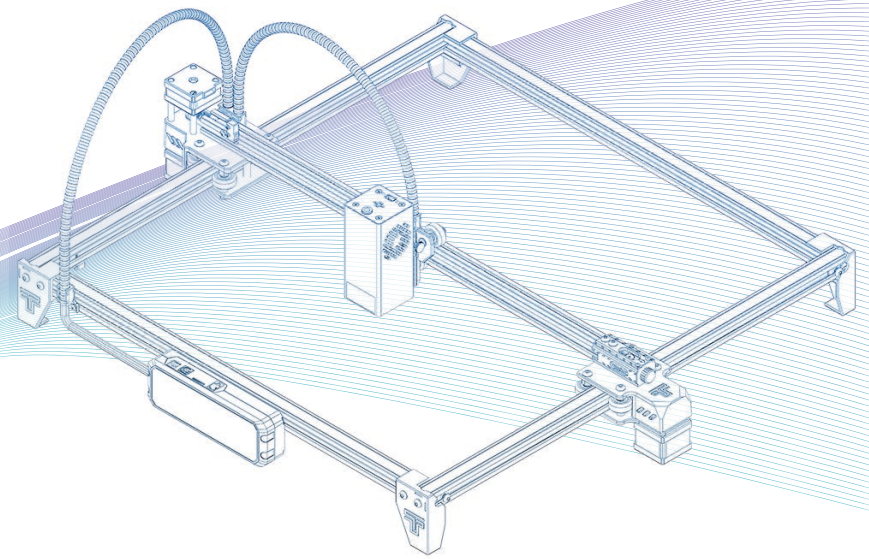
3051003

TWO TREES

PRODUCT MANUAL



TEL: +0086-0755-23987110
Http: www.twotrees3d.com
E-mail: service@twotrees3d.com
Facebook: https://www.facebook.com/twotrees3d
Address: Room 402, Building 11, No.9 Qilin Road, Nankeng Community,
Bantian Street, Longgang District, Shenzhen, Guangdong, China, 518000
TTS memory card short link: https://bit.ly/3yQAJyt
Youtube channel short link: https://reurl.cc/VjQa1n

Note:The picture is for reference only,the actual product shall prevail

CE FC RoHS FDA MADE IN CHINA

LETTER FROM TWOTREES

Dear Customers,
Thank you for choosing us.
It's customer-oriented idea, continuous innovation and pursuit of excellence that enable everybody to have wonderful experience in using process.
We believe that this manual will be helpful.
Hope you enjoy the good time with TwoTrees.

If you have any problems, please feel free to contact us via:

Website: www.twotrees3d.com
Facebook: https://www.facebook.com/twotrees3d
For general inquiry: info@twotrees3d.com
For technical support: service@twotrees3d.com
We will contact you within 24 hours.

TwoTrees Team

SAFETY GUIDELINES

Warning:
Laser engraving machine cannot directly carve or cut material that reflects the light,may cause injury.
The product has a high engraving speed and is not recommended for industrial cutting. And the laser head is consumable.
Do not operate the laser head directly with your hands . Please wear goggles.
The laser diode is a sensitive component,please prevent static damage.
(This product has an electrostatic protection design.but there is still a possibility of damage).
We do not assume any responsibility for any improper use of this equipment or any damage or damage caused by improper use. The operator is obligated to use this laser engraving machine only in accordance with its designated purpose, instructions in its manual, and relevant requirements and regulations.

PRECAUTIONS

EN


Avoid looking steadily at the laser, which may damage your eyes.


Avoid touching directly when the machine is working.


You can place a metal plate under the engraved or cut object to prevent your table being burned through.


Avoid combustible object or gas.


Keep it away from children or pregnant women.


Do Not take apart the laser without instructions.


Do Not use it on material that reflects the light.


Protective eyewear should be worn by anyone nearby during use.


Turn off the power when not use.


Nearby objects present a risk of pinching or crushing injury.

Please follow the instruction,due to misuse will be at your own risk.

CONTENTS

ABOUT YOUR MACHINE

EN

TTS-20 PRO

Laser Module

Air Pumps

Honeycomb Panels

M3 X 20

M3 X 6

Bellows Mounts

X-axis End Stop

Power Adapter

Power Cable

USB Cable

Wrench

MAIN PARAMETERS

Model	TTS-20 PRO
Machine Size	695*620*125 mm
Machine Weight	3.2 kg
Engraving Size	418*418 mm
Laser Wavelength	450±5 nm
Engraving Accuracy	0.1 mm
Advice for engraving speed	10000mm / min
Software Support System	Mac, Windows
Material	Aluminum Profile + Plastic Parts
Electrical Requirement	24V 4A DC
Motherboard	32bit
Laser Power	C20000mW
File Format	NC,BMP,JPG,PNG,GCODE,ETC
Supported Software	LaserGRBL (Windows), Lightburn (Common)
Power Type	USA / EU Plug (Optional)
Software Support Languages	Chinese, English, Italian, French, German
Working Environment	RHTemperature 5-40°C, Humidity 20-60%RH
Engraving Method	USB Connect PC, TF Card (APP, Webpage control)
Engraving Materials	Wood, Plastic, Paper, Leather, Sponge Paper, Alumina
Engraving Mode	Image carving / Text carving / Scanning carving / Contour carving / Pixel carving

ASSEMBLING THE MACHINE

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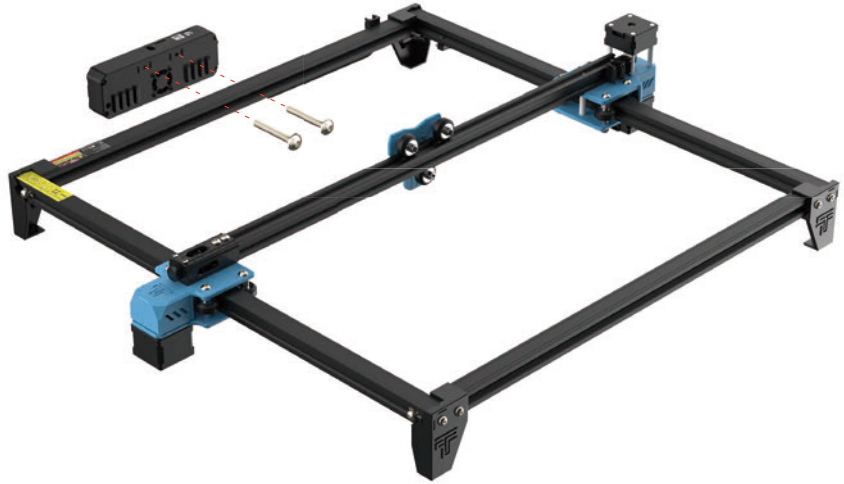
Installation of master control box

Master Control Box
(Port facing up)

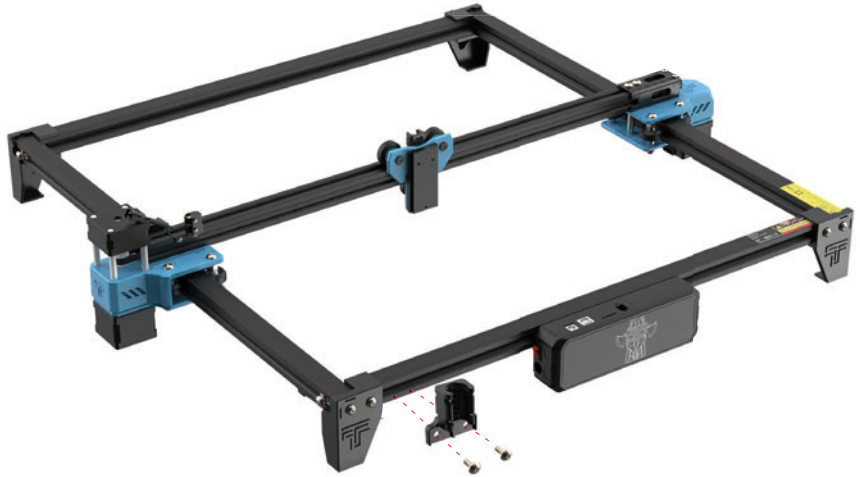
M3 X 20



Installation of bellows mounts

Bellows Mounts

M3 X 6



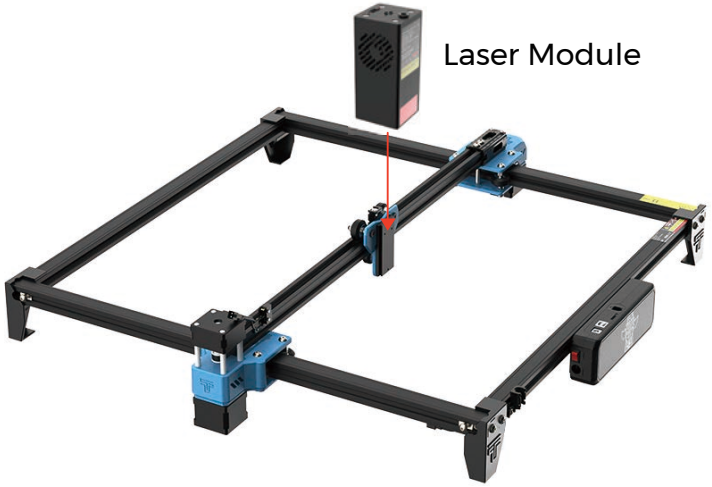
ASSEMBLING THE MACHINE

Installation of X-axis End Stop

X-axis End Stop

M3 X 6

Installation Laser Modul



Push into the groove according to the shape of the slider. If you cannot push in the slider,please adjust the hand screw.

SET UP TTS-20 PRO

Bellows fixing

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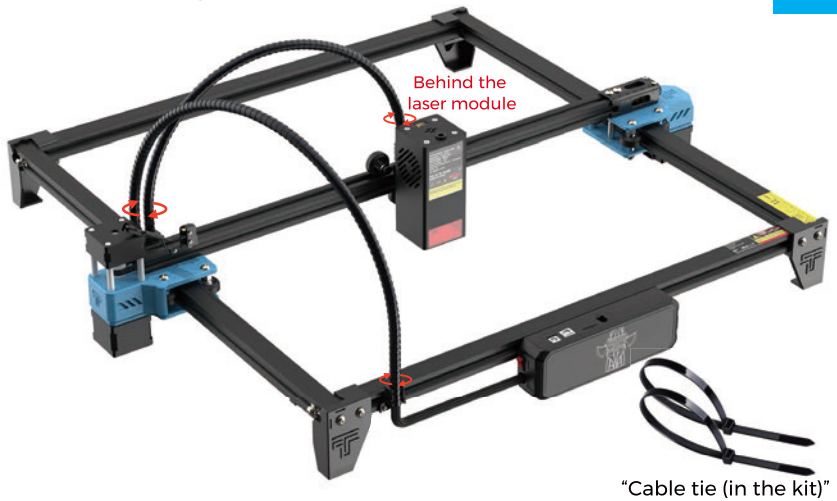
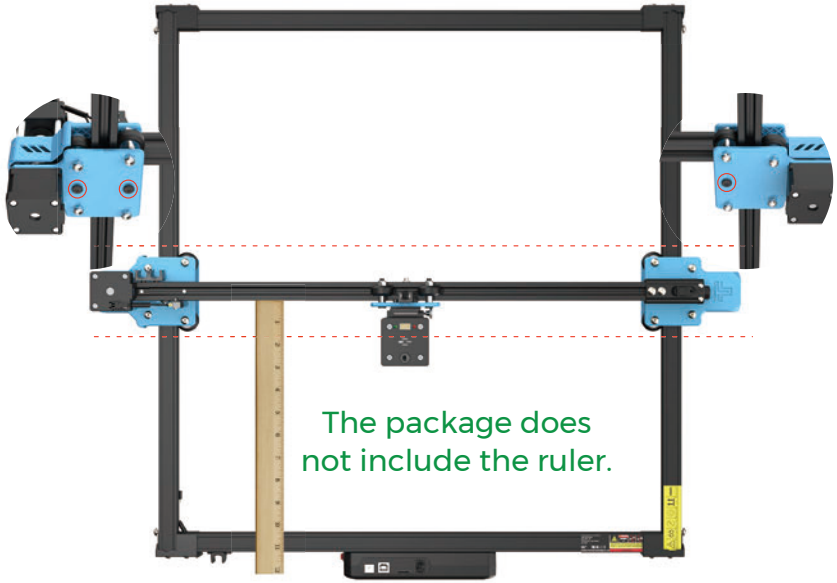


"Cable tie (in the kit)"

Secure the bellows to the seat, which can be fixed with a tie.

Adjustment of X-axis parallelism

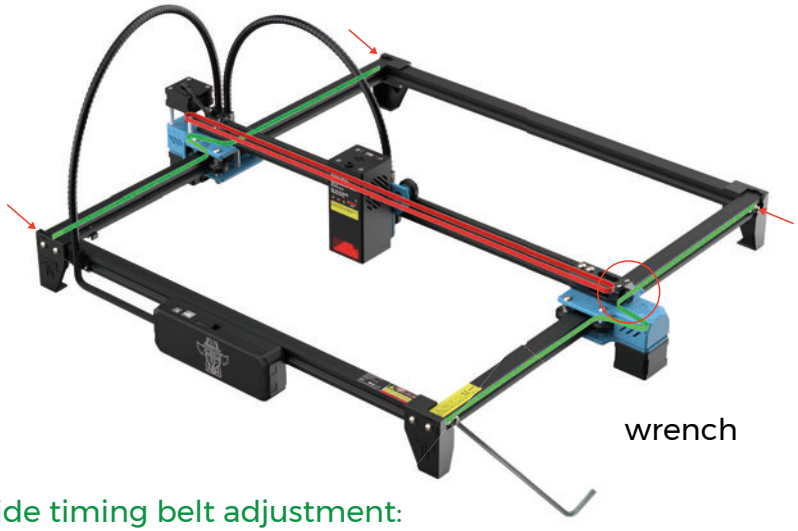


Adjustment by loosening the screw at the bottom.

The X-axis beam needs to be guaranteed to be parallel, otherwise it will not engrave properly.

SET UP TTS-20 PRO

Adjustment of timing belt



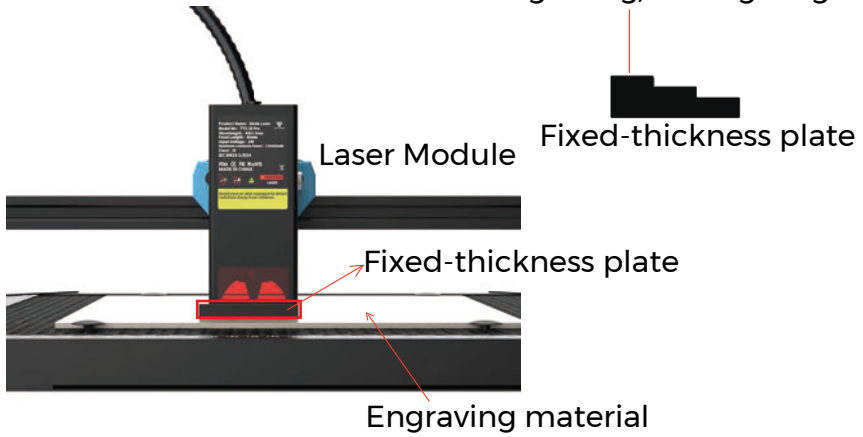
Side timing belt adjustment:

Lock the timing belt fixing screws on one side, pull the timing belt tight on the other side and then lock the side screws.

X-axis timing belt adjustment:

Check that the timing belt is hung on the X-axis motor

Adjust the focus



MACHINE WIRING

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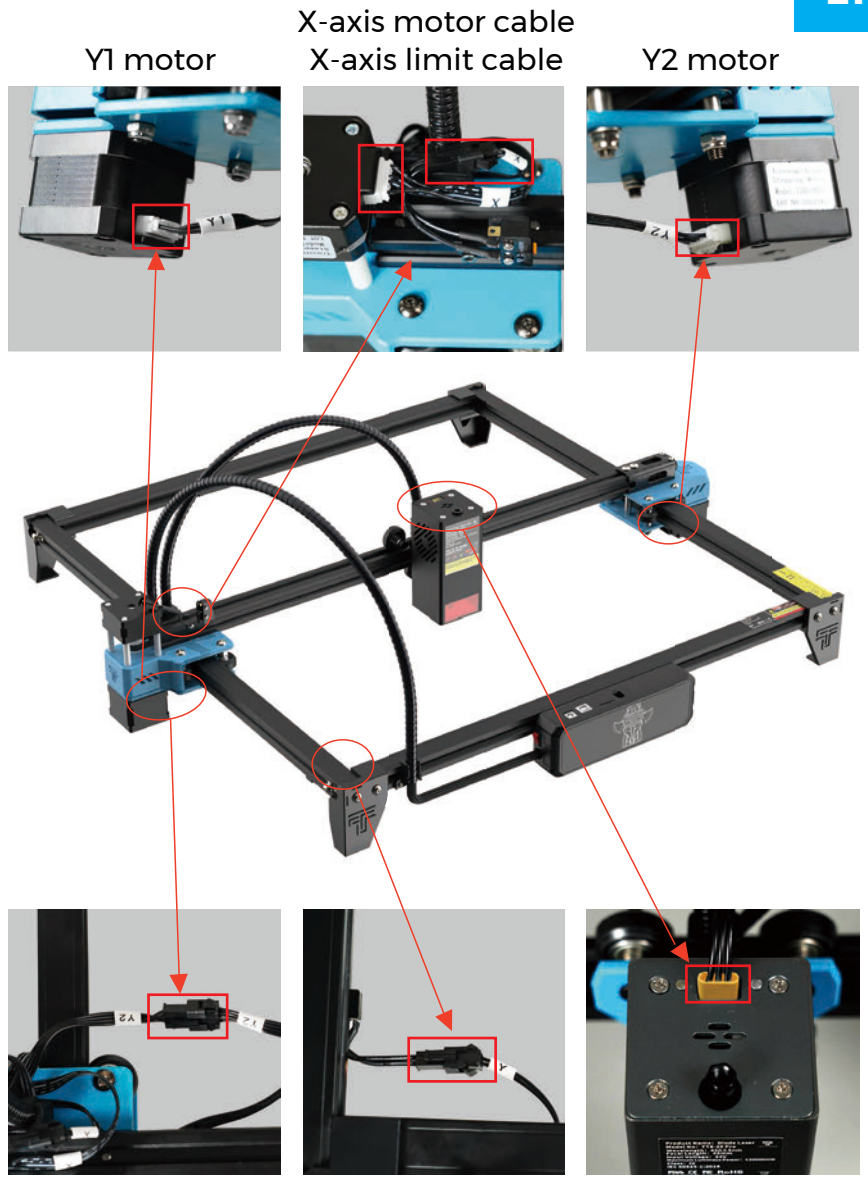


Y2 motor pair wiring (At the bottom)

Y-axis limit

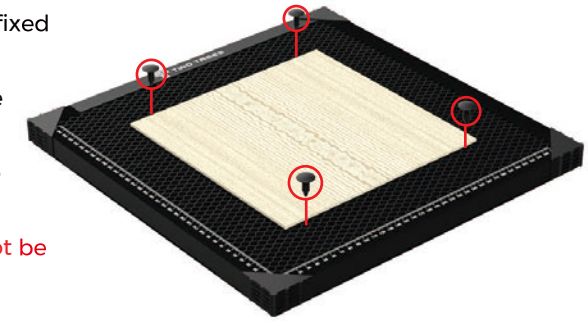
Laser module wiring

After the wire is connected, please try to push the machine to move and check whether the wire will interfere with the movement of the machine.

HONEYCOMB PANEL INTRODUCTION

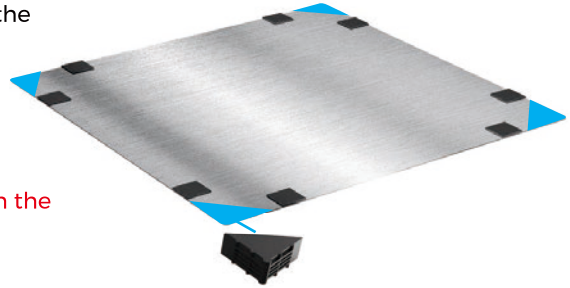
The method of using honeycomb needle

Four honeycomb pins are fixed in the corner of the carved material to ensure that the material will not buckle.
Note: stainless steel will be deformed by heat, the honeycomb needle can not be fixed steadily



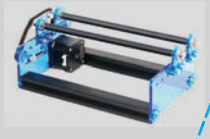
Stick non-slip sheets to the aluminium sheet

First confirm the position of the paste anti-slip sheet with honeycomb board, and then paste the anti-slip sheet (honeycomb board corner protection may interfere with the attention to avoid position)

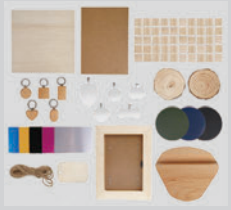


External auxiliary accessories can be added (included only in some packs)

Heightening kit



Rotary module

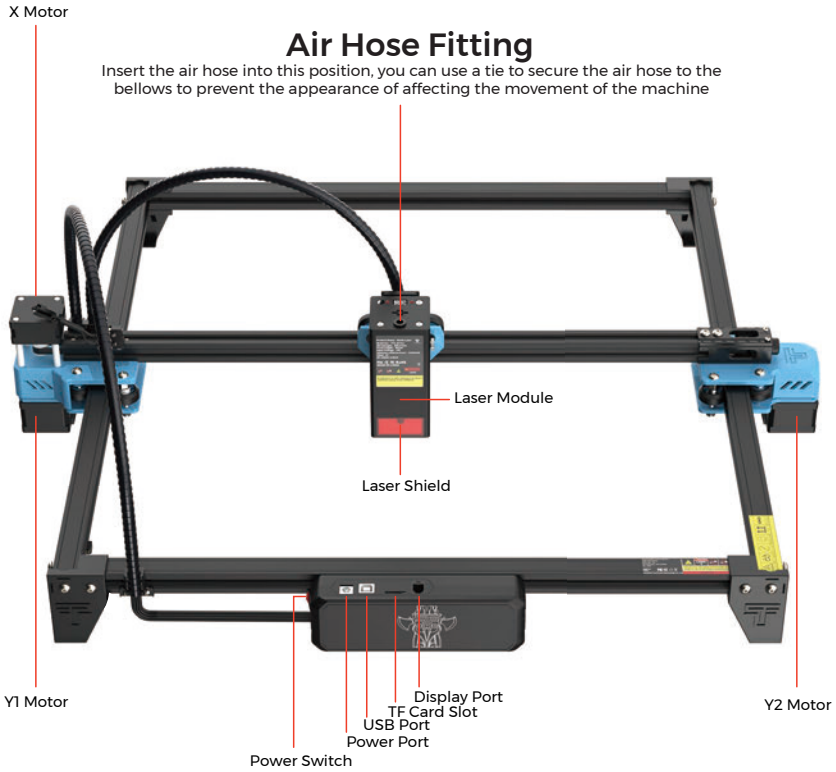


Engraving Material Pack

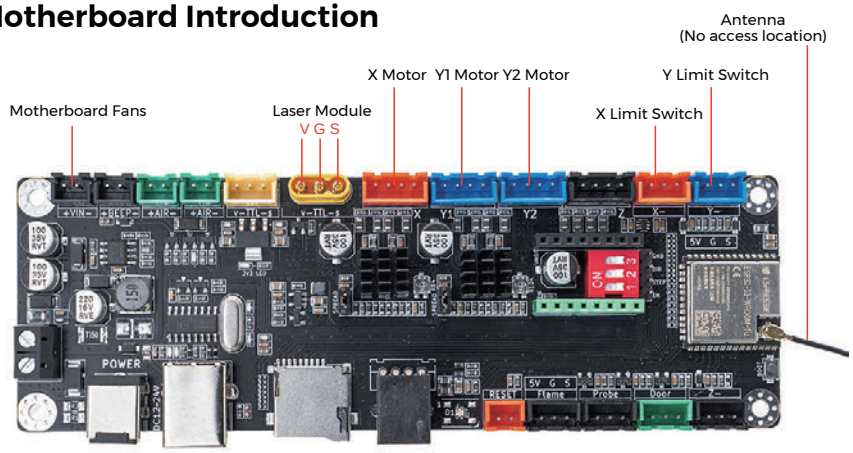
For detailed infomation, please do the enquiry: www.twotrees3d.com

MEET YOUR TTS-20 PRO

Machine Introduction



Motherboard Introduction



HOW TO START ?

Assemble the machine | Install the control software on the computer | Install the driver on the computer | Connect the machine to the computer

How to Assemble the machine

1. Read the product manual in detail and follow the steps in the manual to assemble the machine.

2. Tutorial Video Watch it on Youtube!
www.youtube.com Search : TWO TREES Official

Watch video

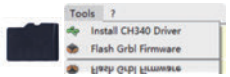
Downloaded in LaserGRBL website, it's free.

How to Install control software

http://lasergrbl.com/download/ (The installation package is also available on the TF card from the manufacturer)
LaserGRBL For Windows
LightBurn is a paid software, only 30 days for free.
https://lightburnsoftware.com/ (The installation package is also available on the TF card from the manufacturer)
LightBurn For Windows, MAC

How to Install driver on computer

Driver Name: CH340SER.EXE
Where is the program?
1. The TF card attached by the manufacturer.
Search: CH340SER
2. Open the LaserGRBL software on your computer
The "Tools" menu of the LaserGRBL software.



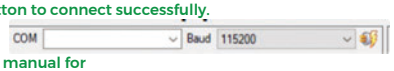
Note: Install the driver unsuccessfully will cause the computer to fail to connect to the machine

How to connect the Machine & the computer

Operating steps:
1. Turn on the machine.
2. Connect the machine to the computer with the USB cable.
3. Open LaserGRBL software
- In the COM checkbox, choose the COM number of the machine. (usually not COM1)
- In the Baud checkbox, choose 115200.
- Click on the "Connect" button to connect successfully.

"Connect" button

(detailed operation)



Please check the back of the manual for
4. Open LightBurn software(Activated)
- Choose “Create manually” .
- Choose “GRBL” ,NEXT.
- Choose “Serial/USB” .
- Set the length of the working area.
- Set Origin: Front left.
- Turn off auto "home", NEXT.
- In the COM checkbox, choose the COM number of the machine. (usually not COM1, MAC not showing COM)

Engraving Learning Process!

Learn to use LaserGRBL or lightburn.on websites | Learn to focus laser via manual or video | Test speed and power (Results for different materials) | Communicate and share via Facebook and YouTube

CONNECT PC

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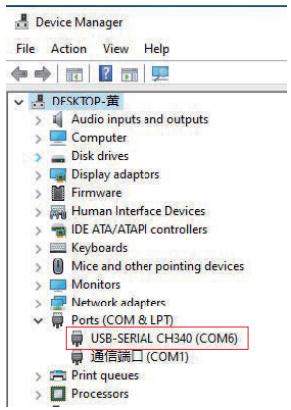
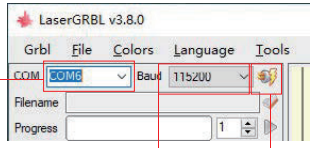
1. Connect the machine with the computer installed with LaserGRBL software with USB data cable.
2. Plug in the power.
3. Open LaserGRBL on the computer.
4. Select the specific port number and baud rate——115200 (Figure A.10)
5. Click the lightning sign. When the lightning sign changes to the red “X” and the direction sign is lit, it indicates that the connection is successful. (Figure A.11)

Generally, the COM port does not need to be selected manually, unless multiple serial port devices are connected to the computer, you can find the port of the machine in the device manager of the windows system (as shown in Figure A.09). A simpler way is to try the displayed port number one by one.



Choose the correct port

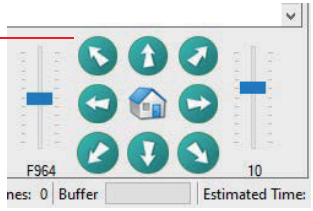


Choose baud rate 115200 Lightning sign

Successful

A.11

A.10



Note:
If you cannot find the correct port in the “Ports”, you may need to
Method 1: Click "Tools" in the menu to install CH340 driver (This function is not available in some software versions);
Method 2: Copy the "CH340ser. Exe" file in the TF Card (USB flash disk) to the computer and install it.

GRBL INTRODUCTION

1. Software Downloading

LaserGRBL is one of the most popular DIY laser engraving software, which can be downloaded in LaserGRBL website http://lasergrbl.com/download/ (The installation package is also available on the TF card from the manufacturer or USB flash disk).

Brief introduction:

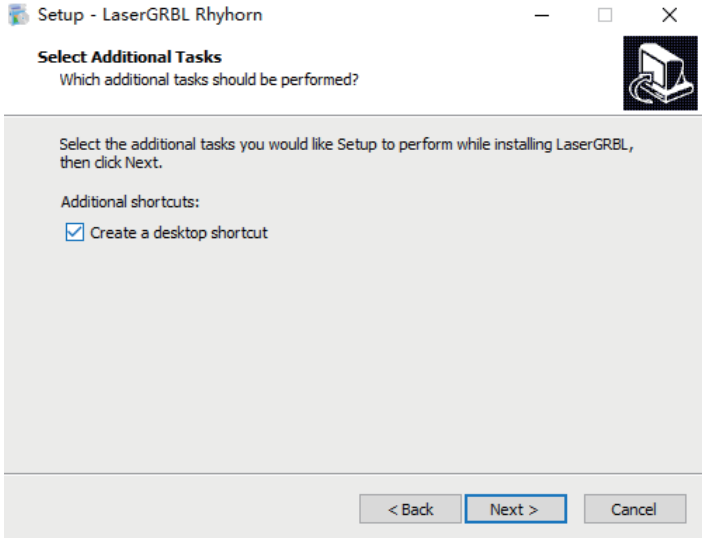
LaserGRBL is easy to use. However, LaserGRBL only supports Windows system (Win XP/Win 7/Win 8/XP/Win 10).

For Mac users, you can also choose LightBurn, which is also an impressive engraving software, but it's not free. And this software also supports Windows system.

Note: The engraving machine needs to be connected with the computer during engraving, and the software of the engraving machine cannot be turned off.

2. Software Installation

Double click the software installation package to start the software installation and click “Next” until the installation is complete.



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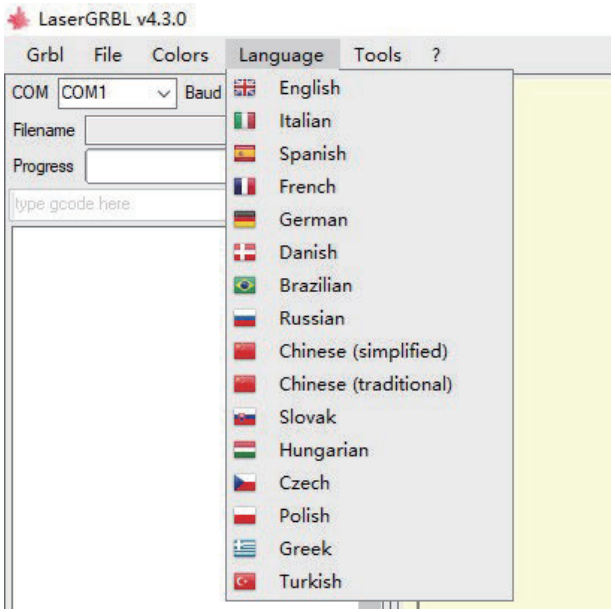
3. Language

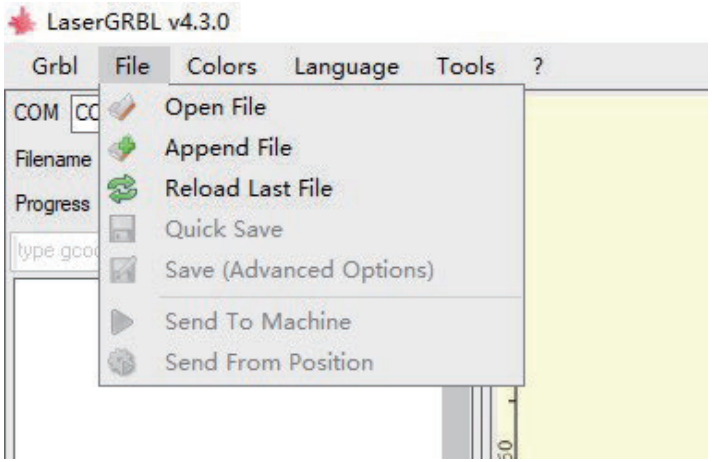
Click "Language" on the menu at the top to select the language you need.



4. Load Engraving File

Click "File" and "Open File" in turn, as shown in figure 8.1, and then select the graph you want to engrave.

LaserGRBL supports files in the formats of NC, BMP, JPG, PNG, etc.



5. Set picture parameters, engraving mode and engraving quality.

1. LaserGRBL can adjust the sharpness, brightness, contrast, highlight and other properties of the target graph. We can preview window effect during adjustment, and adjust the effect to your satisfaction.

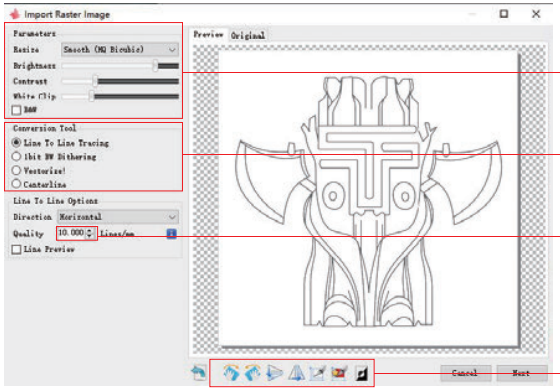
2. In the engraving mode, "Line-to-line Tracking" and "1Bit Shaking" can usually be chosen;"1Bit Shaking" is more suitable for carving grayscale graph. Please Choose "Vector Diagram" or "Center Line" if you need cutting.

3. Engraving quality essentially refers to the line width of laser scanning. This parameter mainly depends on the size of the laser spot of the engraving machine.

Note: The recommended engraving quality range is 12-15. Different materials have different reactions to laser irradiation, so the specific value depends on the specific engraving material.

4. At the bottom of the preview window, the graph can also be rotated, mirrored, cut and so on.

After completing the above settings, click next to enter the settings of engraving speed, engraving energy, and engraving size.



Color adjustment; intensity adjustment

Choose engraving mode

Quality: 12-15 (recommended)

Direction adjustment; pattern cutting

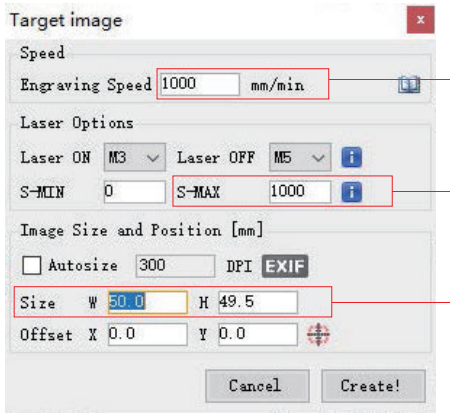
6. Set engraving speed, engraving energy,and engraving size

1. The recommended engraving speed is 1000, which is considered to be a relative appropriate value after repeated experiments. Of course, you can increase or decrease this speed according to your preference. A faster engraving speed will save time but lead to the decline in the engraving effect. Slower speed is the opposite.

2. In laser mode, there are two instructions: M3 and M4. M4 instruction is recommended for engraving in "1bit jitter" mode, and M3 instruction is recommended for other cases. If you have only M3 instruction on the laser, please check whether the laser mode is used in the GRBL configuration. Please refer to the official instructions of LaserGRBL for GRBL configuration.

3. Choice of engraving energy. Choose it according to different materials.

4. Finally, set the size and click the "Create" button to complete the setting of all engraving parameters.



The default engraving speed is 1000 and can be adjusted as required

Set the energy value. Improper energy will affect the engraving effect

Enter the size of the graph you want to engrave

Save GCODE file

Click "File" in the menu at the top of the software interface, enter the drop-down menu, and select "Save". Copy the saved .nc file to the TF card and insert the TF card into the engraver to use the file to engrave your work. Use the "MKSLaserTool" software in TF to add preview codes to Gcode **files.**

REFERENCE OF MATERIALS

For engraving：

Material	Speed (mm/min)	Power (%)	Times
Plywood	6000	50	1
Acrylic	6000	20	1
Leather	6000	20	1
Electroplated coating	1000	100	1
Powder coating	6000	50	1
Anodic alumina	6000	20	1
Stainless steel	3000	100	1
Density board	6000	60	1
pebble	6000	100	1
Plastic board	6000	40	1
Cardboard	6000	50	1

For Cutting：

Material	Speed (mm/min)	Power (%)	Times
Plywood 1mm	600	100	1
Plywood 2mm	450	100	1
Plywood 3mm	280	100	1
Plywood 4mm	200	100	1
Plywood 5mm	150	100	1
Plywood 6mm	100	100	1
Plywood 7-8mm	100	100	1—2
Acrylic 1mm	500	100	1
Acrylic 3mm	200	100	1
Acrylic 6mm	100	100	1-2

Note:
The energy value is set to 500, and the laser intensity accounts for 50% of the power.
The energy value is set to 1000, and the proportion of laser intensity to power is 100%. The larger the energy, the faster the speed can be set.
The above parameters only for reference. Due to the different properties of the materials, please adjust the parameter values according to the actual situations.

TEST BEFORE USE

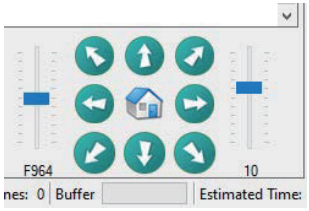
EN

1. Turn on the machine, and connect it to the computer.

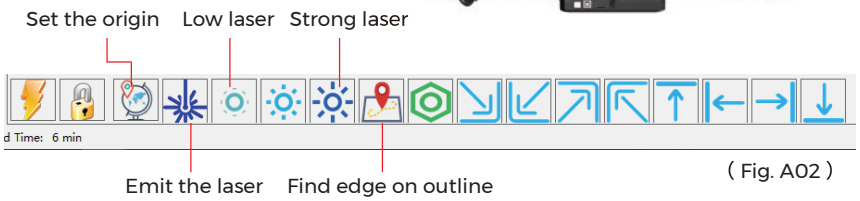
2. Movement test:
Control the machine to move up, down, left and right on the software, to check whether the direction and distance are right.(Fig. A01)

3. Laser emission test:
Software import custom icons, then click to sent out laser(weak laser). Wear goggles and observe whether the laser module emits blue light.(Fig. A02)

4. Test the files in the TF card:
Note: laser will generate heat and glare, which may cause harm. Please follow the instructions to avoid injury.



(Fig. A01)



(Fig. A02)

1. After the laser head has been used for a period of time, it is necessary to clean the lens of the light outlet under the laser head to ensure normal cutting ability
2. Wiping the lens must be done after the machine is powered off, otherwise the laser will hurt people
3. After wiping the lens, please dry it naturally for about 3-5 minutes and wait for the lens to dry before powering it on, otherwise the light will cause the lens to break
4. You can watch the video tutorial by scanning the QR code of the manual

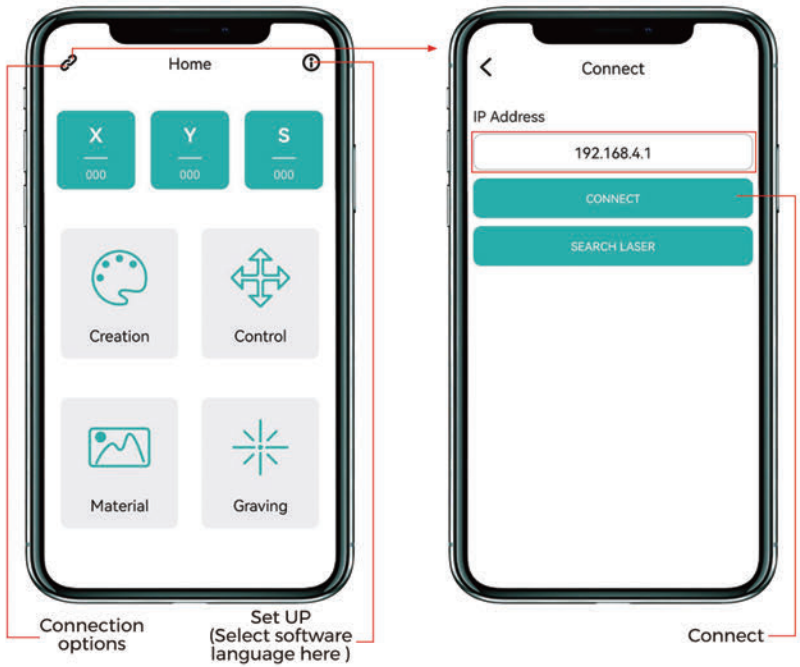
APP CONNECTION

The WIFI of this machine is a signal sent by the ESP32 chip of the main board. The machine has been set up when the machine leaves the factory. After the machine is turned on, the main board will send out the WIFI network with the name Laser_XXXXX (XXXXX refers to the serial number of the main board, the serial number of each machine). all different)

1. Open the Laser_XXXXX network found by the mobile phone connection, enter the password 12345678, and connect to the network.

2. Open the APP and enter the connection options interface. Enter the IP address: 192.168.4.1 and click connect.

3. After the APP slicing is completed, you need to insert the TF card into the motherboard when uploading files. If the upload fails, please confirm whether the TF card is normal.



APP main interface

AFTER-SALES SERVICE

EN

The guarantee period is 12 months from the date of purchase.

1. Missing/Damaged/Defective Parts

Within 7 days of the date of receipt, we will replace any parts for free of charge including shipping fees.

After 7 days of the date of receipt, we will replace any parts for free of charge. But you need to pay the shipping fees.

2. Customer Damaged Parts: You need to pay for the cost of the parts and the shipping fees.

3. Courier company loss, missing, damaged, and defective parts.

a. Lost or damaged shipments must be reported to the carrier within the carrier's claim window, and you need to inform us within 7 days of the date of receipt.

b. For any parts lost or damaged during shipping, you need to take photos or video and send them to us.

c. Once the Carrier dispute is settled, please provide us with all communications with the carrier. It is the customer's responsibility to keep us up to date with ALL communication with the carrier.

d. For Missing Parts, you need to fill out a Service Ticket.

e. For Damaged Parts, you need to fill out a Service Ticket and send us the photos or video.

f. If the part is one of the LCD Panel, Power Supply or Mainboard, you need to ship the part back to us and we will send a new one.

LETTER FROM TWOTREES

Sehr geehrte Kunden,
Vielen Dank, dass Sie sich für ein Produkt der Firma TwoTrees entschieden haben. Im Rahmen der Kundenzufriedenheit und unserem Qualitätsanspruch, sind wir stehts bestrebt unsere Produkte und deren Qualität weiter zu verbessern.
Wir hoffen diese Anleitung wird Ihnen helfen, die bestmöglichen Erfahrungen mit unserem Produkt zu sammeln.
Bei Problemen können Sie uns jederzeit kontaktieren:

Webseite: www.twotrees3d.com
Auf Facebook: https://www.facebook.com/twotrees3d
Für allgemeine Fragen: info@twotrees3dcom
Für technische Unterstützung: service@twotrees3d.com
Sie erhalten innerhalb von 24h eine Antwort.
innerhalb von 24h eine Antwort.

TwoTrees-Team

SICHERHEITSVORSCHRIFTEN

Warnung:
Die Lasergravurmaschine kann kein Material, das das Licht reflektiert, direkt schnitzen oder schneiden, was zu Verletzungen führen kann.
Das Produkt hat eine hohe Graviergeschwindigkeit und ist nicht für das industrielle Schneiden geeignet. Und der Laserkopf ist ein Verbrauchsmaterial.
Bedienen Sie den Laserkopf nicht direkt mit Ihren Händen. Bitte tragen Sie eine Schutzbrille.
Die Laserdiode ist ein empfindliches Bauteil, bitte vermeiden Sie statische Schäden.
(Dieses Produkt hat einen elektrostatischen Schutz Design, aber es gibt immer noch eine Möglichkeit der Beschädigung).
Wir übernehmen keine Verantwortung für eine unsachgemäße Verwendung dieses Geräts oder für Schäden, die durch unsachgemäße Verwendung verursacht werden. Der Bediener ist verpflichtet, dieses Lasergravurgerät nur in Übereinstimmung mit dem vorgesehenen Zweck, den Anweisungen in der Bedienungsanleitung und den einschlägigen Anforderungen und Vorschriften zu verwenden.

VORSICHTSMASSNAHMEN

DE

Vermeiden Sie es, ständig in den Laser zu schauen, da dies Ihre Augen schädigen kann.

Vermeiden Sie es, das Gerät direkt zu berühren, wenn es in Betrieb ist.

Sie können eine Metallplatte unter das gravierte oder geschnittene Objekt legen, um zu verhindern, dass Ihr Tisch durchgebrannt wird.

Vermeiden Sie brennbare Gegenstände oder Gase.

Halten Sie es von Kindern und schwangeren Frauen fern.

Nehmen Sie den Laser nicht ohne Anleitung auseinander.

Verwenden Sie ihn nicht auf Materialien, die das Licht reflektieren.

Alle Personen, die sich während der Benutzung in der Nähe aufhalten, sollten eine Schutzbrille tragen.

Schalten Sie das Gerät aus, wenn Sie es nicht benutzen.

In der Nähe befindliche Gegenstände bergen die Gefahr von Quetschungen und Verletzungen.

Bitte befolgen Sie die Anweisungen, bei unsachgemäßem Gebrauch liegt das Risiko bei Ihnen.

INHALTSVERZEICHNIS

INFORMATIONEN ÜBER IHR GERÄT

DE

TTS-20 PRO Maschine

Laser Modul

Luftpumpen

Honigwabenplatten

M3 X 20

M3 X 6

Faltenbalghalterungen

Endanschlag der X-Achse

Adapter für die Stromversorgung

Stromversorgungs-kabel

USB Kabel

Schraubenschlüssel