

Falcon A1 Pro User Manual

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Creality Falcon A1 Pro

Product Manual V1.2

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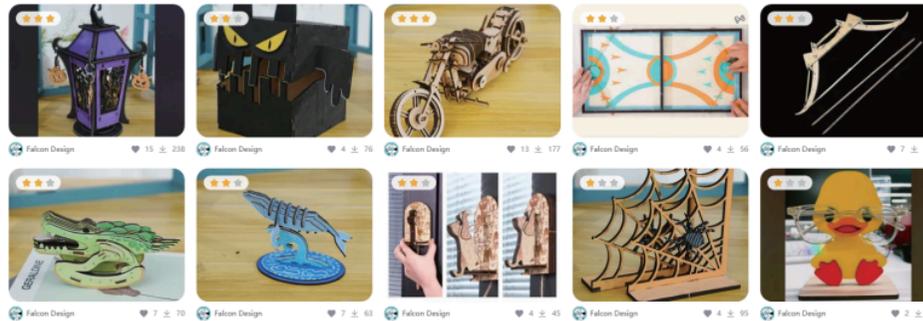


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Operation Guide

Product Assembly

Directly refer to the product installation steps in the manual for product assembly, or visit wiki.creality.com/en/laser-engraver to view the 'Assembly Guide Video' for the product.

Installing Software

Download and install the engraving software (Falcon Design Space / LightBurn). The machine's camera has been automatically calibrated at the factory, so no further calibration is needed. If there is a significant camera positioning deviation, it is recommended to recalibrate. Specific files can be found in the 'Camera Calibration Guide' under the teaching files at wiki.creality.com/en/laser-engraver.

Creating Engraving Images

Find the image you want to engrave. The higher the resolution, the clearer the result.

Setting Parameters

Set the engraving parameters. You can refer to the 'Parameter Recommendation Table' in the file link at wiki.creality.com/en/laser-engraver. For specific operations, follow the prompts in the engraving software or check the software tutorial file 'Software User Guide' at wiki.creality.com/en/laser-engraver.

Start Processing

You can execute the border command to determine the position of the picture and the material, then you can start processing and look forward to the work.

Placing Materials With Autofocus

Place the material at the red positioning dot in the processing chamber and close the hatch, start the autofocus function, and then the equipment is ready.

Select File

After successfully activating the device and logging in, select the G-code processing file in 'Local Files' under the File Management main menu.

First Engrave

You can find our preloaded designs in the local folder on the device's interactive screen. Engrave the first piece to test the structural stability of the device.

Autofocus

Place the material at the red dot in the center of the machine's processing chamber, use the interactive screen or PC software to enable the autofocus function, the device will automatically measure the material thickness and adjust the laser focal length, and then start our journey.

Manual Focus

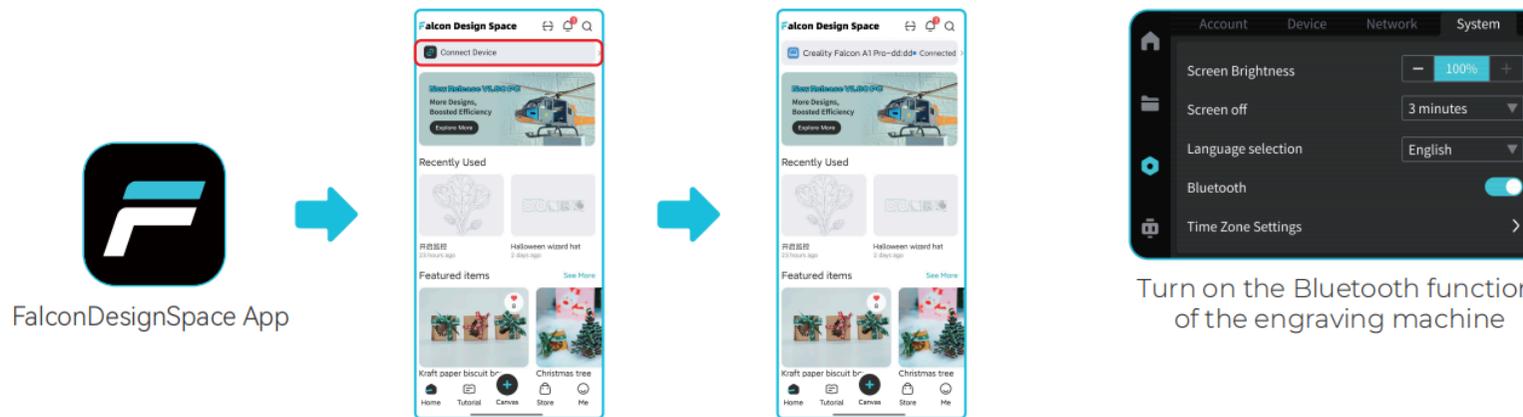
If the device cannot automatically focus correctly, you can also confirm the focal length through the included 'multi-level fixed focus bar' and adjust the Z axis up and down to the focal length you need on the interactive screen or PC software.

Device Networking And Binding

Method 1: You can directly select and connect to your wireless LAN on the interactive screen - 'Network' page;



Method 2: Download the FalconDesignSpace app (you can search for FalconDesignSpace in Google play/App store to get the app), start the 'Connect Device' operation on the App homepage, and make sure the Bluetooth function of the mobile phone and engraving machine is turned on.



Turn on the Bluetooth function of the engraving machine

After the network connection is completed, your device can realize the network function, and remotely control your engraving machine and other IoT accessories through the App.



Thank you letter!

Dear user,

Thank you for choosing Creality Falcon's product. On this journey, we look forward to you creating works of unlimited possibilities. You can follow Falcon Laser on social media platforms such as Facebook, TikTok, and Instagram, where you can share your works and gain inspiration from others.

The Creality Falcon team is always ready to provide you with quality service. If you encounter any problems during use, please contact us using the phone number and email provided in the product manual. To better experience our products, you can obtain relevant instructions and videos from Wikipedia (wiki.creality.com/en/laser-engraver). Or visit the official Creality Falcon store (www.crealityfalcon.com) to find information on related hardware and software, contact methods, equipment operation, equipment maintenance, etc.

Operation Guide

Thank You Letter

01 Safety Instructions	1
02 Packing List	2
03 Assembly Steps	4
04 Disassembly and installation of laser	7
05 Product Structure	9
06 Product Specifications	10
07 Instructions for Use	11
08 Maintenance	13
09 Troubleshooting	14

I. Safety Instructions

The laser engraver uses a high-density laser beam to irradiate materials for engraving or cutting, generating high temperatures on the material surface to vaporize it without burning. However, most materials are inherently flammable and may ignite, forming open flames that could damage the machine and surrounding environment.

⚠ Please follow these operating principles:

1. Do not place this product near flammable or explosive items, volatile solvents, or high heat sources. Place it in a well-ventilated, cool, and low-dust environment.
2. Do not use power cords from other products during installation. Use the power cord provided with this product.
3. Regularly clean the machine body and laser module with an anti-static brush and dry cloth when powered off.
4. Always connect the silicone tube to the laser module, whether using air assist or not, to prevent lens contamination.
5. The laser operating environment temperature is 5°C-35°C. Avoid using this product in humid environments and never use it during thunderstorms.
6. If not using the product for an extended period, turn it off and unplug the power cord.
7. Do not touch electronic-related areas with hands or tools when the product is connected to power. Never plug or unplug the laser module cable while powered on.
8. Do not touch moving mechanical parts or the laser module while the product is running.
9. Always place a laser-impenetrable flat object, such as aluminum alloy, under the processing material.
10. Always wear protective goggles during laser engraving to avoid eye damage from direct laser beam exposure.
11. Laser engraving and cutting may produce slight smoke or odors. It is recommended to operate in a well-ventilated environment.
12. Children under 10 years old are strictly prohibited from using this product without adult supervision to prevent personal injury.
13. Prepare a fire extinguisher for backup and maintain and inspect it regularly.
14. Strict supervision is required during machine operation.
15. Users should comply with the laws and regulations of the country or region where the equipment is located (used), adhere to professional ethics, pay attention to safety obligations, and strictly prohibit the use of our products or equipment for any illegal purposes. We are not responsible for any legal liabilities in case of violations.
16. Minors under the age of 18 need to be accompanied by an adult to use the laser engraving machine.



Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. The laser safety classification of this product follows the IEC60825-1:2014 standard, with the safety class of laser radiation emitted through the laser aperture exceeding Class 1.

1

II. Packing List





The Principal Part



Exhaust Pipe



Hose Clamp



Air Assist Equipment



Silicone Tube



Power Supply



Basswood (300*300*3mm)



Test Calibration Card



Rotary Kit Connection Cable



Multi-level Fixed Focus Block



Type A to Type C Cable



Anti-static Brush

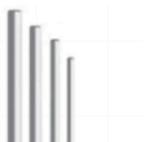


L-shaped cross wrench



User Manual

Tool Kit





M1.5/M2/M2.5/M3
Allen Wrench



Tweezers



Dust-free Cloth



Protective Len



Type A to
Type C Adapter



Safety Keys*2

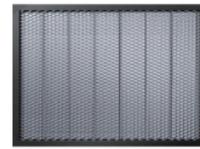
Optional



Smoke Purifier



Rotary Kit



Honeycomb Board



2w Infrared Laser



Risers



Safety Goggles

You can visit the official website www.crealityfalcon.com to purchase more products.

III. Assembly Steps

1. Pull out the air pump nozzle, connect the silicone tube to the air pump



2. Press both ends of the ribbon cable connector and insert it into the socket on the back of the interactive screen.





Need help?
Scan the QR code to watch the installation video.



3. Align the metal pins of the interactive screen and insert them into the holes of the mounting base. The installation is complete.



4. Connect the air assist device, install the silicone tube

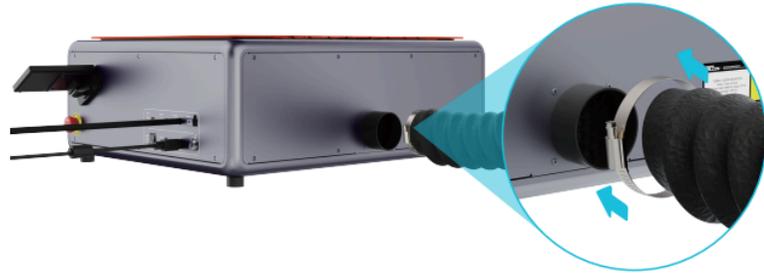


6. Use the hex wrench to tighten the clamp





5. Install the exhaust pipe with the clamp on the machine's exhaust port



5



7. Connect the adapter power cord



8. Insert the safety key and turn it on



10. To remove the door panel protective film, first unscrew the 2 handle screws and detach the handle.

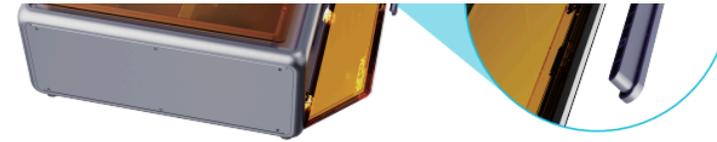


9. Turn on the rocker switch and rotate the emergency stop switch clockwise to release it. After the device is powered on, the interactive screen will automatically light up.



Note

Emergency stop switch: Press to cut off machine power in emergencies; rotate clockwise to restore power.



Need help?
Scan the QR code to watch the installation video.

IV. Disassembly And Installation Of Laser

Laser Disassembly

1. To remove the tube assembly, rotate the handle to the right and hold it, then push the assembly upward.



2. Push the quick-release wrench on the right side of the laser upward to unlock the laser, then slide it upward to remove the laser.





7

Laser Installation

3. Insert the laser into the mounting base, and then press the wrench down to the lower limit to lock the laser.

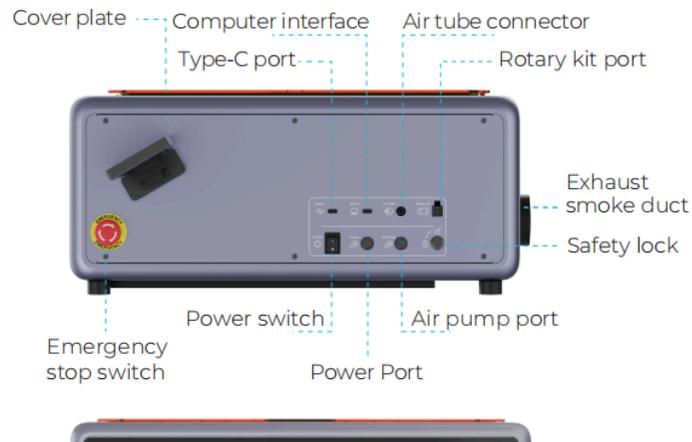


4. Rotate the handle of the tube assembly inward and hold it. Insert the tube assembly downward into the lower shell, the laser is installed.





V.Product Structure



Cover plate	Opens for material adjustment and chamber inspection
Type-C Port	Connect the USB drive or other accessories
Computer Interface	Connecting to a computer
Air Tube Connection	Connects the air pump to the device for air flow transmission
Rotary Kit Port	Connects the rotary kit to the device for operation
Emergency Stop Switch	One of the three safety switches -- for emergency power cut-off
Power Switch	One of the three safety switches -- for daily operation
Power Port	Connects to power supply for electricity
Air Pump Port	Connects the air pump to the device for power supply
Safety Lock	One of the three safety switches - physical lock



Front door panel

Exhaust smoke duct	Connect the flue pipe to exhaust gases generated during processing
Front door panel	Opens for tray removal and case processing
Interactive Screen	Capable of querying, data processing, and internet connectivity



Z-axis component indicator light

Power

Laser

Z-axis component indicator light

Green light: The laser and Z-axis function normally.
 White light: The laser emits a normal beam.
 Red light: The laser, flame detection, and temperature modules are abnormal. Please check the device.

Laser indicator light

Power (Green light) : Indicates power is on.
 Laser (White light) : Indicates laser is emitting normal beam.

NOTE: Do not open covers or front panels during operation.

VI. Product Specifications

Product Name	Laser Cutting and Engraver	Product Model	Creativity Falcon A1 Pro
Optical Power	20W	Engraving Area	268*358mm
Product Dimensions	567*468*211mm (Product size after screen installation: 685*468*211mm)	Laser Source	Semiconductor laser
Net Weight	16.8KG	Laser Wavelength	455±5nm
Adaptor Rating (INPUT)	100-240V-50/60Hz 2.5A	Safety Class	Class 1 (FDA)
Adaptor Rating (OUTPUT)	24.0V = 7.5A 180.0W	Laser Engraving Software	Falcon Design Space, LightBurn, LaserGRBL
Operating Temperature	5°C-35°C	Operating System	Windows/MacOS
Safety Certifications	FDA, CE, ROHS, FCC, PSE	Supported File Formats	jpeg, jpg, png, bmp, svg, dxf, etc.
Supported Materials	cardboard, wood, bamboo, rubber, leather, fabric, acrylic, plastic, etc.		



NOTE: Different software may have varying processing parameters and focus settings, which can affect the engraving results. If you switch to different software, please do a test engraving first before starting actual processing.

2W Infrared Laser (optional)

Laser Source	Solid-state laser	Laser Wavelength	1064±1nm
Optical Power	2W	Supported Materials	gold, silver, brass, iron, aluminum, stainless steel, plastic, black acrylic, titanium alloy, electroplated metal, shale, etc.

Compliant Standards: EN60204-1:2018, EN ISO 12100:2010, EN ISO 11553-1:2020, EN 60825-1:2014



NOTE: Avoid processing highly reflective mirror surfaces to prevent laser damage.

VII. Instructions for Use

1. When replacing the new material, place it at the autofocus red dot and enable the autofocus function to adjust the focal length (the internal lighting of the device will change).
2. For basic parameter settings of the laser engraver, refer to the file "GRBL Basic Parameter Description" at wiki.creality.com/en/laser-engraver.
3. Firmware upgrade, check the device and upgrade firmware version in the interactive screen 'Settings'-'Firmware Version', and operate the firmware upgrade function. You can also find and download the latest firmware for the corresponding device at <https://www.crealitycloud.com/downloads>, but you need to clear the USB drive and make sure the BIN file is in the first-level directory of the USB drive.
4. Software installation and use
The device can work online through an A to C connection cable (Falcon Design Space/LightBurn/LaserGRBL), or offline through a (self-provided) USB drive (Falcon Design Space/LightBurn). For detailed software tutorials, please refer to wiki.creality.com/en/laser-engraver.

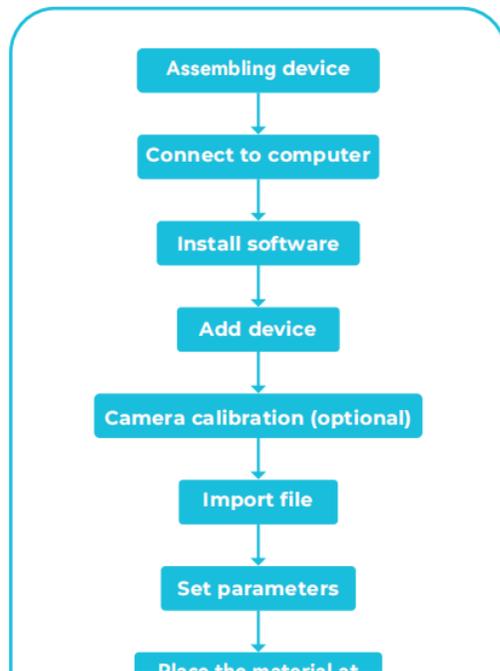
Note: Related product information can be obtained from wiki.creality.com/en/laser-engraver - product manual, assembly instruction video, camera calibration and alignment, parameter recommendation table, software operation tutorial, G-Code, error code description, GRBL basic parameter description, FAQ, etc.



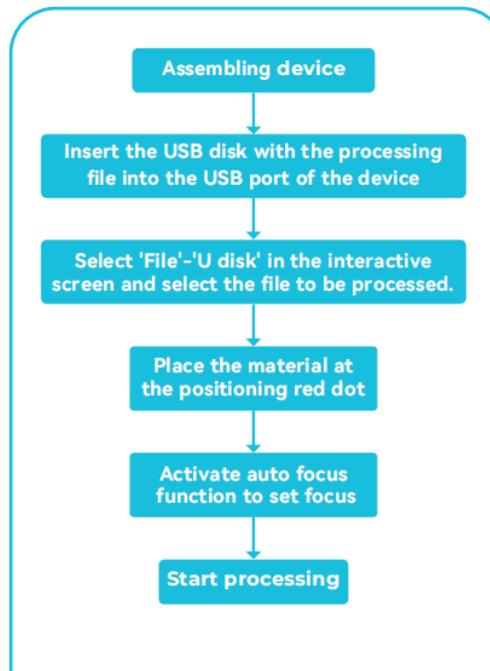
 **NOTE**

When entering the device firmware upgrade state, do not turn off the power and keep the network unobstructed (when upgrading via a USB flash drive, do not remove the USB flash drive during the process, and there cannot be two different versions of firmware packages in the USB flash drive, otherwise the upgrade will be abnormal). During the upgrade process, the device will automatically restart until the update is completed.

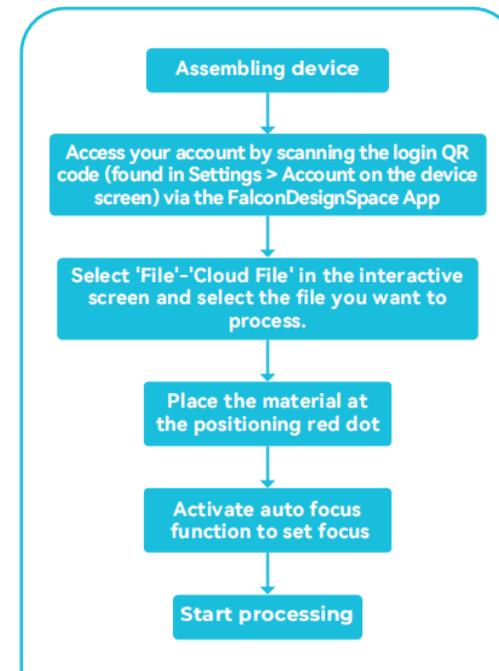
A. Online processing



B. Offline Processing



C. Cloud Processing



Place the material at the positioning red dot

Activate auto focus function to set focus

Start processing

Connect the device to the software in real-time using the Type-A to Type-C cable. Note: For information about real-time operation with the Type-A to Type-C cable, please refer to the corresponding model's documentation at wiki.creality.com/en/laser-engraver. Camera calibration is not mandatory. If there is a significant positioning deviation, it is recommended to recalibrate.

Generate processing files (G-code) through (Falcon Design Space/LightBurn) software, save the files to the first-level directory in the self-provided USB flash drive, connect the USB flash drive to the device through the A to C adapter before powering on, select the file in the device interactive screen - 'File' - 'U disk', and start processing.

You can log in to your FalconDesignSpace App account on the device authorization, and the device will automatically display your cloud file collection. You can select the corresponding case and start the processing task directly on the device. (The device needs to be connected to the Internet)

VIII. Maintenance

After long-term use and dust accumulation, it is recommended to perform overall cleaning and maintenance on the machine monthly. The following areas require special attention:

1. Fan air intake positions.



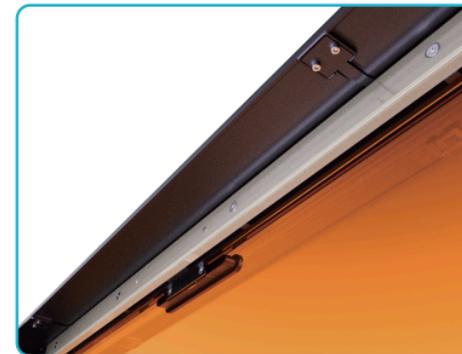
2. After long-term use of the machine, the timing belt needs to be adjusted for tension. It is recommended to check the tension of the timing belt every three months.

3. Camera cover.

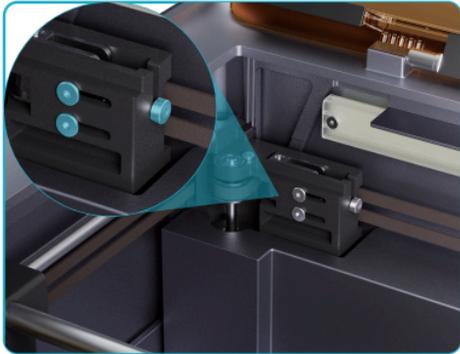


4. Motion frame optical shafts, regularly check the cleanliness of the motion frame optical shafts.

5. Light cover.



6. The tray needs to be cleaned promptly, do not allow debris to accumulate.



13

7. Cleaning and maintenance of the laser.

We recommend that you clean the laser fan every 3-6 months to maintain a good heat dissipation environment for the laser.



1. Remove the laser module: Unscrew the top and rear screws, then carefully extract the laser diode.
2. Use a brush to clean the dust on the laser fan.
3. Reinstall the laser core as it was, tighten the laser screws, and install the laser.

IX. Troubleshooting

Error Code: 04011004/04011020

Laser Overheated: Stop operation and wait for the laser to cool down before resuming processing.

Error Code: 04012002

Flame Detected: Confirm that the fire hazard is eliminated before resuming operation.

Error Code: 04031001

Device Tilted: Processing stopped. Place the device on a stable, level surface before restarting.

Error Code: 04112099

Air Pump Pressure Abnormality: Check the air pump wiring for any issues.

Error Code: 01002001/01002002

Safety Door Open: Close the safety door to continue with the processing task.

Note: The above codes reflect some common faults. In the event of other issues, please contact our after-sales team to obtain professional technical support.



Creality Falcon Wiki



Official Website

深圳市创想生态创新科技有限公司
SHENZHEN CREALITY ECOSYSTEM TECHNOLOGY CO., LTD.

Brand Website: www.crealityfalcon.com

E-mail: support@crealityfalcon.com

Business Tel: +86 755-8523 4565

Company Website: www.creality.com

深圳市龙华区民治街道新牛社区梅龙大道锦绣鸿都大厦1205

Room 1205, JinXiuHongDu Building, Meilong Blvd., Longhua Dist., Shenzhen, China 518131



