Wiki JS

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Join in Spider X1 FB Group

Company: Shenzhen Sky Electronics Co., Ltd.
Address: Room 508, Block 11, Ping an Ave, No.3, Pinghu Stree, Longgang, Shenzhen
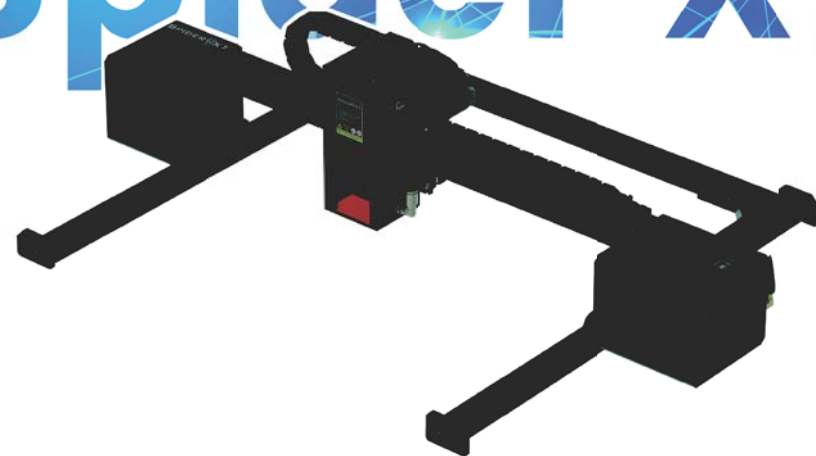Website: www.spiderlasers.com
Email: spiderx1@spider-laser.com

Tyvok
User Manual

Spider X1

A Letter to Customers

Dear Valued Customer,

Thank you for choosing Spider X1. To ensure your convenience, please carefully read this Manual before operating the machine and strictly follow the instructions provided. The Spider X1 team is always ready to provide you with high-quality service. If you encounter any issues during use, please contact us via the phone or email provided at the end of this Manual. To enhance your experience with our product, you can also access operational knowledge through the following methods.

User Manual on TF Card:
Relevant user instructions and videos can be found on the TF card.

Visit Spider X1 Official Website:
www.spiderlasers.com for information on software, hardware, contact details, device operation, and maintenance.

Best regards,
Spider Laser Team

Tyvok

Guidelines for Safe Operation

The laser engraving machine utilizes a high-density laser beam to engrave or cut materials, generating high temperatures on the material's surface to vaporize it without combustion. However, most materials are inherently flammable and may ignite, resulting in an open flame that could damage the machine and its surroundings. Please adhere to the following operating principles:

1. Avoid placing this product near flammable, explosive substances, volatile solvents, or high heat sources. Keep it in a well-ventilated, cool, and low-dust environment.

2. Use only the power cord provided with this product during installation: do not substitute with other power cords.

3. Regularly clean the machine body and laser module with a dry cloth when the power is disconnected.

4. The operating temperature for the laser is between 0°C-35°C: refrain from using it in below-zero temperatures or humid environments, and never operate it during thunderstorms.

5. If not using the product for an extended period, turn it off and disconnect the power cord.

6. When the product is powered on, do not touch the electronic components or related areas with hands or other tools.

7. Avoid touching the moving mechanical parts and laser module while the product is in operation.

8. Before engraving, place a non-penetrable flat object such as aluminum alloy or stainless steel on the work surface and then position the material to be processed.

9. Always wear protective goggles during laser engraving to avoid eye injuries caused by direct exposure to the laser beam.

10. During the engraving process, slight smoke or odor may occur: operate in a well-ventilated area.

11. Children under the age of 10 should not use this product without adult supervision to prevent injuries.

12. Prepare a fire extinguisher as a precautionary measure and conduct regular maintenance and inspections. The machine should not run without supervision.

13. Users must comply with the laws and regulations of the country or region where the equipment is located or used, adhere to professional ethics, and fulfill safety responsibilities. The use of our products or equipment for any illegal purposes is strictly prohibited, and our company assumes no responsibility for any legal liabilities resulting from violations. Please read and strictly adhere to these guidelines for safe and responsible use of the laser engraving machine.
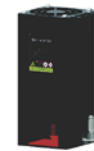
CONTENTS

01

UNBOX AND CHECK
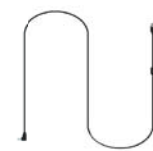
10W Laser Head   or   20W Laser Head   Power Adapter & Cable   USB Cable

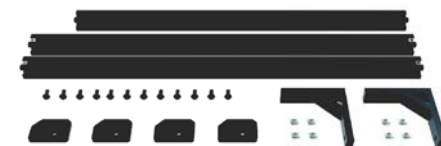Card Reader   TF Card   Stylus   WiFi Antenna   Goggles

Spider X1

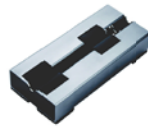Tool Kit (4 wrenches, cleaning
cloth, cleaning brush)

Frame

More Accessories to Choose

20W Laser Head

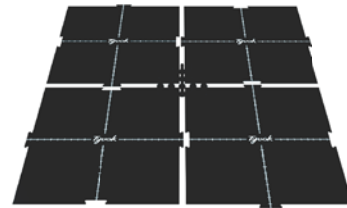**Air Assist (Air pump, Power supply)**

Y-Axis Rotary Roller

Risers

Y-axis Extension Kit

X-axis Extension Kit
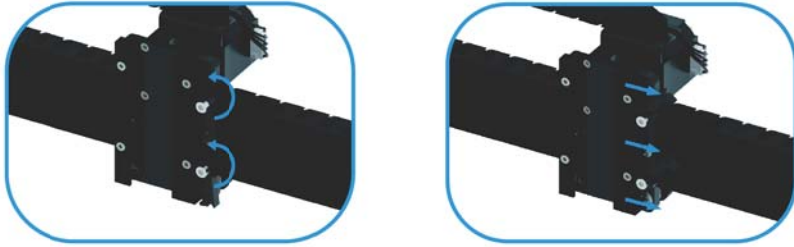
Rotary Pro

Materials Pack

Flexible Honeycomb Working Plate*4
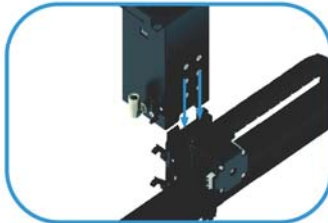**+ Magnetic Spacer*20**

02

ASSEMBLE SPIDER X1

2.1 Install the Laser Head

1. Lift the quick release fixture, then slide the movable guide rail.
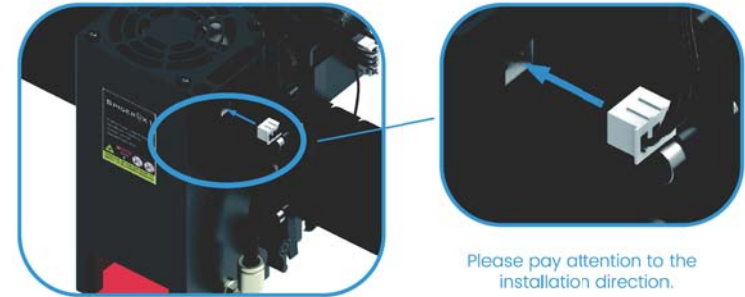
2. Insert the laser head into the machine body guide rail, then press the quick release fixture firmly. (Tips: The installation method is the same for both 10W and 20W models.)
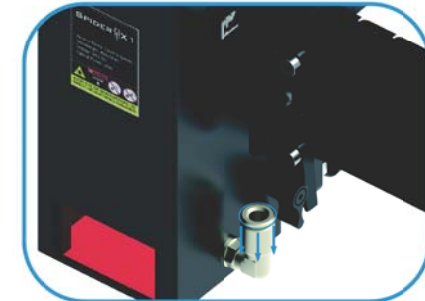
tips If you have any questions, you can access https://www.spiderlasers.com or scan the QR code on the right to watch the installation tutorial video.

2.2 Install the Laser Head Cable

1. 20W Laser Head Cable Connection.
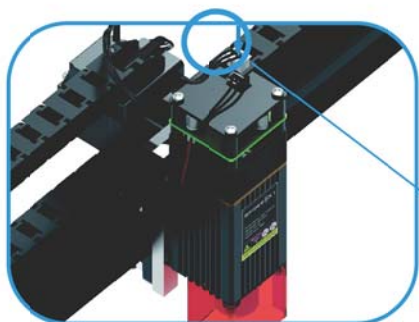
Please pay attention to the installation direction.

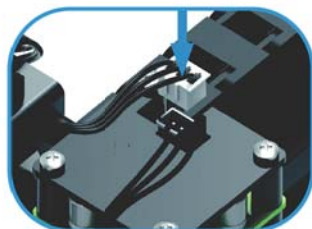2. Install the air pipe: first press down on the connector, and then insert the air pipe.
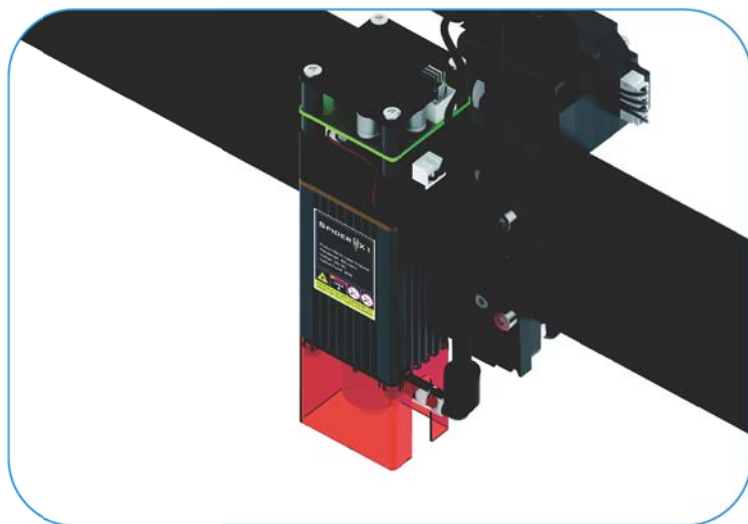
3. 10W Laser Head Cable Connection.

Please pay attention to the installation direction.

4. Install the air pipe: first loosen the connector, then insert the air pipe, and finally tighten the connector back again.

5. Install the Wi-Fi antenna.

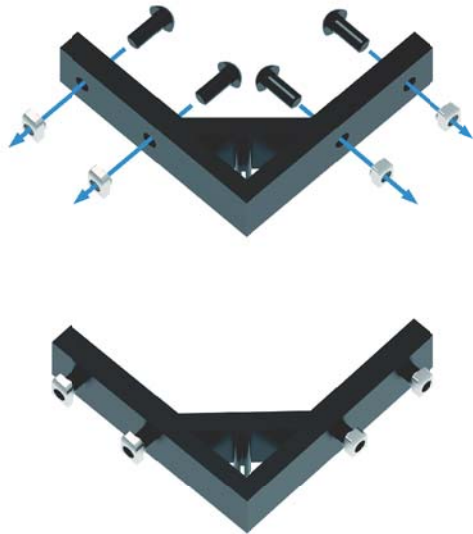6. The installation of Spider X1 is completed.

tips Spider X1 supports no frame operation. To do this, you need to go to the bottom left corner of the operating interface and switch the device to single mode.

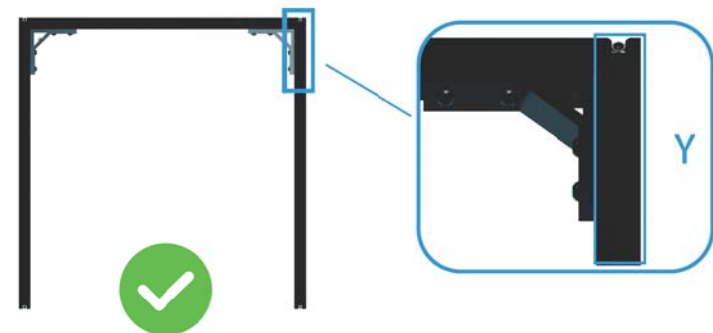Control

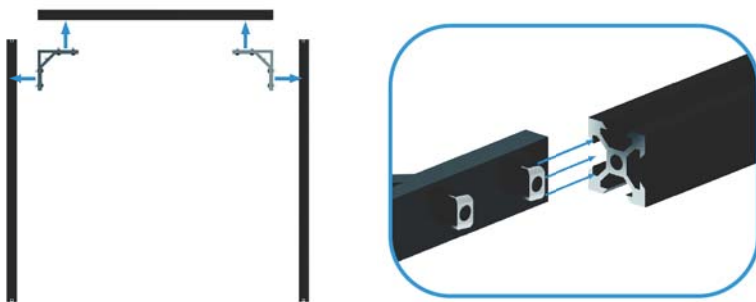Setting

Frame mode

Single mode

File

2.3 Install the Standard Frame

1. Install eight T-nuts on the two right angle frame connectors.

2. Use the right angle frame connectors to connect the X-axis profile and the Y-axis profile. (The longer one is the Y-axis.)
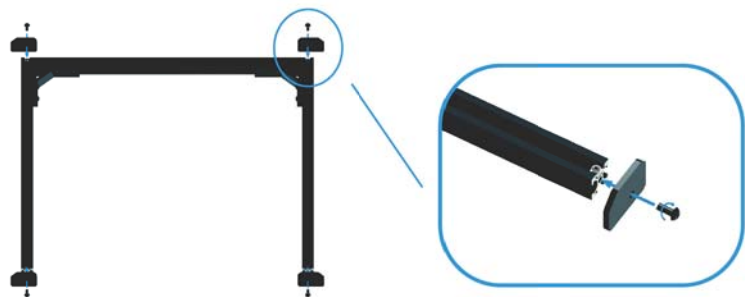
Note that the side of the Y-axis profile with the timing belt should be facing up.

Assemble the Y-axis on both ends of the X-axis, ensure that the top surface of the Y-axis is aligned with the side surface of the X-axis.

3. Install four acrylic blocks.

4. Installation completed.

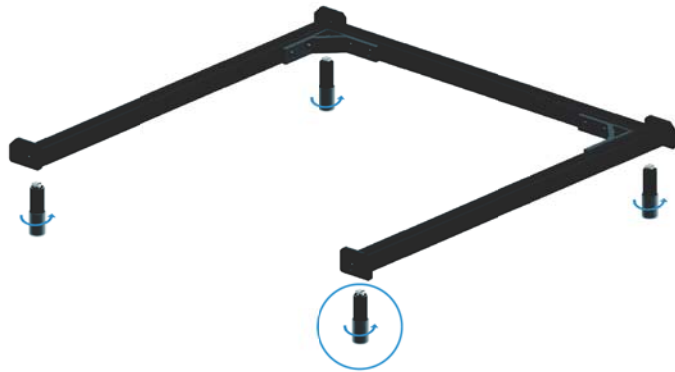## 2.4 Install the Risers

1. Attach the four risers to the T-nuts.

2. Install the T-nuts into the bottom slots of the frame and tighten the risers.

> **tips** If the thickness of the engraved object exceeds the maximum adjustable height of the laser head, you can choose to install the risers on the frame to raise the overall height of the machine.
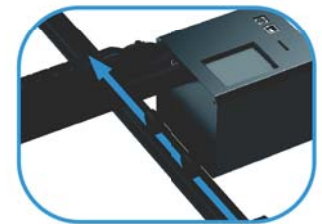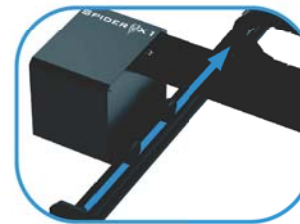
2.5 Adjust the Frame

1. Loosen the set screws inside the synchronous wheel on both sides of the machine body.

2. Place the machine body on the frame rails, adjust the positions of the synchronous wheels on both sides, and fit them into the grooves of the frame rails.

3. Push the machine body towards the bottom of the frame (until it touches the acrylic block), and please note you need to leave a suitable gap for both sides of the machine ends.
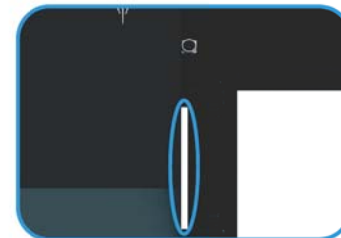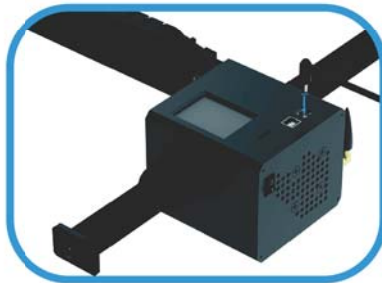
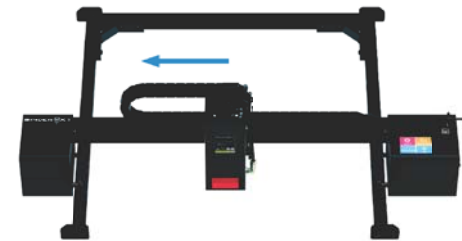4. Tighten the set screws inside the synchronous wheel again.
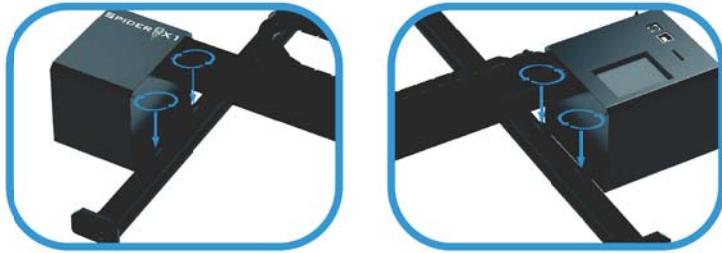
5. Testing

Step 1: Connect the machine to the power source（24V power adapter）and turn on the machine switch.

Step 2:Turn on the machine and wait for the device to complete the automatic reset.

tips The device will automatically reset every time it is powered on and you don't need to adjust.

Step 3: Using the screen controls, switch the device to "Frame mode" and test the smoothness of movement in all directions.
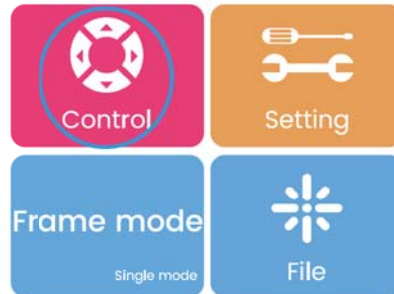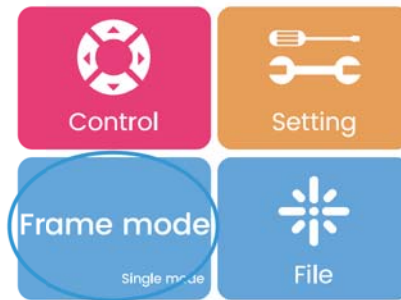
tips
If there is a jam or stutter in the Y-axis direction (the direction of synchronous wheel movement), please repeat steps of 2.5.1-2.5.5.

03

HOW TO USE SPIDER X1

3.1 Adjust the Height of 10W Laser Head

1. Lower the focal length setting bar on the side of the laser head.

2. Open the quick release fixture.

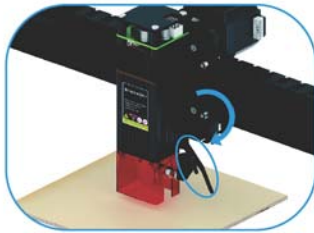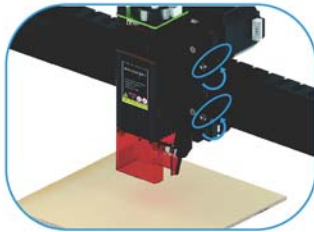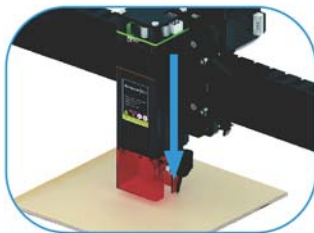3. Lower the laser head until the focal length setting bar makes contact with the surface of the engraved object.

4. Re-fasten the quick release fixture, then pull back the focal length setting bar.
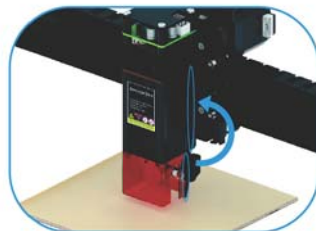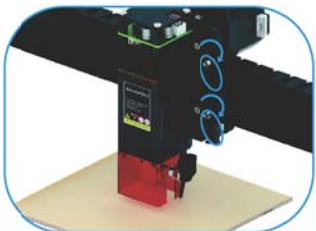
3.2 Adjust the Height of 20W Laser Head

1. Open the focal length setting bar For engraving only, adjust the focal length setting bar to the 0 scale position.
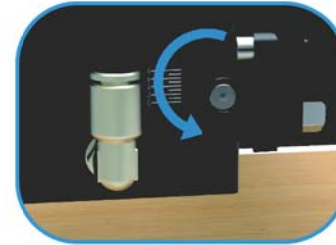
2. When cutting is required, adjust the focal length setting bar to the scale position corresponding to the material thickness. For example: If you are cutting a 5mm wooden board, adjust the scale to "5". Then, tighten the focal length setting bar handle.

3. Open the quick release fixture for adjusting tightness. Adjust the laser head downwards until the focal length setting bar touches the work surface.

4. Tighten the quick release fixture again.

5. Loosen the focal length setting bar handle, reset it, and then tighten it again to prevent it from falling during operation.

3.3 Spider X1 Wi-Fi Connection

1. Turn on Spider X1, wait for the device to return to the X-axis origin, then click on " Setting" to enter the setup interface.
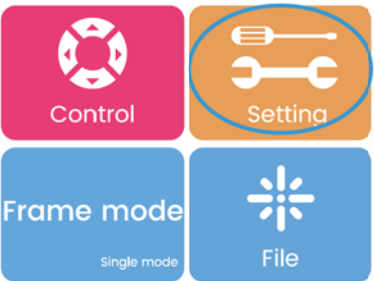
2. Click on "WiFi" to enter the WiFi interface, then select the known WiFi network.

3. Enter the WiFi password to establish a connection. Connection successful. Obtain Spider X1 device IP.

4. Once the device is connected to the "Local Area Network" (LAN), you can proceed with wireless operation. Please ensure that your wireless device is also connected to the same LAN (applicable to 2.4G frequency network only).

💡 tips The device only supports a 2.4G frequency network.

3.4 Spider X1 Operation

3.4.1 PC Web Wireless Terminal Operation
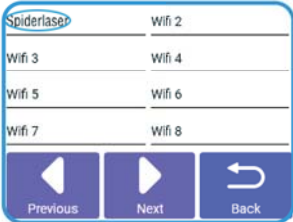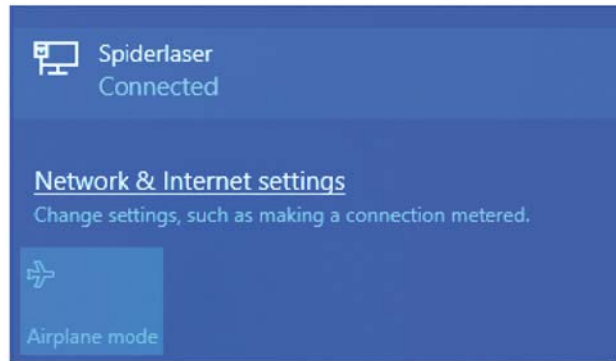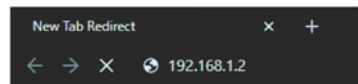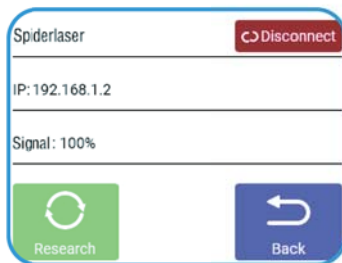
Step 1: Make sure that the PC and the host device are on the same local area network and obtain the IP address of Spider X1. Enter the IP address into the browser's address bar on the PC, then click "Enter" to enter the web page.

Step 2: Enter the operation page of Spider X1 web terminal. Make preparations before starting on the "Control" page, that is, move the position of laser head and set the origin.

After entering the operation page, adjust the moving distance in the "Distance" column (recommended 10mm-20mm).

Click the arrow keys to control the laser head and move it to the lower-left corner of the frame (as shown in Figure 2 below). If you are not using a frame, move the laser head to the far-left position along the machine's X-axis. The corresponding relationship between the arrow keys and the machine's movement direction is illustrated in Figures 1 and 2.
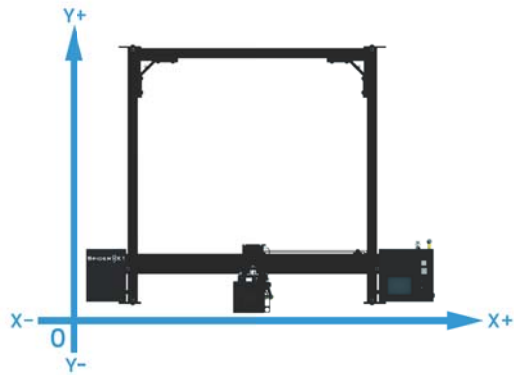
Click "Position XY" to set the origin.

Set the working origin to the lower left corner in various design software to make it consistent with the setting of Spider X1.

LightBurn

1. In "Basic Settings", select "Origin" in the lower left corner and click "OK".

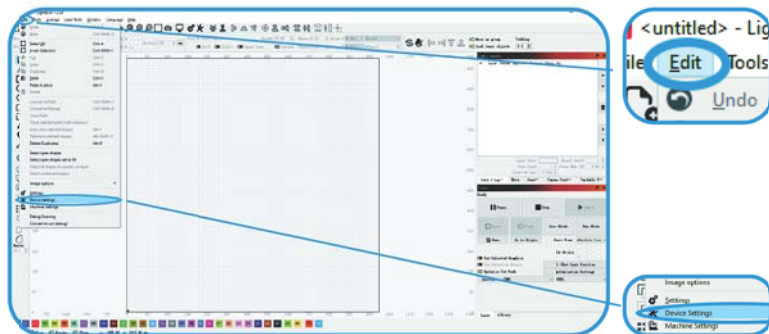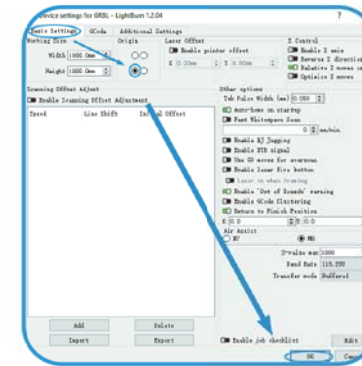2. In the "Laser" module at the bottom right, change "Start From" to "Absolute Coords". Preparations are complete.
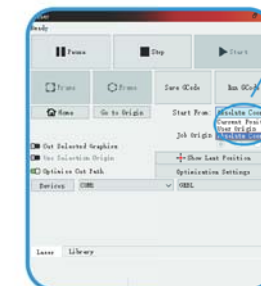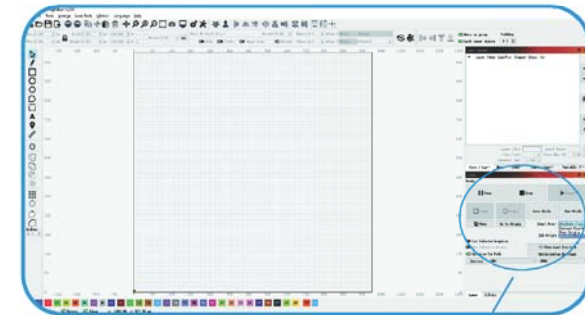
3. Click "SD File", select the working file and upload it to the web-side system.
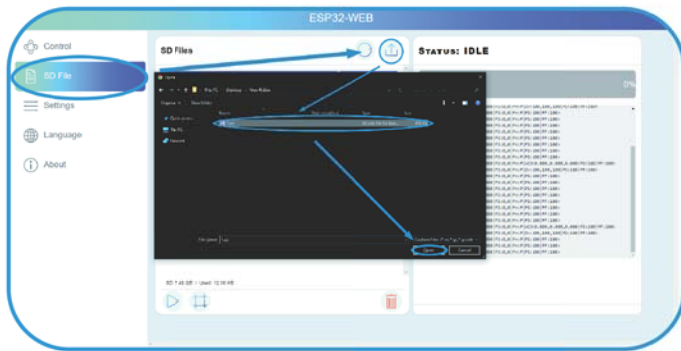
4. Select the file, preview the working area and start working after confirmation.

SD: 7.48 GB / Used: 468.00 KB
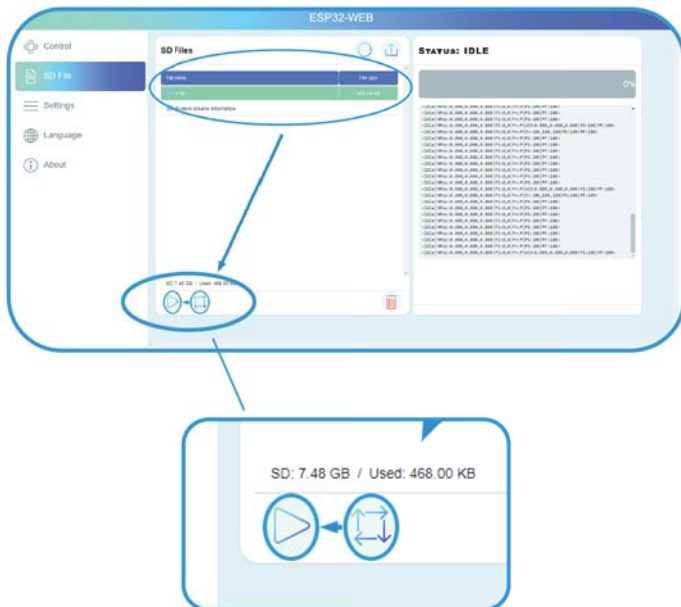
3.4.2 TF Card Operation

1. Click "File" on the screen to enter the design file selection interface. After selecting the design file, enter the operation interface.
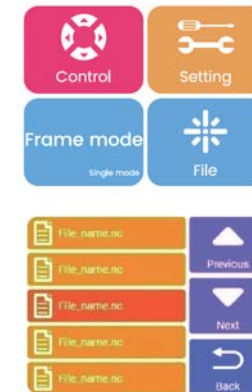
2. Click "Control". Enter the following interface to operate the machine and move it to the origin on the X&Y axis. Click "Position" to complete the origin positioning setting, and then click "Back" to return to the previous interface.
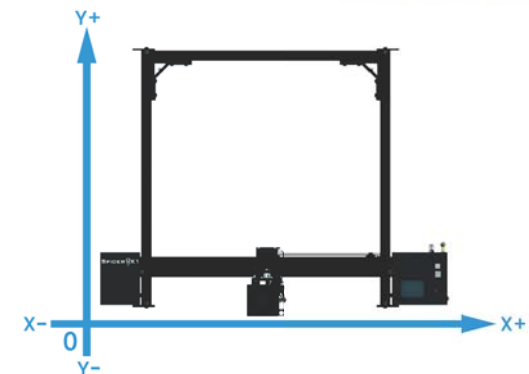
3. Please preview the working area of the laser before starting work each time. Click "Preview" to preview the engraving area of the laser to ensure that the engraving position is accurate.

tips If you confirm that you do not need to preview, you can directly click "Engraving" to enter the confirmation page directly, and click to start working.

4. Machine starts to work. If an accident occurs during the work, you can directly click "Pause". After clicking "Pause", you can click "Run" to continue working. After clicking "Stop", confirm whether to end the current work. When the work stops, the work can only be started from the beginning. When the work stops, the work should be restart again.
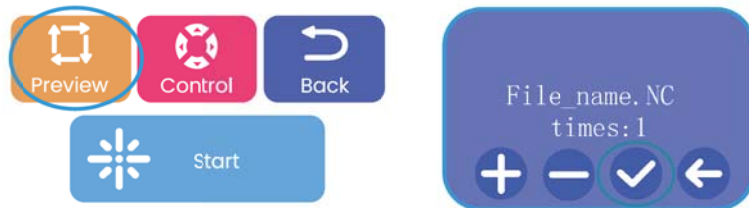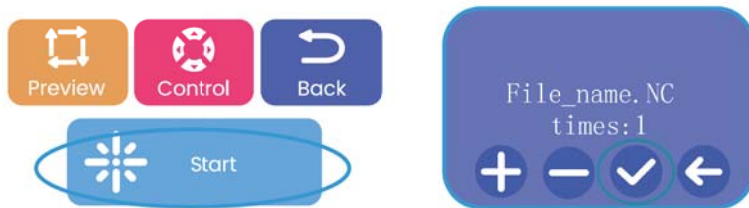
3.4.3 Type-B Real-time Work

1. Install the CH341 driver on the PC.
The Machine's TF card contains the installation program for the CH341 driver. Follow the steps below:

Step 1: Connect the TF card to the computer via a card reader and copy the program named "CH341SER.EXE" to the computer.

Step 2: Power on Spider X1 and connect it to the computer using a USB cable. Double-click to open the "CH341SER.EXE" program.

Step 3: Click "Install" and wait for a moment until a pop-up appears, indicating "Driver installation successful."

2. Check whether the driver installation was successful:
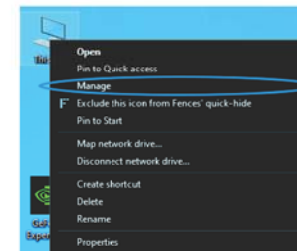
Right-click on "This PC" and select "Manage," which will bring up the Computer Management window.
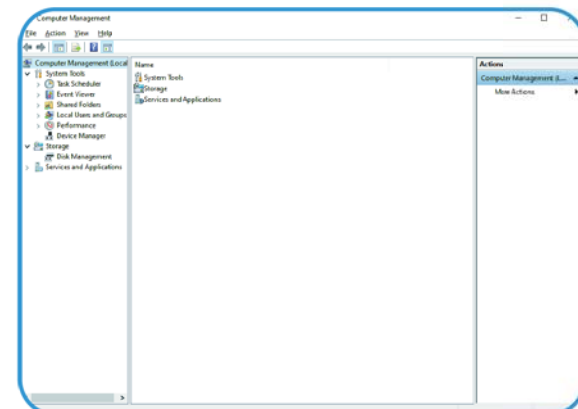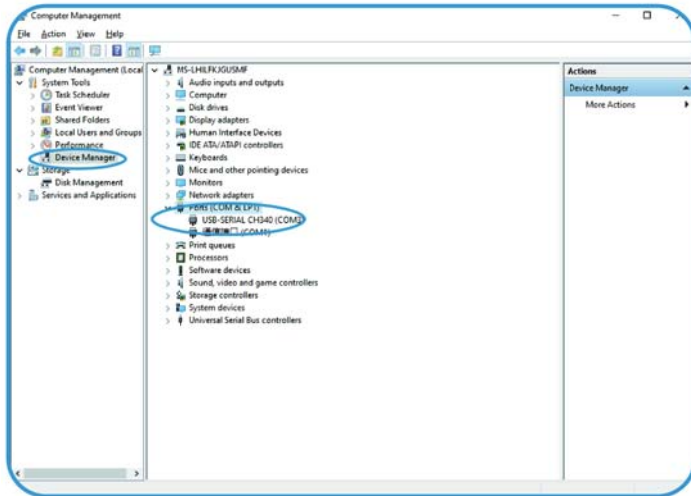
Select "Device Manager", and "USB-SERIAL CH340" appears under the "Port" column, which means the installation is successful.

After connecting the Spider X1 to the computer with the USB cable, you can use the PC software "Light Burn" and "LaserGRBL" laser engraving software to operate.

3.4.4 Mobile APP Wireless Operation

Search for "MKSLaser" through the mobile application store, download the APP, and make sure that the mobile phone and Spider X1 are in the same local area network. After the Spider X1 is connected to the Internet, click the icon in the upper left corner of the mobile APP, enter the IP of the Spider X1 device, and click Connect.
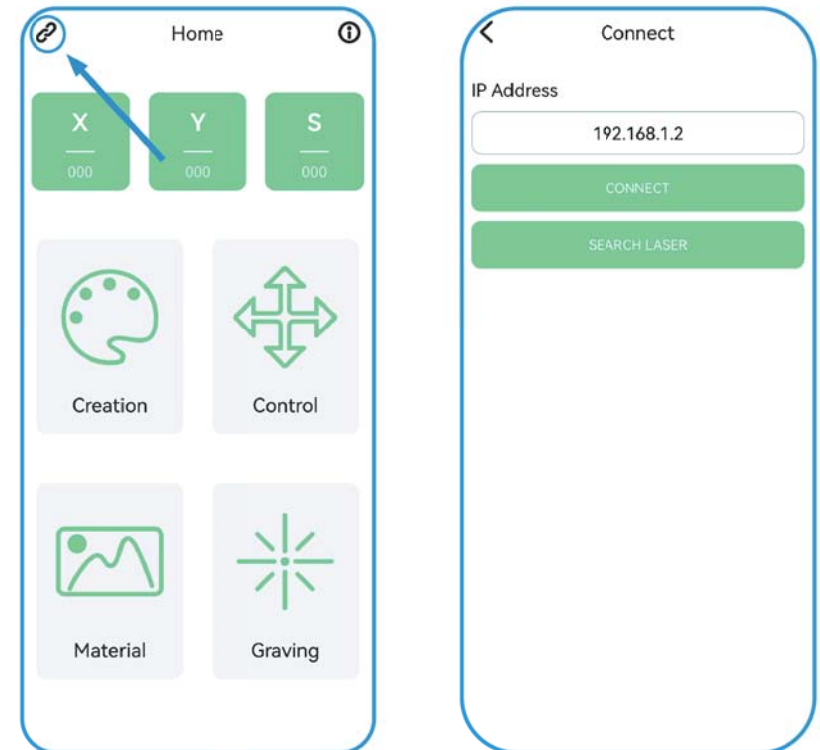
Q&A

The guide rail of the machine is loose, how to deal with it?

1. Lift the quick release fixture on the side and move the movable guide rail.
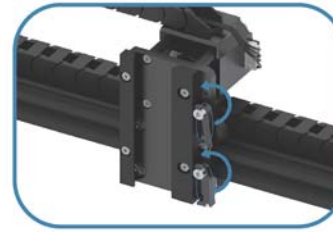
2. Loosen the fixing rail screw on the other side.Align the guide rail behind the laser head and insert it into the host guide rail.
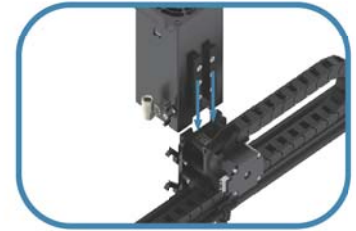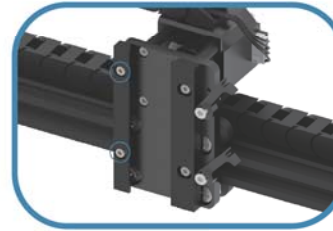
3. Gently press the quick release fixture on the side, and press the laser head to the fixed guide rail on the other side (do not press tightly). Hold down and fix the left rail by hand.
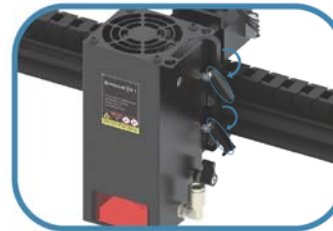
4. Open the quick release fixture and take off the laser head.
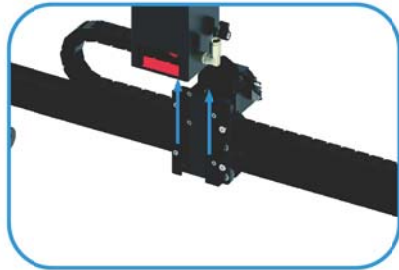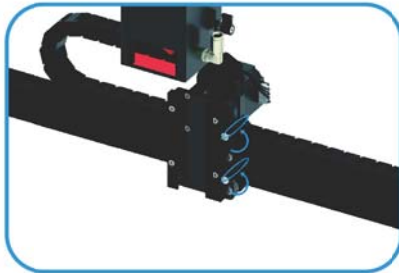
5. Tighten the screws on the fixed rail. Finished.
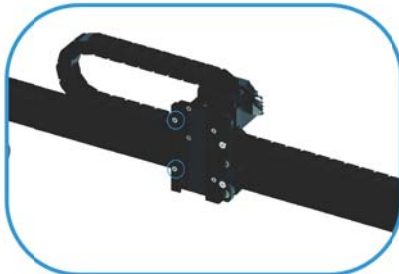
💡 tips If the laser head is stuck, you can shake it slightly from side to side.

The rollers on the X-axis of Spider X1 will shake when the backplane moves, how to deal with it?

1. Use a wrench to slightly tighten the two hex nuts on the bottom of the backplane in a clockwise direction.
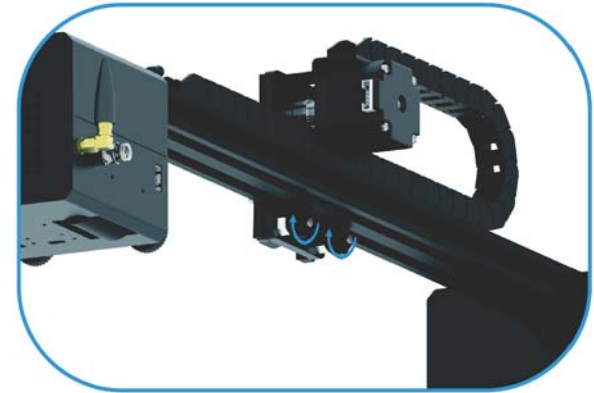
2. Test whether the roller is pressed tightly, fix the backplane of the roller and turn the roller by hand, if the roller cannot be moved, it is already pressed.

3. Test whether the backplane shakes, if it still shakes, go to step 1 again.

💡 tips If you have completed the installation, you can start the case creation at www.spidermake.com.

PARAMETERS

Model

Spider X1

Machine size

100*160*690mm

Net weight

3.3KG

Operation system

Windows / Mac OS

Input

100-240V ~ 50-60Hz

Output

DC 24V 5A

Laser wave length

455±5nm

Laser power

10W/20W

Safety class

CLASS I (FDA classification standard)

Laser engraving software

LaserGRBL, LightBurn

Format files

jpeg, png, bmp, svg, dxf

Type of supporting materials

Cardboard, wood, bamboo, rubber, leather, fabric, acrylic, painted metal, plastic, etc.

WARRANTY

Before returning the product and filling in a warranty, please contact after-sale person for going through after-sale formality. And attach this warranty card along with the returned machine.

Repair ☐   Change ☐   Return ☐
Name:_____   **Telephone:**_____
Address:_____
Serial Number:_____   **Order Number:**_____
Channel:_____   **Date of Purchase Day:**_____
Manufacture Problem Description and Return Reasons/Suggestions:_____
Repair Records:_____

Note: Client needs to fill in basic info. and return reasons. Repair records shall be retained for technicians.

※ Users should abide by the laws and regulations of the country and region where the equipment is located (place of use), abide by professional ethics, and pay attention to safety obligations. It is strictly forbidden to use our products or equipment for any illegal purpose. Our company is not responsible for the relevant legal responsibilities that the violator should bear.
Since each model is different, the actual product may be different from the picture. Please refer to the actual product.
The final interpretation right belongs to Shenzhen Sky Electronics Co., Ltd.

FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

.Reorient or relocate the receiving antenna.

.Increase the separation between the equipment and receiver.

.Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

.Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

RF Exposure Information

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.