

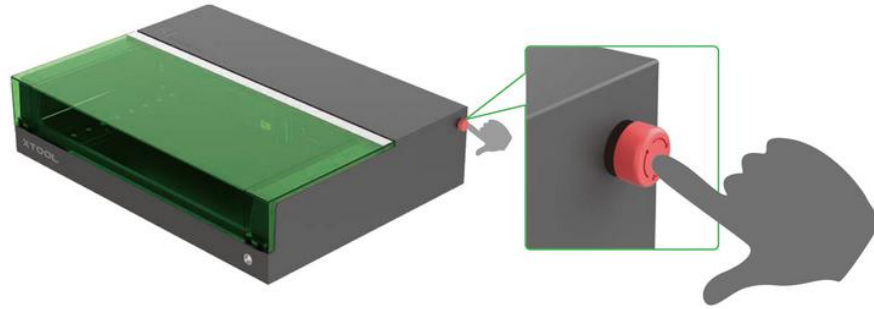
xTool S1 Laser Engraver Basic Use Guide

Introduction: The S1 is an enclosed unit desktop laser engraver made by xTool. This model uses a 40W diode laser module. This means that it can engrave a wide range of materials due to its high power and versatility, but it can only cut a select few materials. The engraver is computer-operated and requires the use of the xTool Creative Space (XCS) software. XCS is a free download on all platforms. The laser engraver can be used to create everything from custom artwork to personalized gifts. The only limit is your creativity and imagination.

Disclaimer: All patrons must read and sign the Makerspace Agreement Form before using the laser engraver. All patrons wishing to use the laser engraver must be under the supervision of the library's Technology Trainer or Technology Coordinator.

Safety Notice:

- Keep hands and all body parts away from the laser during the engraving process. Lasers can cause permanent tissue damage and scarring.
- Laser safety goggles must be worn while the laser is on and while actively engraving material. Do NOT look directly at the laser.
- Some materials, when engraved or cut, emit smoke and/or harmful fumes. The smoke filter must be powered on during the engraving process to ensure the air is not contaminated.
- Some materials may catch fire during the engraving process. Inform a staff member immediately if you notice this. Press the emergency stop button to power off the machine when you notice a fire start.

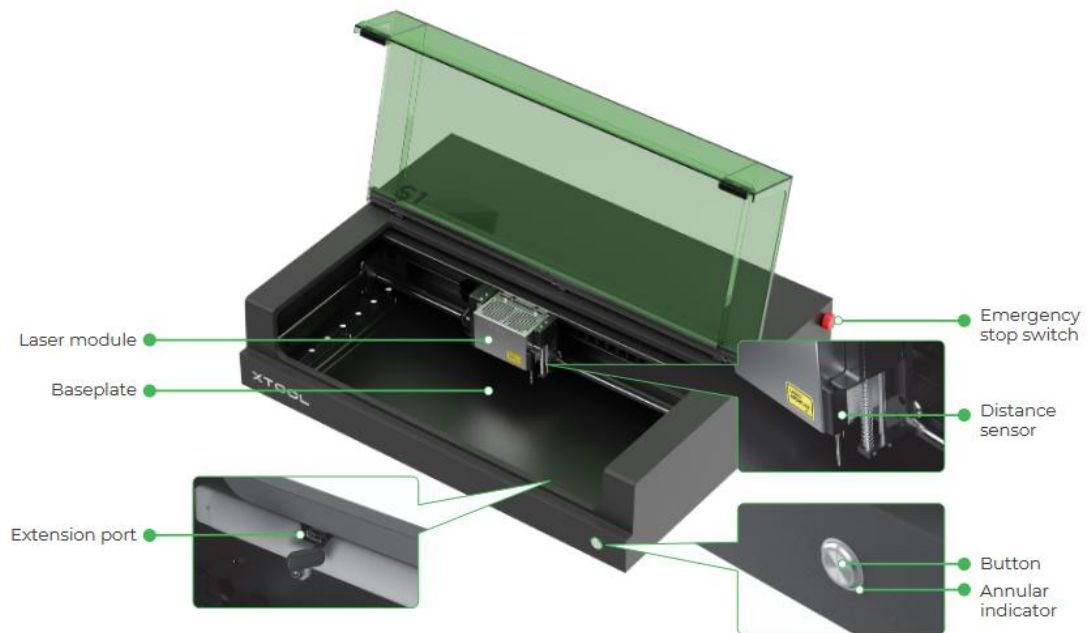


Emergency Stop Button

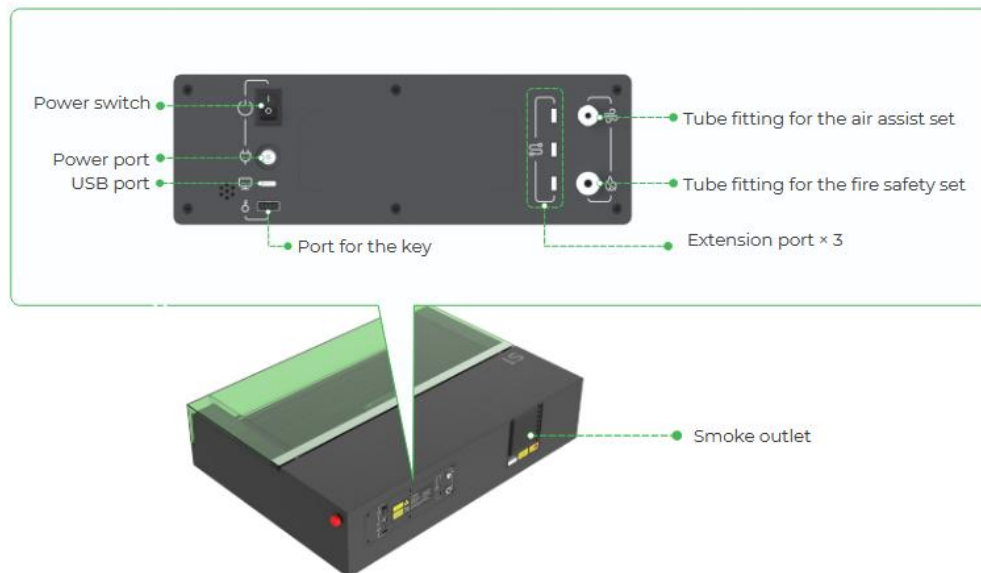
Parts List:

- xTool S1 Laser Engraver Unit
- xTool Air Assist Unit
- xTool Smoke Filter Unit
- xTool Honeycomb Panel
- (Optional) xTool Rotary Attachment
- (Optional) xTool Conveyer Feeder Attachment
- Laser Safety Goggles
- USB-C to USB cord
- Library Laptop (or you can bring your own)

S1 Visual Breakdown:



Front



Back

Getting Started:

Step 1: Coming Up with a Design

- Before you can start engraving, you must first create the design you wish to put on your material.
- Start by brainstorming some ideas, asking AI for some good suggestions, or browsing social media for inspiration.
- You can use any graphic design software you want to create your design. You can also use the built-in tools on XCS to create basic graphics.

Step 2: Intro to XCS

- XCS is an all-in-one software for graphic designing/editing, laser process settings, and machine controlling.
- You can download XCS onto your own laptop from xTool's website or use one of the library's laptops with the software already installed on it.
- XCS is free to download, requires no account to use it, and has tons of free features for editing your graphic designs.




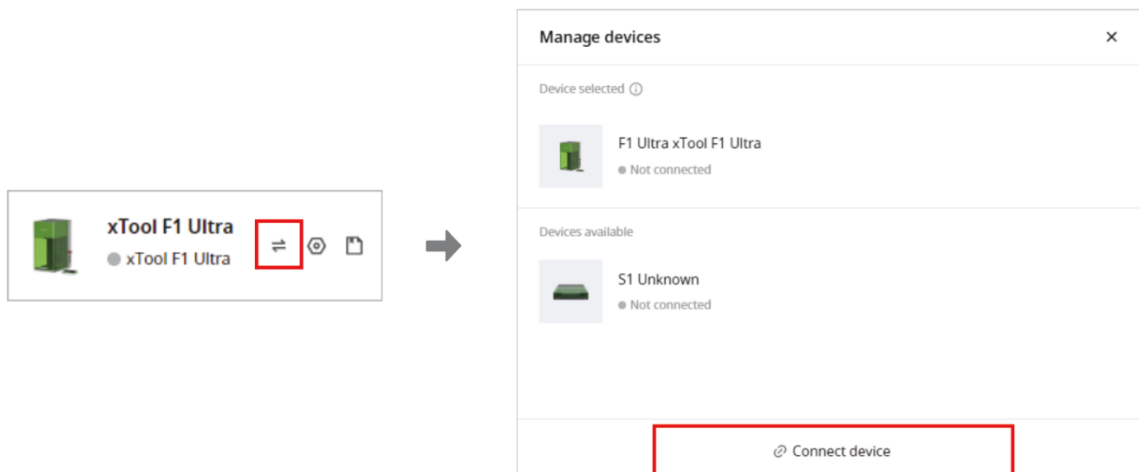
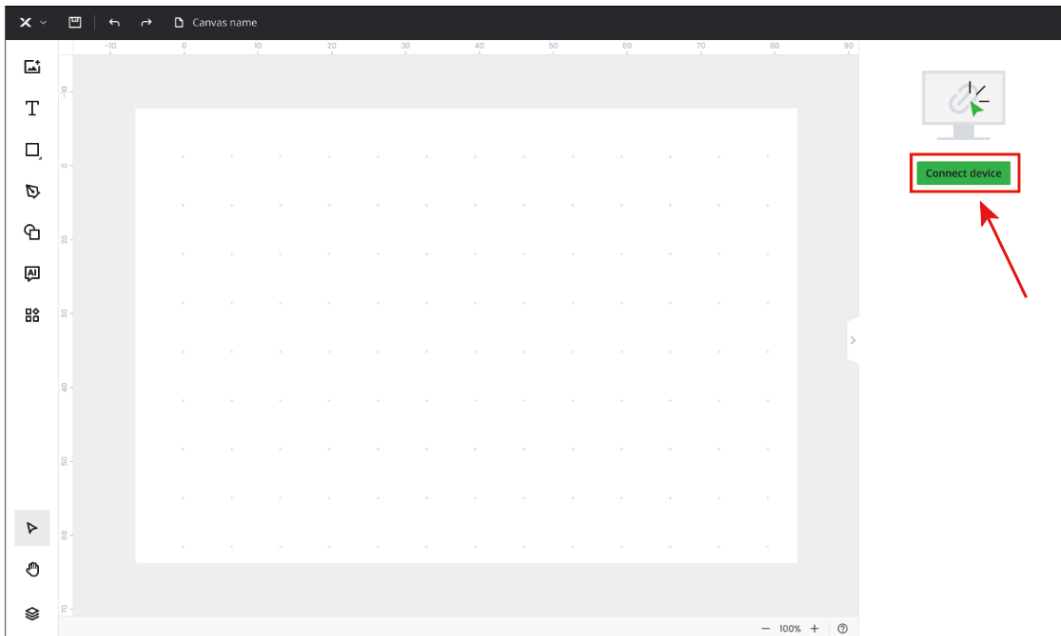
Step 3: Starting a Project in XCS

- Open XCS. You will be brought to the home screen. In the top-right corner, click the + **New Project** button.

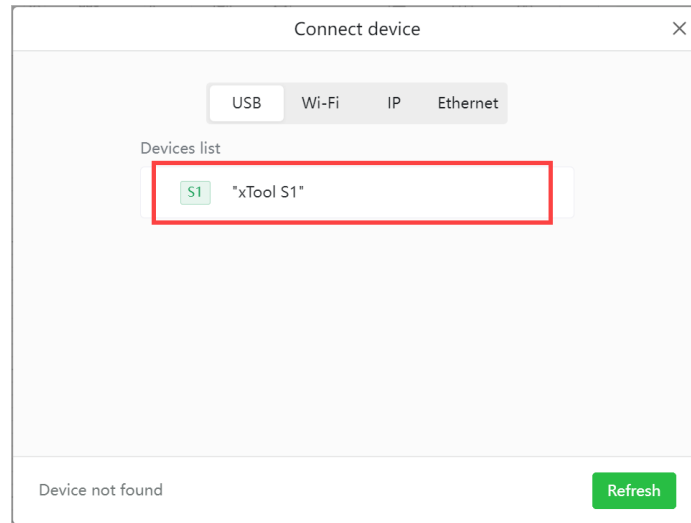
- You will now see the project editing page.

Step 4: Connect the S1 to XCS

- Use the USB cable to connect your laptop to the S1.
- Flip the power switch on the back of the S1 to turn it on.
- On the right side of the project editing page, click **Connect Device**. If the laptop has been connected to an xTool device before, click the  icon > **Connect device**.

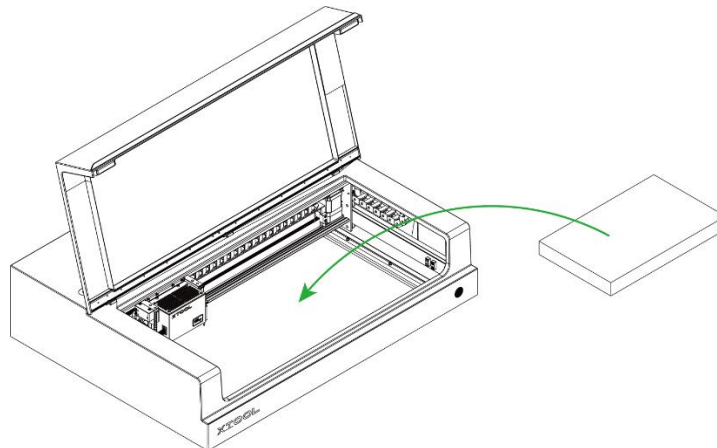


- On the pop-up window, click the name of the device to connect to it.

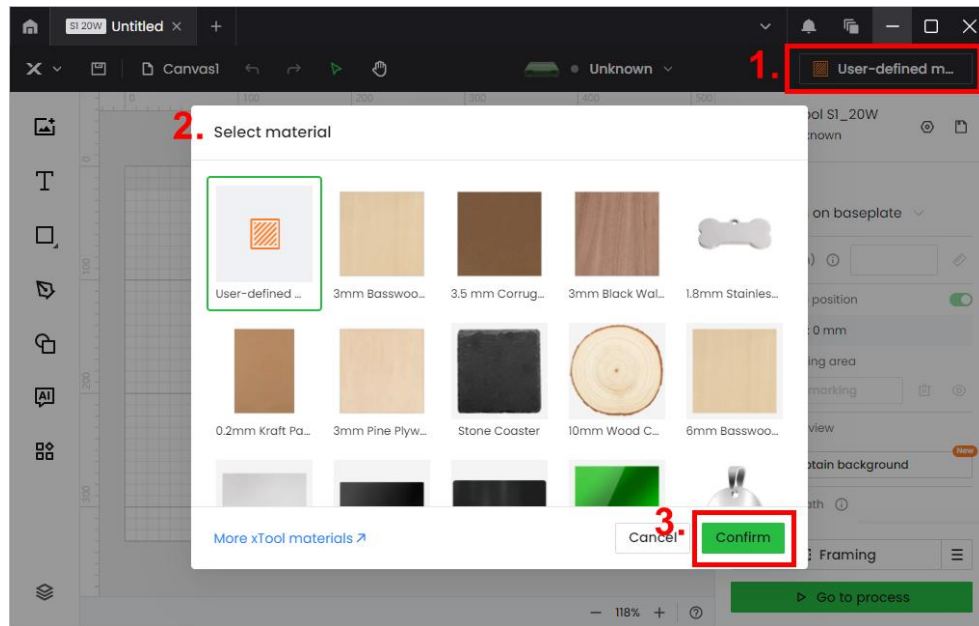


Step 5: Preparing the Material

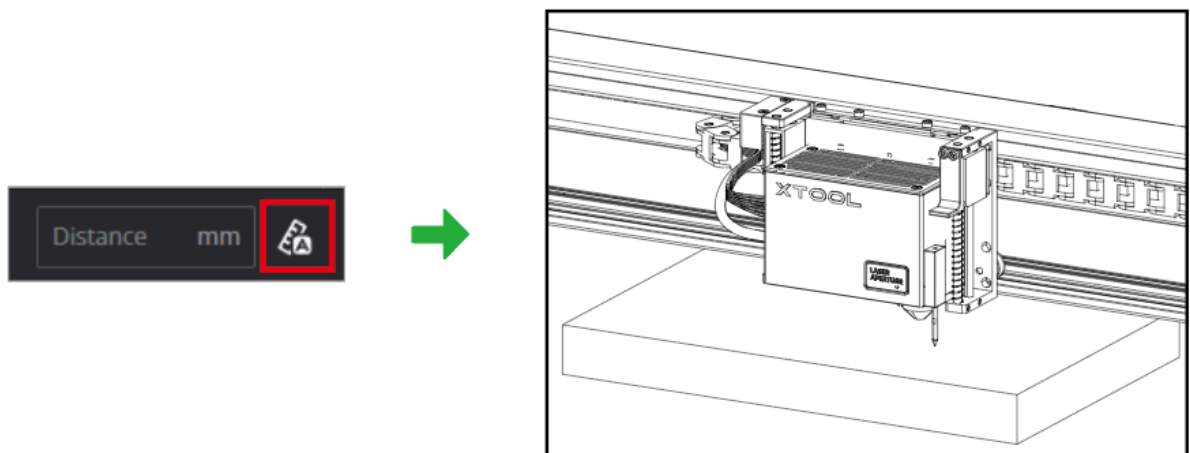
- Open the lid of the S1, and place the material to be processed on the baseplate. Make sure to line it up straight.



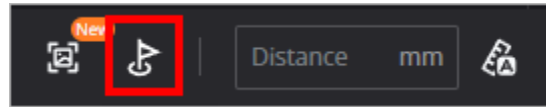
- In the top-right corner of the project editing page, click User-defined material, select the name of your material, and click **Confirm**.



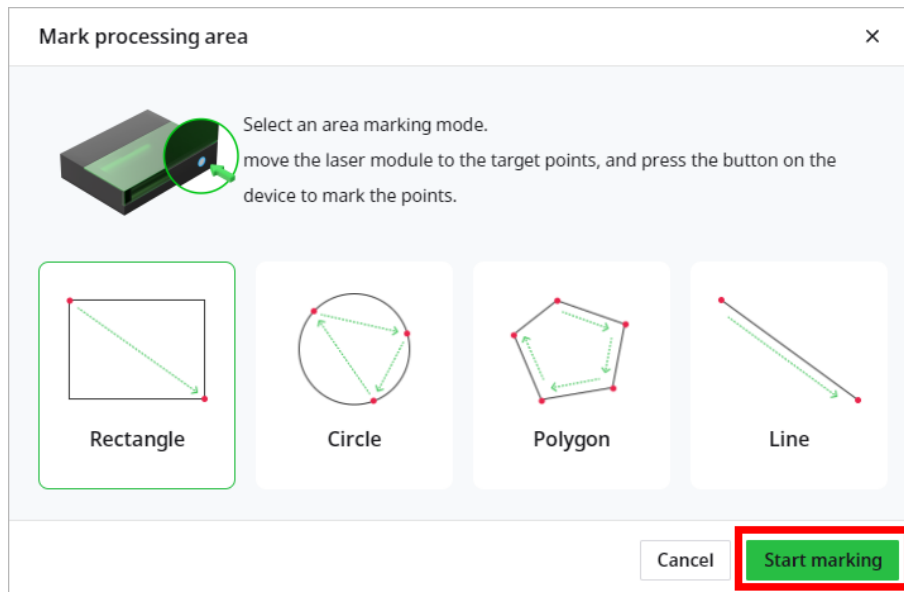
- Move the laser module over the material. Ensure that the locating spot falls on the surface of the material.
- In the top-right corner of the project editing page, click the **Auto-measure** icon, and the S1 will automatically measure the distance from the laser module to the material surface.



- In the top-right corner, click the **Mark processing area** icon.

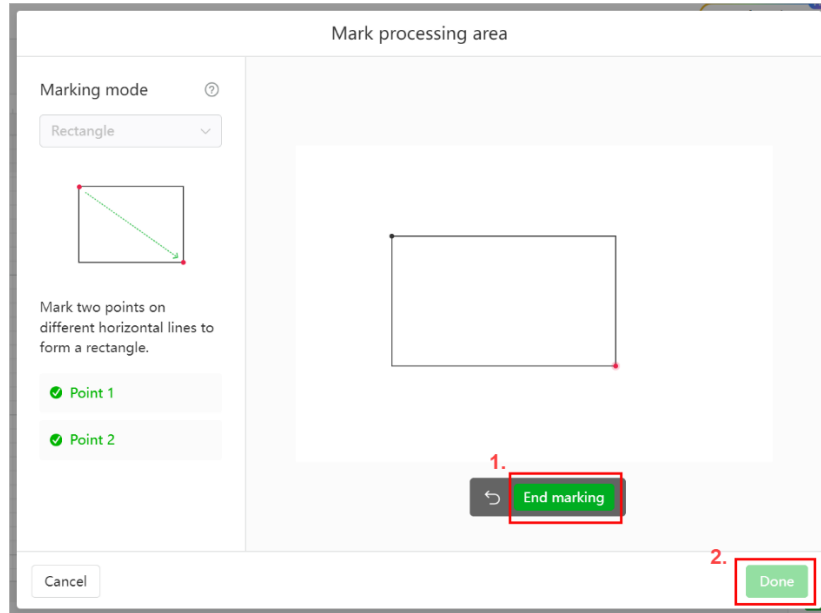


- Select a marking mode based on the shape of the target processing area, and click **Start marking**.



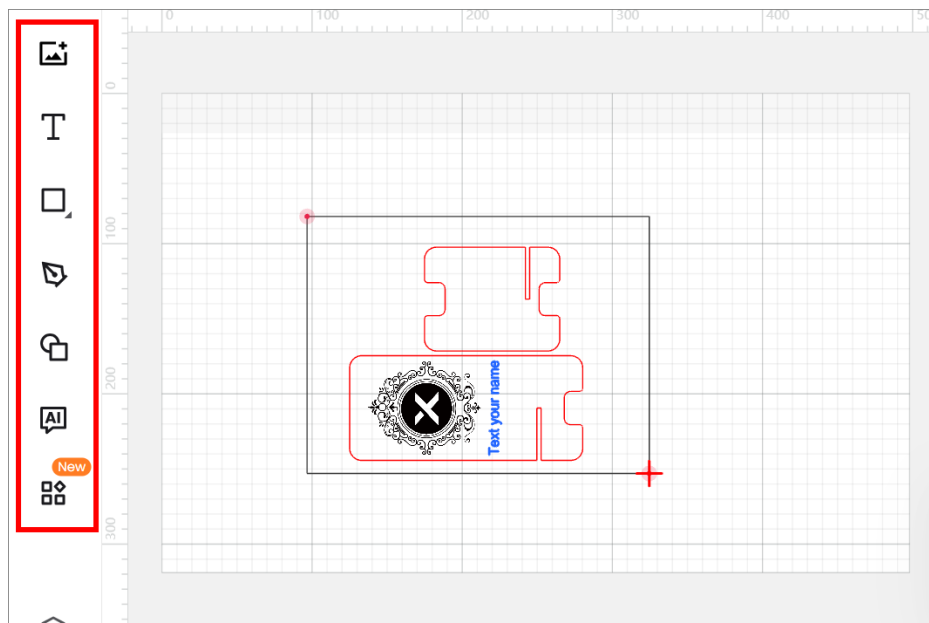
- Manually move the laser module to make the red cross fall at a vertex of the target processing area, and press the front button on the S1 to record the position. Then, repeat the same steps to record the other required vertex(es) of the target processing area.

- Click **End marking** > **Done**, and then the target processing area will be marked out on the canvas on the project editing page.

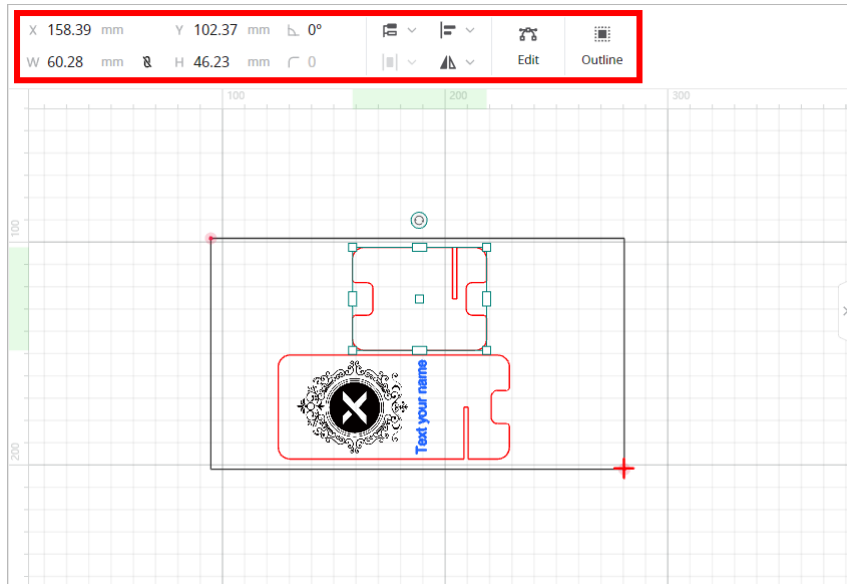


Step 6: Design Objects for Processing

- Use the tools to the left side of the canvas to create objects. You can import images, insert shapes, enter text, or draw vector graphics.

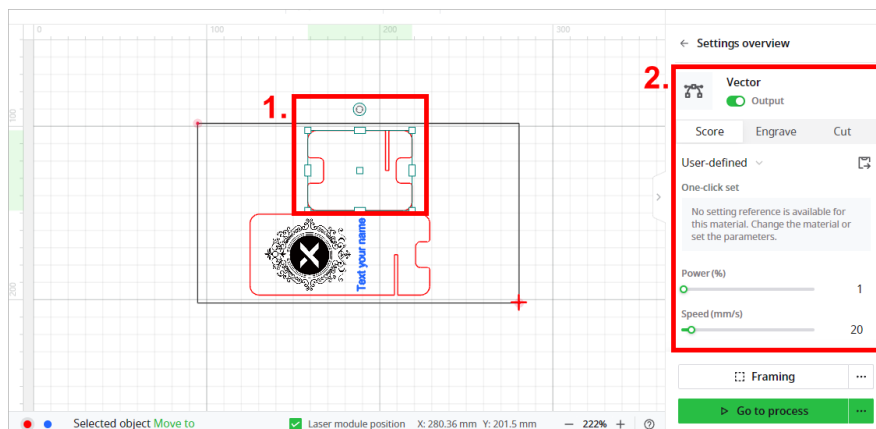


- **Note:** XCS supports the importing the following image formats; SVG, DXF, JPG, JPEG, PNG, BMP, TIF
- Select the objects to further edit them using the tools above the canvas.

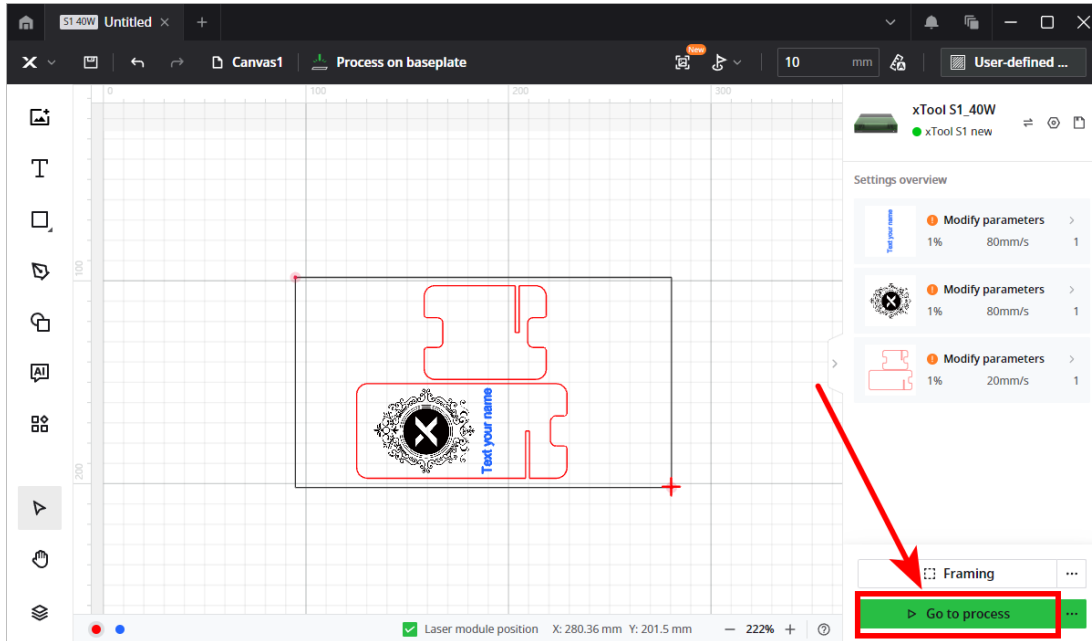


Step 7: Set Parameters for Processing and Start Processing

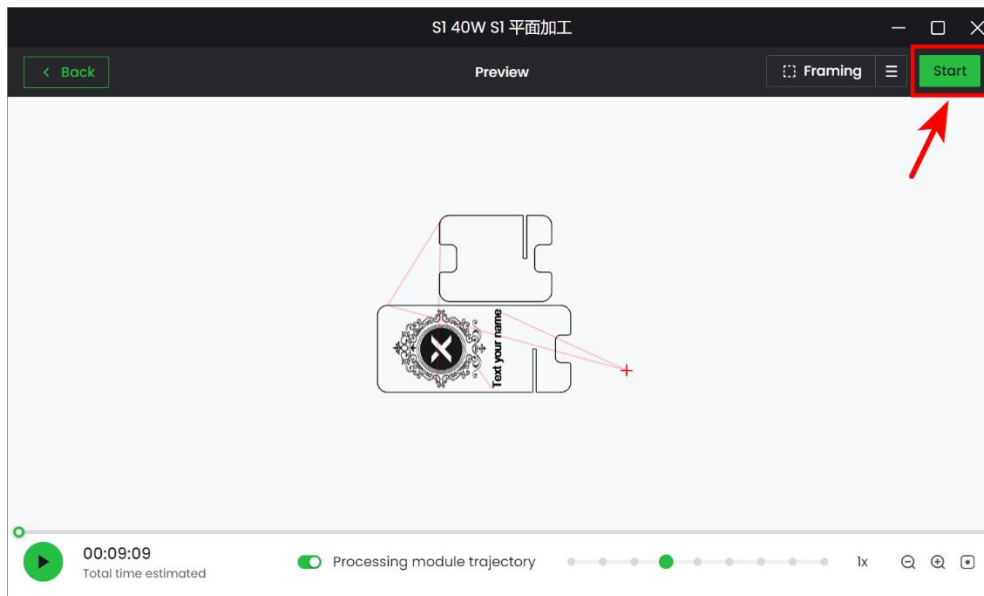
- Select objects on the canvas first. On the right side of the canvas, set parameters for the selected objects.
- Set whether you want the object to be scored, engraved, or cut out. You can also adjust the power percentage and speed of the laser to your liking.



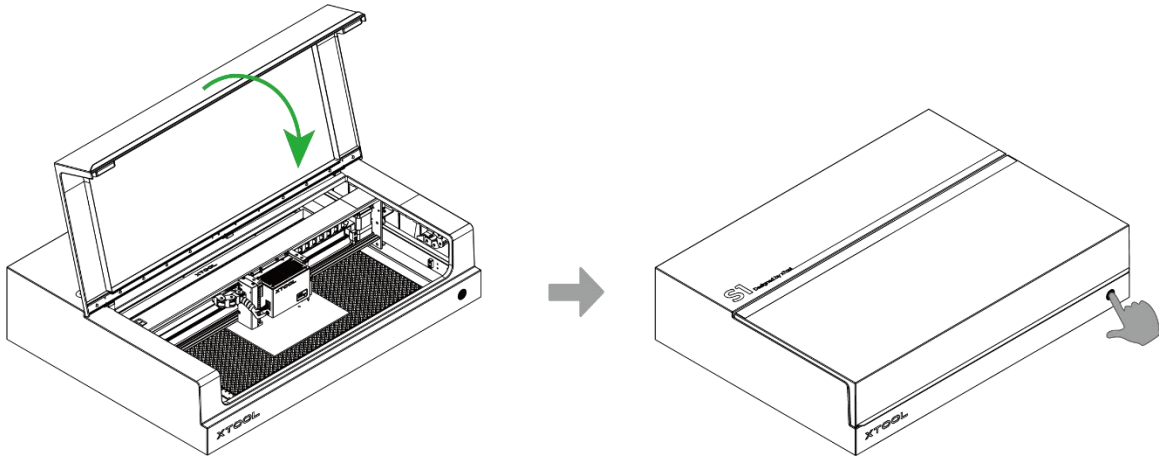
- In the bottom-right corner of the project editing page, click **Go to process**.



- Preview the processing pattern and path if you want. In the upper-right corner of XCS, click **Start**.



- Turn the dial on the air assist unit to Auto. Turn on the smoke filter by pressing the power button on top of the filter once.
- Close the lid of the S1. Then, press the front button to start processing.



- Let the engraving process finish. Wait 30 seconds after the laser stops to let all the fumes get sucked out by the smoke filter before opening the lid. You can now open the lid and retrieve your engraved item.