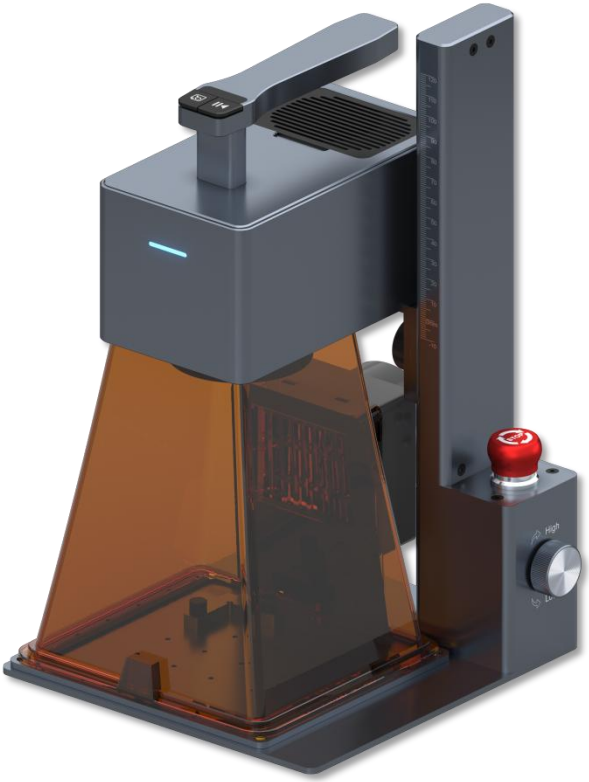
# Raymoto R1 Pro

— User Manual —



# CONTENTS


- Safety Statement ..... 01
- Packing List ..... 03
- Assembly Installations ..... 04
- Software Download ..... 07
- Software Connection ..... 08
- Machine Description
  - Electrical Interface ..... 10
  - Parameter Specifications ..... 11
  - Indicator Description ..... 12
  - Focus Adjustment ..... 13
  - Pushbutton Operation ..... 14
- Offline Engraving ..... 15

# Safety Statement

**Before using the Raymoto Laser Engraver, read this safety manual carefully to understand the operating procedures and potential hazards of the Laser Engraver.**

**1.** Before using, please refer to the operation manual to assemble and fix the main unit to avoid dropping it due to unstable placement.

**2.** The use of third party adapters is prohibited. The voltage, current and DC terminals of third party adapters have not been rigorously tested and there is a risk of damage to the motherboard and electric shock.

**3.** Raymoto engraver is a class 4 laser product, direct exposure to people or pets is strictly prohibited. The laser beam has high heat and energy and direct contact with eyes or skin may cause injury. Always take safety precautions by installing a protective shield and wearing goggles before use.

**4.** The Raymoto engraver is not a toy and is strictly prohibited for use by children. Access by untrained personnel and minors is strictly prohibited. 4.

**5.** It is strictly prohibited to put your hands into the work area while the machine is running. When encountering abnormal conditions during the engraving process, please stop the machine immediately by pressing the emergency stop button.

**6.** Before engraving, please remove extraneous items and flammable and explosive items to avoid unnecessary damage to the laser and to prevent the occurrence of fire.

**7.** Before engraving, please check whether the engraved items will release toxic and harmful gases during the laser combustion process to avoid poisoning accidents.

**8.** Before engraving, please check whether the engraved object has total reflection or diffuse reflection characteristics. Engraving such objects should pay special attention to safety protection, the equipment should be equipped with protective cover, the operator should wear a long coat, long trousers, wear safety glasses, engraving is prohibited except for the operator to observe.

**9.** Please move the laser engraving machine or the object to be engraved before and after engraving. Moving the equipment during the laser engraving process may stop the engraving due to self-protection and affect the final result of the engraving work.

**10.** Please ensure that a fire extinguisher is placed near the laser engraver and that regular maintenance and inspection are carried out in order to respond to possible accidents in a timely manner.

# Safety Statement

FCC compliance 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.

changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

FCC Radiation Exposure statement

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. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

# Packing List

Host x1

Stairlift x1

PC Cable x1

Type-C Cable x2

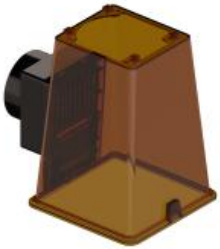
AC Cable x1

Power Adapter x1

USB Child Lock x2

Protective Glasses x1

Lift Base Plate x1



Protective Cover x1

Material Pack x1

Ruler x1

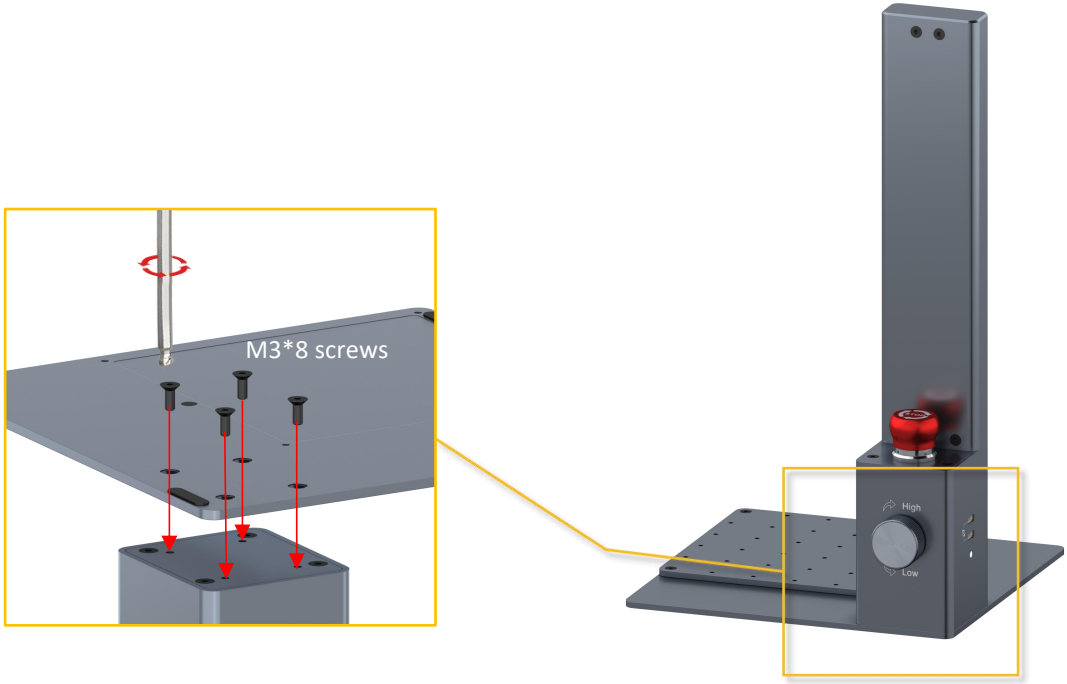
Mirror Paper x1

M3*8
Countersunk Screw x4

L-Allen Wrench x1

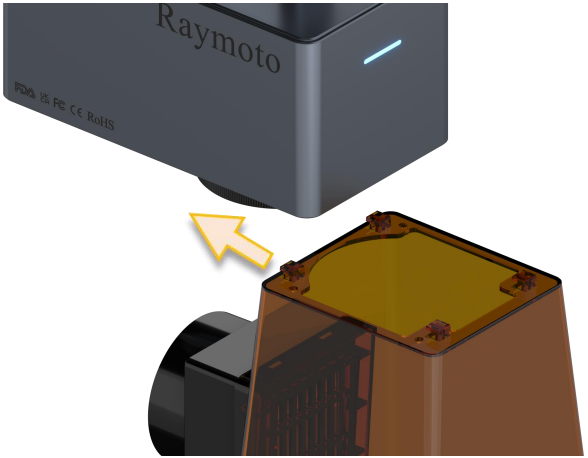
## 1. Mounting the Lift Table

Secure the lift bracket to the base plate with 4 x M3*8 screws and tighten with a 2mm L-wrench.



## 2. Assembled Mainframe

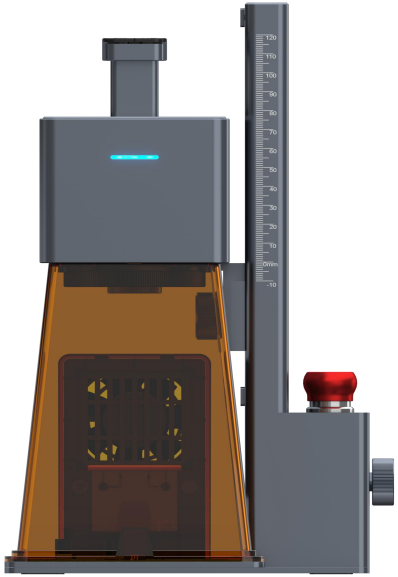
① Remove the main airfield mirror protective cover.




② Align the protective cover with the mainframe base plate recess and push in to secure.

③ Place the main unit on the lift table support bracket, align the limit tabs, and then tighten in the direction of the arrow to secure.

④ Raymoto engraving machine assembly completed.



# Software Download

**Method 1:** Scan the QR code and select the corresponding version to download the 'Raymoto' app.

**Method 2:** Search for the 'Raymoto' app on Google Play or the Apple Store and select the appropriate version to download.

**Method 3:** Open the **https://raymoto.com/pages/software-download** page in your browser and select the corresponding version to download the 'Raymoto' app.

# Software Connection

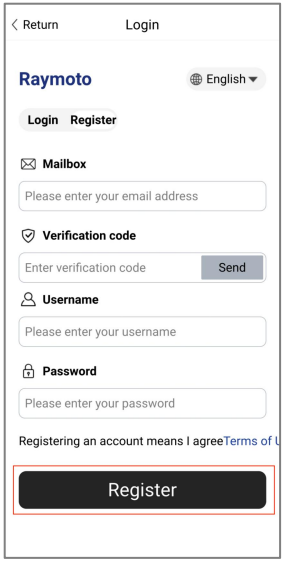
## 1. Bluetooth connection

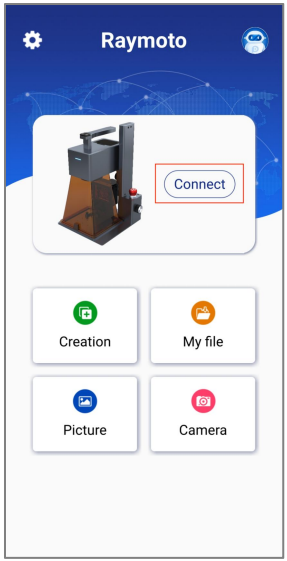
Turn on your phone's Bluetooth and open the Raymoto app.

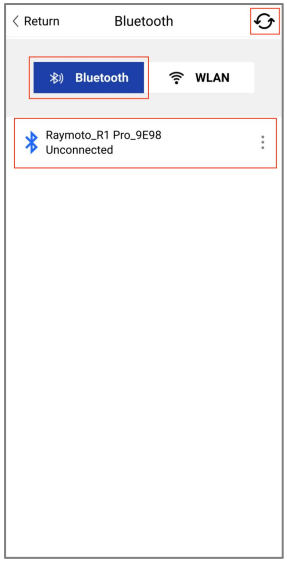
① Please follow the instructions to register your Raymoto account.

② Back to the main interface, click ‘Connect’ to search for the device name starting with R1 via Bluetooth.

③ Find the Raymoto_R1 Pro_XXXX engraving machine and click ‘Connect’, at this time, the host will beep that the device is successfully connected.



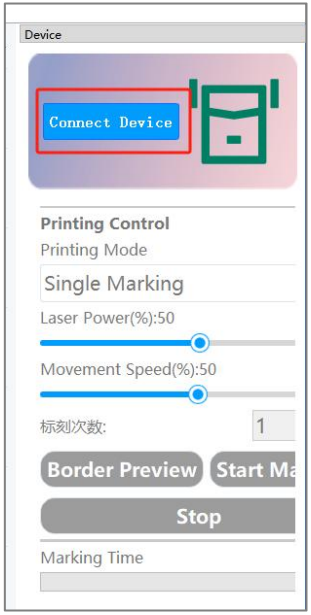



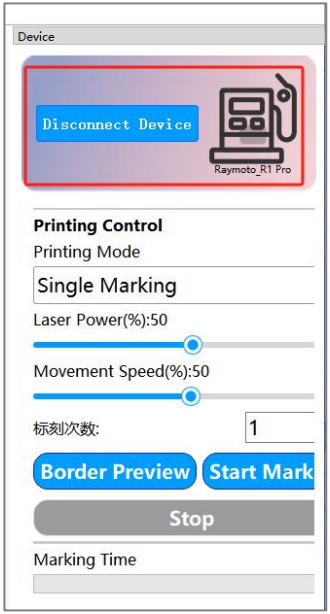
## 2. PC connection

Connecting the engraver to a computer using a PC cable.

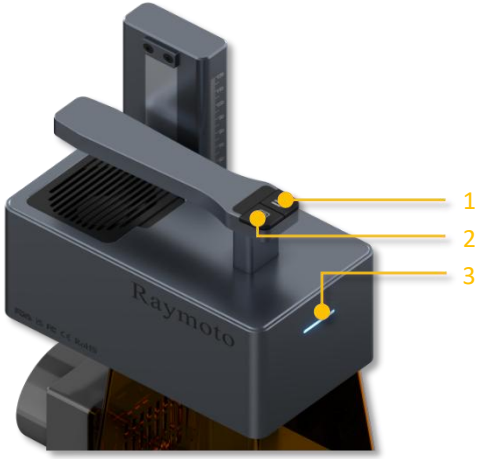
① Click ‘Connect’ to search for the device name starting with R1 via Bluetooth.

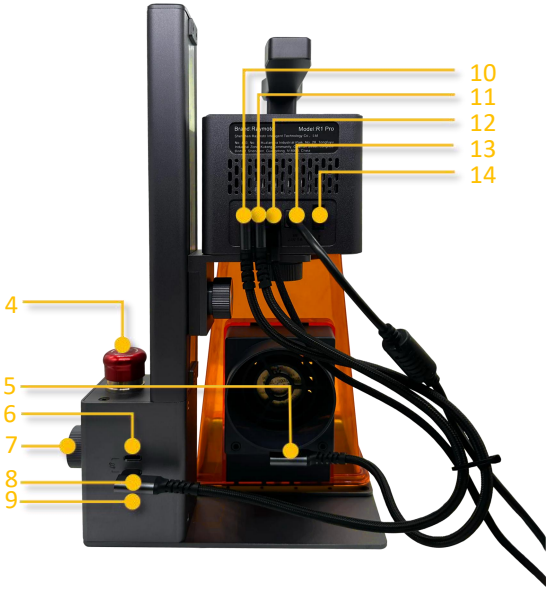
② Find the Raymoto_R1 Pro_XXXX engraving machine and click ‘Connect’, at this time, the host will beep that the device is successfully connected.



# Electrical Interface




| | | | |
|---|---|---|---|
| 1. | Function Key | 8. | Lift Table Input/Output interface |
| 2. | Preview Key | 9. | Lift Table Status Indicator |
| 3. | Host Status Indicator | 10. | Expansion Accessory Port (Type-C) |
| 4. | Emergency stop switch | 11. | Expansion Accessory Port (Type-C) |
| 5. | Protective Cover Port (Type-C) | 12. | PC Signal Port (Type-C) |
| 6. | Expansion Accessory Port (Type-C) | 13. | Power Adapter Port |
| 7. | Lift Table Control Switch | 14. | Child Lock Port |

# Parameter Specifications

| | |
|---|---|
| Bank | Raymoto |
| Model | R1 Pro |
| Engraving area | 100*100mm |
| Power adapter | AC (100~240V) desktop type |
| Input | DC24V 5A |
| Laser Power | 20W(Blue) |
| Laser Wavelength | 450±10nm |
| APP Software | Raymoto |
| APP Compatible | Android 10+, IOS16, Windows 10+ |
| Bluetooth | Bluetooth® 5 (LE) |
| WIFI | IEEE 802.11b/g/n (2.4 GHz Wi-Fi) |
| Support File Formats | BMP, PNG, JPG, DXF, PLT |

| | |
|---|---|
| Engraving speed | 2,000mm/s |
| Engraving accuracy | 0.01mm |
| Rotary axis | Support |
| Offline engraving | Support |
| Safety door | Support |
| Safety emergency stop | Support |
| Tilt protection | Support |
| Buzzer alarm | Support |
| Status Indicator | Support |
| Working environment | 0℃ ~ 60°C |
| Working Humidity | 5% ~ 80% |
| Engraving machine size | 235*200*300mm |

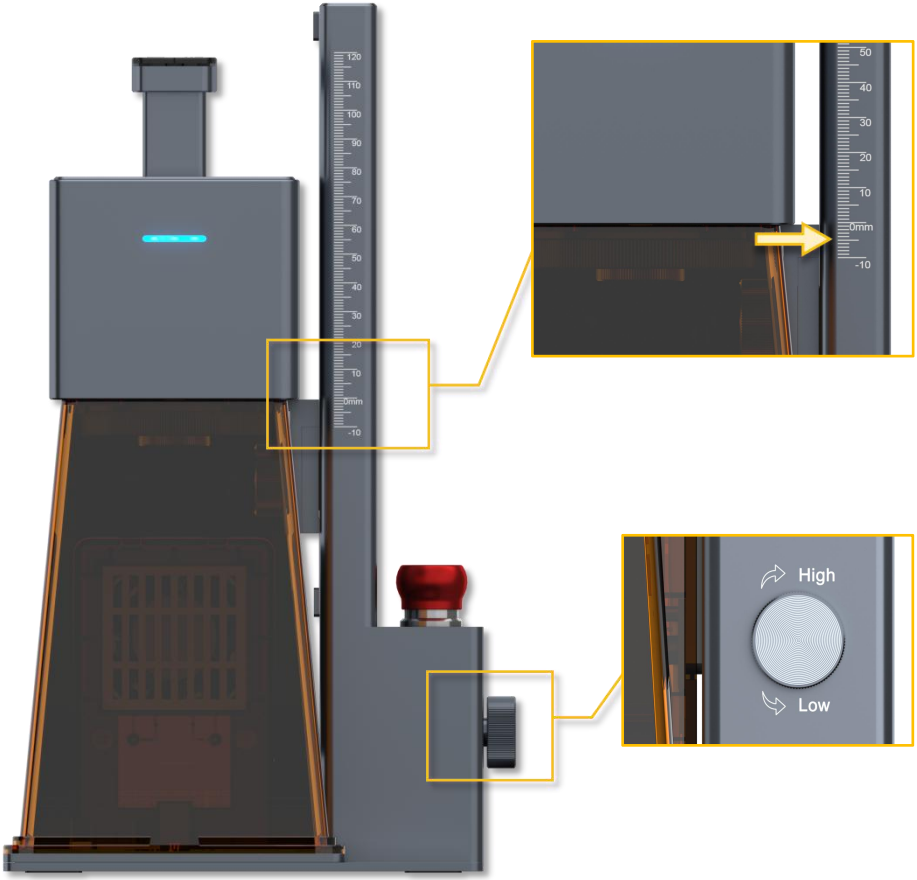
# Indicator Description

| | Indicator status | Descriptions |
|---|---|---|
| Host<br>Status Indicator | Red always on | Emergency machine stop |
| | Red flashing | Tilt Alarm |
| | Yellow always on | Device not connected |
| | Green always on | Device connected |
| | Blue always on | Working |
| | Blue flashing | Laser output work |

| | Indicator status | Descriptions |
|---|---|---|
| Lift Table<br>Status Indicator | Red always on | Emergency machine stop |
| | Green always on | Lift unlock |
| | Blue always on | Lift lock |

| | Indicator status | Descriptions |
|---|---|---|
| Buzzer Status | Power on | ‘di’ sound, connection successful |

# Focus Adjustment




The focus is adjusted by means of a scale, the 0 mm scale indicates that the focus is on the surface of the engraving plate.

Focus is achieved by adjusting the height of the lift table so that the scale value equals the thickness of the material to be engraved.

**Height adjustable by lift table knob**

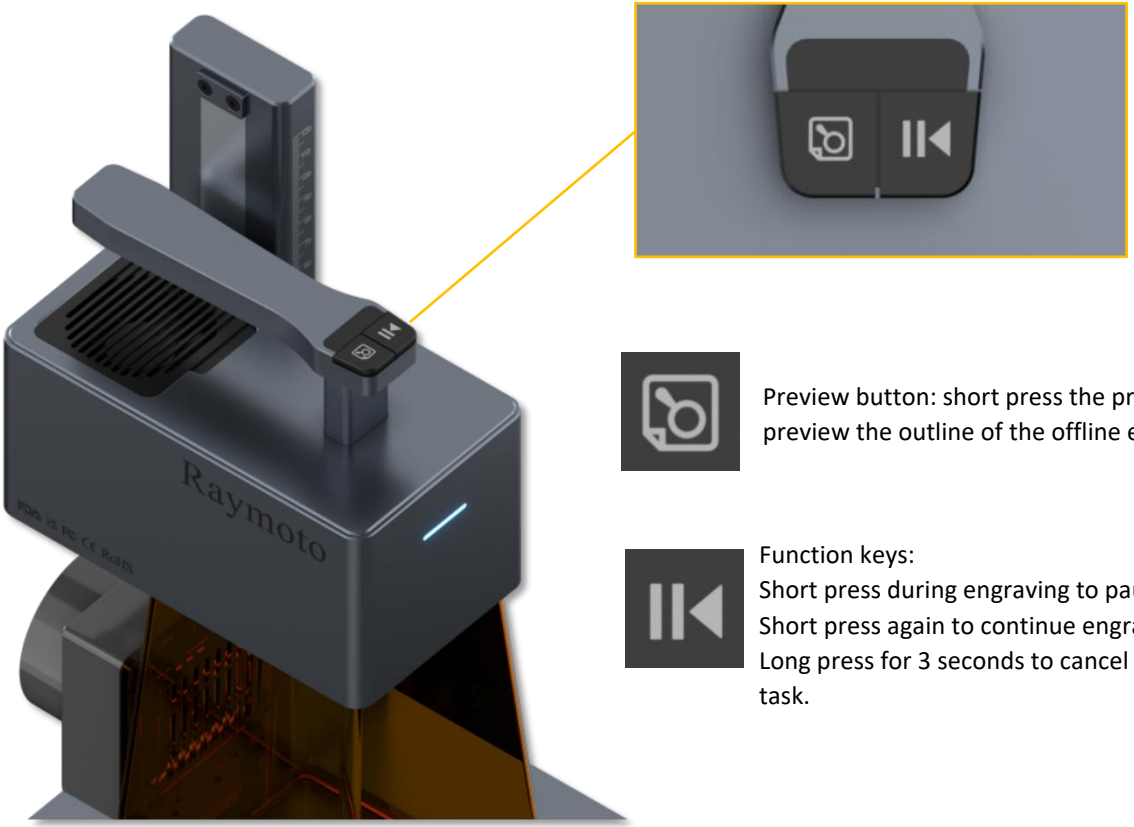
Clockwise rotation: lift up

Counterclockwise rotation: lift down

Press the knob: lock height/unlock height

(Locking the height effectively prevents the height of the lifting platform from changing due to misuse.)

# Pushbutton Operation






Preview button: short press the preview button to preview the outline of the offline engraving file.



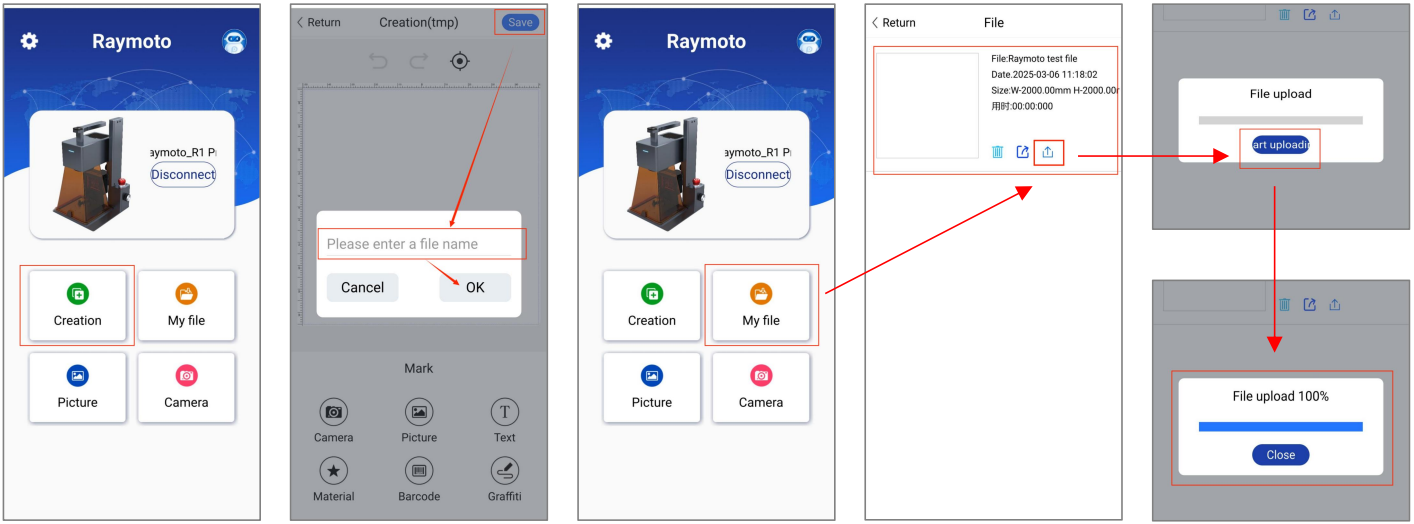
Function keys:
Short press during engraving to pause engraving;
Short press again to continue engraving;
Long press for 3 seconds to cancel the current engraving task.

# Offline Engraving

1. Click Create Project in the main interface to create or import engraving content, set parameters and click Save to enter the file name.

2. Return to the main interface, click My Files, find the engraving file you want to upload, click Upload, and wait for the upload to finish.

3. Start offline engraving: ① Place the engraving material on the engraving machine and set the focus. ② Press the Preview button to preview the offline engraving file. ③ Press and hold the function button for 2 seconds to start offline engraving.



Thank you for choosing Raytomo products!

If you still have questions after reading this manual, or if you encounter any problems during use, please feel free to contact us: support@raymoto.com.

# Raymoto

**Raymoto R1 Pro**
Shenzhen Raymoto Intelligent Technology Co.,Ltd
Email: support@raymoto.com