MALYAN

S100 High Resolution Resin 3D Printer

User's Manual

Contents

How this type of printer Works

An LCD based resin printer uses an LCD screen to mask the shape of a layer of your model one layer at a time while using UV lights to cure the resin. Between layers, the printer will lift the print and return it one layer higher than previously. This process is repeated layer by layer to shape the object over time.

Safety Warnings And Guiding

• This 3D Printer includes moving parts that can cause injury. Do not touch the drive parts during printing in case of your hand is pressed.

• Do not leave the printer alone. Wear gloves when you operating this device.

• Do not expose the printer under the sun or in the rain.

• The suitable ambient temperature is 15°-30°, humidity range is 20%-50%.

• Install the power supply unit before connecting the power cord to the AC outlet.

• Connect the printer to an input electrical network of 110~240V AC, 50/60Hz, with an operating voltage of 12V.

• Check the circuit before printing, cut off the power supply when it's emergency, remember to turn off the printer before unplug the power cord.

• This device is intended for indoor use only.

• Operate the machine in stable and level surface with enough space.

• Set the machine far away from the light, and operate the machine as far as in the dark.

• When any resin or liquid is found inside of the machine, please clear it immediately.

• Clean your skin immediately if it touches with resin.

• Clean the resin box after printing.

• Keep the printer and all accessories out of reach of children.

Package Contents

1 x 3D Printer

1 x Memory Card

1 x Hex Wrench
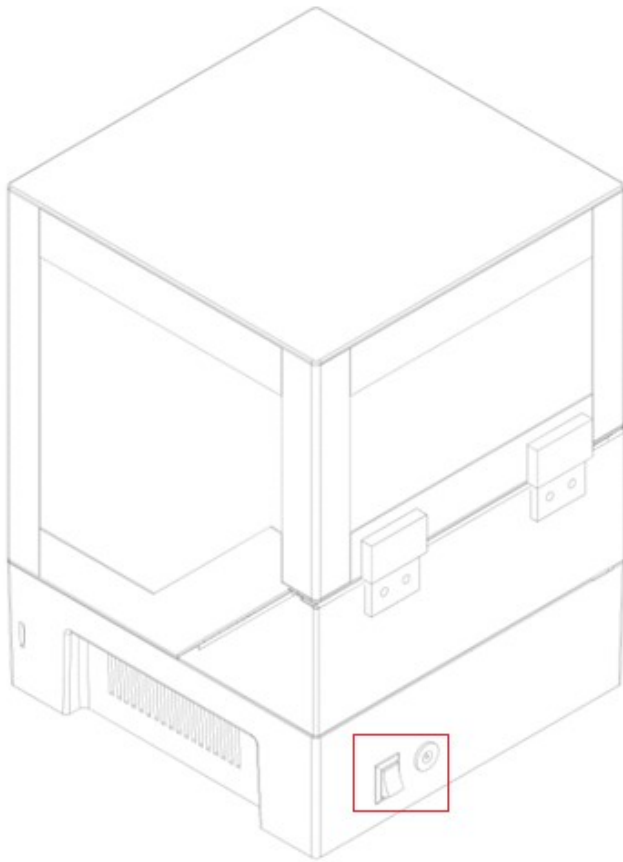
1 x Sample Resin

1 x Power Adapter

1 x AC Power Cord

Product Overview

1. Acrylic cover
2. Leveling Knob
3. Printing Platform
4. Resin Tank
5. LCD display
6. Control Buttons
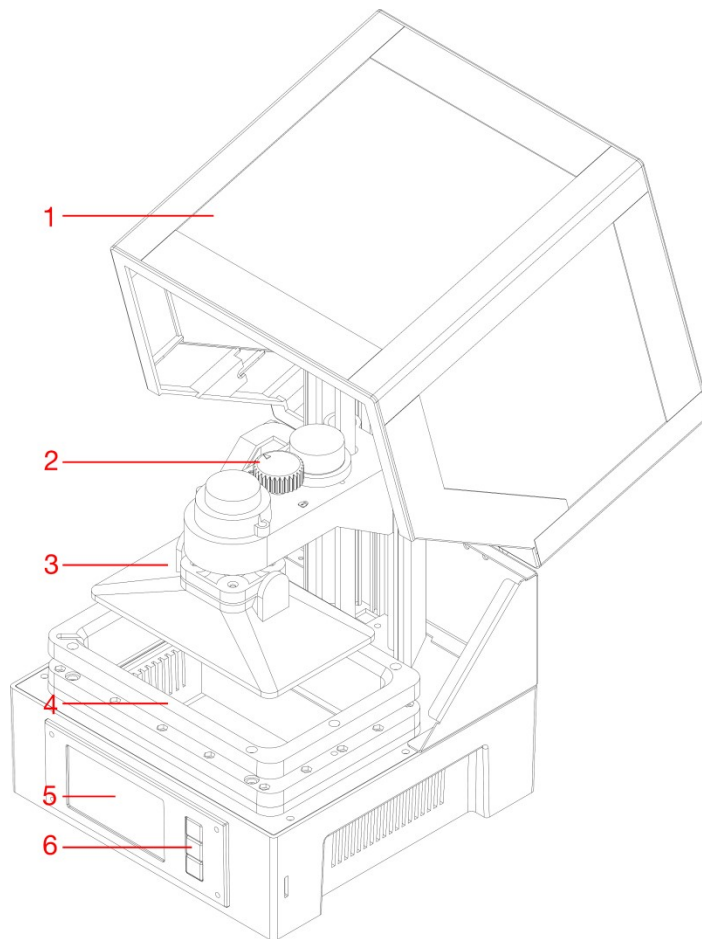
Connect

Connect the power supply to this position and power on the machine.

Auto Calibration

The printer will automatically calibrate the build platform when homing and starting a print. It will calibrate the platform automatically. This function requires the vat to be free of cured resin particles. Please see the troubleshooting section for more detail.

Using The Menu System

• Pressing the top button will change the menu choice left and up.

• Pressing the bottom button will change the menu choice right and down.

• Press the top button to while editing a value decreases that value.

• Press the bottom button while editing a value increases that value.

• Press the center button to activate the selected menu item or to save an edited value.

User Interface

Main Menu
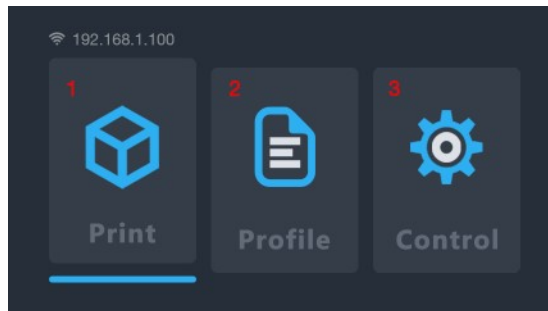
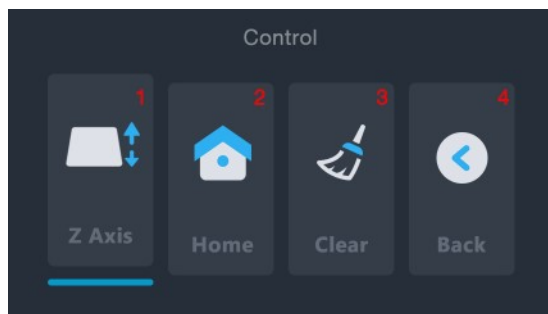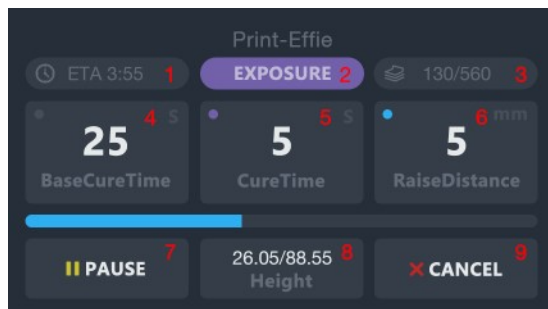1. Print from SD card.

2. Manage profile file

3. Manual control page.

Control Interface

1. Control the movement of Z axis.

2. Back to the home position.

3. Turn on the UV lamp for 10 seconds. This can be used to clean the resin vat by curing an entire layer and peeling that layer from the FEP liner.
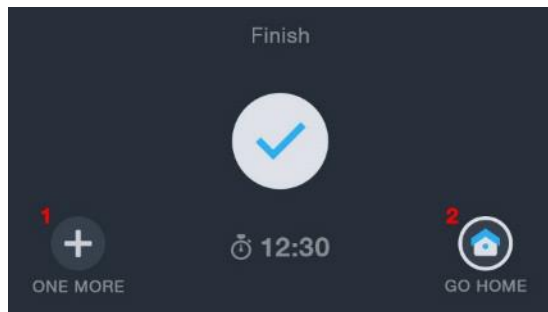
4. Back to the Main menu.

Printing Interface

1. Estimated printing time remaining

2. Printing status

3. Printed layers/Total layers progress

4. Adjust the cure time of the base three layers

5. Adjust the cure time for layers other than the first three base layers

6. Adjust the raise distance

7. Pause the printing

8. Printed height/Total height progress

9. Cancel the print

Finish Screen

1. Print the same model again

2. Back to the main menu

WIFI Setup

1. The below screen will be shown upon powering on your printer.
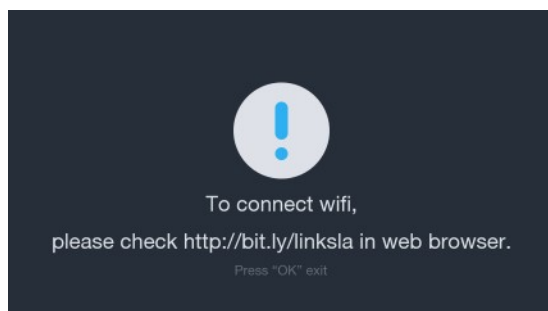
2. Enter the provided URL into your computer's browser: http://bit.ly/linksla. While on the http://bit.ly/linksla web page on your computer's browser, enter the SSID and Password for your Wi-Fi network. This will create and download a file which provides the information for the printer to connect to your Wi-Fi network.

WIFI connection guide

Please input ssid and password in the left. Then save config file to microSD card and select file in printer. When printer is connected to your wifi, you will see connect button below.

Scan

3. Copy the generated file onto the SD card that came with your printer. Turn off the printer, insert the SD card, and turn the power back on. Upon turning the printer back on, the file will be detected on the SD card and will configure your printer to connect to the SSID and Password provided in step 2.

Please note, this printer is designed to use a 2.4 GHz network band. Additionally, please ensure that the printer is placed in a location with a strong Wi-Fi network signal.

To change the network in the future, repeat step 2.

4. Upon completion, the below screen will display. The file that was loaded onto your SD card is automatically deleted. If your printer fails to connect to your network:

Verify that the SSID and Password for your Wi-Fi network is accurate and repeat step 2 forward.

Verify that the printer is in a location with a strong Wi-Fi signal.

Verify that the network you are attempting to connect to is a 2.4 GHz band network, and not a 5 GHz band.
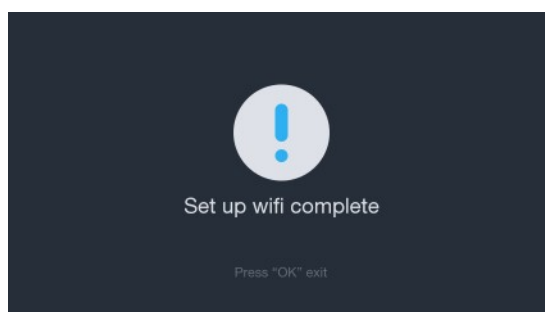
5. Wi-Fi is not mandatory to use the 3d printer. You are able to transfer files via SD card.

WEB UI

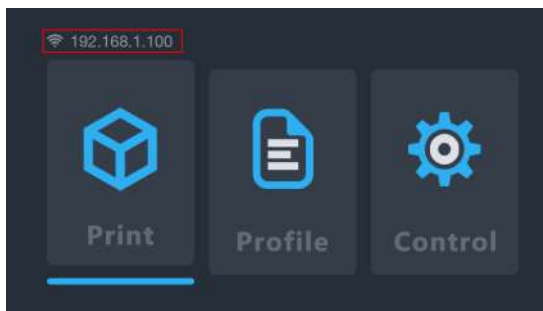1. The status of your Wi-Fi connection can be seen on the home screen in the top left hand corner. Once the printer is connected to the Wi-Fi network, it will display the IP address.

　　To access the Web UI, please enter the IP address into the browser on a computer connected to the same network.

2. To prevent others from potentially tampering or controlling your printer remotely, there is security verification on the first access of the Web UI. The access code to connect will be displayed on your printer at this time. Please enter the access code enter the prompt.
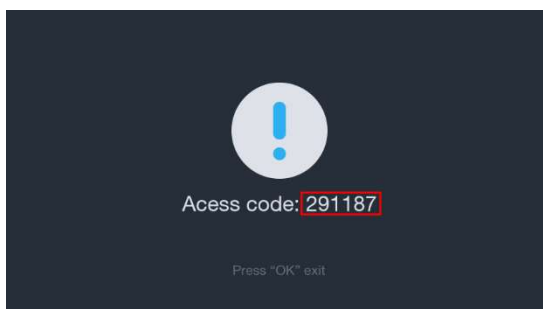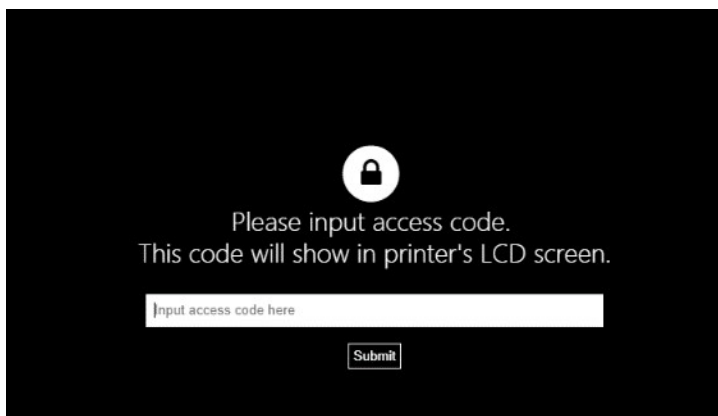
3. WEB UI introduction
　　(1).The exposed image while the print is processing

(2).Printer Management

(3).Upload print file

(4).Select the file and click the "Print" button to start printing.

(5).Profile management

   (a).Resin: Name of the profile file

   (b).Burn in second: the cure time of the base three layers

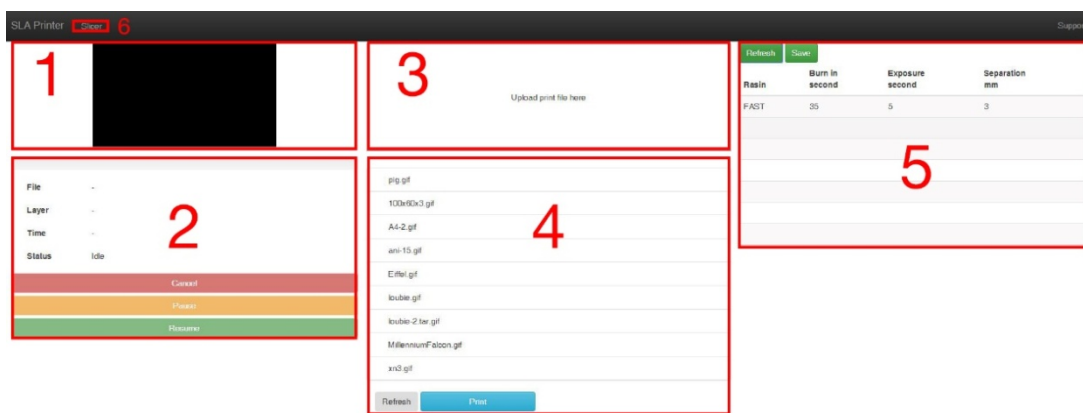   (c).Exposure second: the cure time for layers other than the first three base

layers

   (d).Separation: the raise distance

(6).WEB Slicer

4. WEB Slicer

   (1) Upload print file

   (2) Adjust the parameter

   (3) Edit the STL file

Troubleshooting

1) If the print finishes and there is nothing on the build plate there are 3 potential reasons:

a) The first layers did not cure enough and the print has fallen off of the build plate. Increase the base cure time. For Malyan resin, 60 seconds for the base cure time will work. Other resins may require different amounts of curing time.

b) The platform did not level correctly. Verify that there are no small particles of previous prints in the resin vat, as this will disrupt the leveling process. Keeping the resin vat clear of small pieces of cured resin is a necessity.

c) On the Control Interface, run the "clear" function without the resin vat to verify that the LCD screen on the machine is turning on and off.

2) If the first few layers have adhered, but the remainder of the model is missing:

a) The cure time for your resin is not long enough. The model likely fell into the vat and it will be necessary to remove it before attempting to print again.

b) You have not supported the piece properly. If the print is held in place by supports, you may need to add more supports to overcome the weight of the object as its printing.

*Please note that you must keep the vat clear of particles and partially cured resin. When this error occurs, it is not uncommon for cured resin to stick to the FEP lining in the bottom of your vat. Best practice to clearing this type of obstruction:

I) Use the provided hex key to undo the two screws on the left and right hand side of the resin vat.

II) Remove the resin from the vat into a separate container. We recommend a new, empty container and strongly against pouring resin from the vat into the original resin bottle as this can result in small pieces of cured resin to contaminate the otherwise clean resin.

III) Use a plastic spatula, plastic tweezers, or expired banking card to gently peel the resin from the FEP lining. Take care, as the FEP lining is thin and can be torn if approached too aggressively.

IV) This moment can be used to clean the resin vat, but it is not necessary. Remove any remaining pieces of cured resin from the vat, and reinstall it onto the printer.

When printing the first few layers, you can click the "Pause" button to raise the print platform, so that it will be easy to observe whether the first layer adherence to the platform. if there is no problem, click the "Continue" button to continue printing, if there is nothing on the build plate, stop the print and try the previous troubleshooting steps to prevent wasting time and resin. Be sure to clear the vat of any cured resin before starting again.

If a part of the model is on the platform and the other part is at the bottom of the vat, you may need to increase exposure time, or increase the lift height giving the resin more time to flow.

Model deformation or having no details can be solved by shortening the exposure time or by adding a solid color paste or reducing the print layer.

Model Cleaning

Once the print is finished, remove the platform and use a metal putty knife or spatula to remove the print from the platform.

After removing the print from the build platform, use a spare container with Isopropyl Alcohol to clean the print by submerging in the alcohol and shaking vigorously for a short period of time. An ultrasonic cleaner can also be used for this process.

Cleaning time should not be more than 5 minutes. If too long, details on the model will soften and the model surface will begin to whiten. The smaller details in the final print, the shorter the cleaning time should be.

Once cleaned, set the print in a sunny location or under UV light. Curing times will depend on the resin you are using.

During the cleaning process, if you use a soft brush to clean, the surface will be smoother.

About Resins

Resin storage

Resins should be kept in the dark and ventilated place, storage temperature: 20°C-30°C, lower temperature can extend the shelf life, the official resin shelf life is one year.

Resin operation

When operating, please wear gloves and avoid direct contact as possible. Cured resin is safe to be handled without gloves. If exposed to skin, wash the exposed location promptly. Printed models should not be used for food applications.

Safety and Resin

There are many types of resin and many manufacturers on the market. Because of this, this section is to serve as general best practices to be aware of when working with resin:

Wear gloves when working with uncured resin.

Keep out of reach of children.

Do not drink or eat the resin.

Safety glasses are recommended (splashing can happen to anybody).

Most manufacturers will have a safety data sheet available, and it is recommended to research the resin you will be working with.

Transferring Resin to Storage

When you use resin, small bits can be cured unintentionally. For this reason, we do not recommend mixing resin that has been used back into the original bottle of resin. Doing so may result in unintended flecks of cured resin which can lead to unintended print defects. You can filter the resin through a sift or fine mesh to get those bits and pieces removed.

That being said, we recommend storing resins that have been used into a separate container. Ideally the container is black, and should have a lid. The container should be stored in a dark, ventilated place to prevent curing while being stored.

Discarding Resin

Before discarding resin, it should be cured fully. A clear, disposable cup can be very

useful to cure unwanted resin prior to throwing it away.

Tips

1. Check the resin box and platform before printing ensure they are clean.

2. After taking out the model, remember to cover the lid to prevent the resin curing.

3. After finish printing, you can keep the resin in other container or in the resin box. After using, the storage period of resin will be correspondingly shorter, and need to run out as soon as possible, add fresh resin can effectively improve the shelf life of the resin.

4. If the print fails, and the model sticks to the bottom of the vat, refer to the print failure section on how to remove.
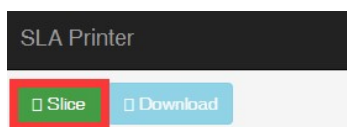
WEB Slicer

Pleas click the "Slicer" button to enter the WEB slicer
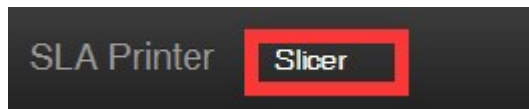
1.Upload the STL file. You can also drag and drop into the slicer on the Web UI.
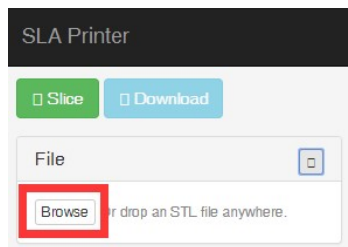
2.Adjust the parameter or rotate your STL file by "Build volume" and "Transformations"

3.Click the "Slice" button to start the slicing.

4. After the slice finished, click the "Download" to save the GIF file on your computer and copy it onto the SD card. Insert the SD card into your printer, and then you can start a print.
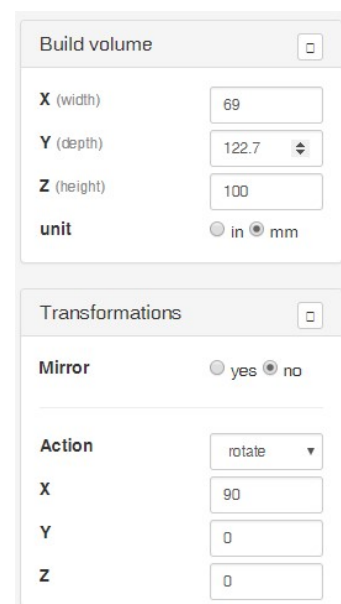
Creation Workshop Tutorial

Here we introduce the settings and slicing steps.

Run the "Creation Workshop" program in the "Creation Workshop" folder.
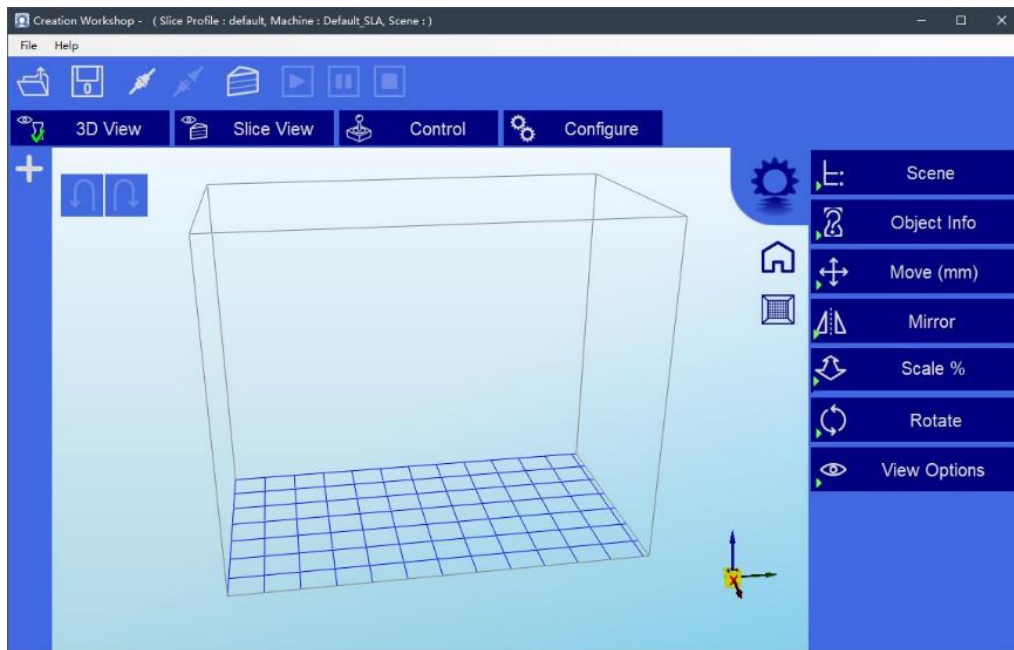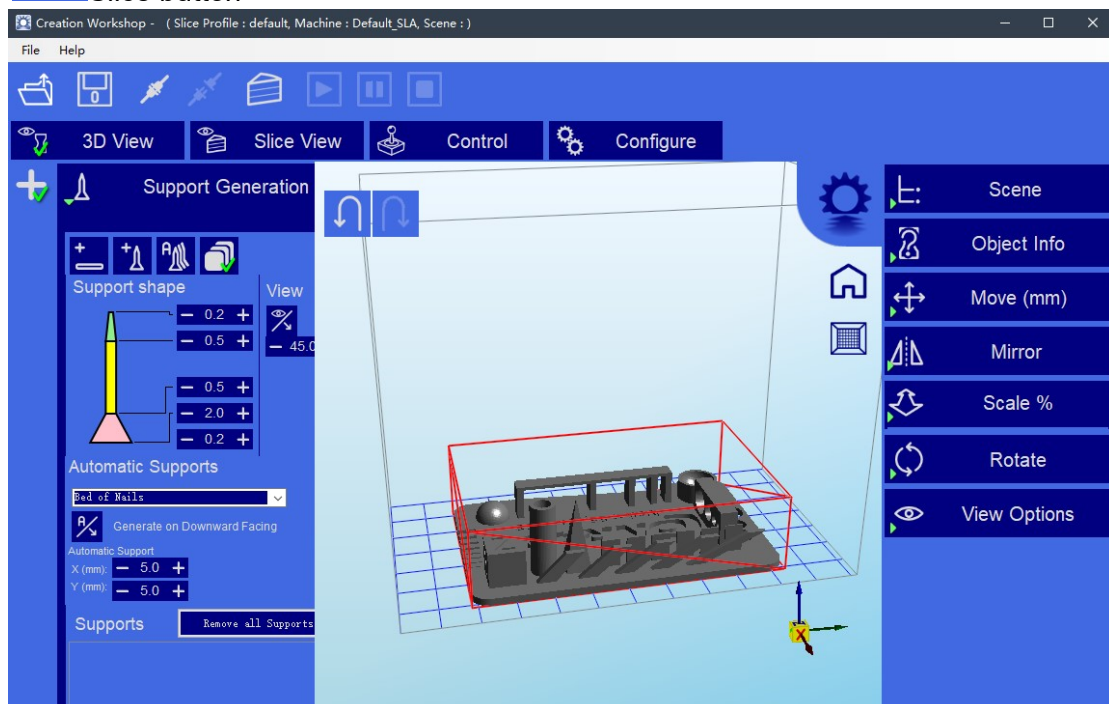

Import model (support STL, OBJ format)
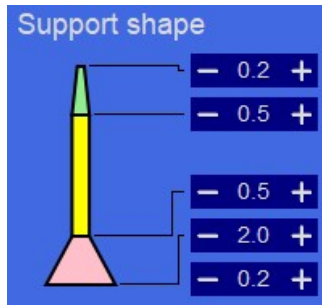
Save in the Creation Workshop format

Slice button

After importing the model, you can add support as needed.

Click the to open the support option, click where you need to add the support,then the support can automatically generate.

The other two buttons are (bottom support) and (automatic support).

The thickness of support can be adjusted, the top must not be less than 0.25MM, the root not less than 0.6MM.

If you model by using PRO/E and CREO, FRONT face is the "bottom" of the model instead of TOP.

The imported model may differ in size and location from the print area and can be adjusted by the property bar on the right side of the control center.
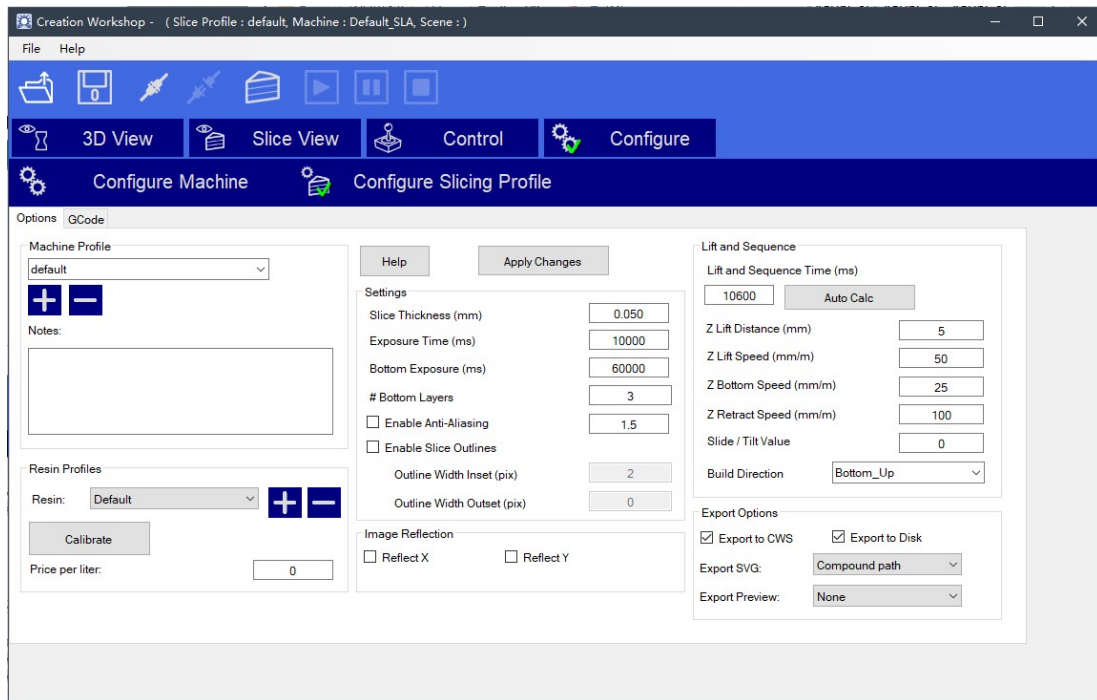

Among the above function, "Move (mm)" comes with three small features, you can easily locate the model quickly.

These three functions are "Fit the base" (hope that you press the button before each cut, because some models are not fit the base); "XYZ axis absolute in the middle" and "model in the middle".

"Enable Slice Out lines" is the feather value option (set the value, the more the more smooth), feather rate can reduce the model pixel pattern. The general value of 3 or more, can effectively alleviate.

"Slice Thickness (mm)" setting range: 0.02-0.1mm.the default is 0.05mm, the smaller the thickness is, the higher the accuracy will be, and more time the printing will need. Exposure time can be reduced if the layer thickness is smaller.

"Exposure time (ms)"can be set according to the actual situation. Default 15 seconds, print smaller and simple structure model can reach up to 3 seconds. If the details of the print cannot be showed during the printing, then increase the single exposure time. For some models with holes, the shorter curing time will be better. While for models with smaller columns, the longer the curing time is, the better effect will be.

"Bottom exposure (ms)" default 60 seconds, when printing smaller and simple structure model, it just need 5 seconds to stick to the platform in some cases. Increase the exposure time if the model cannot stick to the platform. The longer the exposure time is, the more tightly the base will stick.

"Z-axis lift distance (mm)" can beset according to the model size, if the area is too large but the lifting height is low, the resin cannot be returned to the middle of the model, resulting in bubble in the middle part, defect or print failure----just raise the

height of the Z-axis table.

"Z-axis lift s peed (mm/m)" default setting: 100mm/m, the setting range is recommended between 50-150mm/m.

"Z-axis retraction s peed (mm/m)" default setting: 100mm/m, the setting range is recommended between 100-150mm/m.

Note: Remember to click the "Apply Changes" button to take effect after your setting is completed.
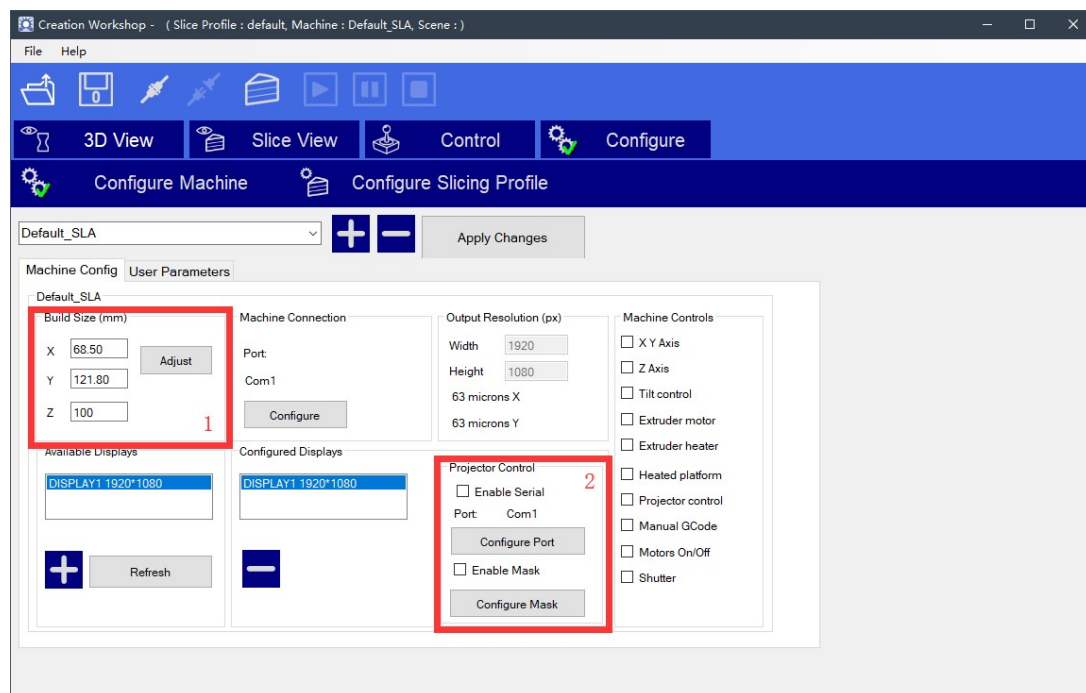
If Print Size has a slight deviation from the actual size, you can change the display size; correct the print size by adjusting the XY value of the "Build Size (mm)"

Note: Remember to click the "Apply Changes" button to take effect after your setting is completed.

Model Slicing Steps

1. Import the model that needs to be printed.

2. Edit the model.

3. Save the model.

4. Start slicing.

5. Copy the CWS file into the SD card or send the file over the network, then you can print the model you need.

REGULATORY COMPLIANCE

Notice for FCC

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.

Modifying the equipment without Malyan's authorization may result in the equipment no longer complying with FCC requirements for Class B digital devices. In that event, your right to use the equipment may be limited by FCC regulations, and you may be required to correct any interference to radio or television communications at your own expense.

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.

Modifying the equipment without Malyan's authorization may result in the equipment no longer complying with FCC requirements for Class A digital devices. In that event, your right to use the equipment may be limited by FCC regulations, and you may be required to correct any interference to radio or television communications at your own expense.

The equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Notice for Industry Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.