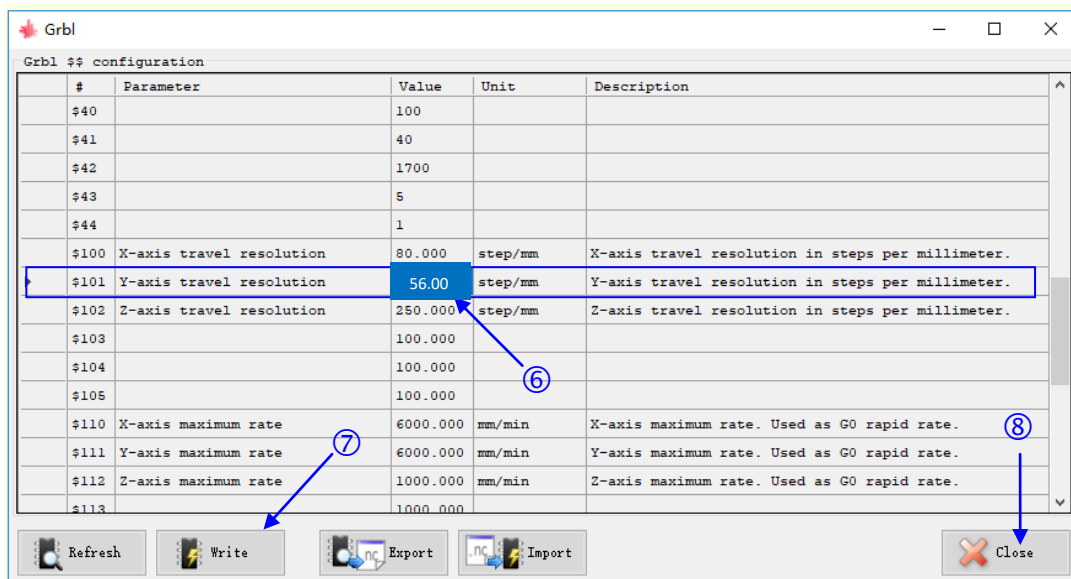
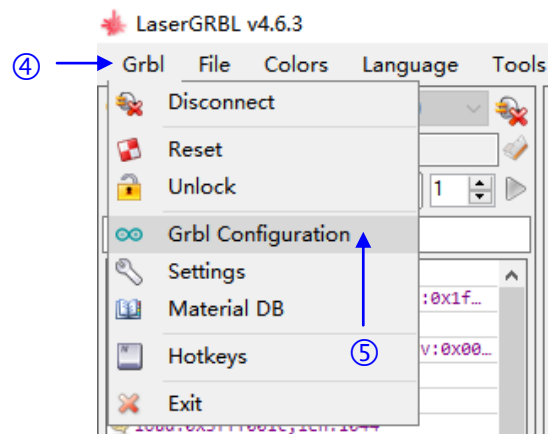


③ Set the GRBL software

After installing laserGRBL, connect the laser engraver and computer via USB cable, power up the **RAY5**, press the power switch button. Then **select correct port** (depending on the type of controller board this port may appear in the computer's device manager with the name "USB-SERIAL CH340" or "USB Serial Device"), select the **baud rate of 115200**. Then **click connect** button. (If you cannot find correct port, please install CH340 driver manually by click Menu - Tools - Install CH340 Driver in LaserGRBL).



Click the **Grbl**, and select the **Grbl Configuration**; Find the **\$101(Y-axis travel resolution)**, select the value and set it to **56.00** for RAY5, click the **Write** and **Close** to finish the configuration.

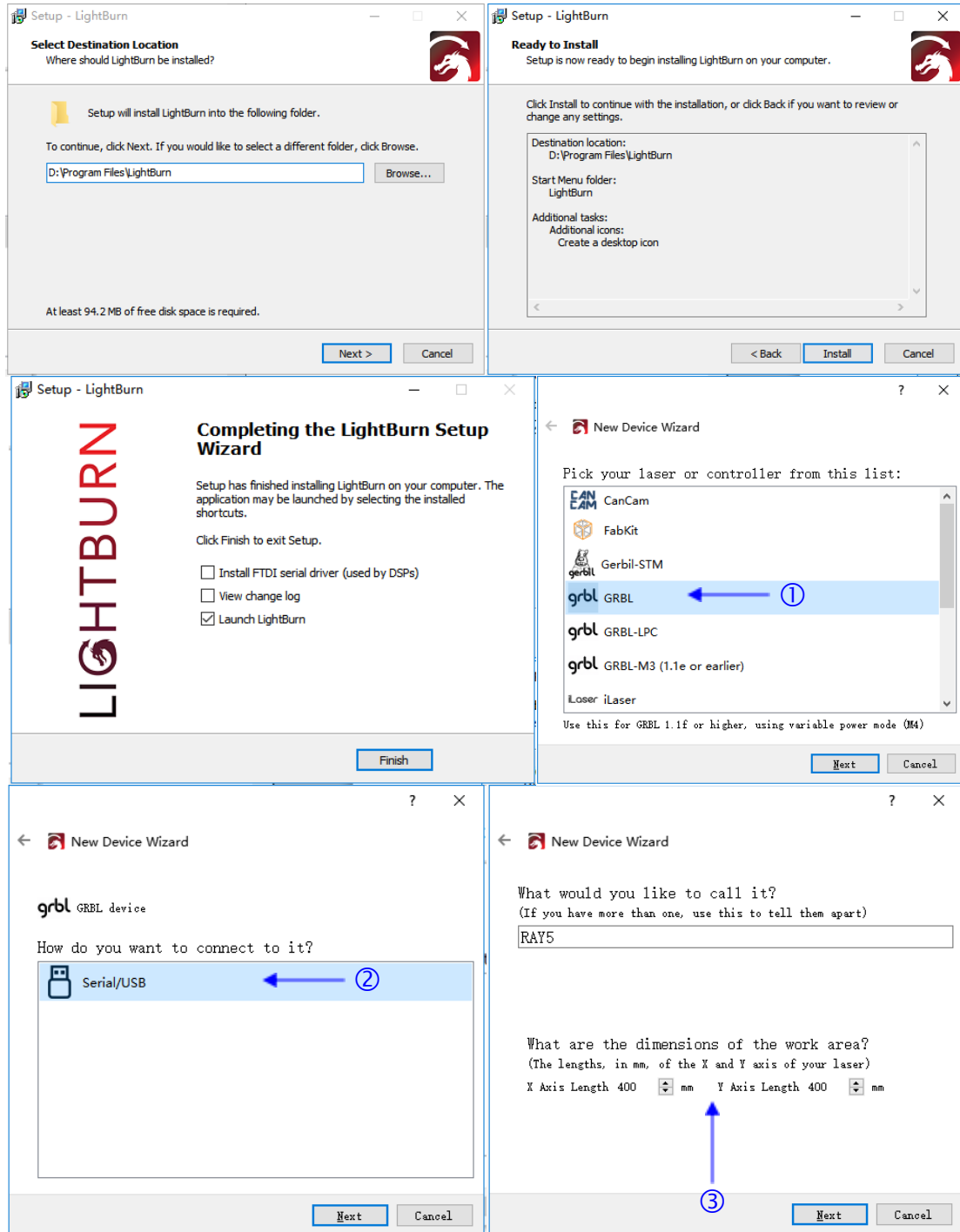


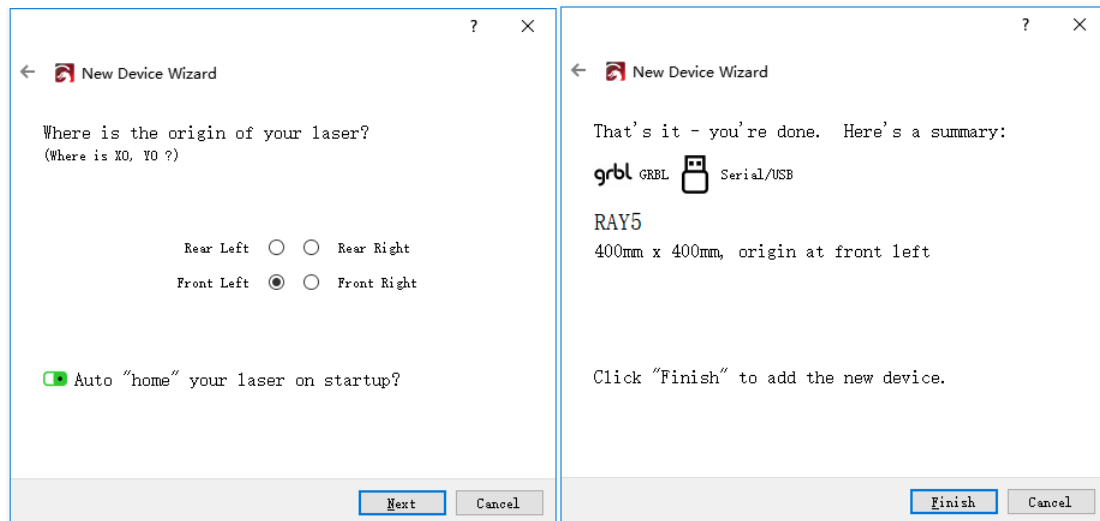
The Y-axis travel resolution value may depend on different laser engravers. You can engrave a 50*50mm square, measure the actual Y-axis travel length, and then calculate the actual value through the following formula. It may take multiple times to reach the exact setting.

The new value = 50*Previous value/ the actual Y-axis travel length

2) LightBurn Software Installation and Use

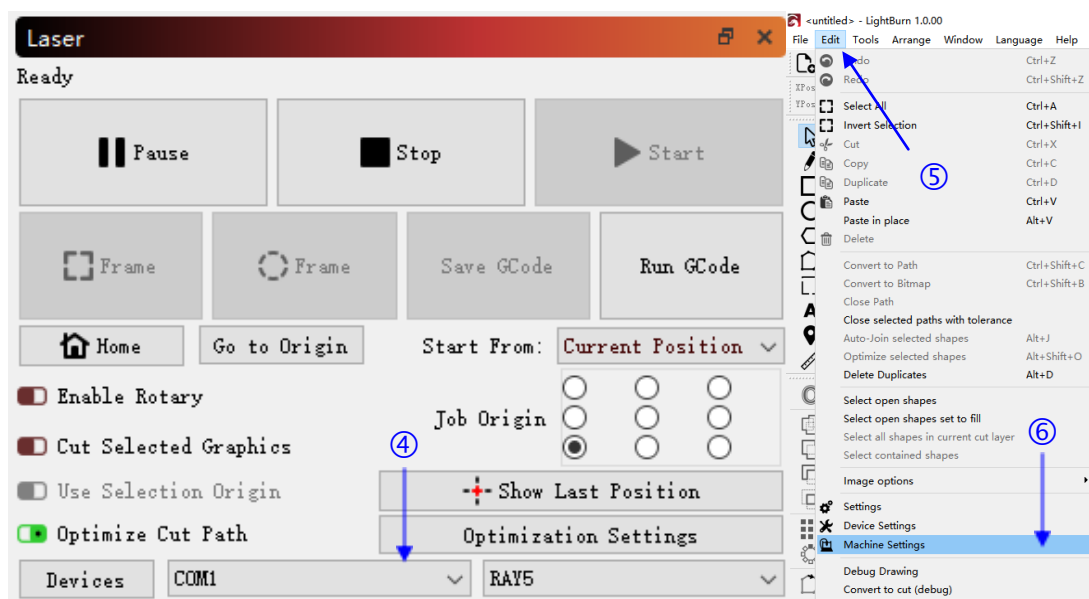
Double-click the installation file (can be downloaded from <https://lightburnsoftware.com>), select the installation directory, click **NEXT** and **Install**, wait for the software installation, then click **FINISH** to complete and start the software.

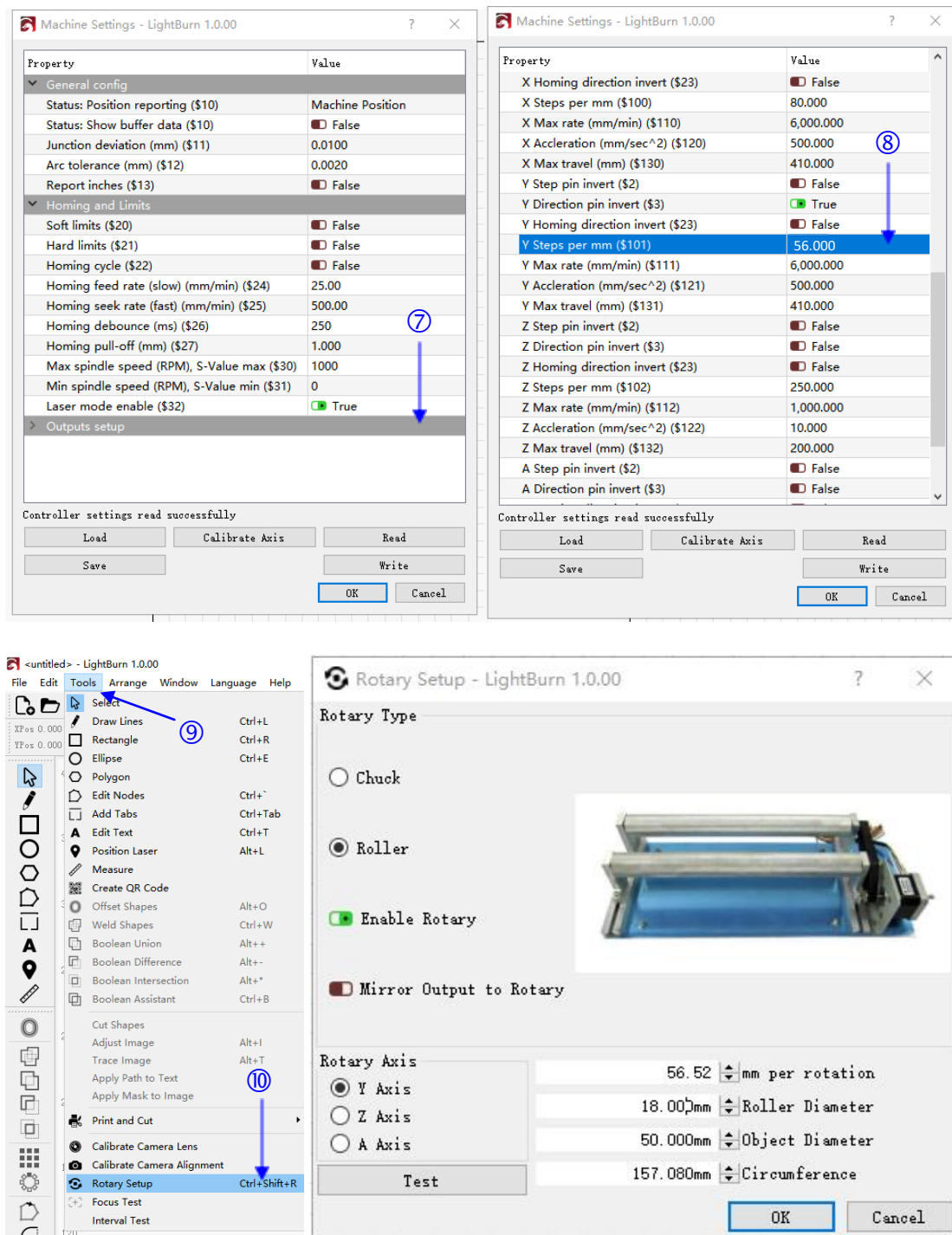




After launching LightBurn, it will prompt a New Device Wizard for setup the laser engraver. Select **GRBL** form the list, then click Next button; Select **Serial/USB** and press Next button; fill the Device **Name, X, Y axis length**, then click Next; select Front Left as your Origin X,Y, then click Next and Finish button.

After installing LightBurn, connect the laser engraver and computer via USB cable, power up the **RAY5**, press the power switch button. Then **select correct port**, choose the **device name** to connect the RAY5.





Click **Edit**, select **Machine Settings**, Click **Outputs setup** to expand hidden parameters, find the **Y steps per mm (\$101)** set it to **56.00** for RAY5, click OK to finish the configuration.

Click **Tools**, select **Rotary Setup**, choose **Roller** and **Enable Rotary**, set the **roller diameter** to **18mm**, and **56.52mm** per rotation for Y axis. Measure

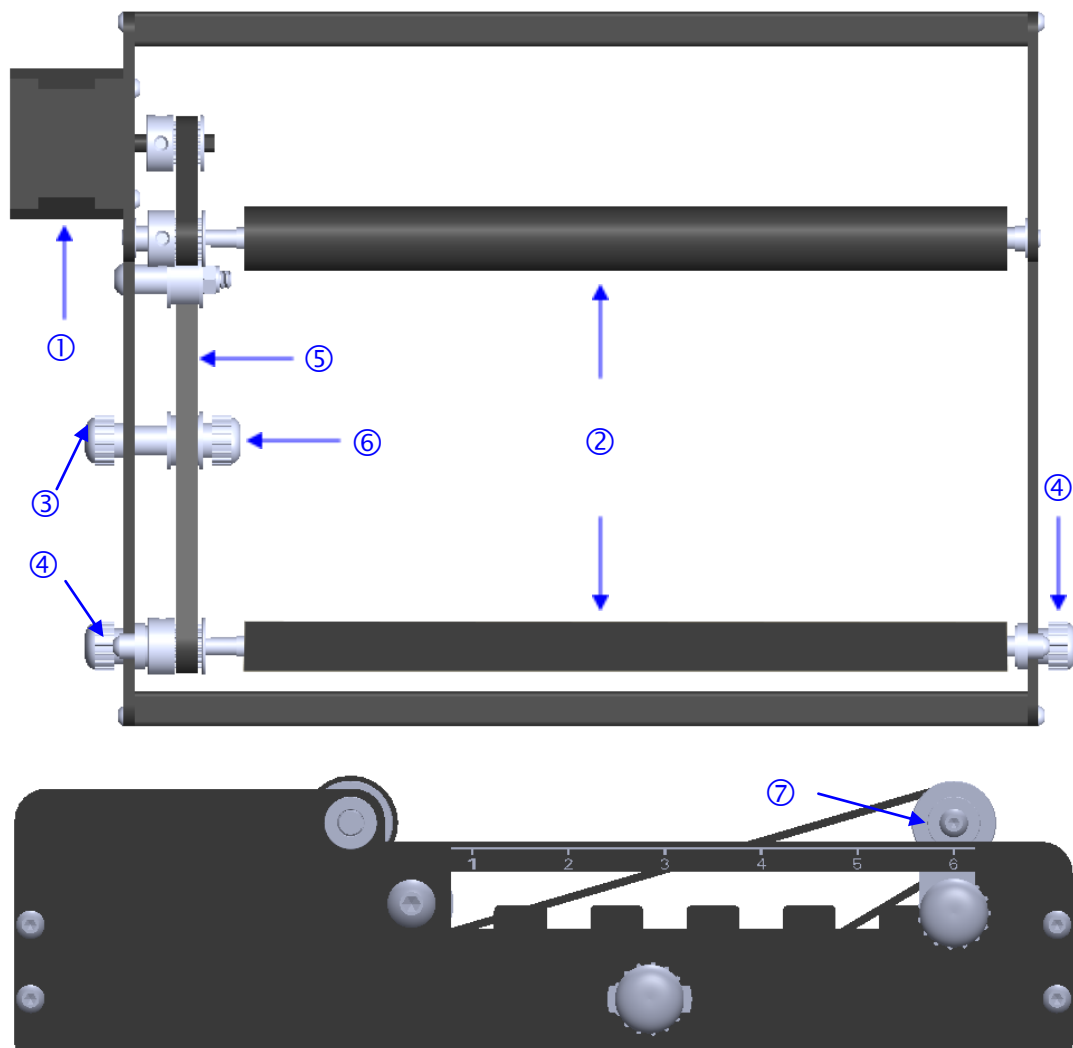
and set the object diameter, click OK to finish the configuration.

The Y-axis travel resolution value may depend on different laser engravers. You can engrave a **50*50mm** square, measure the actual Y-axis travel length, and then calculate the actual value through the following formula. It may take multiple times to reach the exact setting.

The new value = 50*Previous value/ the actual Y-axis travel length

4. Use of RAY5 Rotary Roller

1) Introduction to the Structure of the Roller



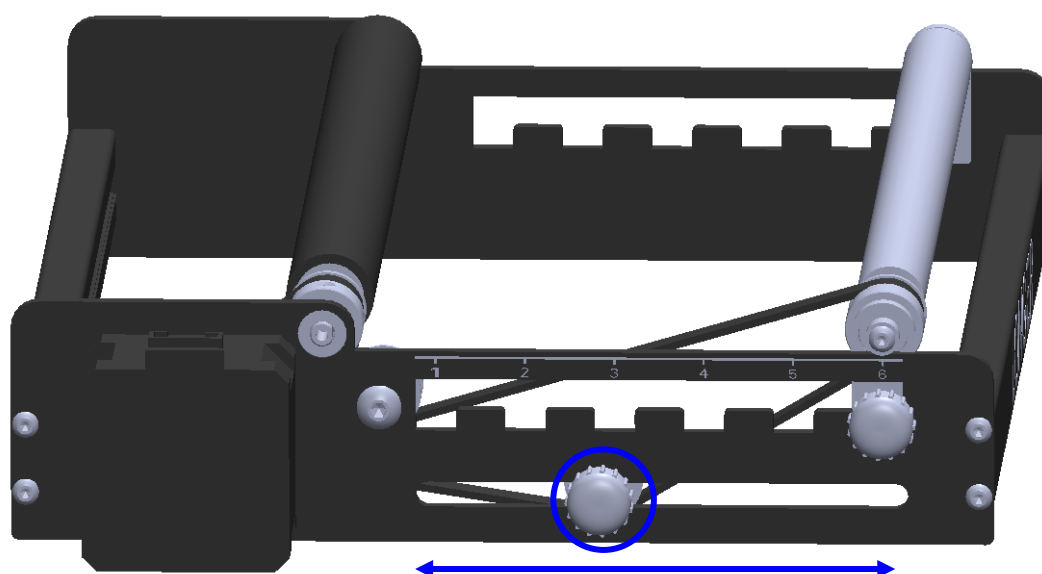
- ①-Motor ②-Roller ③-M5x30 Hand Ssrcw ④- M5x10 Hand Srcw
⑤-Timing Belt ⑥-M5 Nut ⑦- Support Metal Sheet

2) Adjust the Spacing of the Roller

The rollers is designed with 6 different gaps that can be adjusted to suit 6-200mm diameter objects for engraving. The corresponding spacings for different gap numbers are as follows:

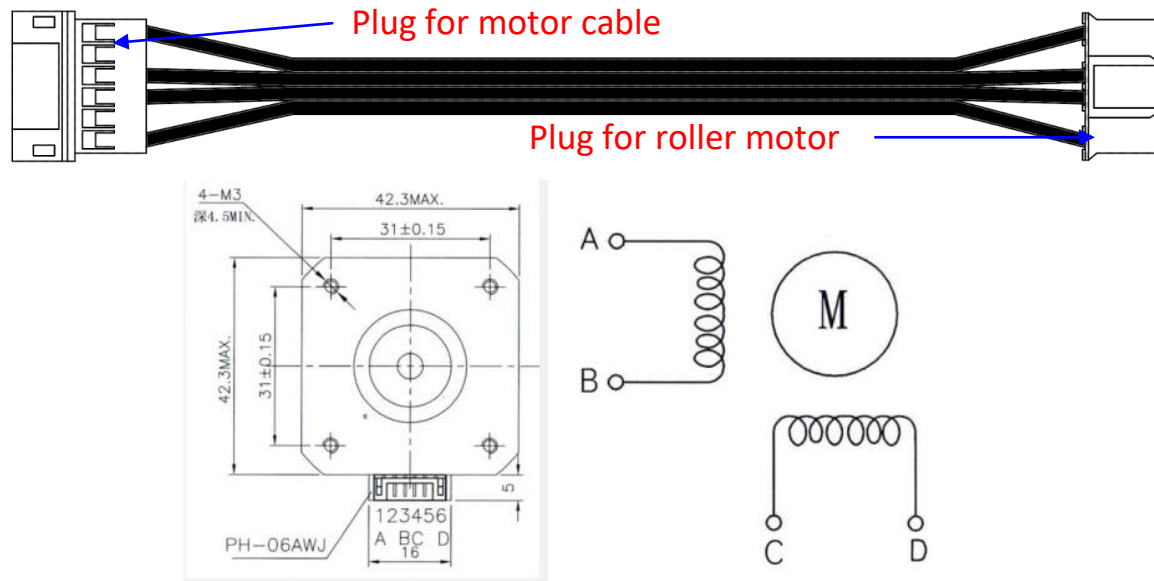
Gap number	1	2	3	4	5	6
Diameter mm	6-38	38-70	70--102	102-134	134-166	166-200

In order to adjust different gaps, first **measure the outer diameter** of different engraved objects, **calculate the diameter**, then hold the M5 nut and loosen the M5*30 screw to **loosen the timing belt**, then **loosen the M5*10 screws** on both sides, and **lift the support piece up**, put it into the groove at the same position on both sides according to the engraving diameter, **tighten the M5*10 screw** to fix the support piece, **slide the M5*30 screw** along the groove to adjust the timing belt tightly, then hold the M5 nut and lock the M5*30 screw at the same time to fasten the timing belt.

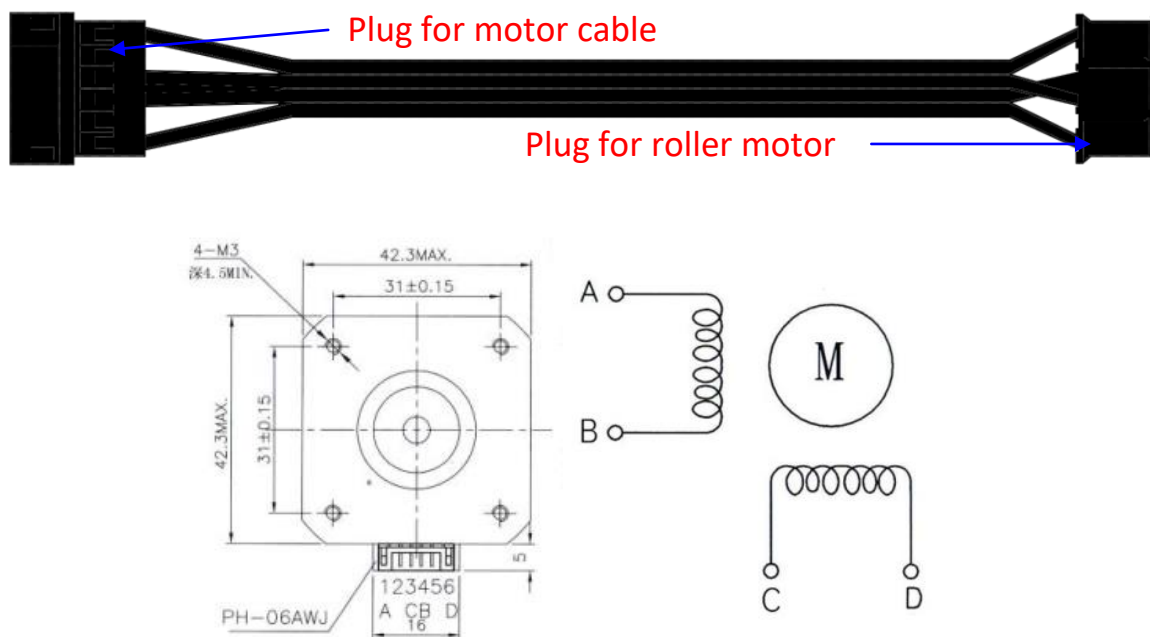


3) Connect the Motor Cable

There are 2 types of Y-axis motor extension cables with different line sequences in the package. One of the cables has both **white plugs which is used for RAY5**, the other cable has black terminals which is for motor with different line sequence.



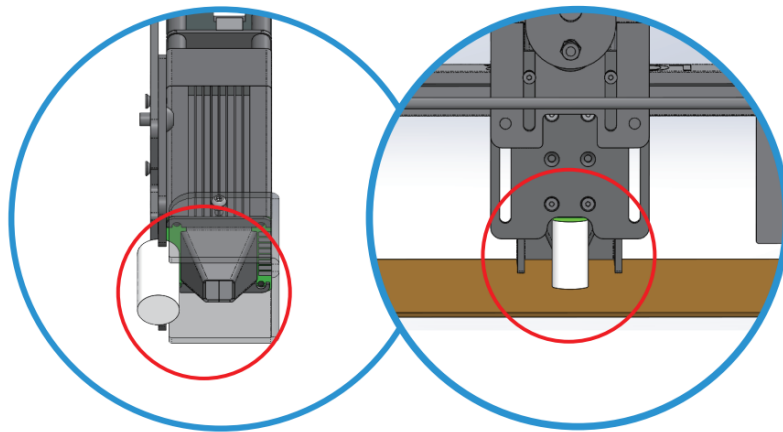
Motor Wire Sequence for White Terminal Cables



Motor Wire Sequence for Black Terminal Cables

Turn off power of the laser engraver, unplug the cable of the Y-axis motor, connect it with the suitable motor extension cable, and connect the other end to the roller motor.

After connecting the cable, adjust the roller to the proper distance, place the engraving material, and use the focusing column to adjust the laser head.



4) Precautions for Roller Use

- ① The rollers of **RAY5 Rotary Roller need to be parallel with the X axis** of engraver, and the rotary roller be must level and stable, and can not have any object under the roller.
- ② **The timing belt must be placed out of the laser engraving area** to avoid being damaged by the laser during use.
- ③ If the height of the engraving material exceeds the adjustable range of the laser head, it needs to place 4 equal height objects under the support feet to raise the laser engraver.

If there is any problem during use, please feel free to contact our after-sales service by email support@longer3d.com.