

**makeblock**

Makeblock Co., Ltd.

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makeblock

# laserbox

## User Manual



D1.3.4\_KD010218000

## Statement

Welcome to use Makeblock products!

Before installing and using the product for the first time, please carefully read all the accompanying materials of the product to improve your experience with it. If you fail to use the product according to the instructions and requirements of the Manual, or mis-operate the product due to misunderstanding, etc., Makeblock Co., Ltd. (Shenzhen) will bear no responsibility for any loss resulting therefrom, except for losses due to improper installation or operation by Makeblock professional maintenance personnel.

This product should be operated by an adult who is already familiar with the contents of this manual or under the supervision of an adult who is already familiar with the contents of this manual. In the scene where children appear, please pay special attention when operating. Makeblock Co., Ltd. (Shenzhen) has collated the Manual rigorously and carefully, but we cannot guarantee that the Manual is completely free of error or omission.

Makeblock Co., Ltd. (Shenzhen) is committed to continuously improving product functionality and service quality, and therefore reserves the right to change any product or software program described in the Manual and the contents of the Manual at any time without prior notice.

The Manual is intended to help you use the product correctly and does not include any description of the product hardware and software configuration. For product configuration, please refer to the relevant contract (if any) and packing list, or consult your distributor. Pictures in the Manual are for reference only and the actual product may vary.

Protected by copyright laws and regulations, the Manual shall not be reproduced or transcribed in any way, or be transmitted on any wired or wireless network in any manner, or be translated into any language without the prior written authorization of Makeblock Co., Ltd. (Shenzhen).



**Warning:**

This area represents a special danger for the user or the person responsible for maintenance if the operating instructions are not observed.



**Warning:**

In these areas, pay particular attention to the possible dangers of laser light.

## Makeblock service information

Please contact us if you find the actual product is inconsistent with the Manual during operation, or if you want to get the latest information, or have any questions or suggestions.

Technical support: [support@makeblock.com](mailto:support@makeblock.com)

Note: The above information may be subject to change due to objective factors, and please refer to the latest release of Makeblock. If you use the internet or phone call to get our support, additional fees may apply.

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## Safety First (Important)

### 1. General safety

Read and get familiar with all safety protocols and procedures before operating the Laserbox. Users shall strictly follow all safety precautions and ensure that the Laserbox is properly assembled and in working order.

 Please observe the following operating principles:

- Be sure to check the Laserbox for damage every time before use. Do not operate any damaged or defective Laserbox in any way.
- Please keep the workspace clean and flat. Note that the laser tube is made of glass and is very fragile. If it is broken, the Laserbox will fail to work.
- Without authorization, please do not disassemble or change the Laserbox structure in any other way; and please do not modify or decompile the operating system of the Laserbox.
- Please keep the inside of the Laserbox clean. Residues and chippings accumulated during cutting and engraving are dangerous and may cause fire. Clean the chippings and residues in the honeycomb panel and tray regularly.
- The working temperature of laser is between 5 °C and 25 °C. It is strictly prohibited to operate below 0 °C.

### 2. Laser safety

Under normal circumstances, the CO2 laser tube is completely enclosed in a casing during operation. The Laserbox has a safety interlock switch. If the lid is lifted during operation, the Laserbox will stop working to prevent harming people. No special precautions are required to ensure laser safety.

 Please observe the following safety guidelines:

- Never operate the Laserbox with any parts removed, such as tray. Please note that the absence of any part of the Laserbox may expose the laser system and increase the risk of equipment damage. Remember that the CO2 laser beam is invisible.
- Do not engrave or cut any material that contains PVC or vinyl (processed plastics are 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 Laserbox. Any damage caused by engraving or cutting any material containing PVC or vinyl is not covered by Makeblock's warranty.
- Do not engrave or cut any unknown material. Vaporization/melting of many materials, include, but not limited to, PVC and polycarbonate, will release harmful smoke.
- Laser operation is prohibited when the lid/tray is lifted. Make sure that the Laserbox is closed by the lid/tray during operation and do not tamper with the safety mechanism of the lid. Open the tray ONLY when it needs maintenance or cleaning. After maintenance and cleaning, please install the tray as required immediately. If you start the laser without the tray installed as required, and perform improper operation through the gap of the tray, it may cause injury to your body.
- Do not operate the Laserbox before properly connecting smoke purifier. Most materials produce irritating smoke when being processed. These include, but are not limited to, paints, varnishes, composite boards, and plastics that can produce hazardous compounds during processing.

The reference standard for laser safety is American National Standard for Safe Use of Lasers (Z136.1-2000), which is provided by the American National Standards Institute (ANSI). This reference is the basis for federal regulations and laser system manufacturers, as well as the laser safety guidelines of Occupational Safety and Health Administration (OSHA). It contains details on the proper installation and use of laser systems.

### 3.Fire safety

A high-density laser beam is used by the Laserbox 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 Laserbox (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.

 Please read the following warnings and suggestions carefully:

- Please note that stacked materials (especially organic materials such as paper) may cause flame propagation or increase the risk of material ignition.
- Never leave the Laserbox unattended during operation. There is a risk of fire if the Laserbox is started due to incorrect settings and left unattended for long periods of time, or if the Laserbox is mechanically or electrically malfunctioning during operation.
- Clean the Laserbox regularly. Excessive accumulation of residues and chippings from cutting and engraving would increase the risk of fire. Honeycomb panel and tray should be removed and cleaned periodically to ensure that there is no residue or chipping in the Laserbox.
- Keep the area around the Laserbox clean and free of cluttered flammable materials, explosives or volatile solvents such as acetone, alcohol or gasoline. Provide fire extinguishers, and perform regular maintenance and inspection.

### 4.Electrical equipment safety

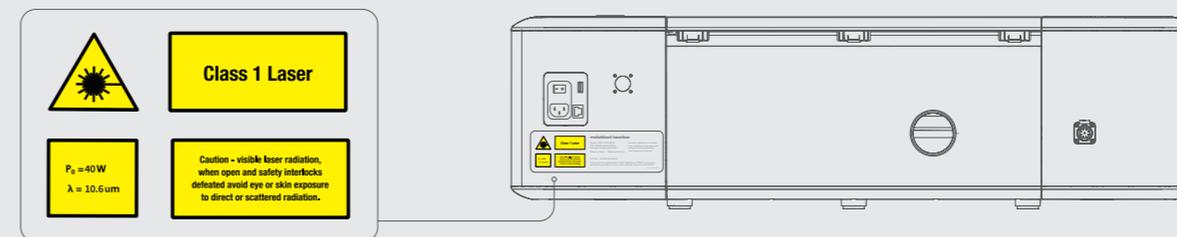
Laser tube of the Laserbox has a silicone rubber casing, which can effectively shield the internal power cord. If you find the cover is loose and the power cord is exposed, stop operating and contact customer service personnel.

 Please carefully read and strictly observe the following warnings and suggestions:

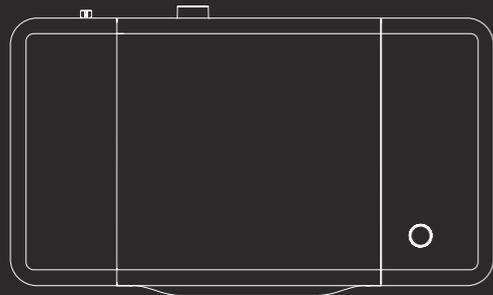
- When the Laserbox is connected to the power supply, do not open any access panel on the Laserbox to avoid harm from accidental contact with the power supply.
- When the Laserbox is connected to the power supply, do not touch the electronic-related area with your hands or other tools.
- Power button of the Laserbox is at the rear of it. Pressing (-) to power it on and pressing “o” to power it off.

### 5.Warnings and instruction signs

All warning and information signs attached to your laserbox are located in places that may be a source of danger before and/or during operation. Damaged or lost warning and information signs must be replaced immediately. The missing warning and information signs can be replicated using the templates on the following page.



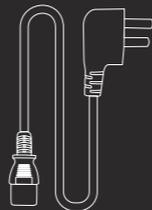
## List of Items



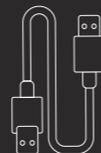
Laserbox × 1



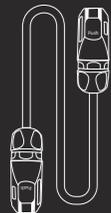
Smart Smoke Purifier × 1



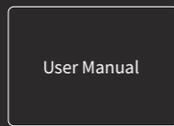
Power Cord × 1



USB Cable × 1



Aviation Connector × 1



User Manual × 1



Smoke Exhaust Pipe × 2

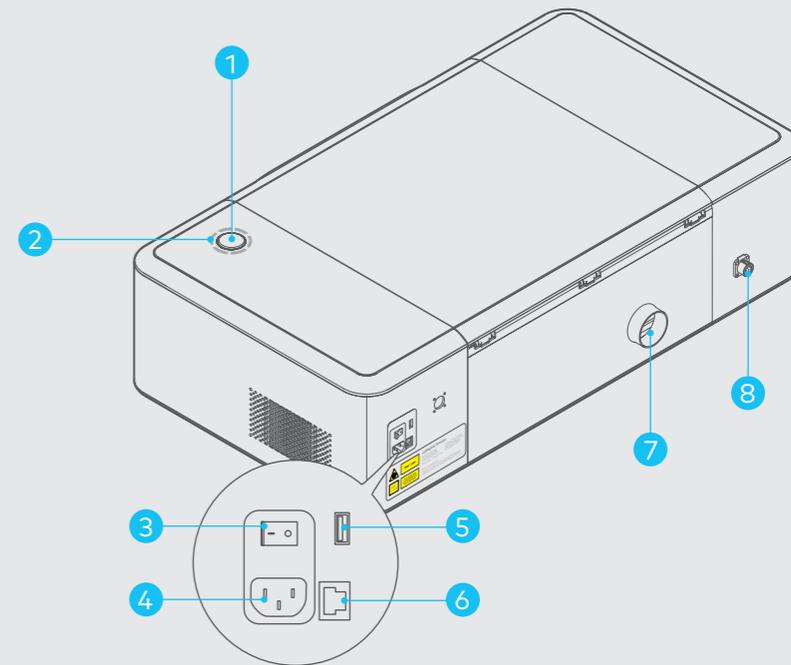


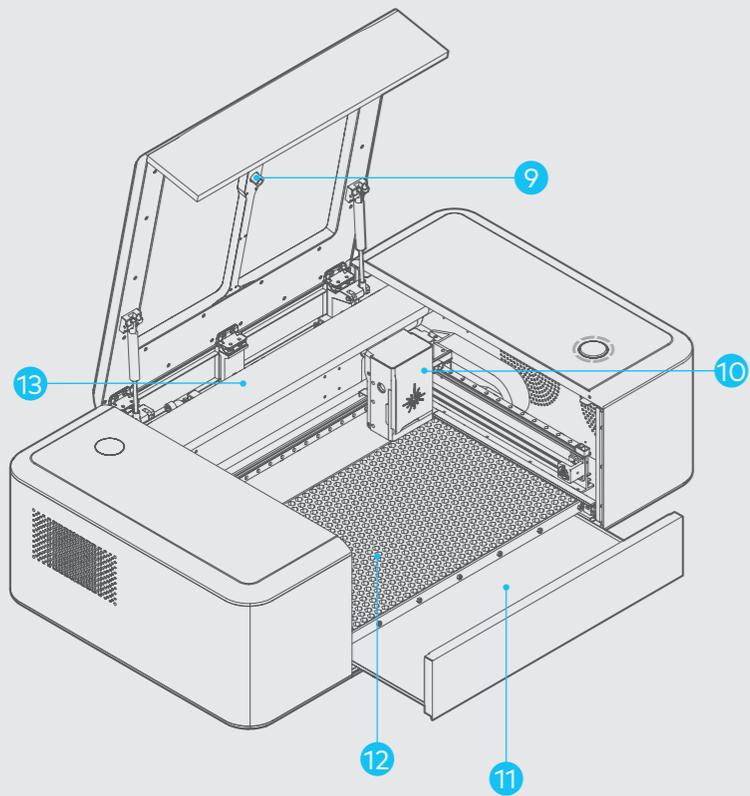
Pipe Clamp × 3

## Meet Your Laserbox

### Laserbox

Button	1
Annular Indicator	2
Power Button	3
Power Interface	4
USB Interface	5
Ethernet Cable Interface	6
Smoke Outlet	7
Aviation Interface	8

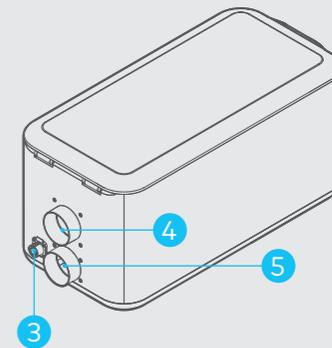
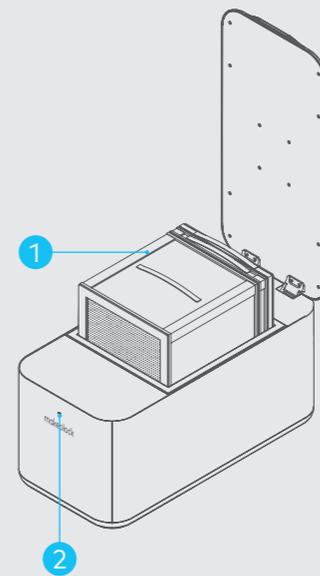




- Camera 9
- Laser Head 10
- Tray 11
- Honeycomb Panel 12
- Laser Tube 13

### Smart Smoke Purifier

- HEPA Composite Filter 1
- Indicator 2
- Aviation Interface 3
- Smoke Inlet 4
- Smoke Outlet 5





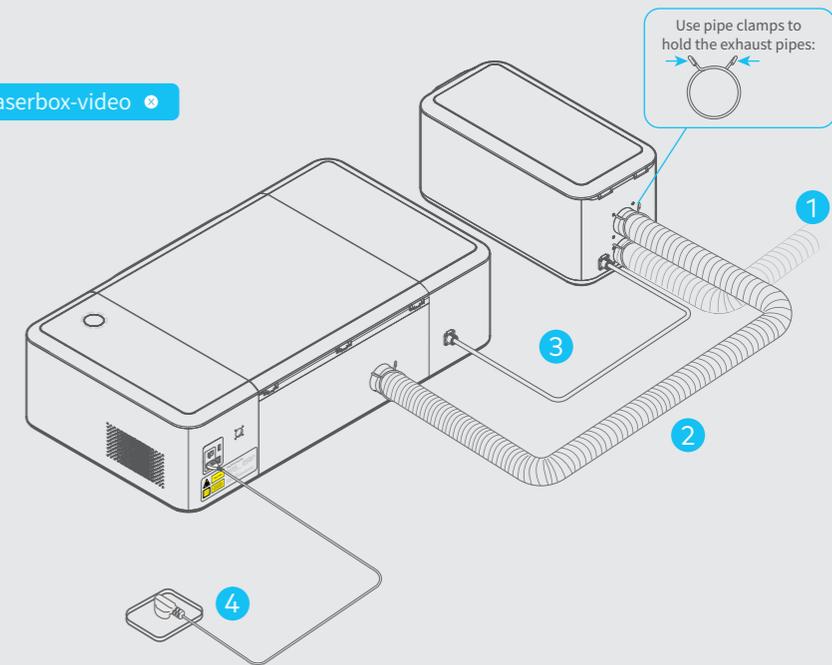
## Quick Operation Guide

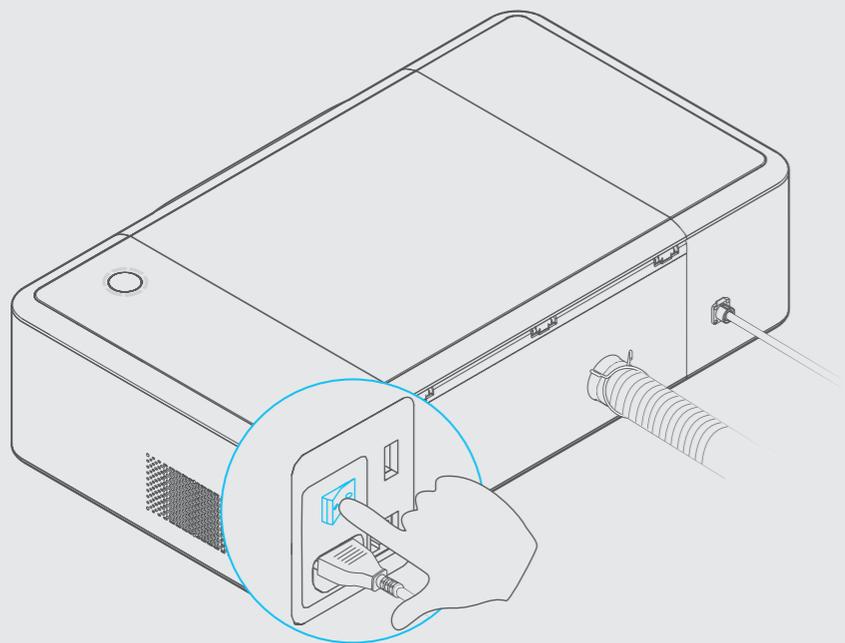
Tips: You can also visit the website below to get the video tutorials.

<https://www.makeblock.com/maker-tools/laserbox-video>

### Connect the smart smoke purifier

1. Connect the purifier with the 2m-exhaust pipe and lay the pipe to the window.
2. Connect the Laserbox and purifier with the 1.5m-exhaust pipe.
3. Connect the Laserbox and purifier with the aviation connector.
4. Connect the power supply.





### Start the Laserbox

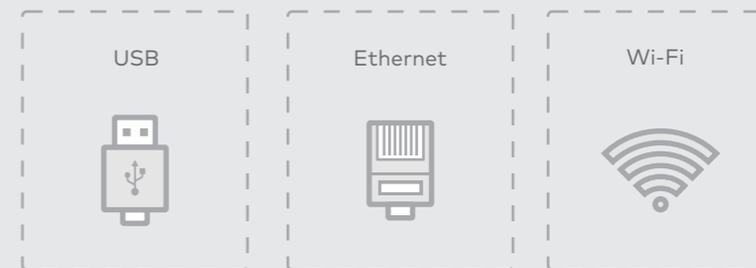
After pressing the power button, the laser head will automatically reset and calibrate. After the first startup, the annular indicator will turn solid white. The startup process takes a while, and please be patient.

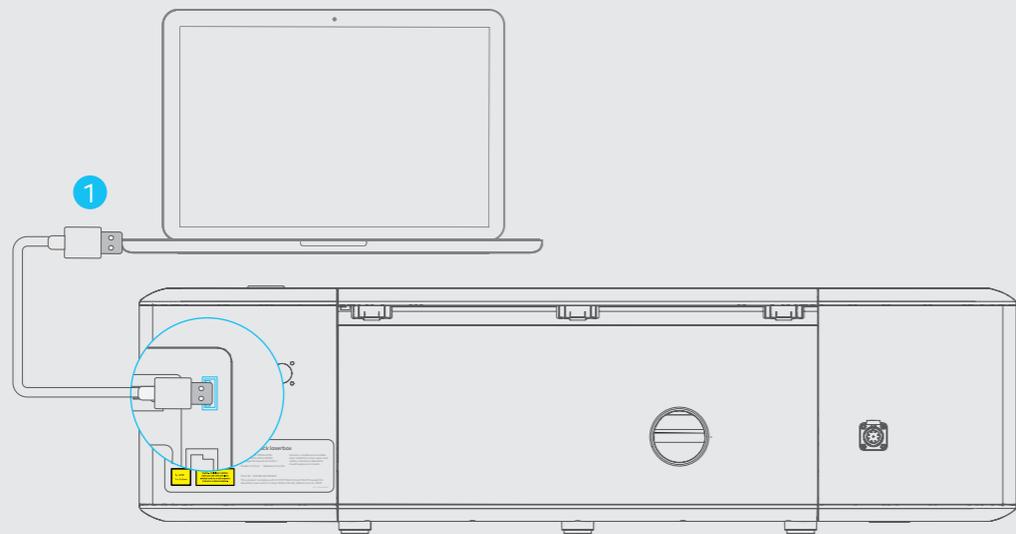
### Connect a computer to the Laserbox

Laserbox software is required for the connection of a computer to the Laserbox. Please download and install the software at the following website.

<https://www.makeblock.com/maker-tools/laserbox>

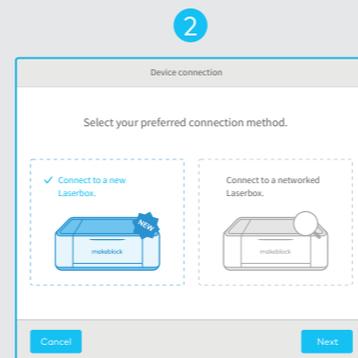
There are three ways to connect a computer to the Laserbox. Choose the best according to your situation.



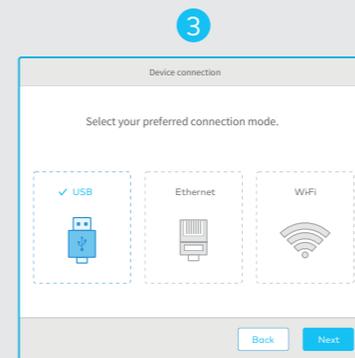


- Connect with the USB cable

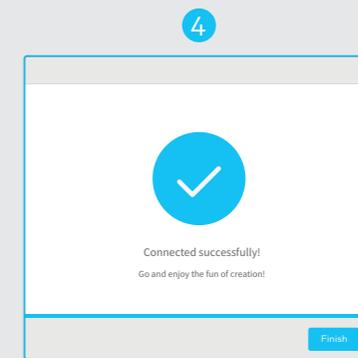
1. Connect a computer to the Laserbox with the USB cable.



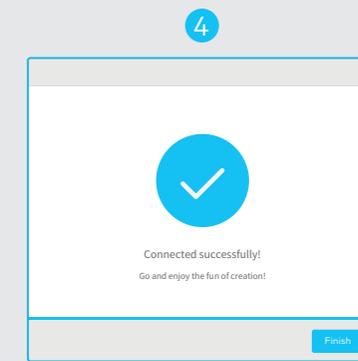
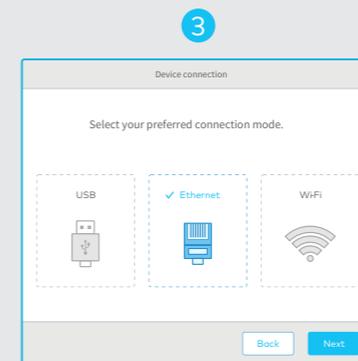
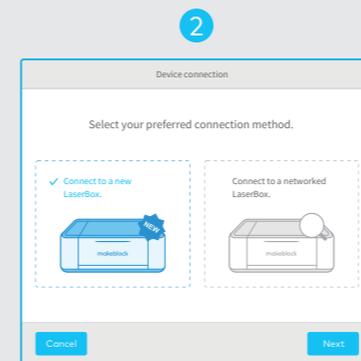
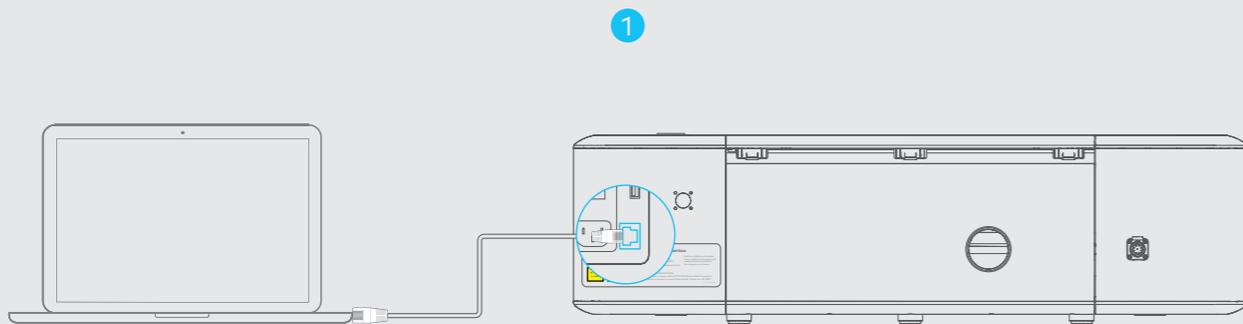
2. Open the software, select “Connect to a new Laserbox” and click “Next”.



3. Select “USB” and click “Next” to start the connection.



4. Successful connection.



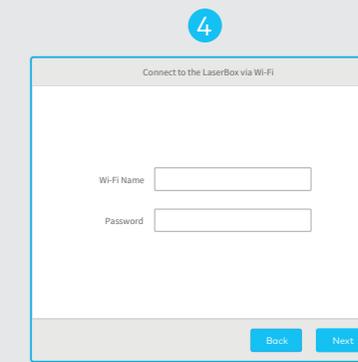
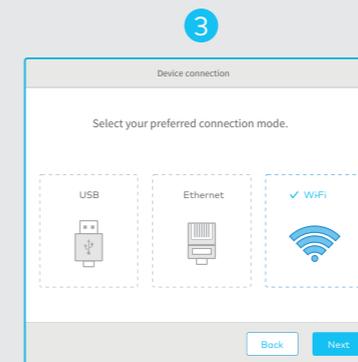
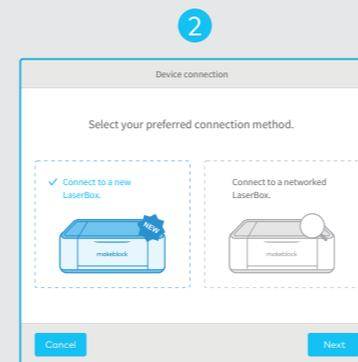
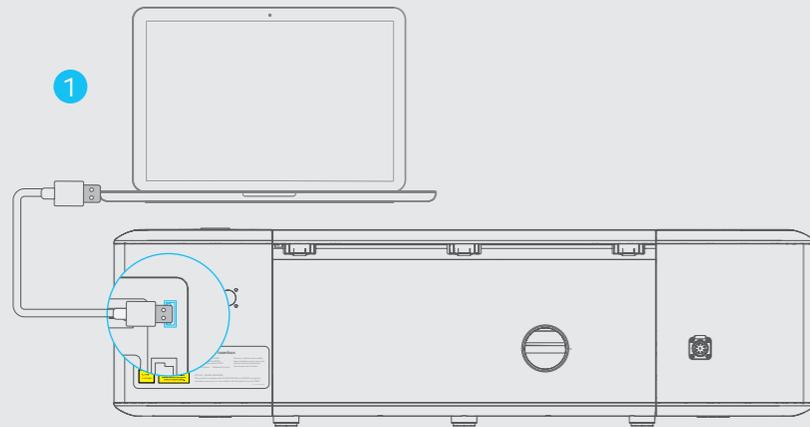
- Connect with an Ethernet cable (not included in the package)

1. Connect your computer to the Laserbox with an Ethernet cable.

2. Open the software, select "Connect to a new Laserbox" and click "Next".

3. Select "Ethernet" and click "Next" to start the connection.

4. Successful connection.



- Wi-Fi wireless connection

1. Connect a computer to the Laserbox with the USB cable.

2. Open the software, select “Connect to a new Laserbox” and click “Next”.

3. Select “Wi-Fi” and click “Next”.

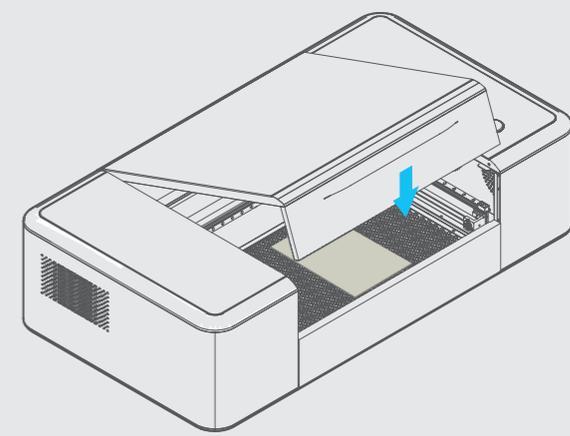
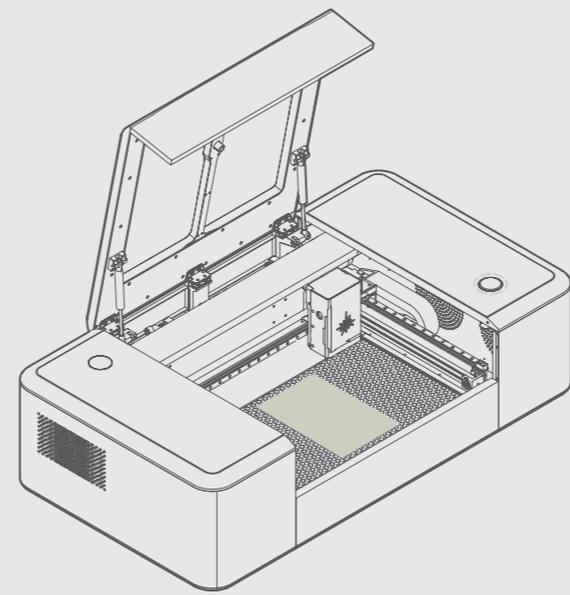
4. Connect to the existing Wi-Fi network.

5. After successful connection, you can disconnect the USB cable and wirelessly control the Laserbox.

Start cutting / engraving



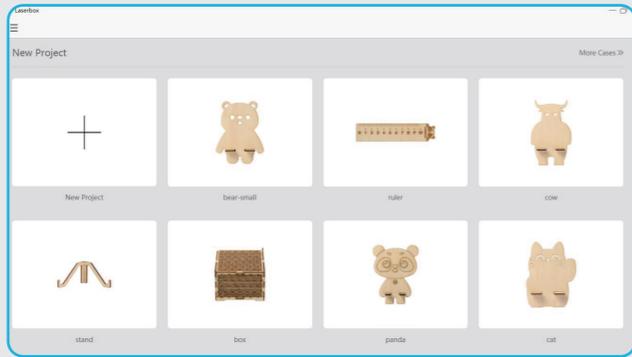
1 Place the official materials in the Laserbox working area.



Note: Cutting/Engraving Material Requirements can be found in the appendix.

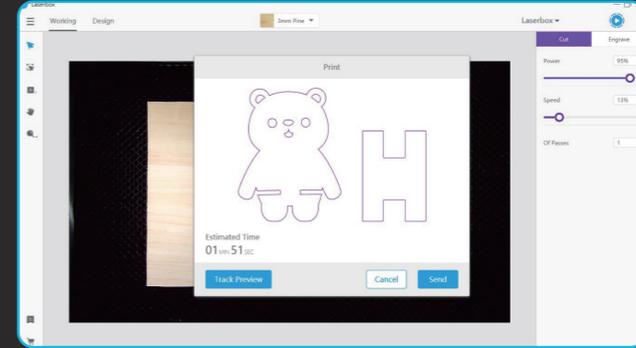
2

Open the Laserbox software and select the sample image. You can also import or draw images yourself.



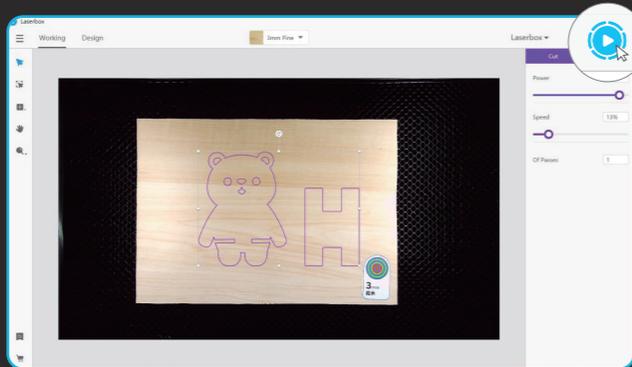
4

Click "Send" to send the image to the Laserbox. After the transmission is completed, the Laserbox would be ready, and the annular indicator would turn flashing blue.



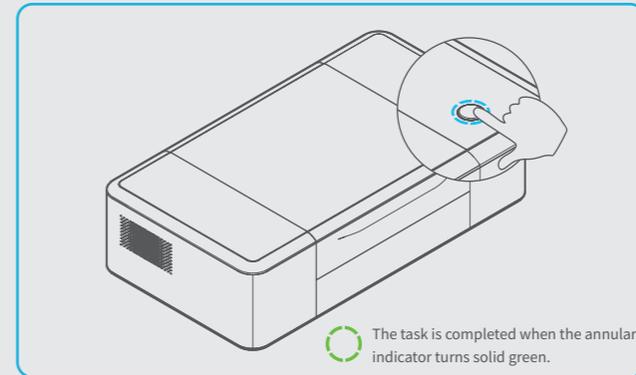
3

Click the "Start" button. The Laserbox can automatically identify official materials and set cutting/engraving parameters.

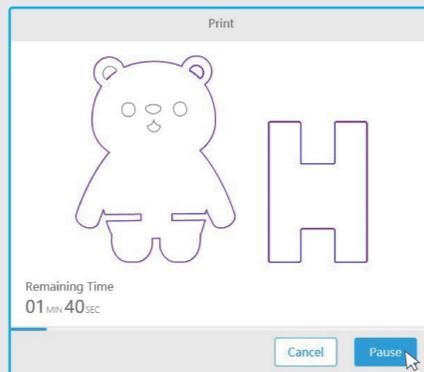


5

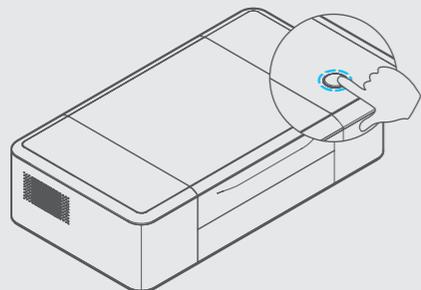
Press the button on the Laserbox to start cutting/engraving.



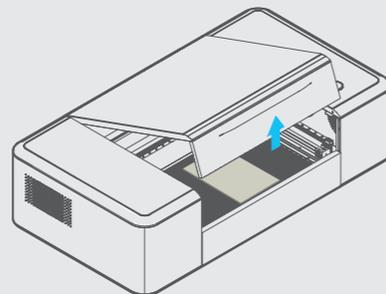
#### Method 1:



#### Method 2:



#### Method 3:



## More Operations

### Pause the task

Method 1: Click "Pause" in the software interface to pause the task.

Method 2: Press the button on the Laserbox to pause the task. Press again to continue with the task.

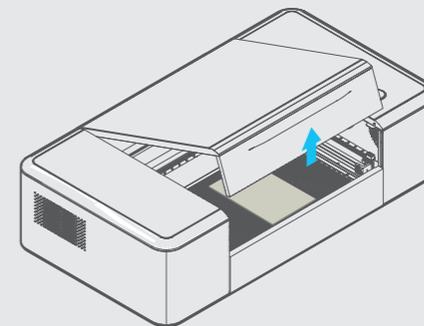
Method 3: Open the lid to pause the task. Close the lid and press the button on the Laserbox to continue with the task.

### Cancel the task

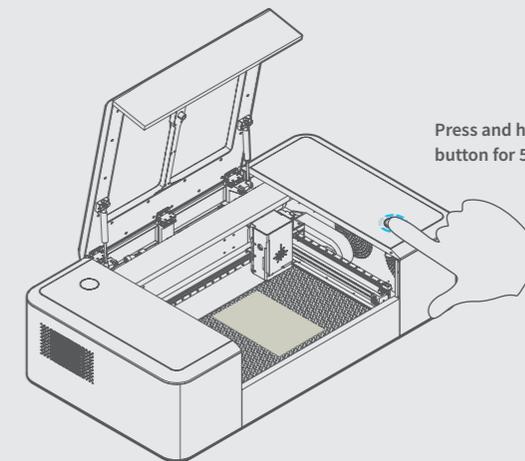
1. Open the lid.

2. Press and hold the button for 5 seconds. After the task is cancelled successfully, you will hear a beep sound and the annular indicator turns from red to blue.

1

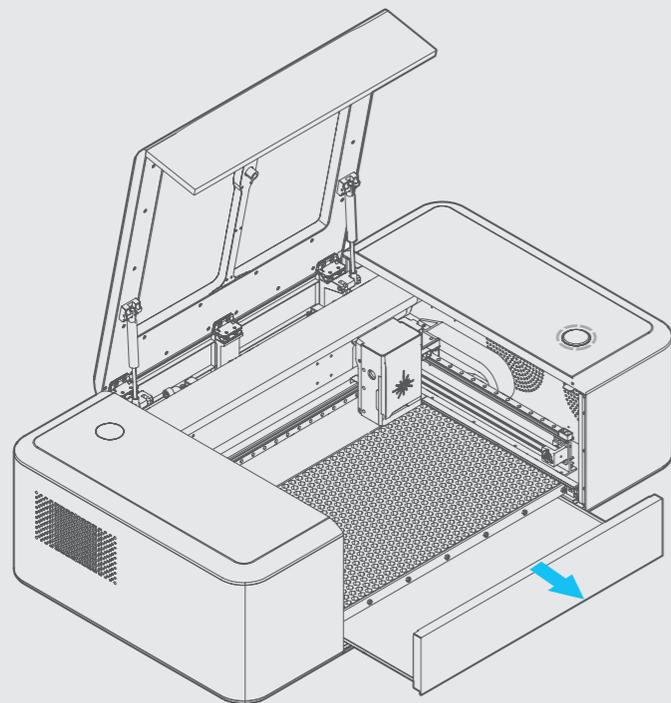


2



Press and hold the button for 5 seconds.

Note: After starting cutting/engraving, you can also cancel the task by clicking "Pause -> Cancel" in the Laserbox software interface.



### Clean chippings

Residues and chippings accumulated during operation of the Laserbox should be cleaned regularly, otherwise it may cause a fire. Pull out the tray as shown to clean up residues and chippings.

## More Features

### Bring sketch to life

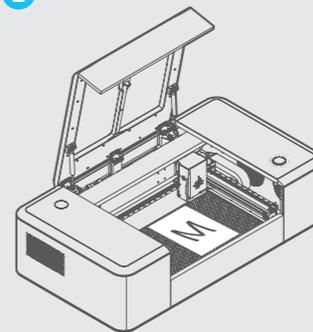
Draw on copy paper or official materials with a black/red oil-based pen. For images drawn with a black oil-based pen, the Laserbox will cut along the contour and the black area will be engraved. Images drawn with a red oil-based pen will be cut directly along the handwriting.

1. Draw an image, preferably with a Deli S550 oil-based marker.
2. Place the material and close the lid.
3. Press the button on the Laserbox to start the task.

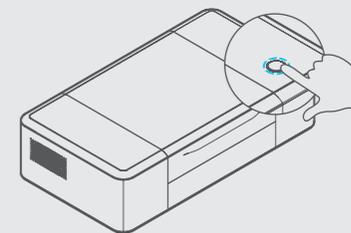
1



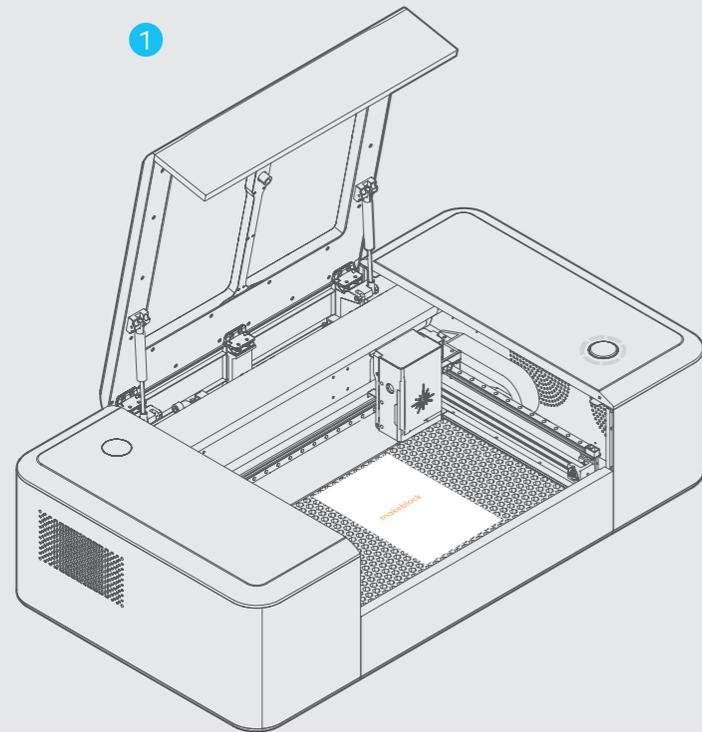
2



3



Note: For optimal cutting / engraving effect, it is recommended to use the Deli S550 oil-based marker, draw the image as far as possible from the ring code and the edge of the material, and place the material in the center of the honeycomb panel. Only with copy paper and official materials, you can bring sketch to life. Damages caused by the use of other materials are not covered by Makeblock's warranty service.



### Image extraction

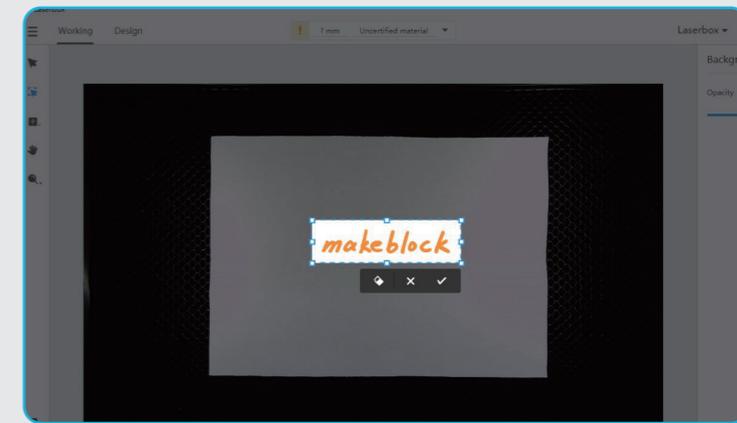
The Laserbox has a built-in camera that extracts the surface image for further creation.

1. Place the object for image extraction.

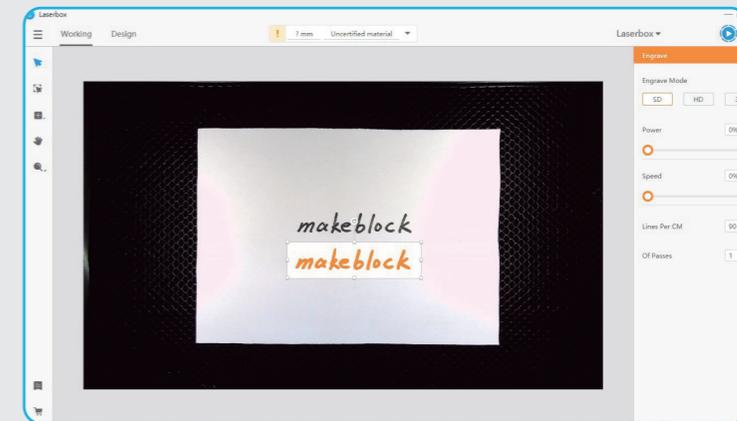
2. Start the Laserbox and select "Marquee" to put the image you want to extract in a selection box.

3. Successful image extraction.

2



3



## Appendix 1: Cutting/Engraving Material Requirements

Maximum dimensions for cutting: 500 (length) \* 300 (width) \* 22 (thickness) mm

Materials for cutting/engraving:

Paper	Cardboard
Wood board	Acrylic
Cloth	Base plate
Leather	ABS-based color board
PET	Rubber
Wood veneer	Glass fiber
Plastic	Corian

Unauthorized materials:

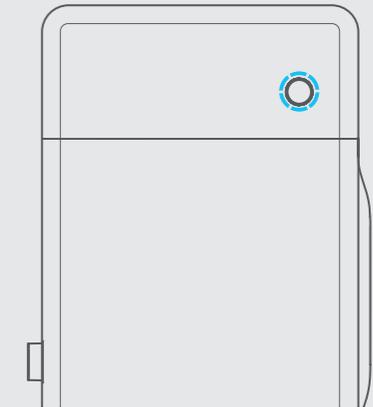
Uneven material
Humid material
Dirty material
Out-of-gauge material

and all materials not included in the list of processable materials.

Note: The use of poor quality materials may result in poor cutting/engraving. It is recommended to use Makeblock official materials.  
The use of the materials not recommended above may damage the device, and the resulting damages are not covered by Makeblock's warranty service.

## Appendix 2: Annular Indicator Status Description

Indicator status	Description
 Flashing white	The system gets started.
 Solid white	Waiting to connect.
 Flashing blue	It is ready and the image has been sent successfully.
 Solid blue	It is in the standby mode and the Laserbox has been connected to the computer.
 Six indicators light up gradually	It is in the working status, and the number of indicators that are ON indicates the current progress.
 Solid green	Completion.
 Green breathing indicator	Sleep mode. It goes into the sleep mode from the standby mode after 10 minutes idle.
 Solid red	Abnormal.
 Solid purple	The Laserbox firmware is being upgraded.



## Product Warranty Information

Category	Parts Name	Warranty Period
Main Parts	PCB, motor, camera, laser tube, guide rail and conveyor belt, etc	Twelve(12) months
Consumable materials & Accessories	Filter cartridge and wood board, power cord, aviation connector, user manual, package and honeycomb panel etc.	No applicable to this Limited Warranty. Makeblock only provides free replacement for the defective part upon receiving.

Notes and instructions:

①The above "warranty period" is from the date of purchase on the receipt, with the invoice date as a reference. Please keep your purchase invoice on record. In the absence of a valid invoice, the warranty period will be counted from the ex-factory date.

② Laser tube warranty terms:

<1> Makeblock promises to provide warranty service if the laser tube has a crack upon arrival.

<2> Within the warranty period, Makeblock promises to provide warranty service if the laser tube has no visible damage on its appearance but it is malfunctioning (for instance, no laser light coming out) during LaserBox operation.

<3> Within the warranty period, Makeblock will not provide warranty service, if the laser tube has a crack on its appearance during LaserBox operation, including but not limited to a crack caused by improper carrying or low operating environment temperature.

## This warranty does not apply to

- Product and parts whose warranty period expires;
- Normal discoloration, wear, tear and consumption;
- Malfunction or damage caused by incorrect or improper use, maintenance or storage, such as: improper handling; use for purposes not as properly intended; improper insertion and removal of external equipment; drop or improper external force extrusion; contact or exposure to inappropriate temperature, solvent, acid, alkali, water immersion and other environments; and breaking & cracking, rusting and damage of products or parts (such as casing, components, circuits, etc.) due to insects, rat bites, or any foreign materials;
- Damage due to installation, repair, alteration or modification by anyone other than an authorized service center or personnel of Makeblock;
- Product or parts whose original identifying information has been modified, defaced or removed;
- Absence of a valid receipt or any other documents that can prove the warranty status;
- Malfunction or damage resulting from uses of software that are illegally licensed, non-standard or not available to the public;
- Malfunction or damage caused by virus infection, hacker attack or other malicious infringements;
- Malfunction or damage due to force majeure or accidents;
- Damage occurred on the product's way back to Makeblock for repair;
- Including but not limited to other non-design, technical, manufacture, quality issue;
- Products can run without interruption or error.

If you run into issues above, please contact relevant parties for solutions, for which Makeblock is not held reliable.

## Special Notes

- The packing of the product, free gifts, consumable parts, and accessories do not apply to this Warranty. If you find any damage upon receiving, Makeblock will provide you free replacement. Please check timely the product after the receipt thereof. Makeblock will charge certain fees if you would add packaging, accessories or require refurbishment service.
- None of any warranty service made by an authorized distributor is covered by this warranty policy, and Makeblock shall not be held liable. In order to receive any benefits from the distributor's warranty and/or other policies, please keep any documents obtained during the purchase.
- In terms of discontinued products or the products which are going to be discontinued, Makeblock will publish relevant announcement and inform authorized distributors to notify customers of the deadline of the Warranty Period. Makeblock and its authorized distributors will terminate the warranty service after the deadline of the Warranty Period.
- The Limited Warranty does not apply to products that were resold by unauthorized resellers.
- To the extent other warranty agreements are made during the purchase, those contracts confirmed by Makeblock shall prevail.

Remarks: Makeblock reserves the right, at its sole discretion, to interpret and amend this warranty policy at any time.

## Product information

Product serial number: