

ALIENCCELL

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Aliencell X1 Laser

User Manual

Creation should defy imagination

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EN

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For instruction manuals in more languages, please scan the QR code or visit <https://shop.aliencell.com/pages/usermanual>

Statement

Thank you for choosing and using Aliencell products.

To ensure a safer and smoother user experience, it is recommended that you read the relevant sections of this manual carefully before operation and pay attention to all materials provided with the product. The company shall not be held liable for any equipment damage or other losses resulting from failure to follow the instructions.

This manual is intended to provide basic operating instructions and precautions, and does not cover all technical details or configuration information of the product. For specific configurations and accessories, please refer to the actual purchase documents (such as the contract or packing list). Illustrations in this manual are for reference only, and the actual product shall prevail.

The company has rigorously reviewed the content of this manual, but there may still be omissions or errors. Your understanding is appreciated.

To continuously improve product performance and service quality, we reserve the right to change any products, software, or content described in this manual without prior notice.

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Aliencell is committed to the continuous optimization of products and services. As such, product features, software versions, and related materials may be updated without prior notice. Some content in this manual may be adjusted accordingly. For the latest information, please visit: <https://wiki.aliencell.com>

1. Laser safety

Read and get familiar with all safety precautions and procedures before using the machine. Strictly follow all safety precautions. Ensure that the machine is properly assembled and is working properly.



Lasers are categorized into several different classes depending on the extent of the potential hazard associated with the laser, with Class 1 being the least dangerous and Class 4 the most dangerous. The United States Food and Drug Administration has indicated that Class 4 lasers may pose an “immediate skin hazard and eye hazard from exposure to either the direct or reflected beam; may also present a fire hazard.”

Aliencell X1 is a Class 1 laser machine. The Class 1 laser machine includes a Class 4 working laser and a Class 1 indicator laser. Generally, the laser module is completely enclosed in the casing and light shield during operation to prevent human access to Class 4 laser radiation. The machine is equipped with safety interlock switches on the lid and baseplate. If the lid is lifted or the baseplate is removed during operation, the device will stop working.

Follow the safety precautions:

- Do not operate the machine when any part of it is removed. Removing any part may expose the laser system and cause damage to the machine.
- Laser operation is prohibited when the lid is lifted. Make sure that the lid is closed during operation and do not tamper with the safety mechanism of the lid.
- Do not leave the device unattended during operation. Pay attention to whether it is working properly.

The reference standards for laser safety are the American National Standard for Safe Use of Lasers (Z136.1-2022), International Electrotechnical Commission Standard (IEC 60825-1:2014), and European Standards (EN 60825-1:2014/A11:2021).

2. Chemical safety



A high-density laser beam is used by the device to irradiate the material to be cut or engraved, so as to heat up the material surface and vaporize the material without burning. But some materials may release toxic and harmful smoke or gases at a high temperature. Therefore, precautions are required for chemical safety during material processing.

Follow the safety precautions:

- Do not engrave or cut any material that contains PVC or vinyl (processing plastics is not recommended). These materials (and other materials containing chlorine/chloride) can generate corrosive vapor that is extremely harmful to the human body and can cause damage to the device. Any damage caused by engraving or cutting any material containing PVC or vinyl is not covered by the Company's warranty.
- Do not engrave or cut any unknown materials. Vaporization or melting of many materials, which include but are not limited to PVC and polycarbonate, may release harmful smoke.

3. Fire safety



A high-density laser beam is used by the device to irradiate the material to be cut or engraved, so as to heat up the material surface and vaporize the material without burning. But most materials are inherently flammable and may be ignited to form an open flame that can burn down the device (even if it is made of flame-retardant materials) and its surroundings. Experience shows that vector cutting with a laser is most likely to produce an open flame. In particular, acrylic has proven to be extremely flammable in vector cutting.

Read the following warnings and suggestions carefully:

- Equipment for use in locations where children are not likely to be present.
- Ensure that the workspace is well-ventilated so that the generated smoke can be discharged in time.
- Do not stack materials (especially organic ones, such as paper) around the machine (especially the end of the smoke exhaust pipe). They may cause the spread of flames and increase the risk of material ignition.
- Do not leave the machine unattended when it is working. If the machine works with setting errors and is left unattended for a long period, or if a mechanical or electrical fault occurs, a fire may be caused.
- Clean the device regularly. Excessive accumulation of residues and chippings from cutting and engraving would increase the risk of fire. The internal working area needs to be cleaned periodically to ensure that there is no residue or chipping inside the device.
- Ensure that the area around the machine is clean without any cluttered flammable materials, explosives, or volatile solvents, such as acetone, alcohol, or gasoline.
- Familiarize yourself with fire safety knowledge.
- Equip your workspace with fire extinguishing equipment, including CO2 extinguishers and sprinklers, and perform regular inspection and maintenance on them. Keep the CO2 extinguishers on hand, and all personnel should be trained in the usage of the extinguishers.
- When the laser machine cuts or engraves flammable materials at low speed and high power, the materials may ignite, forming an open flame. If an open flame occurs, please stop processing in time, keep a safe distance, and use a fire extinguisher to put it out.
- Use the product with the compatible Aliencell Fire Safety Set as an additional measure to reduce fire risk. When installing the fire safety set, strictly follow the installation guide. Visit Support for Fire Safety Set for detailed instructions on how to connect the fire safety set to the product.
- Once the processing is completed, quickly and carefully inspect the working area of the machine to ensure no flames remain.

4. Electrical safety

Follow the safety precautions:

- Do not open any access panel on the device when the device is connected to the power supply. Accidental contact with the power supply may cause injury.
- Do not touch any electronic area with your hands or other tools when the machine is connected to a power supply.

5. Maintenance

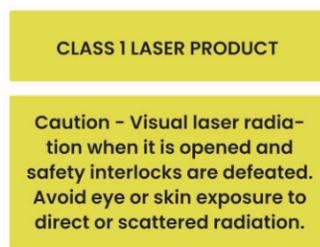
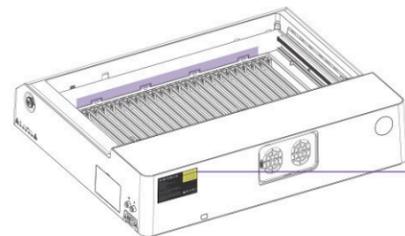


Follow the operating principles:

- Check the machine for damage every time before you use it. Do not operate it in any way when any damage or defect is found.
- Ensure that the workspace is clean and flat.
- Do not disassemble the machine or change its structure in any way without authorization. Do not modify or decompile its operating system.
- Do not leave the device unattended during operation. Pay attention to whether it is working properly.
- Keep the inside of the machine clean. Residues and chippings accumulated during cutting and engraving are dangerous and may cause a fire. Clean the chippings and residues inside the work area regularly.
- The machine works properly at the temperature of 0°C to 35°C and can be stored properly at the temperature of -10°C to 40°C. The recommended operating temperature of the machine is 50°F to 86°F (10°C to 30°C). Do not operate it at a temperature lower than 0°C.
- This product is not user-serviceable. It must be returned to the factory or repaired by authorized professionals.
- Cut off the power before maintaining the device.
- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

6. Warning instruction and labels

On Aliencell X1, the warning and instruction signs are labeled where physical injuries or damage to the machine may be caused before and/or during operation. If a sign is damaged or lost, replace it immediately. You can use the following template to print the sign you need.



List of items



Aliencell X1



Laser Module (20W/40W/60W)



Distance Sensor



Smoke Exhaust Module



Exhaust Pre Filter
x 4



2m Smoke Exhaust Pipe



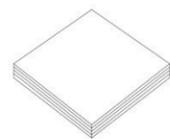
Slat
x 22



1.2m Power Cable



Lens Mount (spare part)
x 2



Material Pack



1.5m USB-A to USB-C cable



KEY
x 2



Hex Key *H1.5/H2.0/H2.5



Grease



USB-A to USB-C Adapter
*For computers that only have
a USB-C port.



Laser Protective Goggles



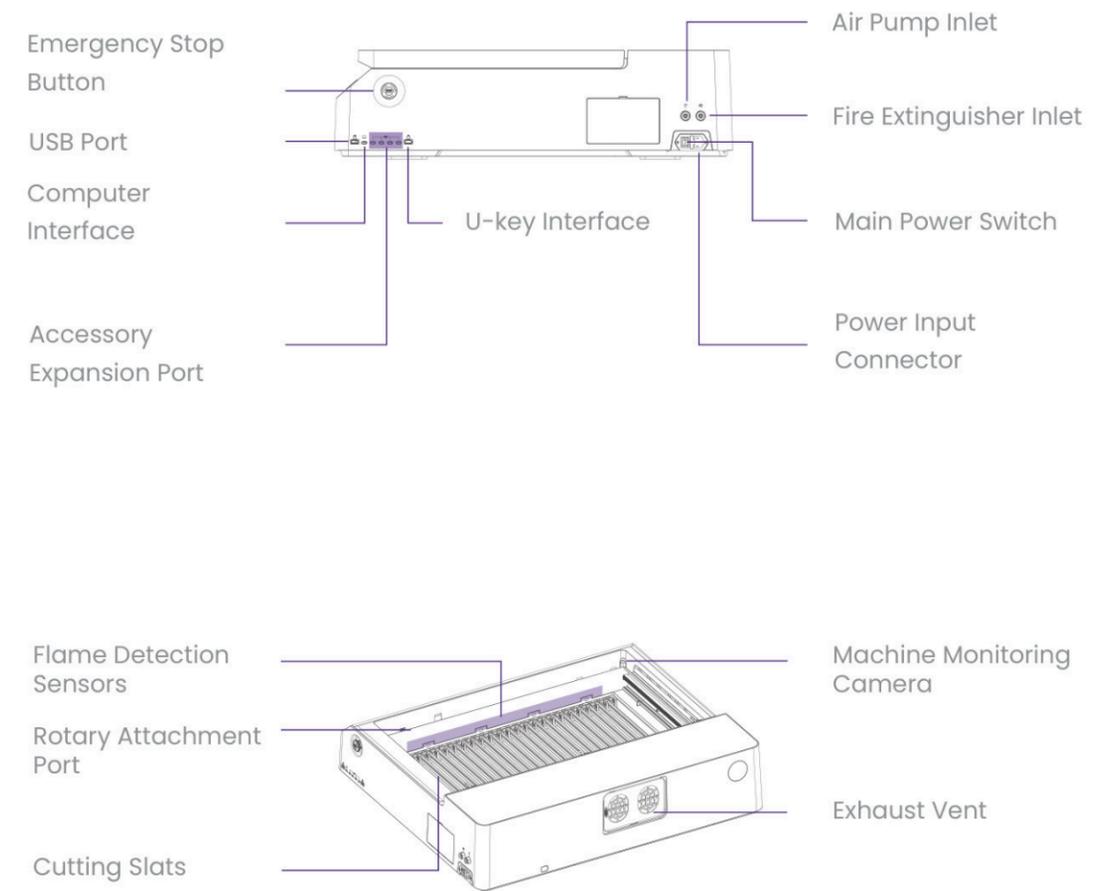
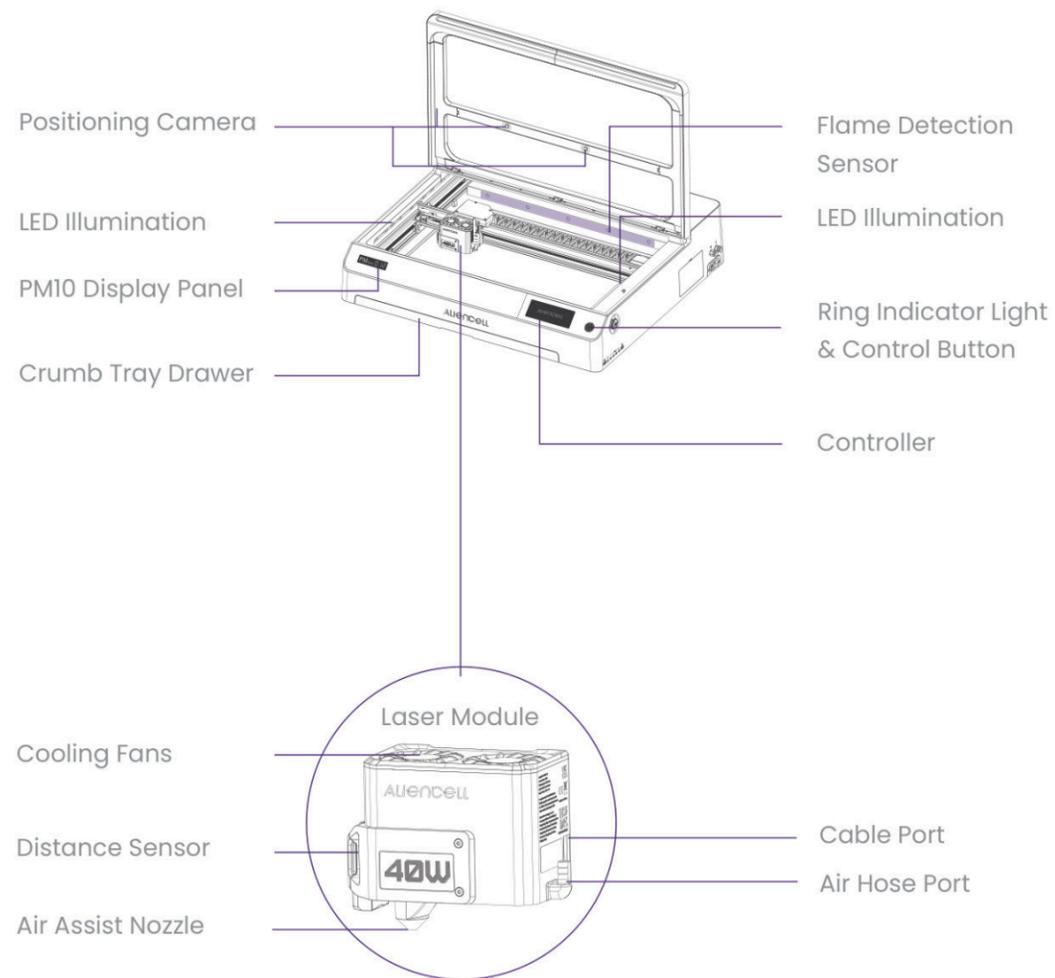
User Manual



06mm Push-to-Connect Fitting
x 2

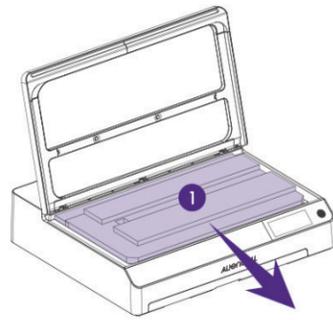


Material Clamp
x 4

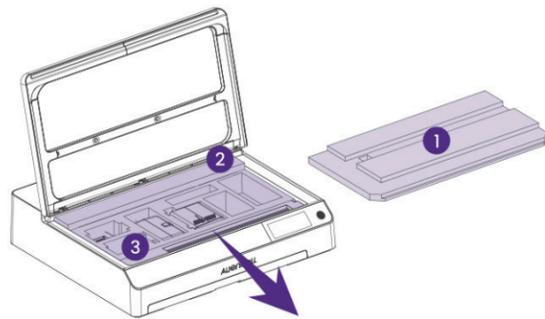


1. Open the lid and carefully take all the items out.

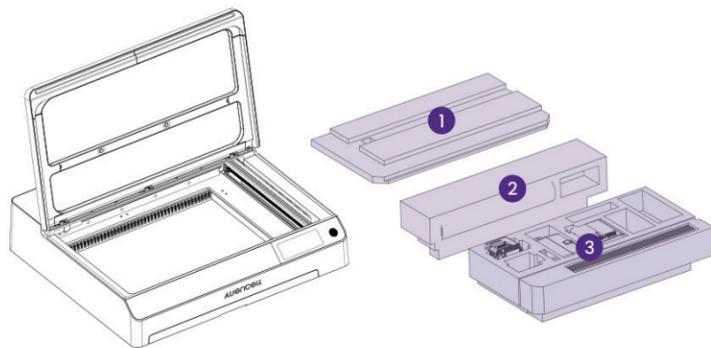
STEP 1



STEP 2

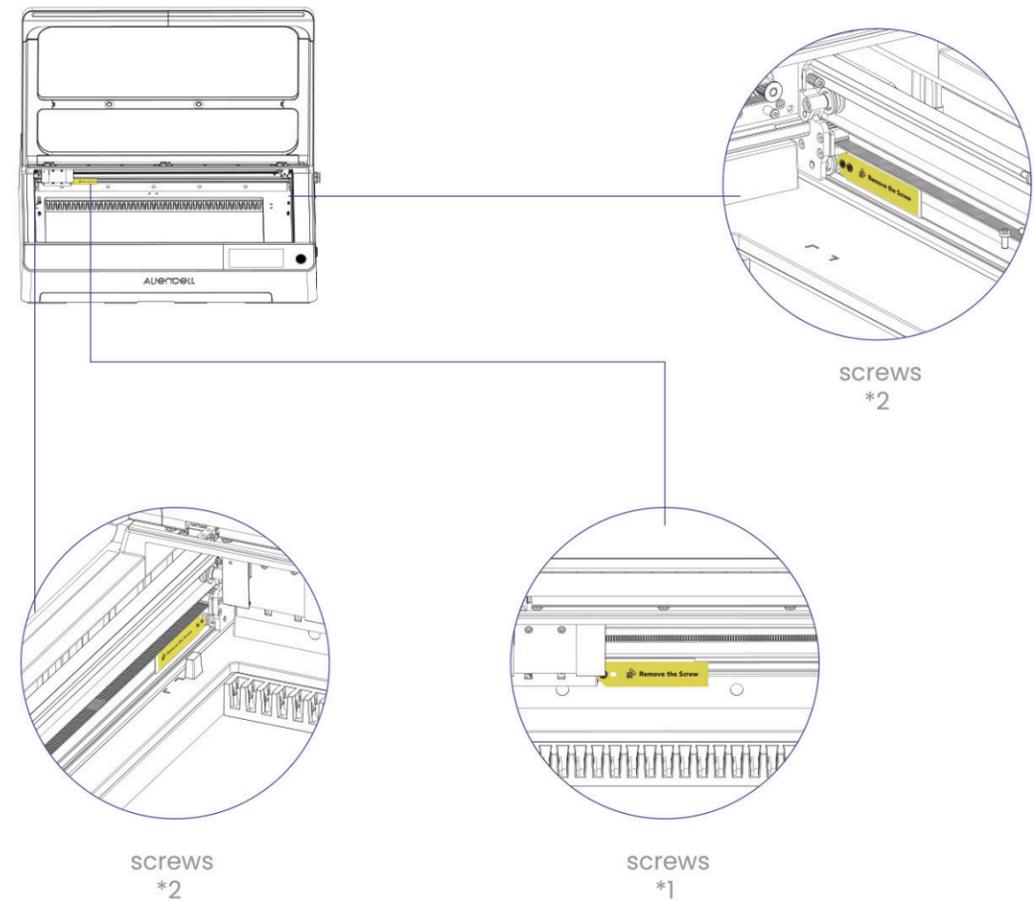


STEP 3



2. Using a 2.0mm Hex key, remove the 5 screws that secure the X-axis and Y-axis guides.

Prepare Items :

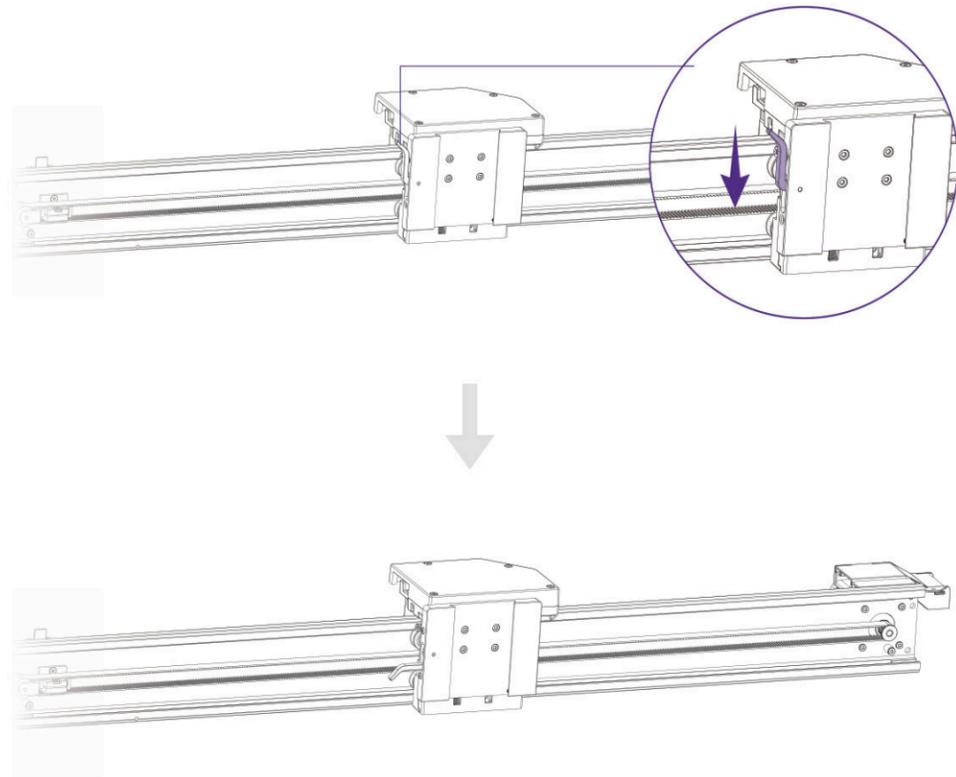


3. Install the laser module

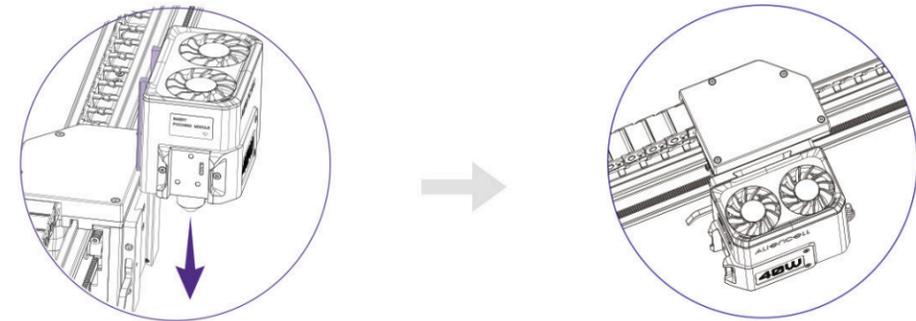
⚠ Warning: Do not connect or disconnect the laser with power on, as this may cause permanent damage.



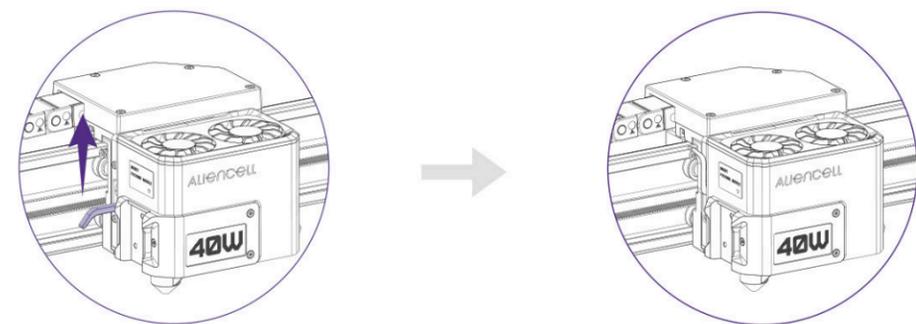
STEP 1 Release the laser's locking latch



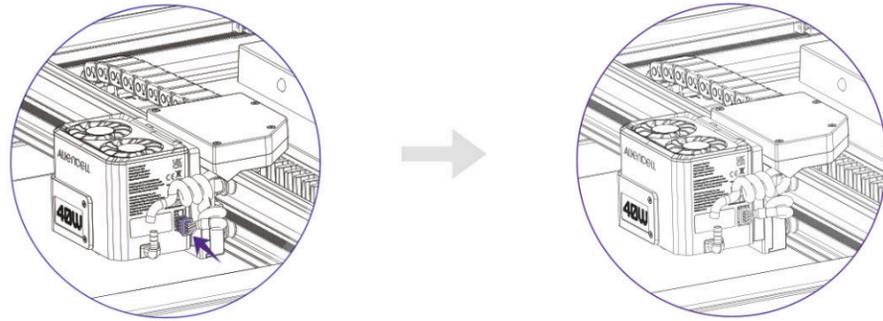
STEP 2 Insert the laser module until sits on the base fully



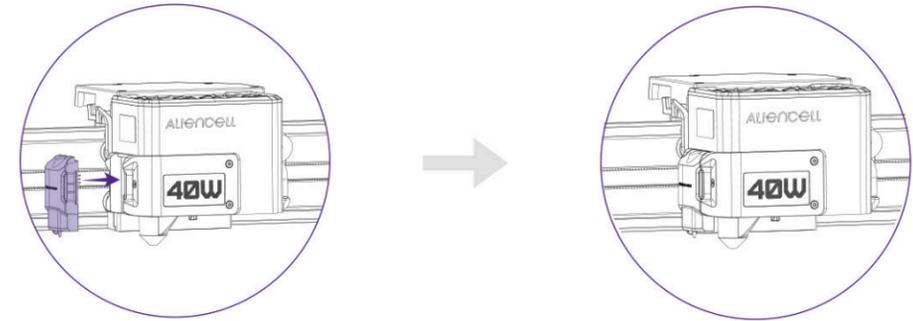
STEP 3 Secure the laser's locking latch



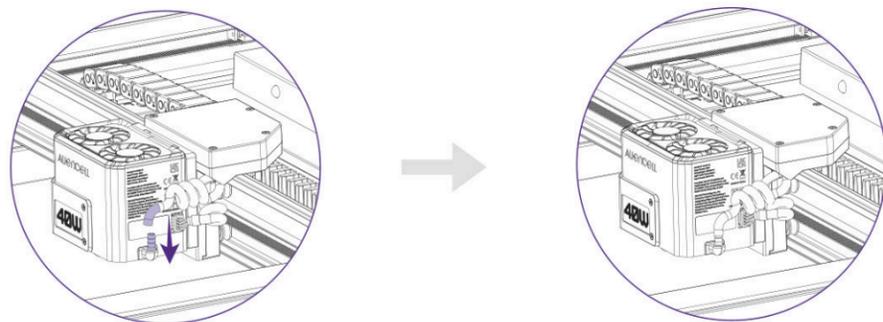
STEP 4 Connect the laser cable



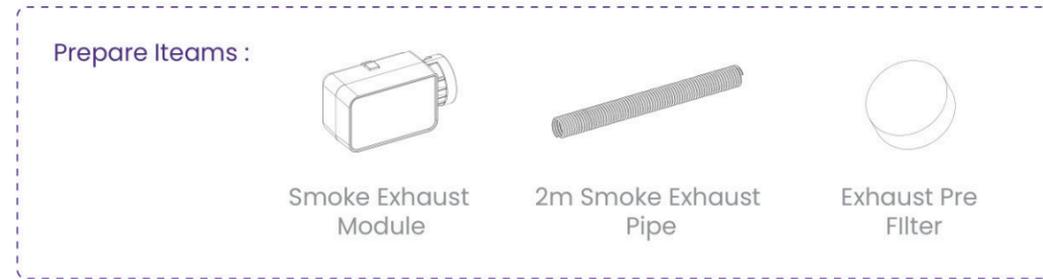
STEP 6 Install the distance sensor



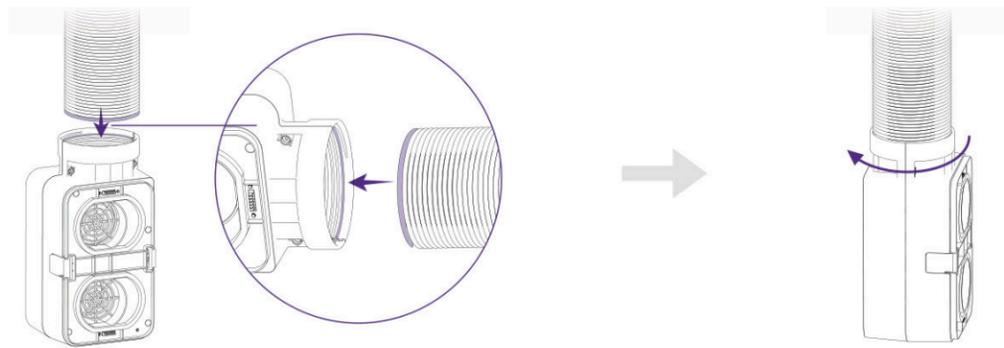
STEP 5 Install the air hose



4. Install the smoke exhaust module

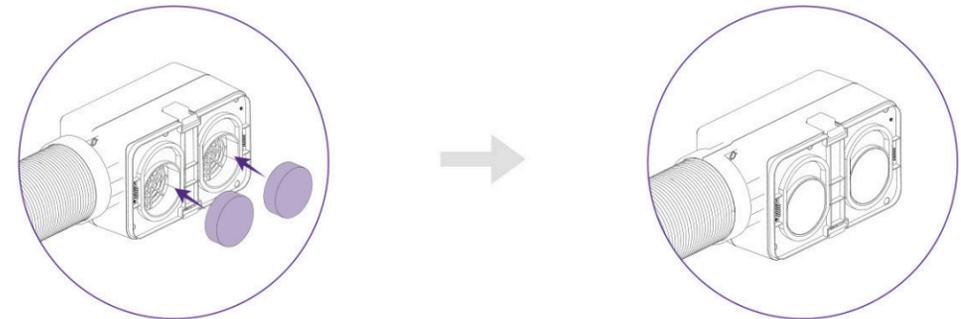


STEP 1 Install the smoke exhaust pipe

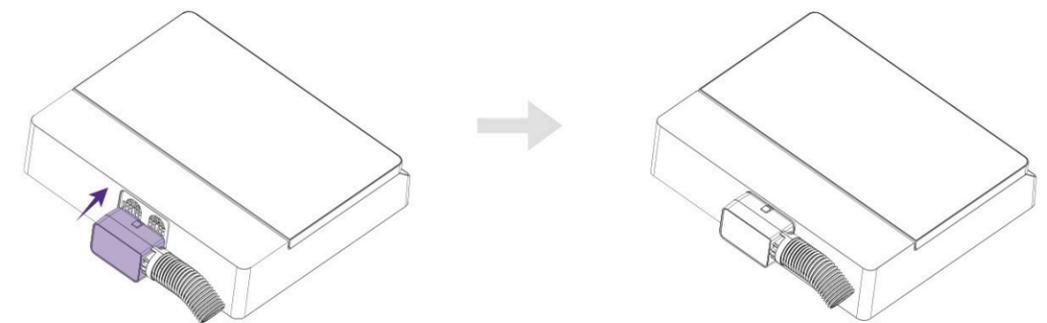


Note the thread directions

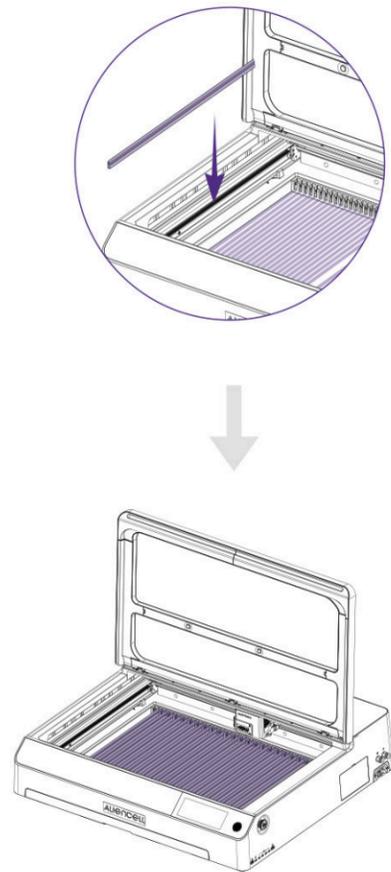
STEP 2 Install the filter



STEP 3 Install the smoke exhaust module (Facing left or right based on your working space)

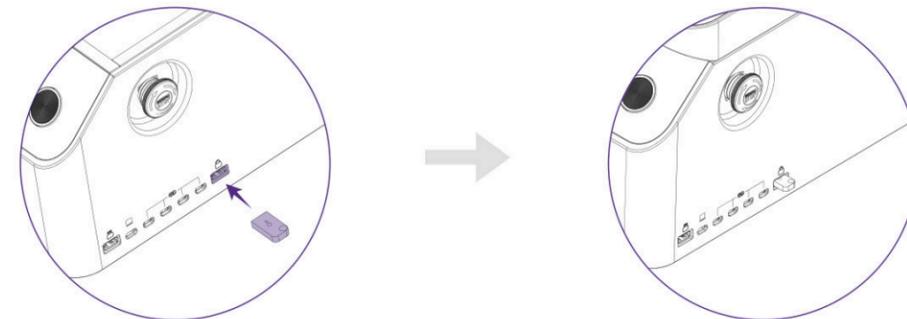
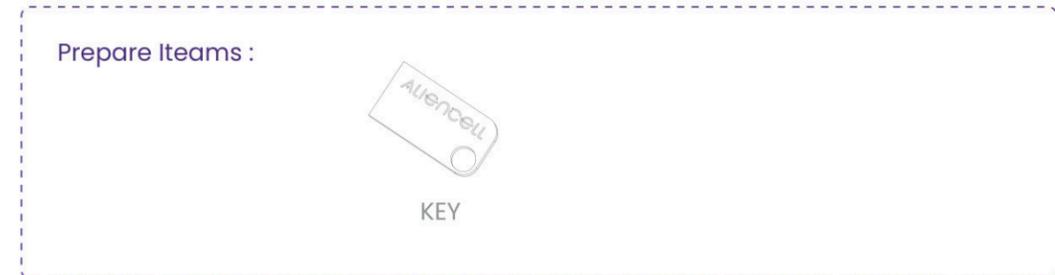


5. Install the slats

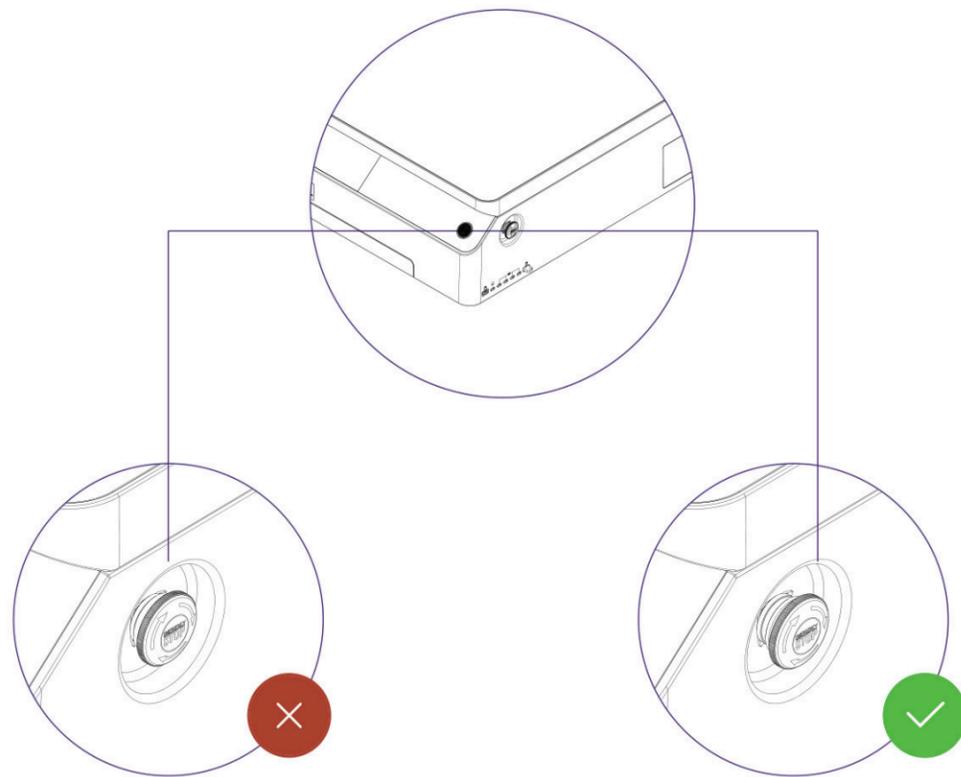


6. Insert the key

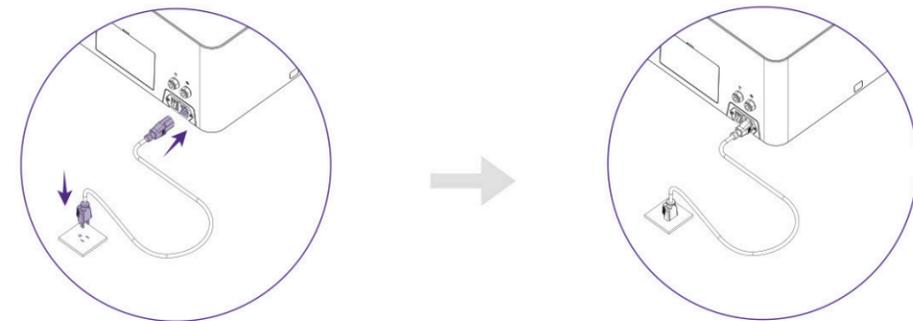
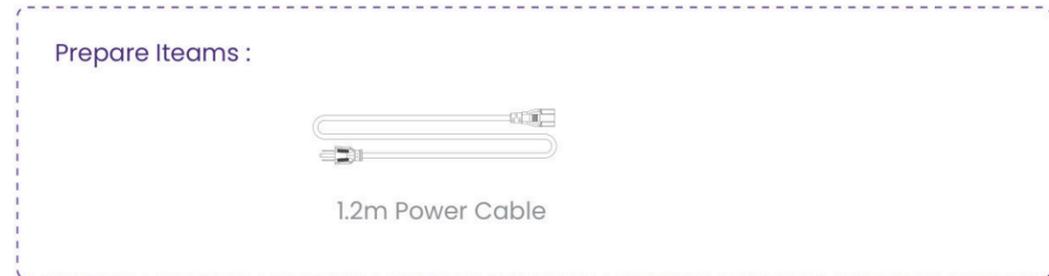
Inserting the key to unlocks the device.
The device will remain in a locked state without the key inserted.



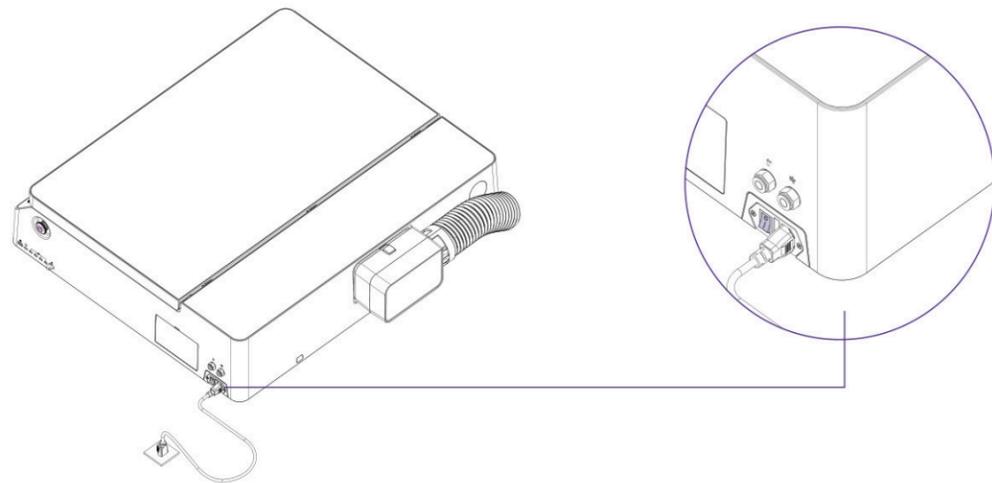
7. Check and ensure that the emergency stop switch is not pressed (Twist to release)



8. Connect to a power supply



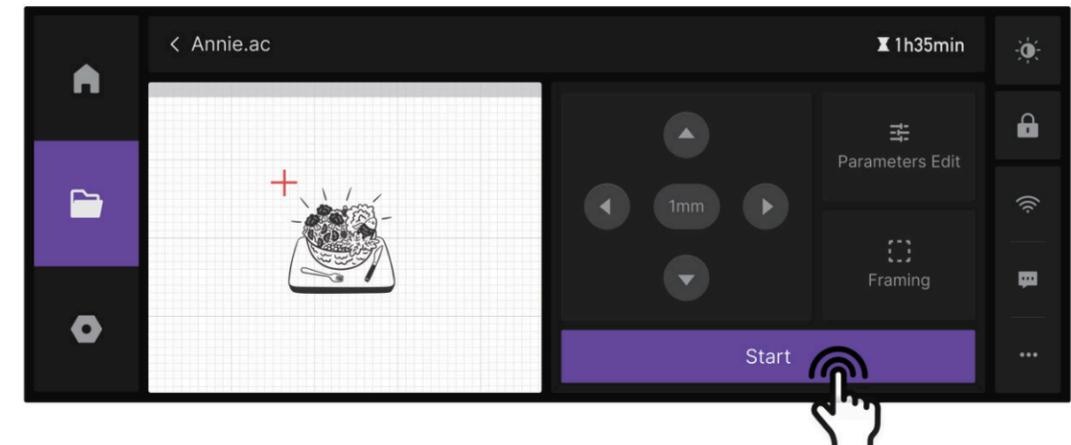
9. Turn on the power switch



10. Complete the startup wizard



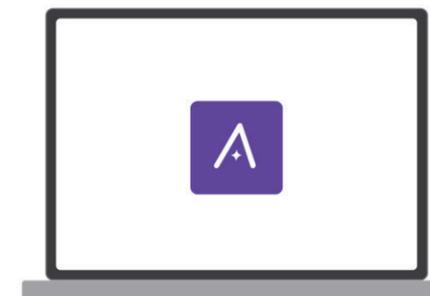
Via the Control Screen



For details about how to use the control screen to operate Aliencell X1 for material processing, scan the QR code or visit https://wiki.aliencell.com/en/x1_series/Touch-screen/Quick_Start_with_Touchscreen

Via Official Software

STEP 1 Download and install Aliencell Space



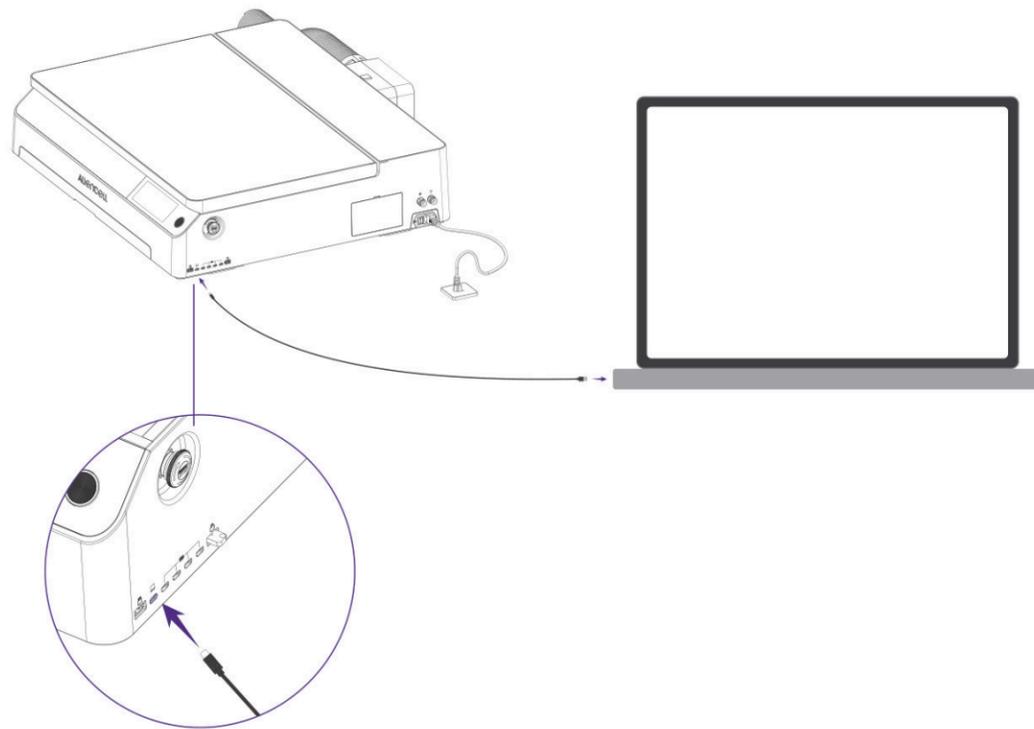
<https://www.aliencell.com/download/software>

STEP 2 Connect computer and Aliencell X1

Prepare Items :



1.5m USB-A to USB-Cable



For details about how to use the software to operate Aliencell X1 for material processing, scan the QR code or visit https://wiki.aliencell.com/en/x1_series/Engraving_Example

Via lightburn

STEP 1 Download and install Lightburn



<https://lightburnsoftware.com/pages/download-trial>

STEP 2 Connect computer and Aliencell X1



Aliencell X1 40W.lbdev



For details about how to use the software to operate Lightburn for material processing, scan the QR code or visit https://wiki.aliencell.com/en/x1_series/Communication_Settings/Use_X1_with_LightBurn

Indicator description

Indicator status	Bipping Status	Device status
Blinking white 	\	Initializing
Solid white 	\	Idle
Solid light blue 	\	Device busy: Homing/Moving/Framing/Focusing/Taking picture Self-testing/Calibrating
Blinking blue 	\	Ready to process
Solid blue 	\	Processing
Solid yellow 	\	Processing paused
Solid green 	\	Processing completed
Solid red 	\	Processing stopped
Blinking red 	Keep Bipping	Fire detective

FCC WARNING

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.

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

NOTE: 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.

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.

IC Caution

This device complies with Innovation, Science and Economic Development Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

To maintain compliance with RSS-102 RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.

After-sales and warranty services

For technical support, contact us at support@aliencell.com

For more information about after-sales services, visit <https://wiki.aliencell.com>



[Online Help Center](#)

Warranty scope	Warranty period	Instructions
Main parts	12 months	The main parts of the product except the non-warranty parts below.
Accessories	No Warranty (Free replacement if damaged upon receipt)	Slat, USB-A to USB-C cable, Power cable, U-key, Lens mount, Hex key, User Manual, Material, Key, Adapter, Push-to-Connect Fitting, Goggles, Material clamp, Grease

For more information about after-sales services, visit <https://shop.aliencell.com/pages/AfterSale-Policies>



[Warranty Policies](#)