After Sales Service

Comgrow official will provide you with a one-year warranty service, if you encounter any problems in the process of use, please contact Comgrow official or visit Comgrow official website for more product information.

Comgrow Amazon after-sale service: laserengravingcnc@comgrow.com

Comgorw Website after-sale service: service@comgrow.com

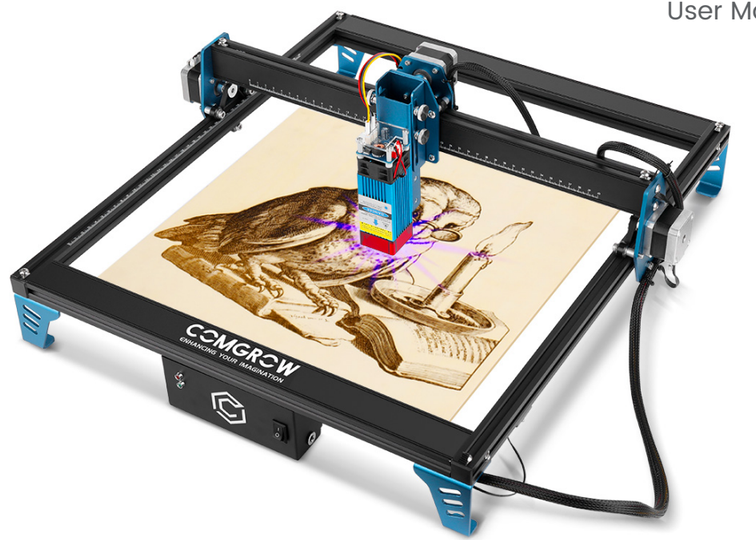
COMGO Z1 Laser Engraver

COMGROW

Unlimited Creations,Unlimited Possibilities.

COMGO Z1 Laser Engraver

User Manual V1.6



Catalogs

Introduction

Dear Customers,

Thank you for choosing the COMGO Z1 Laser Engraver!

It is a desktop laser engraver. Before operating the machine, please read the manual carefully and follow the instructions for assembly and operation. Besides, please feel free to contact Comgrow if there are any problems.

Founded in 2017, Comgrow was formed by people passionate about technology that helps you make things. With this deep-rooted dedication, we wanted to make digital manufacturing processes more accessible, giving educators, engineers, a manufacturer, small businesses, and tinkerers the power to make anything.

Headquartered in Southern China, Shenzhen, Comgrow's dedicated staffs are committed to providing impressive service. We offer top-class quality materials, machines, and accessories - from industrial-grade 3D printers to DIY laser cutters - all of which have been tested and approved by our industry experts. Our fantastic team in customer service is here from Monday to Saturday to help with any problem you have encountered, from suggesting suitable filaments for your specific projects to discussing which 3d printer is best for you. We're here to make 3D printing, laser cutting, and CNC milling possible.

Cautions

- The COMGO Z1 Laser Engraver is for indoor use only and you must be 18 years of age or above to operate this machine.
- Please wear appropriate protective equipment when you are operating the equipment (e.g.laser protection glasses, etc.)
- Please place the machine in a horizontal position before use.
- COMGO Z1 Laser Engraver provides switchable power supply 230V AC or 110V AC with 24V output voltage, it is forbidden to use other power supplies or laser modules, which may lead to machine failure or damage.
- Do not disassemble the power supply or electrical parts. This will void the warranty. Laser cutting different materials will produce different levels of smoke, please place the machine in a well-ventilated area and use it under supervision.
- Please maintain the laser module regularly to ensure the life of the laser module.

Paramenters

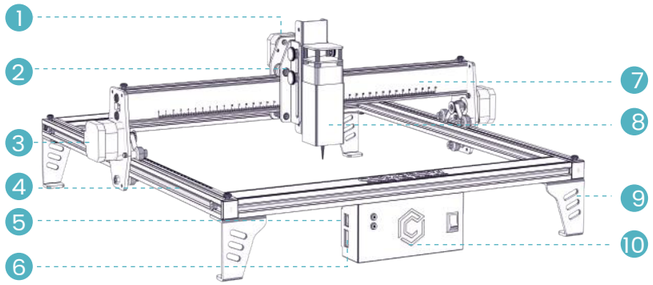
Tips：Select the installation focal length according to the configuration you purchase

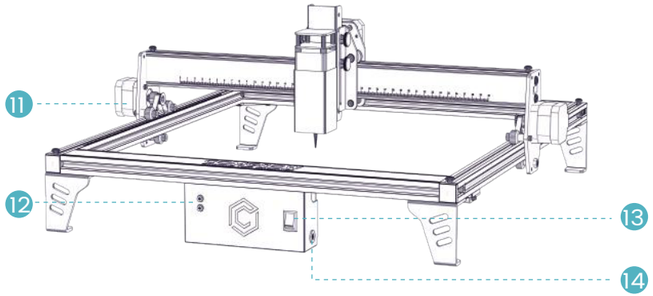
Machine Size	575*575*205mm/22.64*22.64*8.07inch
Working Area	400*400mm/15.75*15.75 inch
Machine Weight	5.0 KG/11lbs
Frame Material	Aluminum
Stepper Motor	42mm*42mm*34mm
Laser module type	Diode lasers
Wavelength	445nm
Compatible Software	Laser GRBL、Lightburn
Compatible System	LaserGRBL：Windows XP、Windows7、Windows8、Windows10 Lightburn：Windows、Mac OS and Linux
Input Voltage	AC110V-230V
Laser Power	1.6W/5W/10W
Focal Length	1.6W:30-100mm 5W:23mm 10W:45mm
S-value Range	S0-S1000（0%-100%）
Connection Method	USB
Engraving Accuracy	0.1mm

How to level the focus

NOTE: The focal length is the distance from the lower face of the laser module profile to the engraving plane.

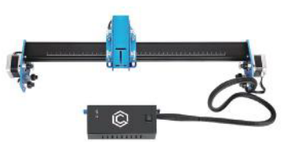
Machine Display



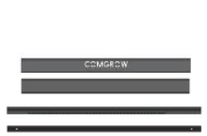


1. X-axis Mottor
2. Lifting Slider
3. Y-axis Motor
4. Y-axis Motor
5. 2020 Y-axis left profile with scale
6. Reserved interface
7. 2040 X-axis profile with scale
8. 5W laser head
9. Support Feet
10. Machine box
11. Y-axis Belt
12. Signal Light
13. Machine Switch
14. Power line interface

General List



❶ X-axis Kit



❷ Profile

❸ Support Feet

❹ Laser Module

❺ Power Adapter

Profile List

❶ 2040 profile with Comgrow Logo

❷ 2020 profile with scale

❸ Pre-installed X-axis limit switch for 2020 profile

❹ Rear side 2040 profile

Screws List

M5X8 Screws (14x)

M5 Square Nuts (4x)

M5X25 Screws (4x)

M3X6 Screws (4x)

M5 T-Nuts (4x)

Image	Name	Qty
	Safety Goggles	1
	USB Cable	1
	SD Card	1
	Belt	2
	M3X6 Screw	4

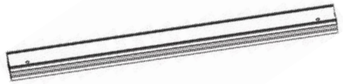
Image	Name	Qty
	M5X8 Screw	14
	M5X25 Screw	4
	Profile Cover	4
	M5 T-Nut	4
	M5 Square Nut	4

Image	Name	Qty
	Wire holder	1
	Ties	2
	Hexagonal wrench	4
	Open-end wrench	2
	5W cable	1

1 Frame Assembly Pt.1——Bottom frame installation.1

Ready:

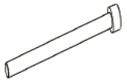
a：Profile with Comgrow Logo 2040（1x）



b：Rear side 2040 profile（1x）

c：2020 profile 2020 with scale（1x）

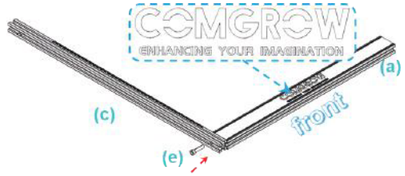
d：Pre-installed X-axis limit switch for 2020 profile（1x）



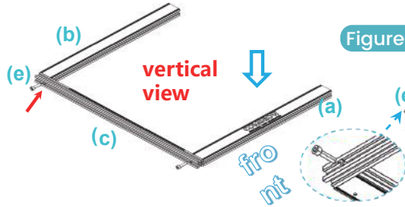
e：M5*25 screws（4x）

f：Hexagonal wrenches（4x）

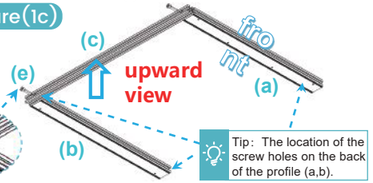
Figure(1a)



Figure(1b)



Figure(1c)



1. Take the 2040 profile with the Comgrow Logo (a), place the side with the Comgrow Logo facing upwards in front of you and bring "ENHANING YOUR IMAGINATION" closer to you, as shown in the picture on the left (1a).

2. Take the graduated 2020 profile (c) and place the graduated side of the profile facing upwards, perpendicular to the 2040 profile (a) with the Comgrow Logo, on the left side of the profile (a). Let the side of the graduated 2020 profile (c) with the scale bar face to the right, and align the lower hole of the graduated 2020 profile (c) with the upper hole of the left section of the profile (a), as shown in the left Figure (1b).

3. Take a M5*25 screw (e) and screw it into the hole on the lower side of the graduated 2020 profile (c) from the left side and into the cut-off hole on the left side of the profile (a), and tighten it with a suitable hexagonal wrench (f).

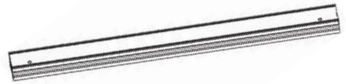
4. Then take out the 2040 profile (b) and place it parallel to the profile (a), with the side without threaded hole facing upward. Please note that the threaded hole at the bottom of 2040 profile (b) is far away from you, as shown in Figure (2) Then fit the left section of 2040 profile (b) with the side with scale bar of 2020 profile (c) with scale, and align the threaded hole below the left section of 2040 profile (b) with the hole position above 2020 profile with scale, as shown in the above Figure (1b); Please pay attention to the position of the bottom hole of the two 2040 profiles (A and b), as shown in the above Figure (1c).

5. Take an M5*25 screw (e) and screw it into the hole above the left side of the graduated 2020 profile (c) and then into the threaded hole below the left cross section of the 2040 profile (d) and tighten it with a suitable hexagonal wrench (f).

1 Frame Assembly Pt.1——Bottom frame installation.2

Ready:

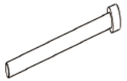
a：2040 profile with Comgrow Logo（1x）



b：Rear side 2040 profile（1x）

c：2020 profile 2020 with scale（1x）

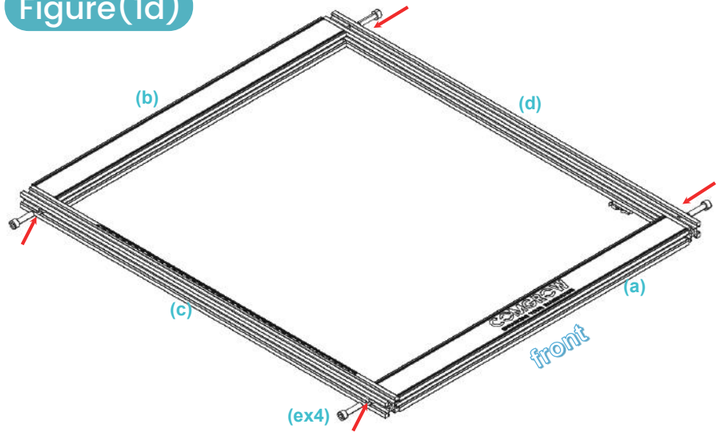
d：Pre-installed X-axis limit switch for 2020 profile（1x）



e：M5*25 screws（4x）

f：Hexagonal wrenches（4x）

Figure(1d)



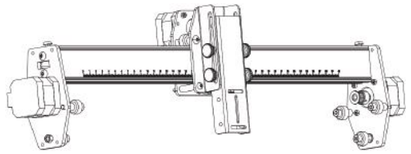
1. Take out the 2020 profile (d) with the X-axis limit switch pre-installed, place the X-axis limit switch pre-installed side down and the other side up, and place it vertically on the right side of the 2040 profile (a) with the Comgrow Logo. The left side of the profile with the X-axis limit switch pre-installed should also be placed on the right side of the profiles (a and b), as shown in Figure (1d).

2. Take M5*25 (e) (2x) and screw them through the two holes above and below the right side of the 2020 profile (d) with the X-axis limit switch pre-installed, respectively, and screw them into the threaded holes in the right cross section of the profile (a and b), then tighten it with a suitable hexagonal wrench, as shown in Figure (1). Be careful not to damage the limit switch.

3. After assembling the above steps, please keep the profile horizontal and do not rotate the profile, then you can proceed to the next installation step.

2 Frame Assembly Pt.2——X-axis assembly installation.1

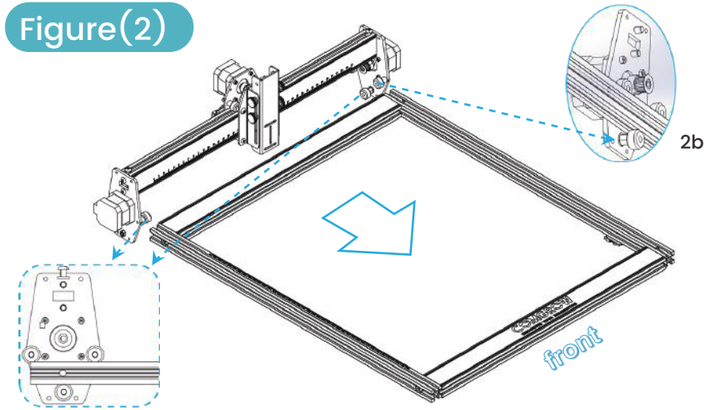
Ready: Install the X-axis assembly



g：X-axis Kit（Connection to the machine box）

h：Bottom frame

Figure(2)



1. Place the installed base frame (h) with the Comgrow Logo face up and keep the profile of the base (h) with the Comgrow Logo closest to you.

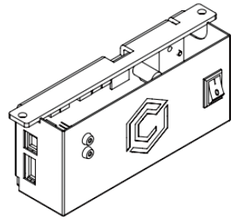
2. Place the X-axis assembly (g) vertically behind the base frame (h), and the side of the X-axis profile with the scale bar on the X-axis assembly (g) needs to face you, as shown in Figure (2); then slide the pulleys on the left and right sides of the X-axis assembly along the two 2020 profiles (c, d) on the left and right sides of the base (h) smoothly, as shown in Figure (2a); if you encounter an obstruction to slide in, use the Allen Allen wrench to adjust the eccentric nuts on the left and right sides of the X-axis assembly so that the X-axis assembly can slide the pulleys smoothly, as shown in Figure (2b).

3. Please be careful to slide the X-axis assembly (g) into the bottom frame (h) without leaving indentation marks on the pulley.

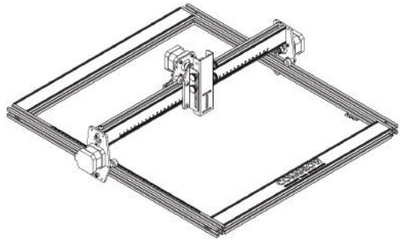
4. Please note that the cassette is attached to the X-axis assembly (g), so be careful when placing the cassette.

2 Frame Assembly Pt.2——X-axis assembly installation.2

Ready: Install the machine box



g：X-axis Kit（Connection with machine box）

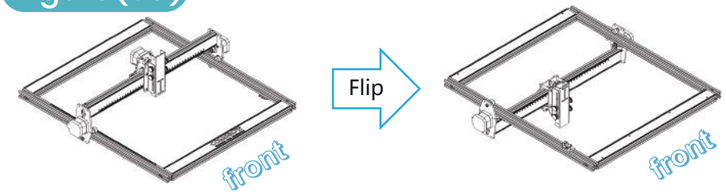


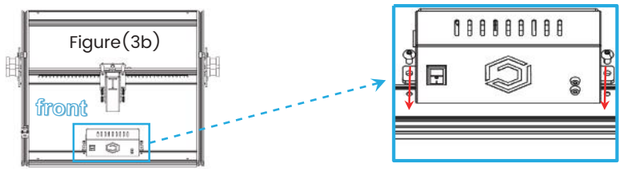
h：Pt.1 bottom frame

i：M5*8 screws（4x）

f：Hexagonal wrenches（4x）

Figure(3a)





1. Place the bottom frame with the Comgrow Logo side up on the table and keep the 2040 profile with the Comgrow Logo (a) closest to you.

2. Turn the bottom frame 180 ° counterclockwise to the left with 2020 profile (c) with scale on the left side of the bottom frame as the central axis, as shown in Figure (3a).

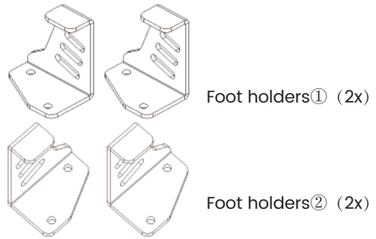
3. Turn the case upside down and fit the side with the holes to the 2040 profile (a) with the Comgrow Logo and align the two threaded holes near the center of the profile (a) and make sure the side of the case with the switch is facing you, as in Figure (3b).

4. Take out the M5*8 screws (2x) and put them into the two holes on the case and screw them into the threaded holes of the profile (a) and tighten them with a hexagonal wrench.

5. Please continue to keep the machine in the flipped state after assembling the cassette, it will be helpful for the next assembly step.

3 Frame Assembly Pt.3——Feet mounting.1

Ready: Install the foot holders



Foot holders① （2x）

Foot holders② （2x）

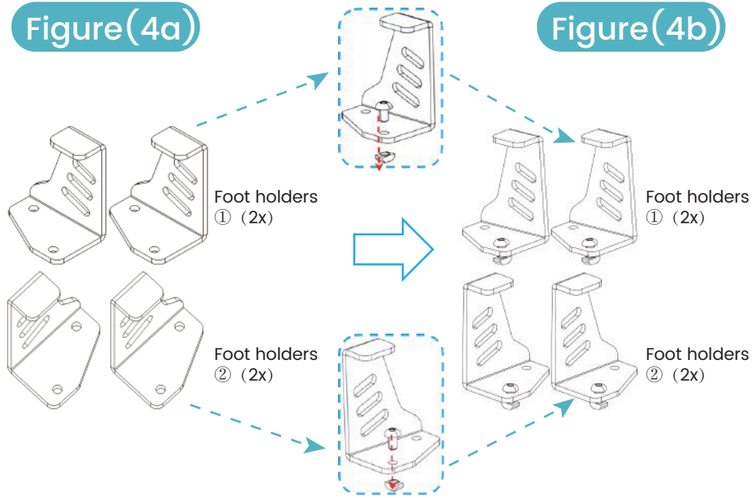
j：Foot holders①、② （4x）

i：M5*8 screws （4x）

K：M5 T-Nuts （4x）

Figure(4a)

Figure(4b)

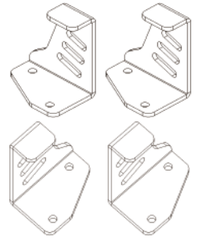


1. Take out foot holders (j) (4x), please note that there are 2 each of foot holder ① and foot holder ②, please place the 4 foot holders as shown in figure (4a).

2. Take out the foot holders ① (j), with a hollow side closest to you, and keep the side of the foot holder with holes located below; then take one M5*8 screw, through the hole in the long side position of the foot holders ① (j), and then take an M5 T-Nut (k) screwed into the M5*8 screw (i) from the bottom, without tightening, only the M5 T-Nut nut lightly screwed into the bottom frame (h) 2020 profile (d) V-slot in the middle parallel to the position. The four foot holders (j) are assembled in turn in the manner shown above, as in Figure (4b).

3 Frame Assembly Pt.3——Feet mounting.2

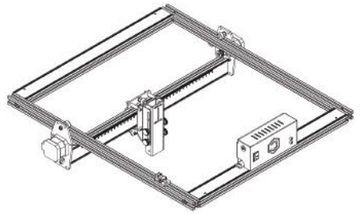
Ready: Install the foot holders



Foot holders① （2x）

Foot holders② （2x）

j：Foot holders①、② （4x）

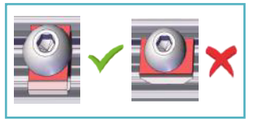


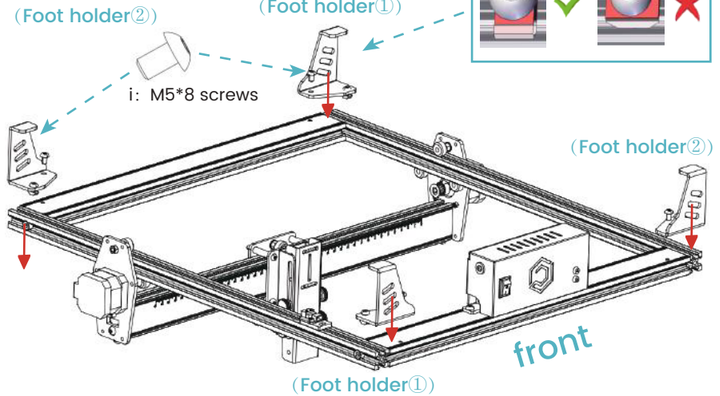
h：Pt.2 bottom frame

i：M5*8 screws （4x）

f：Hexagonal wrenches （4x）

5a





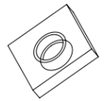
3. Take out the Pt.2 equipped and flipped machine and keep the side of the cassette with the switch facing you, as in Figure (5); Please keep the profile horizontal and do not rotate the profile.
4. Then place the foot ① (j) with M5 T-Nut installed in the lower left corner of the base (h) as shown in Figure (5), and the M5 T-Nut nut is embedded in the V-slot of the 2020 profile (d) of the base frame (h), noting that the other unloaded hole of the foot ① needs to be aligned with the left threaded hole of the 2040 profile (a) with Comgrow Logo on the base frame (h).
5. Take another M5*8 screw (i) and fix the left threaded hole of the 2040 profile with Comgrow Logo on the foot holder ① (j) and the bottom frame (h), then screw the M5*8 screw (i) on the left side of the foot holder ① (j). Tighten the M5 T-Nut nut so that it is perpendicular to the middle V-groove of the 2020 profile (d) on the bottom frame (h) and tighten it. Note the position of the M5 T-Nut nut (k) as shown in figure (5a) above; thus the foot holder ① (j) on the left side of the bottom frame (h) of the turned machine is assembled.
6. Then take out 2 foot holders ② and 1 foot holder ① and carry out steps 4 and 5. After installing M5*8 screws (i) and M5 T-Nut (k), then place foot holder ② (1x) in the upper left position of the turned machine bottom frame (h); place foot holder ① (1x) in the upper right position of the turned machine bottom frame (h); place foot holder ② (1x) in the lower right position of the turned machine bottom frame (h); please note the installation position and tighten M5 T-Nut, refer to Figure (5a).
7. Please turn the machine over again 180°, stand the feet (j) on the table and check if the 4 feet (j) are firmly installed, this is very important for the operation of the machine.

4 Frame Assembly Pt.4——Y-axis timing belt installation.1

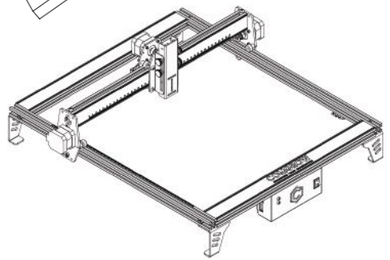
Ready: Install the Y-axis timing belts

l：Y-axis timing belts (2x)

i：M5*8 screws (2x)



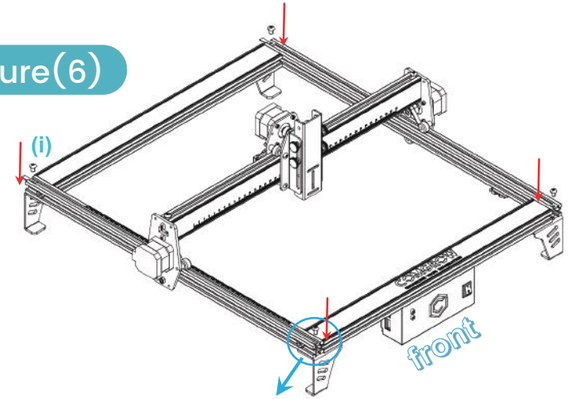
m：M5 square nuts（4x）

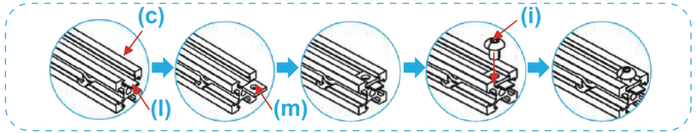


h：Pt.3 bottom frame

f：Hexagonal wrenches（4x）

Figure(6)





1. Stand the flipped machine on the table so that the machine box side is closest to you, and slide the X-axis assembly to the center of the machine, as shown in Figure (6).

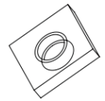
2. Take a Y-axis timing belt (l), press the Y-axis timing belt (l) with teeth side down into the V-groove above the graduated 2020 profile (c) on the left side of the machine; leave a 10mm length of timing belt (l) at one end of the Y-axis timing belt (l) to leak out at the bottom end of the profile (c), and the Y-axis timing belt (l) with teeth side fits into the V-groove of the profile (c); Then take out A box of M5 square nuts (m) is inserted 5 mm into the V-profile from the bottom 2020 section of the graduated 2020 profile, and the square nuts should be located on top of the Y-axis timing belt (l); then take an M5*8 screw (i) and screw it into the threaded hole of the M5 square nut (m), and tighten the M5*8 screw (i) to press the Y-axis timing belt (l).

4 Frame Assembly Pt.4——Y-axis timing belt installation.1

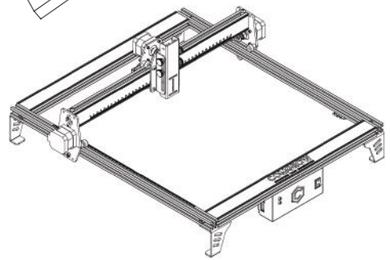
Ready: Install the Y-axis timing belts

l：Y-axis timing belts (2x)

i：M5*8 screws (2x)

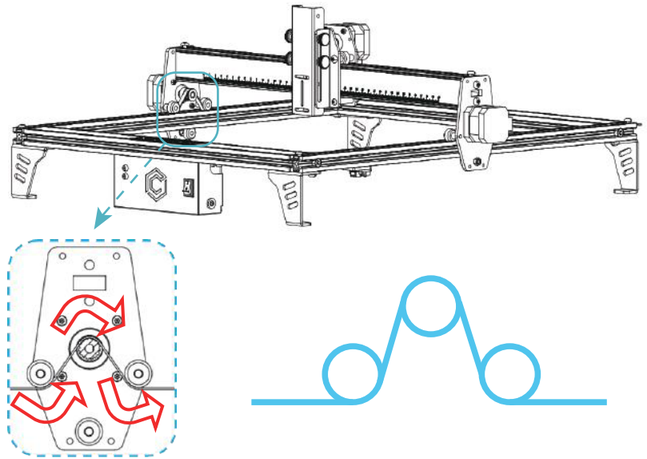


m：M5 square nuts（4x）



h：Pt.3 bottom frame

f：Hexagonal wrenches（4x）



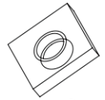
3. Then install the belt that has been pressed into the V-groove of the 2020 profile (c) with scale upward along the V-groove, and the other end of the Y-axis timing belt (l) passes under the first small pulley on the left side of the X-axis assembly (g), and the smooth side of the Y-axis timing belt (l) is in contact with the small pulley, and immediately after the Y-axis timing belt (l) passes through the small pulley, install the Y-axis timing belt (l) upward again, and install the Y-axis synchronous belt (l) with the tooth side and the teeth of the synchronous pulley nested with each other, and then immediately after passing above the synchronous pulley, install it down along the upper side of the synchronous pulley, press it into the profile, and then pass under the second small pulley on the left side of the X-axis assembly (g), and keep the smooth side of the Y-axis synchronous belt (l) and the small pulley close together, please refer to Figure (5a); then install the Y-axis synchronous belt (l) along the V-groove of the profile (c) all the way to the other end of the profile (c). (c) until the other end of the Y-axis timing belt (l) protrudes from the upper end of the 2020 profile (c).

4 Frame Assembly Pt.4——Y-axis timing belt installation.3

Ready: Install the Y-axis timing belts

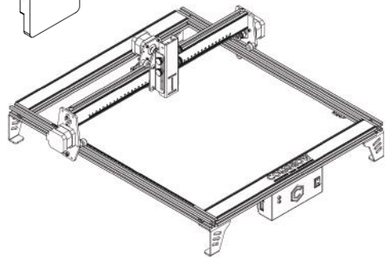
l：Y-axis timing belts (2x)

i：M5*8 screws (2x)



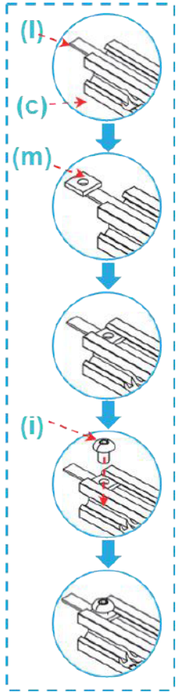
m：M5 square nuts（4x）

n：Profile end caps（4x）

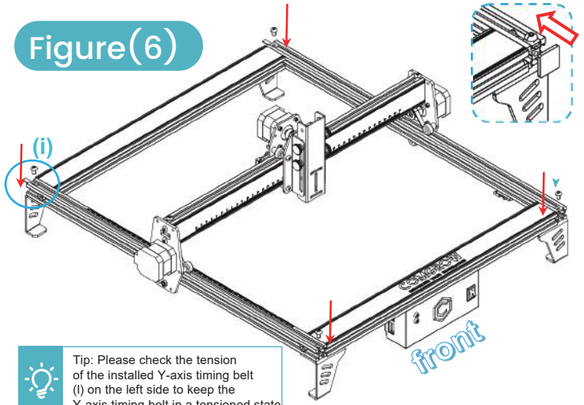


h：Pt.3 bottom frame

f：Hexagonal wrenches（4x）



Figure(6)



Tip: Please check the tension of the installed Y-axis timing belt (l) on the left side to keep the Y-axis timing belt in a tensioned state.

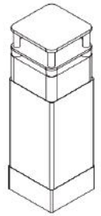
4. Then take an M5 square nut from the upper end of the 2020 profile (c) on the left side of the machine to insert 5 mm into the V profile, and the square nut should be located on top of the smooth surface of the Y-axis synchronous belt (l), and then pull the part of the upper end of the 2020 profile (c) sticking out by hand until the Y-axis synchronous belt (l) is pulled tight; Then take an M5*8 screw (i) and screw it into the M5 square nut (m) on the upper end of the profile (c), and tighten the screw in the state where the Y-axis synchronous belt (l) is pulled tight to fix the Y-axis synchronous belt (l).

5. Take another Y-axis timing belt (l) and fit it into the V-groove of the 2020 profile (d) on the right side of the machine according to steps 2, 3 and 4 above, taking care to check that the Y-axis timing belt (l) is stretched tight.

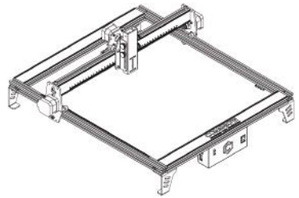
6. Take out the profile end cover (4x) and press it into the upper and lower 2020 sections of 2020 profile (C and D) on the left and right sides of the machine to prevent being scratched by sharp profile corners.

5 Frame Assembly Pt.5——Laser head installation

Ready: Install the foot holders



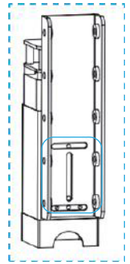
o：Laser head

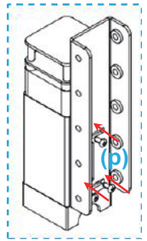


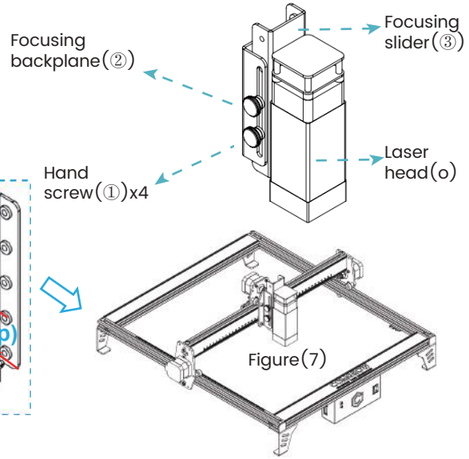
h：Pt.4 bottom frame

P：M3*8 screws（3x）

f：Hexagonal wrenches（4x）







1. Place the assembled machine on the table and keep the front of the box closest to you (Figure 7).

2. Find the lift slider on the X-axis assembly as shown in Figure (7a), remove the four hand-screw nuts on the left and right sides of the lift slider in turn, and remove the focus slider in the lift slider (③).

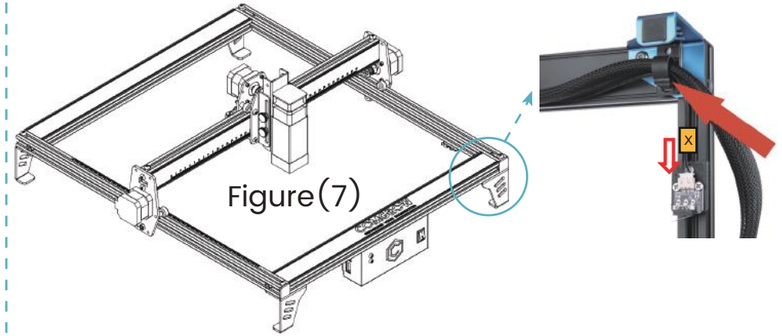
3. Take out the laser head (o), find the threaded hole on the back of the laser head (o), install the laser head on the focusing slider (as shown in Figure 6-1), and align the strip hole on the back of the laser head (o) and the focusing slider (③); Take out three M3 * 8 screws (q), fix the screws on the strip hole aligned between the laser head (o) and the focusing slider with a hexagonal wrench, and tighten them to ensure that the laser head will not shake left and right.

4. Re-fix the installed laser head (o) and focus slider (③) to the focus backplane (②), and re-tighten the 4 hand-screw screws (①) removed in step 2 into the holes on the left and right side of the focus slider respectively, please note to keep your laser head light-out position facing downward.

6 Frame Assembly Pt.6——Wiring

Ready:

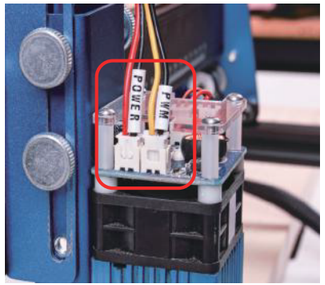
r：Wire holder



Figure(7)

1. Connecting X-axis limit switch wires.

Take out the wire holder (r) and stick it to the back of the foot holder on the right side of the machine box (Figure 7), press the wire bundle leading from the machine box into the wire holder (r) and connect the X-axis limit switch wire to the X-axis limit switch.



2. Connect laser head wiring.

a. Find the harness with PWM label on the x-axis assembly and connect it to the port with PWM mark on the top of the laser head.

b. Then take the wire harness with the Power label on the X-axis assembly and plug it into the port with the Power logo on the top of the laser head.

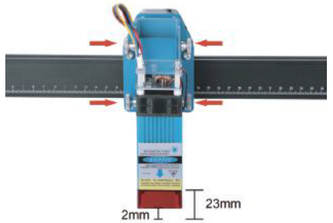
7 Frame Assembly Pt.7——Adjusting the focal length

Loosen the fixing screws on both sides of the laser module to focus the height of the laser module.

5W laser module focal length is :

1. Unscrew the four hand nuts on the left and right sides of the lift slider and adjust the bottom of the laser head so that the distance between it and the upper surface of the object to be engraved is 23mm, as shown in figure (8)

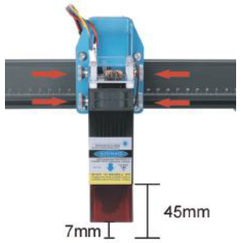
2. Keep the distance between the bottom of the shield and the upper surface of the object to be engraved at 2mm

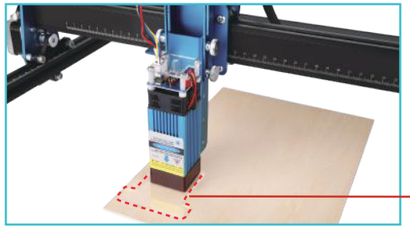


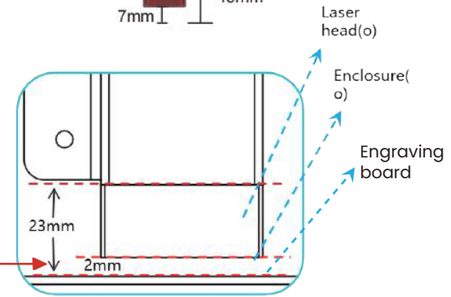
10W laser module focal length is :

1. Unscrew the 4 hand nuts on the left and right sides of the lifting slider to adjust the distance between the bottom of the laser head and the upper surface of the object to be engraved is 45mm.

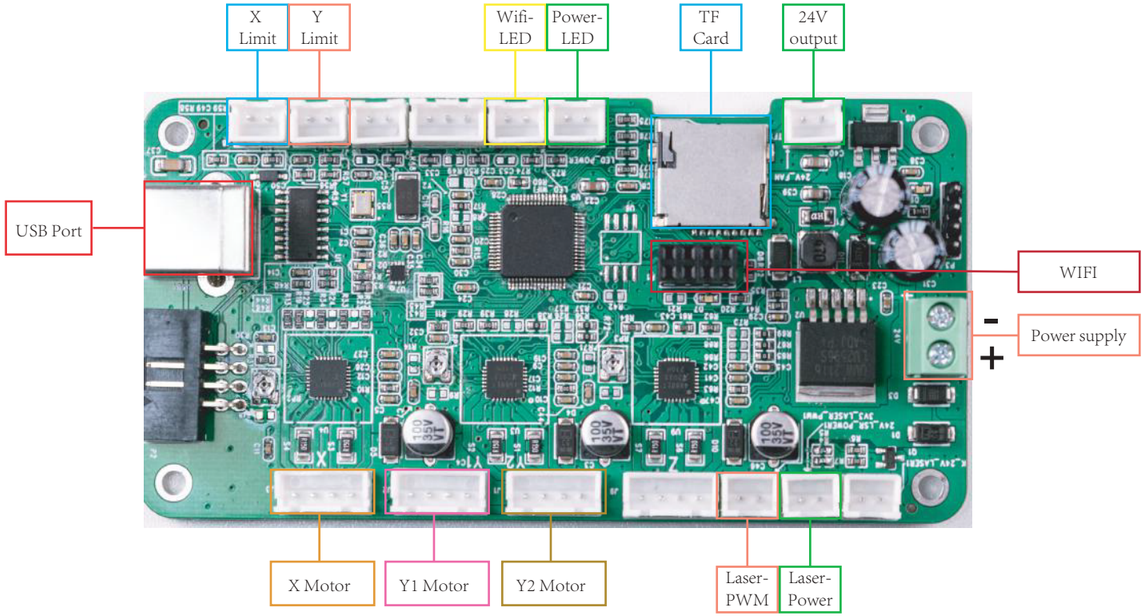
2. Keep the distance between the bottom of the enclosure and the upper surface of the object to be engraved at 7mm.







Board Module Diagram



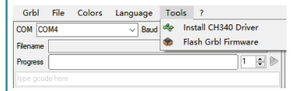
Software Installation Guide

- COMGO Z1 Laser Engraver supports the most popular engraving software LaserGRBL.
- LaserGRBL is an open source, easy to use and powerful software, but LaserGRBL only supports Windows (Win XP/Win 7/ Win 8/XP/ Win 10).
- For Mac users, you can choose LightBurn, which is also an excellent engraving software (with a free one-month trial for the first installation) and this software also supports Windows systems.
- The COMGO Z1 Laser Engraver receives mobile commands from the computer in real time, and the engraver needs to stay connected to the computer and cannot close the engraving software (LaserGRBL or LightBurn) during the engraving process. In addition, the configuration of the computer can affect the speed and even the quality of the engraving. The following will focus on the installation and use of LaserGRBL software. lightBurn will briefly explain the installation and configuration process.

Tip:It is recommended that you adjust your computer's power settings to "Never Sleep" mode.

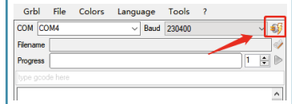
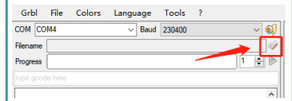
Software Installation Guide

1.Laser Grbl Tutorial(Window)

1.Click "install" to install the software. Note: Computer RAM needs to be 8GB or more.	
2.Click“Tools-Install CH340 Driver”.	

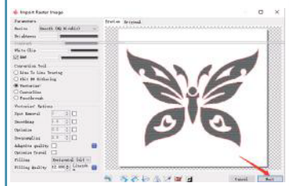
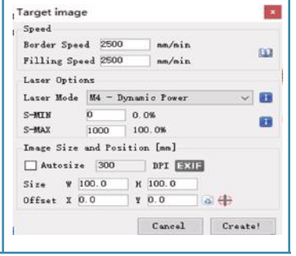
Software Installation Guide

1.Laser Grbl Tutorial(Window)

3.Link the USB cable and turn on the machine, then click“Connect”. Note:Select Baud Rate 230400.	
4.Click "Open File" to select the engraving file.	

Software Installation Guide

1.Laser Grbl Tutorial(Window)

5.Select the engraving mode and click "Next". (It is recommended that you select the horizontal engraving mode).	
6.Select carving parameters (M3 for constant power carving,M4 for variable power).	

Software Installation Guide

1.Laser Grbl Tutorial(Window)

7.Click "Boundary" to preview the engraving area and adjust the position of the engraved object.	
8.Click "Run Program" to start engraving.	

Software Installation Guide

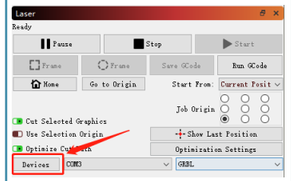
2.LightBurn Tutorial(Window/Mac/Linux)

Tip: Installation on MAC requires adding trust, as follows.

1.Double-click the LightBurn.dmg file to mount the disk image.
2.Drag the LightBurn application into your applications folder.
3.Eject the LightBurn disk image, or drag it to the trash bin.
4.Open a Finder window.
5.Browse to the 'Applications' folder.
6.Hold the Control key and click the LightBurn icon, or right-click or / two-finger tap the icon.
7.Choose 'Open' from the menu.
8.When MacOS asks if it should open the program, say yes, and it will be listed as an exception in your launcher. From then on you can just launch the application normally.

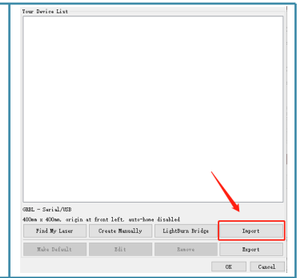
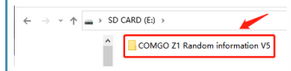
Software Installation Guide

2.LightBurn Tutorial(Window/Mac/Linux)

1.If you are using it for the first time, you need to perform steps 1-10 to set up the operation.Open the SD card, select "Driver Files", and install the driver according to your computer system.	
2.Click "Devices".	

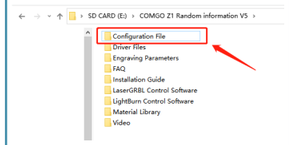
Software Installation Guide

2.LightBurn Tutorial(Window/Mac/Linux)

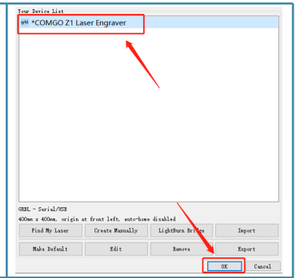
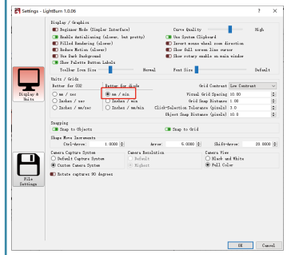
3.Click "Import".	
4.Open the SD card, select "COMGO Z1 Random information V5" .	

Software Installation Guide

2.LightBurn Tutorial(Window/Mac/Linux)

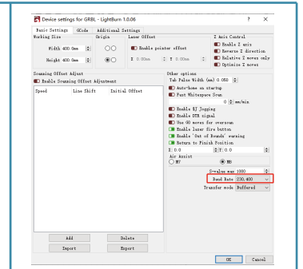
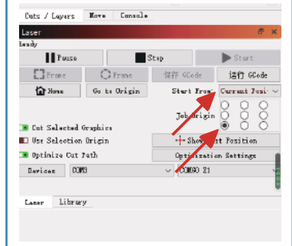
5.Select "Configuration File".	
6.Click "COMGO Z1 Laser Engraver" .	

2.LightBurn Tutorial(Window/Mac/Linux)

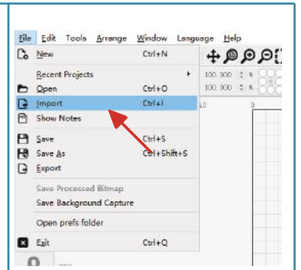
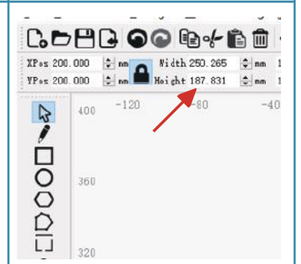
7.Select "COMGO Z1 Laser Engraver" and click "OK".	
8.Click "Edit-Settings" in order to set the unit to "mm/min".	

Software Installation Guide

2.LightBurn Tutorial(Window/Mac/Linux)

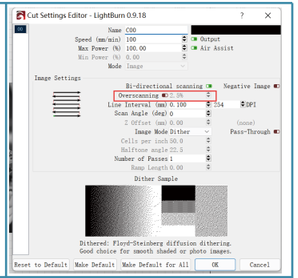
9.Click "Edit-Device Settings" and change "S-value-max" to "1000". Note:Select Baud Rate 230400.	
10.Select "Start From" as "Current Location" on the right, and then adjust "Job Origin" to the bottom left corner.	

2.LightBurn Tutorial(Window/Mac/Linux)

11.Click "File-Import" to import the engraving file.	
12.After importing the file, you can modify the engraving size on the top of the interface.	

Software Installation Guide

2.LightBurn Tutorial(Window/Mac/Linux)

13.Double click the engraving parameters interface on the right side to set the engraving parameters and engraving mode.	
14.Click "Frame" to preview the engraving range, and click "Start" to start engraving after adjusting the engraving position.	

APP Usage Instruction

Tip: For a more detailed App tutorial, please visit SD Card.

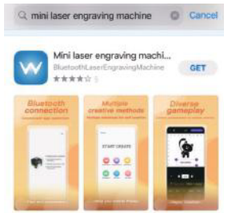
1.APP Installation

Android user

Android users can search for "Mini laser engraver" in Samsung App Market and Google Play or directly scan the QR code below to download.

iPhone user

search for "Mini Laser Engraver" in App Store.

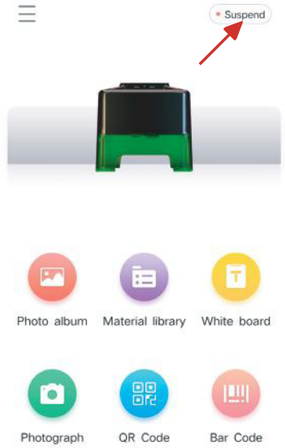


APP Usage Instruction

2.Connect the device

① Open the app, select "COMGO Z1 Engraver" and click on top right corner with a “Suspend” tag.

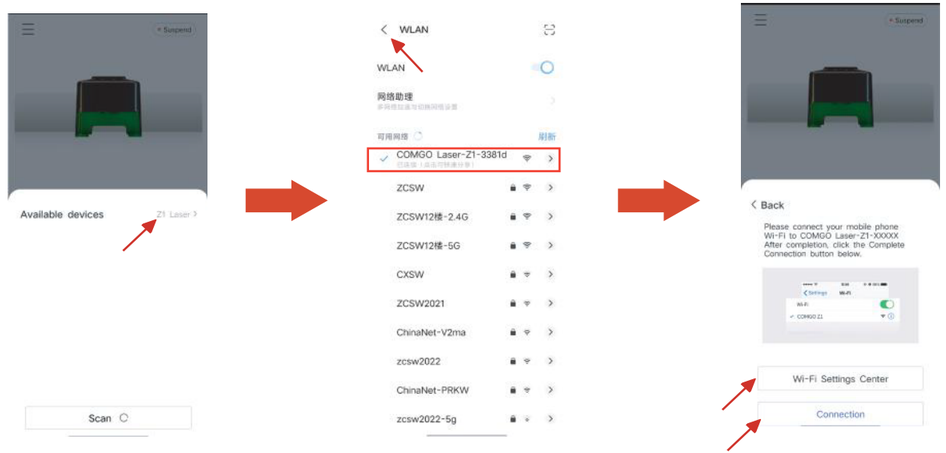
Note: Please open the positioning function of your phone when you use it!



APP Usage Instruction

2.Connect the device

② Click Available devices on the popup screen and select the Wi-Fi Settings Center; then, connect to the network with the WIFI name prefix "COMGO Laser-Z1-xxxxx" and connect to it, then return to the previous level.
③ Click on "Connection" to connect to the device.



APP Usage Instruction

3.Adjust the focal length

Turn the knob screws on both sides of the laser slider to adjust the height of the laser module so that the laser beam irradiates to the plane as a fine point.

Note:

1.6W laser module has a focal length of 30-100mm and needs to be focused by turning the lens at this focal length.

The focal length of 5W laser module is 23mm.

The focal length of 10W laser module is 45mm.

APP Usage Instruction

4.Interface Introduction

There are six engraving modules available in APP, namely: Photo album, Material library, White board, Photograph, QR Code and Bar Code.

Photo album: you can access the photo album through this module and select the pictures in the album for engraving.

Material library: here will come with some random engraving and cutting images to choose from, the material images will be updated from time to time.

White board: you can input text for engraving through this module, you can change the text size and font.

Photograph: you can take pictures through the cell phone camera and then engrave them, note that the pixel of the pictures taken will affect the quality of engraving.

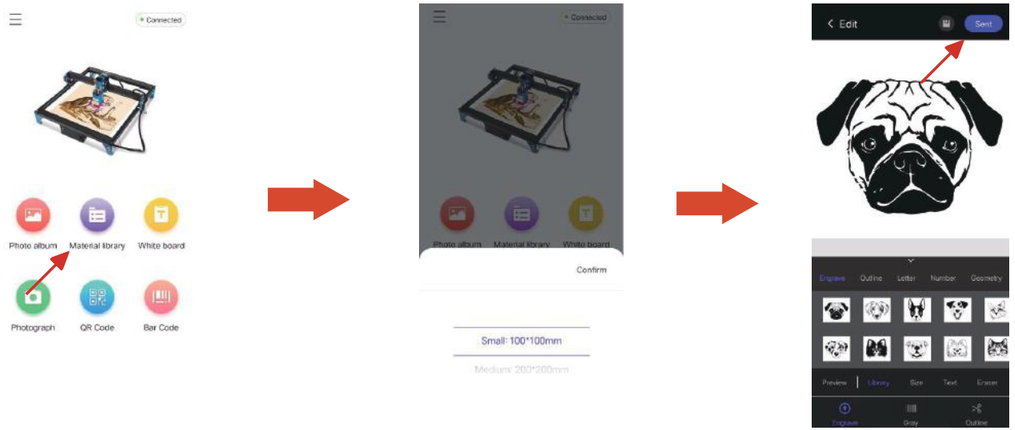
QR Code: you can input text to generate QR code for engraving, and you can scan it for recognition after engraving.

Bar Code: can be engraved by entering the text to generate a bar code, which can be scanned and identified after engraving.

APP Usage Instruction

5.Engraving

The following is an example of the "Material library" carving operation.



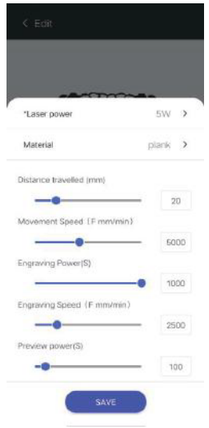
① Click into "Material library".

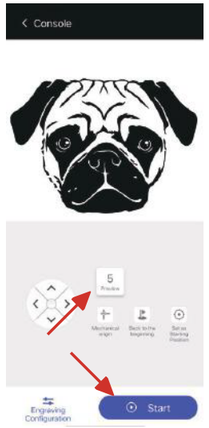
② Select the engraving frame.

③ Select the engraving material and engraving mode and click "Sent".

APP Usage Instruction

5.Engraving





④ Select "Laser Power" and "Material" according to the power of the machine, then click "SAVE".

⑤ Click "Preview" to preview the engraving range, and click "Start" to start engraving after the preview is completed.

Engraving Parameters

5W laser module engraving parameters				
Mode	Materials	Power（%）	Speed（mm/min）	NOTE
Engraving	Wood board	100	2500	
	Bamboo	100	2500	
	Solid wood	100	2500	
	Leather	100	2000	
	Glass	100	700	Te surface needs to be painted black or heat transfer paper applied.
	Geramic	100	700	The surface needs to be heat transfer paper applied.
	Acrylic	100	1500	For transparent surface need to be painted black.
	Stainless steel	100	300	
	Anodized metal	100	800	
	Fabric	40	5000	
Cutting	2mm thick board	100	180	
	3mm thick board	100	120	
	4mm thick board	100	90	Cutting thick boards can reduce the focal length appropriately.
	Cardboard	100	1500	
	Leather	100	100	
	Fabric	100	1500	

Engraving Parameters

10W laser module engraving parameters				
Mode	Materials	Power（%）	Speed（mm/min）	NOTE
Engraving	Wood board	100	5000	
	Bamboo	100	5000	
	Solid wood	100	5000	
	Leather	100	4500	
	Glass	100	1200	Te surface needs to be painted black or heat transfer paper applied.
	Geramic	100	1200	The surface needs to be heat transfer paper applied.
	Acrylic	100	2500	For transparent surface need to be painted black.
	Stainless steel	100	600	
	Anodized metal	100	1500	
	Fabric	20	5000	
Cutting	2mm thick board	100	300	
	3mm thick board	100	250	
	4mm thick board	100	200	
	7mm thick board	100	90	Cutting thick boards can reduce the focal length appropriately.
	Cardboard	100	2500	
	Leather	100	2000	
	Fabric	100	2500	

Troubleshooting

1.The machine moves normally, but the laser head does not light

（1）Check the main board and the laser module on the power and signal cable connection is loose.

（2）If the wire connection is correct, but still no light light. Please unplug the laser module wire and adjust the laser brightness to "Max Brightness" in LaserGRBL, then measure the "POWER" and "PWM" voltage respectively. voltage. If there is voltage at both "POWER" and "PWM", the laser module is the problem.

2.USB not recognized

（1）Check if the driver is already installed on the computer, if not, please click "Tools-Install CH340 Driver" to install it.

（2）Please check if the baud rate setting on the software is correct. (Baud rate is 230400)

（3）Please try to replace the USB cable or computer.

（4）If the above methods do not solve your problem, please contact us.

3.Power on the device does not respond

（1）If the power indicator does not light up, please check if the power supply wiring is loose.

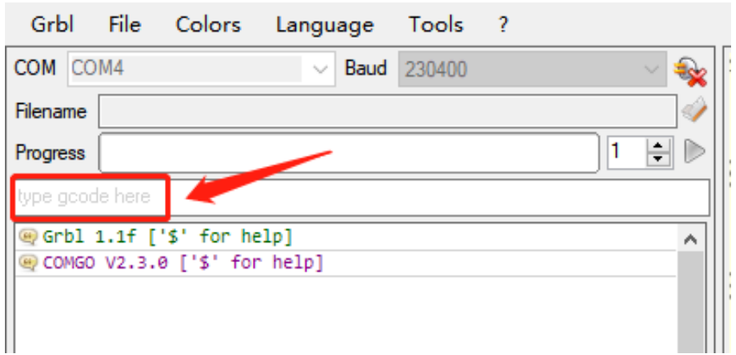
（2）If the power terminal is well wired, please measure the voltage at the output of the power adapter.

4.Alarm occurs during engraving and engraving stops.

（1）Check if any object (such as wire, etc.) touches the limit switch of the machine during the carving process.

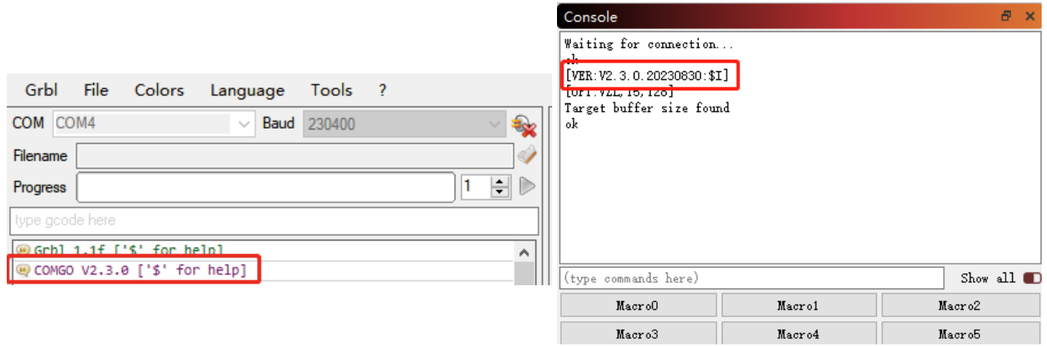
（2）If the above reasons can be ruled out, please check whether the connection between the machine and the PC side is normal, you can replace the USB port of the computer to try.

（3）The machine gyroscope trigger phenomenon is "Laser GRBL" lower right corner of the "Cooling" prompt, the machine shipped gyroscope default sensitivity is "$140 = 8 "Please enter "$140=sensitivity" in the command bar to increase the sensitivity of the gyroscope. Note: The gyro sensitivity range is 0-16, the smaller the number, the higher the sensitivity.



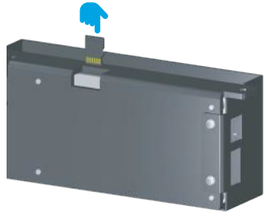
5.APP cannot recognize the machine.

1.For users with older firmware versions, you need to upgrade the machine firmware to version 2.0 and above before you can use the APP function, you can check the firmware version number through LaserGRBL or Lightburn.

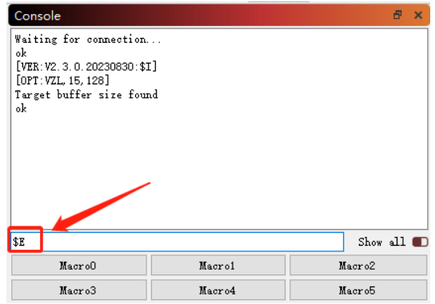


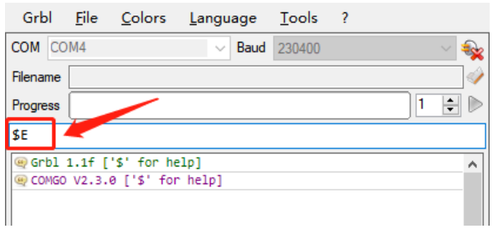
Tip:if your machine has a low version number, you need to follow the steps below to update the firmware.

1).Copy the firmware named "firmware" to the SD card.



2).Turn off the power, insert the SD card into the motherboard card slot, and then power on the SD for about 20 seconds and then remove it.





3).Open "LaserGrbl" or "Lightburn" and type "$E" in the command bar to restore Settings.

2.Please open the "Location Services" function in your phone settings.
3.You can visit the video tutorial link in the SD card for more detailed APP tutorial videos.

6.Poor engraving or cutting results.

1.Please select your engraving speed and power according to the table of suggested engraving parameters.
2.Normal laser module life is more than 10,000 hours, please check your lens cleanliness.

7.Is it possible to cut or engrave transparent materials?

You cannot use laser to cut transparent materials; for engraving of transparent materials, such as glass, transparent acrylic, etc., you can use a whiteboard pen to blacken the surface of the material or directly put a layer of engraving color paper on the surface of the material before engraving.