da Vinci Super
User manual

ENG

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The manual is mainly intended for users to understand how to use the da Vinci Super 3D printer ("da Vinci Super") correctly. In this manual, users can learn more about the operating tips, application skills and maintenance of the da Vinci 3D printer.

For more information on the da Vinci Super 3D printer and the complete XYZprinting product line, please contact your local dealer or visit the official website of XYZprinting: http://www.xyzprinting.com.

Safety Precautions

● Safety and Compliance

Please read through this manual and all safety precautions carefully before using, operating, unpacking, replacing, removing any part or maintaining this product. Please also comply with the instructions of relevant safety precautions.

● Important Safety Precautions

- Do not move the machine by yourself as it is heavy.
- Do not place the printer on a soft or tilted surface. Otherwise, the machine will fall / flip over and become damaged or cause personal injury.

- Do not place the printer in a dusty, humid or outdoor environment.
- Weak odors may be generated during the printing process. We recommend working in a well-ventilated
- and open area to ensure operational comfort.
- Do not leave the product or power cord to unattended children. Otherwise, personal injury or electric shock might occur.
- Use the provided power cord. Otherwise, incorrect grounding might lead to damage.
- Do not place any liquid container on top of the product. Otherwise, overflow or spill might go into the machine and pose the risks of danger or safety concern.
- Do not wipe the printer with alcohol or flammable chemicals. Otherwise, danger might occur.
- Do not move the machine when it's powered on.

- Do not reach into the machine with your hands during operation. Otherwise, risks of impact from moving printing parts or burn from high temperature might occur.
- The machine becomes hot during operation and thus run in high temperature. Do not touch or replace parts when they are not cooled down.
- After startup, the parts in the machine will heat up or move depending on the user's instructions. During product operation, do not touch or block the operation of the parts.
- Defect reparation must be carried out according to the contents of this instruction manual. Where the defect cannot be repaired, please contact your printer dealer or the customer service center.

● Trademarks

All trademarks and registered trademarks are the properties of their respective owners.

Product instructions

① 5" color touch panel
② Rear feeding motor
③ Print bed
④ Filament holder
⑤ Print head
⑥ Power inlet
⑦ USB socket
⑧ Power switch
⑨ USB Port

● **Accessory List**

● USB drive
(including XYZware Pro installer, da Vinci SUPER user manual and XYZware Pro user manual)

● PLA filament

● Power cord

● USB cable

● Filament guide tube

● Front-feeding motor

● Wireless

● Top cover
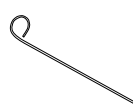
● Mask tape

Precautions and Instructions of Maintenance Tools

⚠ The following maintenance tool shall only be used with adult guidance or supervision. To prevent accidents, do not allow a child to access maintenance tools without proper training.

Scraper   Print head cleaning wirewire   Feed hole cleaning wire   Wire brush   Gear cleaning brush

- Make sure the maintenance work of the printer is carried out when the printing bed is cooled down.
- When printing is completed and the printing bed is cooled down to room temperature, the printed object can be removed from the printing bed with the scraper.
- Filament residues generated during the course of printing may be stuck on the print head and gears of the printing module. The printing quality and printer operation as well as the measurement of the printing bed may be affected. When this happens, clean the printing module with the wire brush.

● **Maintenance and Service**

When the printer needs to be serviced during the term of the warranty, it is recommended that the machine is packed with original packaging materials prior to shipment. For this purpose, the packaging materials are better to be kept. If other packaging materials are used instead, the printer might be damaged during printing. We reserve the right to assess relevant service fees.

Unboxing and Installation

1 Remove the plastic wrap and PP strap.
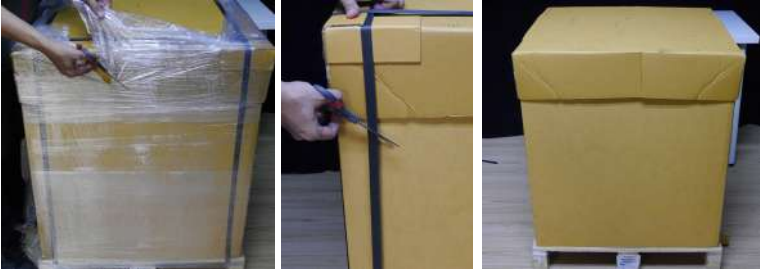
2 Remove the top cover.

3 Remove the top cover box and the packaging materials.

4 Remove the side of the carton .

5 Remove the assessory box.

6 Place the printer on a table or platform (please do not move the printer alone).

7 Remove all tape from the body (4 pieces in total).

8 Remove the foam next to the guide screws on both sides, and then remove the foam under the print bed. (total 4 pieces)

9 Remove the cable tie and foam situated behind the front door.

10 Insert the guide tube through the top cover, and then insert one end into the extruder module.

11 Insert the other end of the guide tube into the feed module and secure it tightly.

12 Plug-in the power cord

13 power on the printer.
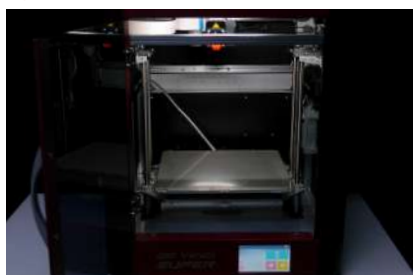
Product specification

Printing technology	FFF (fused filament fabrication)
Dimensions (W*D*H)	511*581*670 mm
Gross weight	35.5kg
Printing dimensions (W*D*H)	Front-feeding motor: 290 x 290 x 300 mm
	Rear-feeding motor: 300 x 300 x 300 mm
Print resolution	0.02 - 0.4 (mm)
Automatic feed system	Yes
Printing bed heating	Yes
Automatic printing bed calibration	Yes
Print head diameter	0.4 (mm)
Print material	ABS / PLA / TPE / Tough PLA / PETG , open-filament
Language	Multi language
Connection method	USB 2.0 / Wi-Fi
Printing software	XYZware Pro
File format	.stl / .3w
Operation System	Windows 7+ / Mac OS X 10.10 to 10.12

Touch Screen Menu, Functions and Messages

● Main screen

Shown below: (1) USB Printing Menu (2) Filament loading and unloading and (3) Settings.

● USB printing menu

This menu can be used to directly import files (.3w file) from a USB drive to the machine for printing.

● Filament Installation and Removal

Includes Temperature Auto-Detect for XYZprinting filament, and a manual setting for 3rd party filament, as well as Load and Unload functions for filaments.

● Settings

Functions shown on page 1 include:
Print-Bed, Print-Head, Filament, Wi-Fi, Language, and Display.
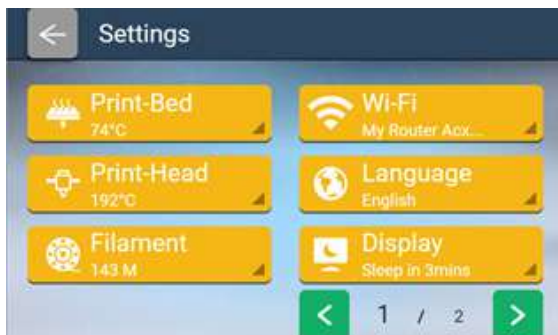
Next page includes:
Sound, Statistics, Model, Version, Legal Info, and Reset.
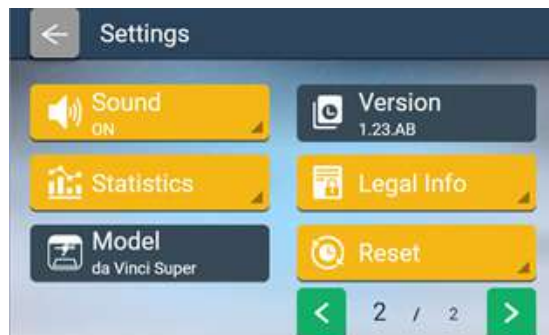
Function Operation and Instructions

- **USB printing**

    1. Check if the USB drive is plugged to the machine.

    2. Tap the USB Printing Menu in the main screen.

    3. Select the file (.3w file) to print.

    4. Check file information and tap "PRINT".

● Loading the filament

1. Remove the side cover and place the filament on the side of the machine.

2. Tap Filament Load and Unload in the main screen.

3. Tap Load.

4. Confirm the operation.
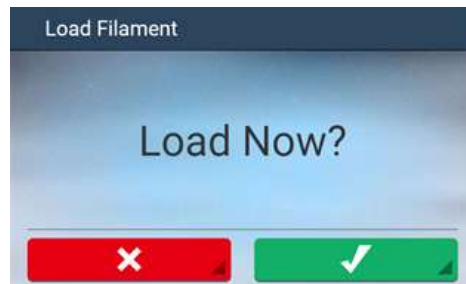
5. Insert the filament into the auto-feed module.

6. The print head will pre-heat until it reaches 240°C (XYZprinting PLA).
Once the set temperature is reached, the feeding motor will feed the filament along the guide tube into the print head.

7. Once the print head extrudes filament in a continuous thread, loading is complete. After the filament is loaded, tap to confirm.
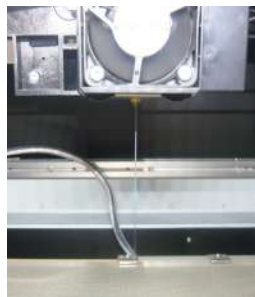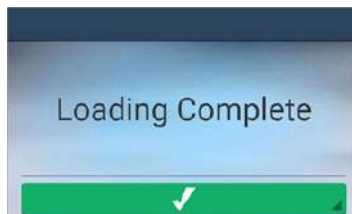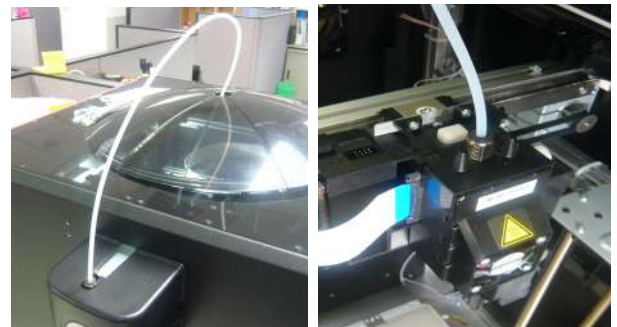
● **Unloading the filament**

1. Tap Filament Load and Unload in the main screen.

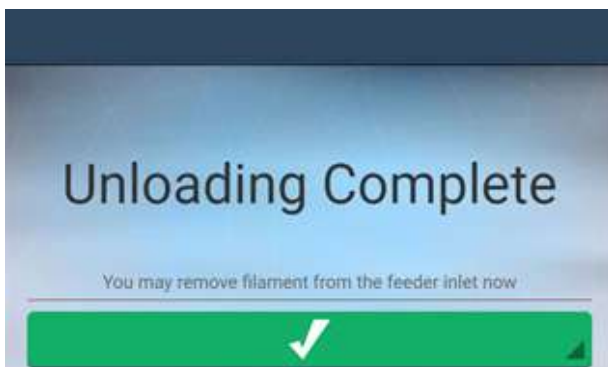2. Tap "Unload" and confirm the operation.
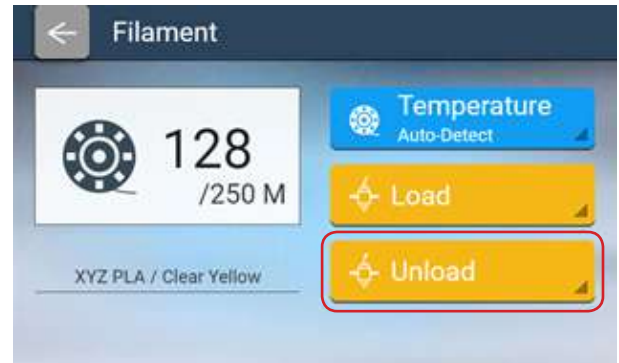
3. Confirm the unloading operation.
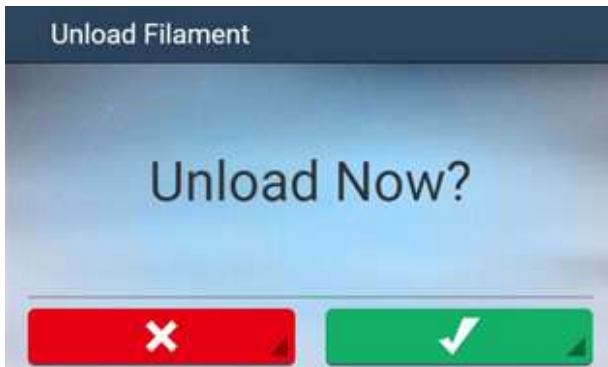
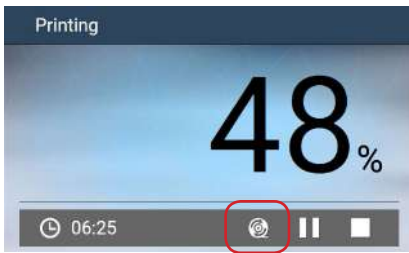4. Once the print head pre-heating reaches 240°C, the feeding motor will unload the filament.
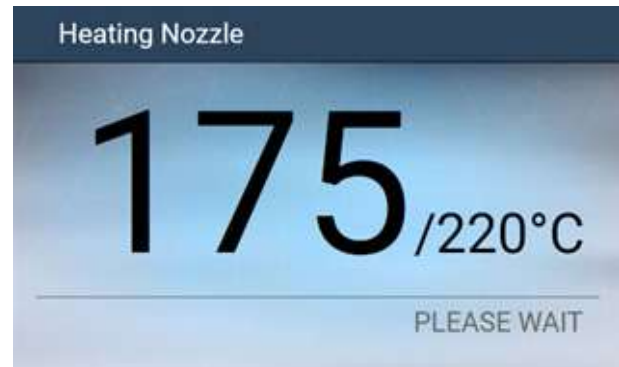
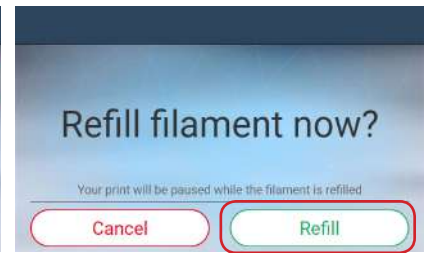5. When the unloading operation is complete, tap to confirm.

- **Filament Installation (Refill)** da Vinci Super will prompt you to refill material.
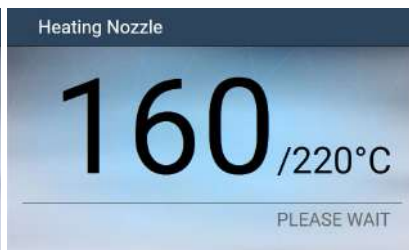
1. Tap the icon when printing.
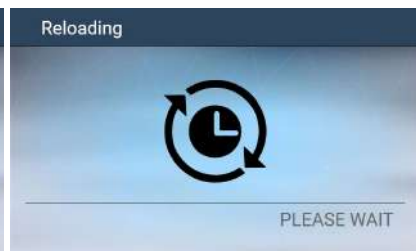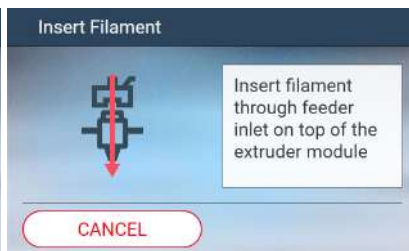
2. Tap Refill Filament and then tap Refill.

3. The nozzle will be preheated and the filament will be unloaded automatically.

4. Replace the empty spool with a new one. (please refer to the LOADING section in this manual) and then tap "PROCEED".

5. The nozzle will be preheated and the machine will notify you when to insert filament into the feed module.

6. Check if filament has been extruded from the nozzle, after confirmation, the printer will resume printing.
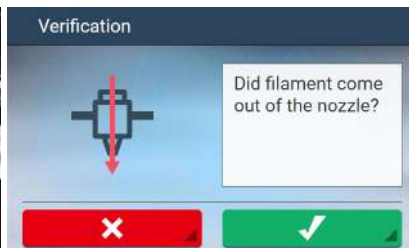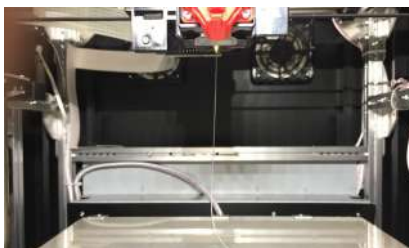
● Temperature settings

da Vinci Super allows the user to use different materials or third party filaments. To satisfy the parameters or characteristics of various filaments, da Vinci Super allows the user to manually adjust extruder temperature, printing bed temperature, and filament unloading temperature.
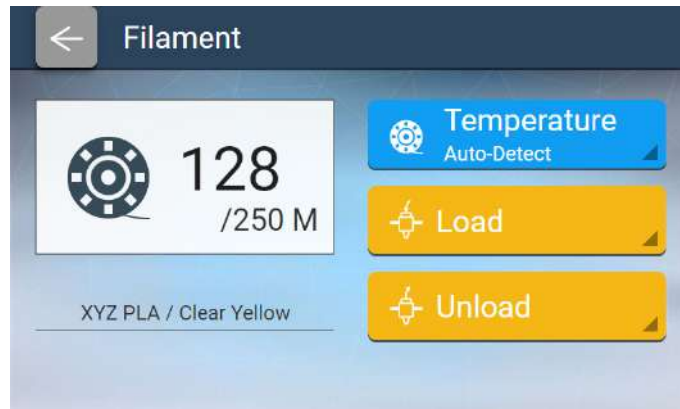
● Auto-detection (Auto)

The printer will automatically read the NFC chip provided on the XYZprinting filament spool to automatically adjust extruder temperature, printing bed temperature, and filament unloading temperature.

● Manual settings (Manual)

You can adjust the nozzle temperature, print bed temperature and nozzle unloading temperature, to suit you filament type.
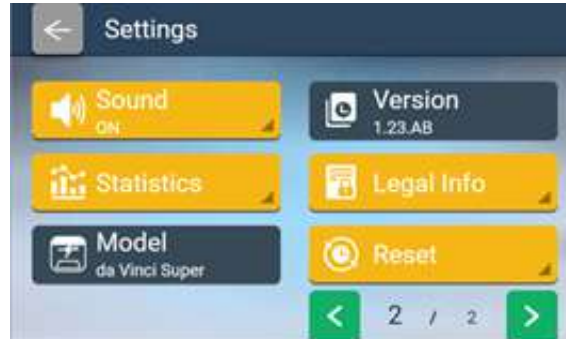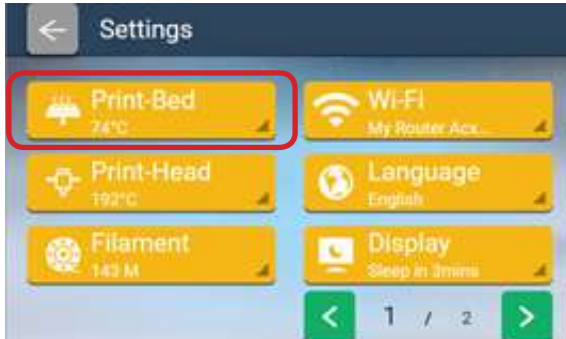

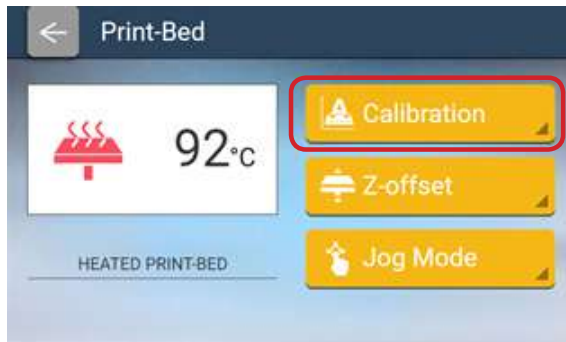|	Print Bed	Nozzle	Unloading
Temperature range	40~100℃	170~300℃	170~300℃

Settings

• Print-Bed

1. Select Print Bed.
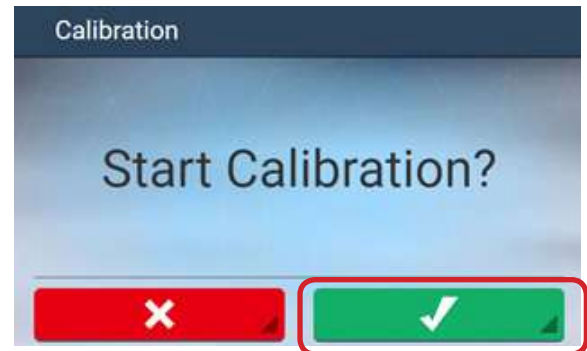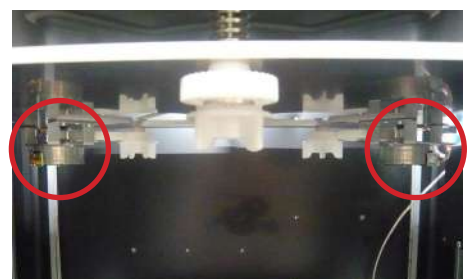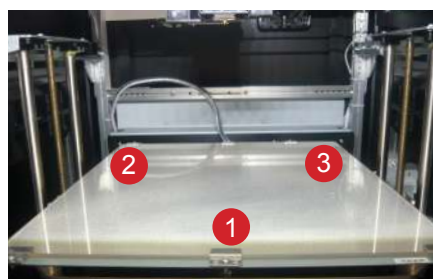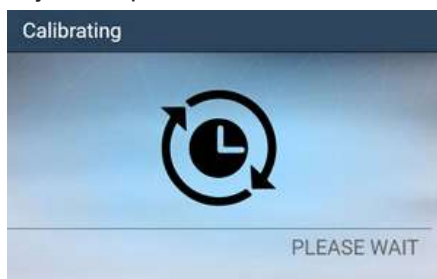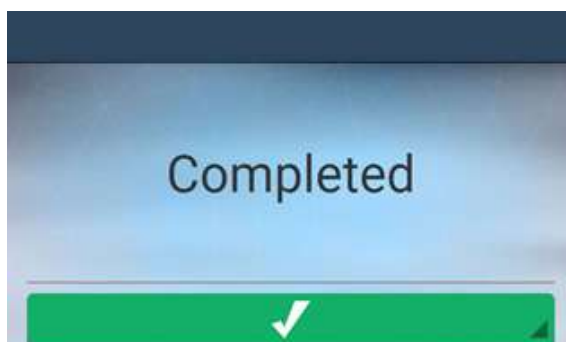

Calibration

1. Select Calibration.

2. Confirm the operation

3. The calibration starts. The printing bed goes up. The print head will move to the three testing points and measure them in order. Once the measurement is completed, the motor under the print bed will automatically adjust the print bed level.

4. After the calibration is successfully completed, tap to confirm.

Z-offset

When the printing bed is calibrated, perform the vertical calibration of Z-OFFSET to ensure the print head can eject onto the printing bed smoothly.
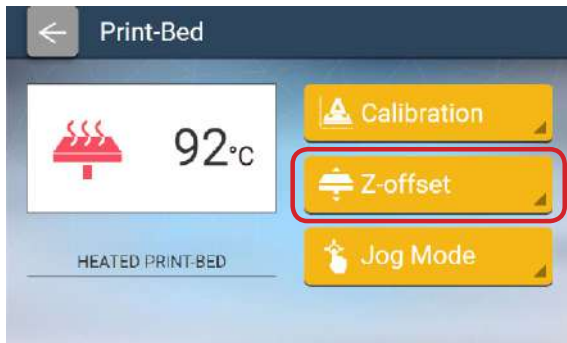
1. It is recommended that the space between the print head and the print bed just touch and the nozzle can move smoothly on the print bed.
2. Users can tap the icon to raise or lower the print bed, the higher the value, the bigger the distance and vice versa.
3. After the adjustment is completed, tap Check to save the settings.

• Jog Mode

The jog mode is a function which allows you to control the position of the print head and the printing bed manually. How to move the print head:
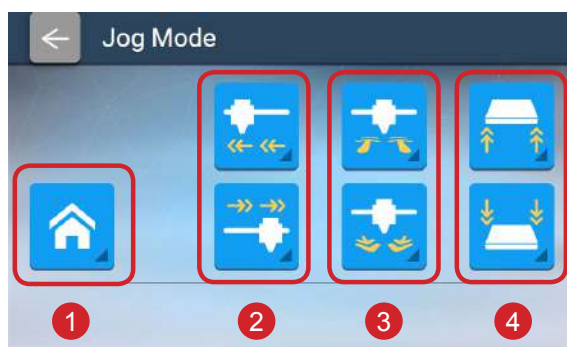
1. Return to the Home point. Always return to the Home point prior to any movement in any direction.
2. Move in the X axle direction.
3. Move in the Y axle direction.
4. Move in the Z axle direction

Home position.

- **Print-Head**

Clean Nozzle

Before cleaning the extruder nozzle, first make sure that the filament has been unloaded and that the Guide Tube has been removed.

1. Select the Clean Nozzle function and confirm the selection.

2. The print bed will be lowered and the print extruder will move to a position slightly in front of the center.
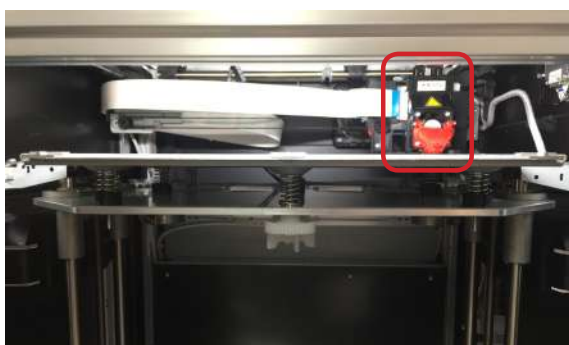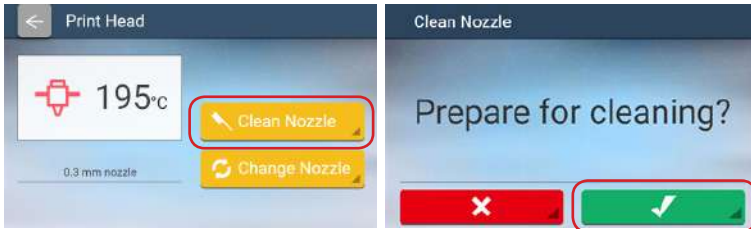

When the temperature of the print head reaches the operating temperature, the cleaning operation starts.

(Note: do not touch the metal part of the print head as it becomes hot during the operation.)

1　Inset the feed hole cleaning wire into the feed hole and push it downwards to drive out the filament from the print head.
(It is recommended that the operation is performed from the top of the machine.)

2　Remove the filament residues from the print head with a wire brush.

3　Use the tweezer to hold the extruder cleaning wire, and insert the wire from the bottom of the extruder to clear the extruder opening.

4　After the cleaning operation is completed, tap DONE.
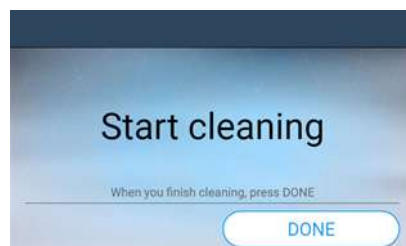
Nozzle replacement.

In order to print a wide range of different materials, the da Vinci super has a fan duct attached to its extruder module. This can be opened and closed depending on your filament type.

PLA & PETG : Close
ABS & TPE : Open

1. Tap the Change Nozzle option.

2. Check if replacement is necessary. Tap Check to replace it.
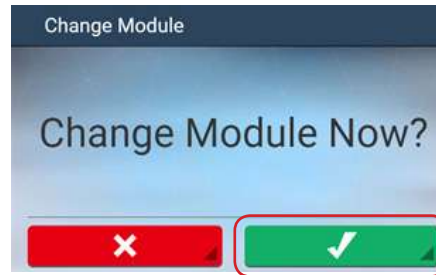
3. Wait until the print head moves to a proper position for change.

4. The position of the print head change is shown as below.
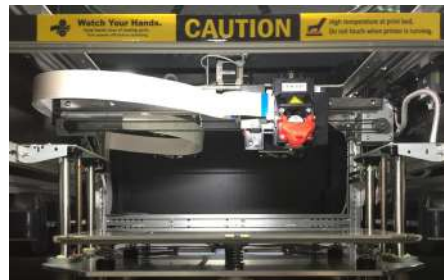
5. Turn off the power before change the print head.
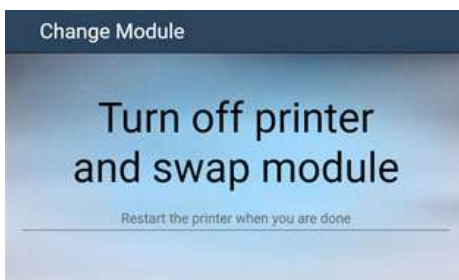
6. Change the print head from above the machine.

7. Press the white release button to separate the print head.
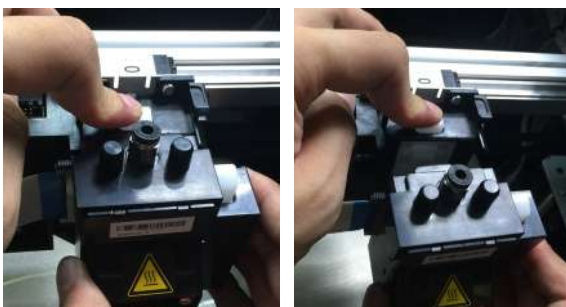
8. Hold the print head with one hand and remove the bus with the other. The removal of the print head is complete.

Installation sequence of new print head:
1. Connect the bus (make sure it clicks into place)
2. Press the white release button on the print head and assemble the print head and the mechanism. After the assembly, check if the print head is secured without shaking.
3. Turn on and use the printer.

• Filament

Refer to the Change Filament function in the main screen.
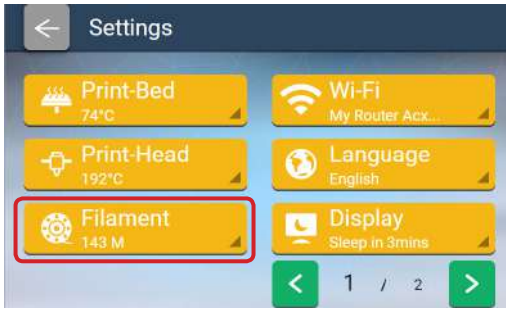
• Wi-Fi

Preparations before printing

- Network printing function mainly allows the use of an Intranet. Connect both the printer and computer within the same network domain. In other words, both must be connected to the same wireless access point.
- XYZware Pro must be used to verify wireless communication functions. Before setting up the network printing function, make sure that the latest XYZware Pro has been installed on your computer.
- Adjust the settings of the connected wireless access point before connecting the printer. For settings on the details, refer to the user manual or information from the original manufacturer on the product.
- The wireless printing only supports 2.4 GHz and requires a channel width of 20 MHz. For information on adjusting the channel width, refer to the instruction manual from the original manufacturer of the wireless access point.
- Make sure that the wireless network function is switched on.
- The printer supports the following safe connection modes. When setting up printer connections, enter information for the sharing key when required.

Add connected device (Add)

1. Select Wi-Fi.
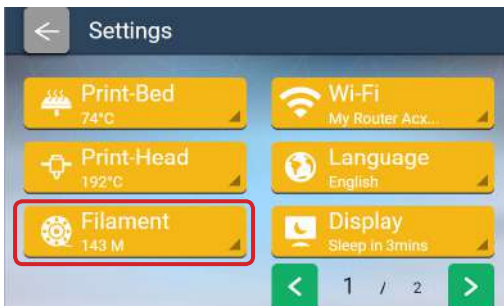
2. Tap ADD and the printer will start to search for available access points.
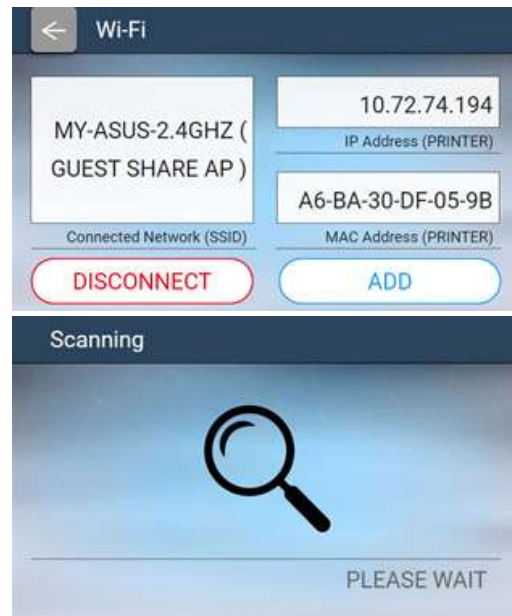
3. Tap the access point to be used.

4. Enter the password required to connect to the wireless access point.
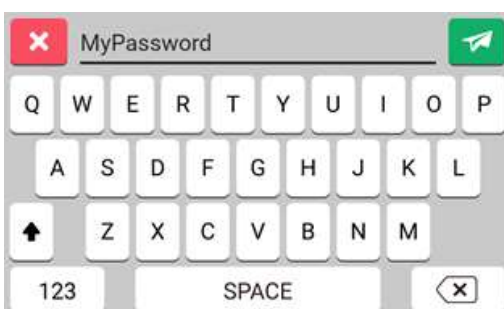
5. Confirm the successful connection by selecting the confirmation sign. The printer will be successfully connected to the wireless access point at this point.
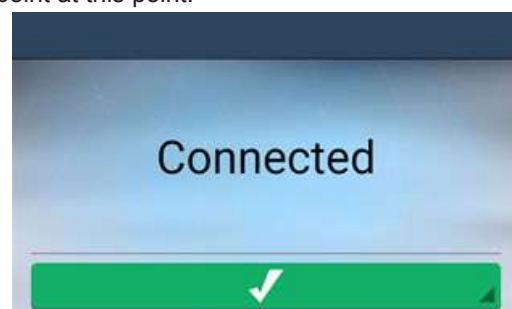
Confirming the connection in XYZware Pro

1. Open XYZware. Select the Printer Monitor button at the lower right corner of the interface.
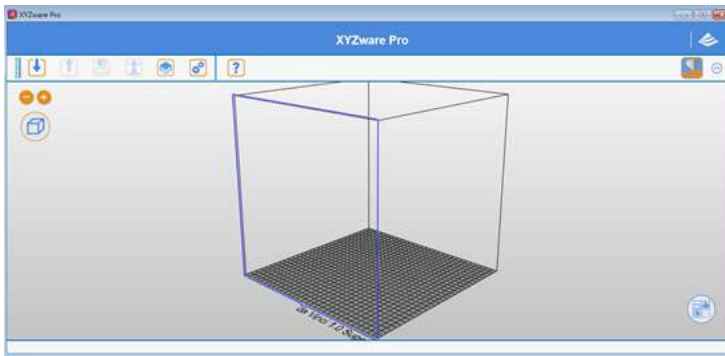
2. Select Connect by IP and then enter the IP address of the printer. To check the IP, use the IP Address (PRINTER) function on the printer control panel.
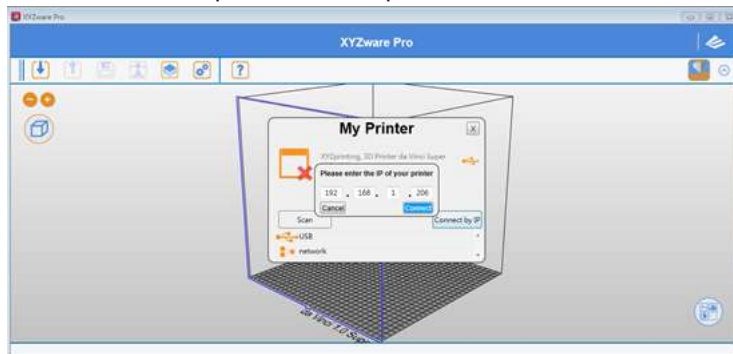
3. Confirm the connection. The printer is now able to receive files to be printed through a Wi-Fi connection.
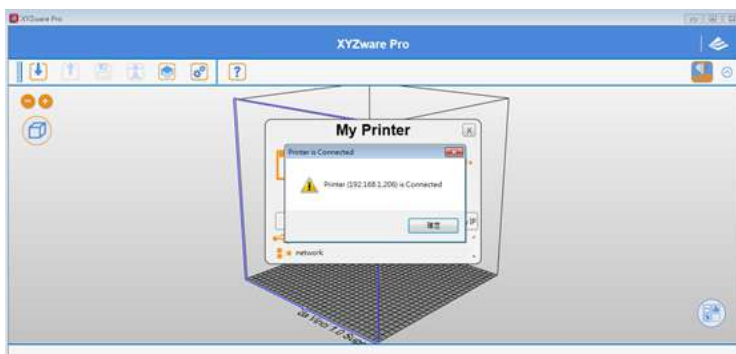
● **Language**

Change language settings

The da Vinci Super provides eight display languages, including traditional and simplified Chinese, English, Japanese, German, Italian, Spanish and French. The language setting can be changed by tapping Settings > Languages in the main screen.

● **Display**

The Display setting can set the touch screen to turn off when it remains inactive after the set time. There are five settings, including one minute, two minutes, three minutes, five minutes and always on.

• Sound

The Sound option can be set to ON or OFF to control the sound emitted when the touch screen is tapped.
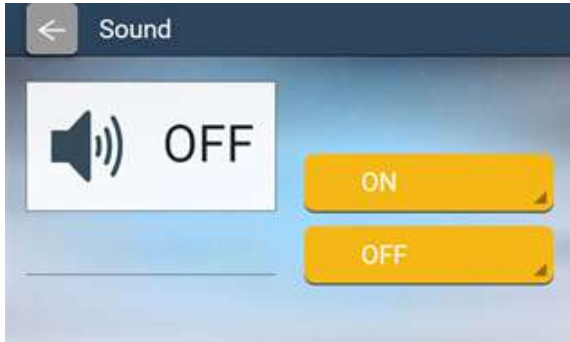
• Statistics

The Statistics function can record the printing historical data since the machine was turned on, including:

- Uptime
- Nozzle: Number of nozzle replacements and usage time
- Last Calibration: Recorded time of the last calibration.
- Filament: Filament usage records.
- Print Job: Print job records.
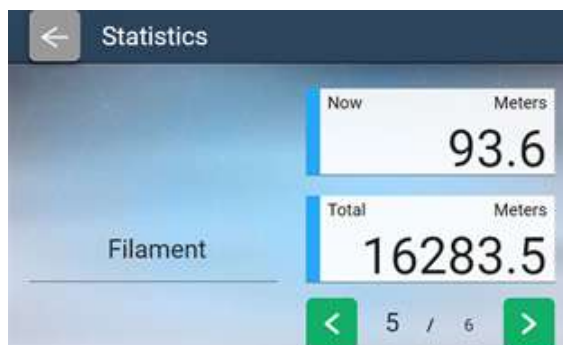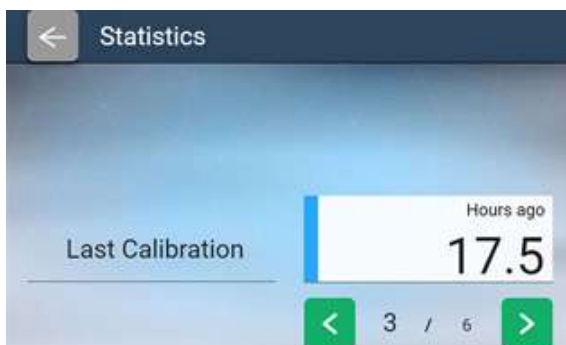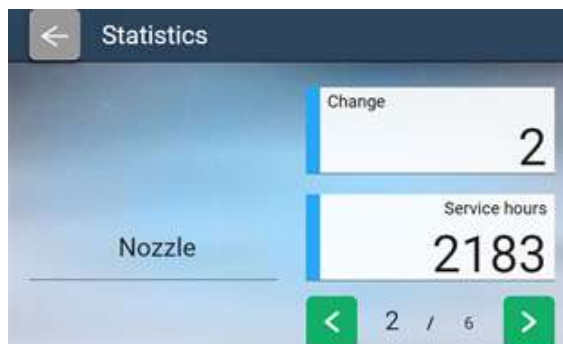
- **Reset**

   1. Reset to factory default settings.
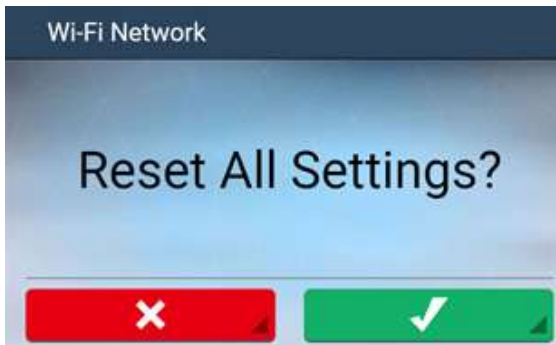
Print

- **Transfer files to be printed via the PC software "XYZware Pro"**

   Connect the printer and computer with a USB cable and install the "XYZware Pro" on the computer to transfer the files you want to print.

A. Import .stl or .3w files.
B. Convert to .3w files.
C. Save .stl files.
D. Set printing preferences and send files for printing.
E. Print list
F. Set the language displayed for the software interface and preview color.
G. Check for and update the software and firmware versions, and open a link to the official website.
H. Display zoom percentage
I.   Quick switch to the preview perspective
J. Change model position
K. Change model angle
L. Shrink or enlarge model dimensions
M. Display model-related information
N. Delete the model from the virtual platform
O. Check printer temperature, filament data, and printing progress
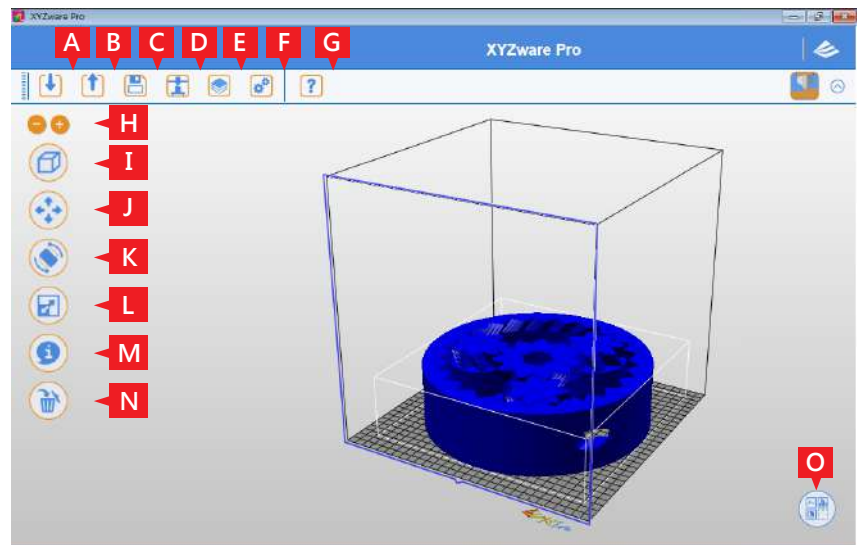
XYZware Pro can be used with Windows 7, Mac OSX 10.10 or later versions of the operating systems. You can also use the original manufacturer's USB provided with the printer to install XYZware Pro or download installation files from the official website.

Visit the official website for details: http://www.xyzprinting.com/
Select Import and choose the model files to print. After loading the files, the size, printing position, and angle of the objects can be adjusted accordingly.
The user may use the Convert function and change relevant settings to satisfy printing speed and effectiveness.
After editing and adjustments, select Print to export the object. The model file will be sectioned and then printed accordingly.
Visit the XYZprinting official website for more information on version updates, operating instructions, and technical support: http://www.xyzprinting.com/ for more details and information.

Parts replacement

- ## Front-feeding Motor
  - The front-feed module is a dedicated feed module for TPE type filament. Before using the front-feed module, please unload the previous filament and shut the printer down.
  - The front-feed module must be used with TPE filament, so please prepare TPE filament first.
  - Please use front-feed module independently, do not use front-feed module and rear-feed module at same time.
  - The temperature of front-feed module heats up when printing. Do not touch the front-feed module when printing.

1 Cut one end of the filament to create a 45-degrees angle.

2 Insert the filament through the Guide Tube and top cover. Insert one end of the filament into the feed module. Open the spring plate and insert the filament into the feed module such that 3-cm worth of the filament emerges from the other side.

3 Insert the guide tube into the feed module, and then connect the front-feeding motor to the print nozzle from the topside of the machine using the following steps:

1. Insert the flat cable.
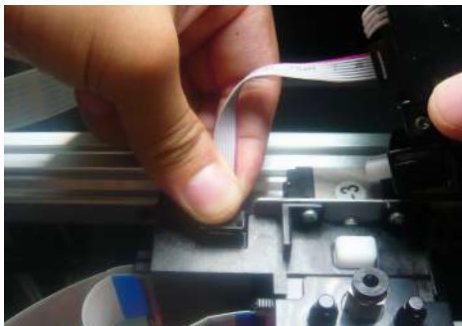
2. Press and hold the white spring, then align the filament extending from the feed module and insert the filament into the feed port.
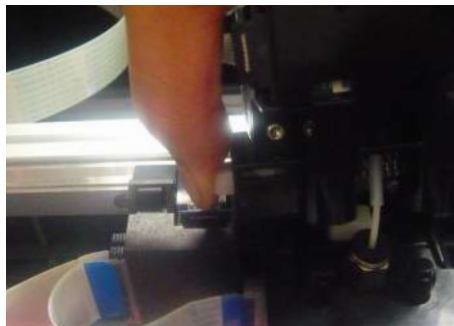
3. Make sure that the filament is inserted into the feed port. Align the latches on both sides and press downwards. Make sure that the motor is securely attached to complete the process.
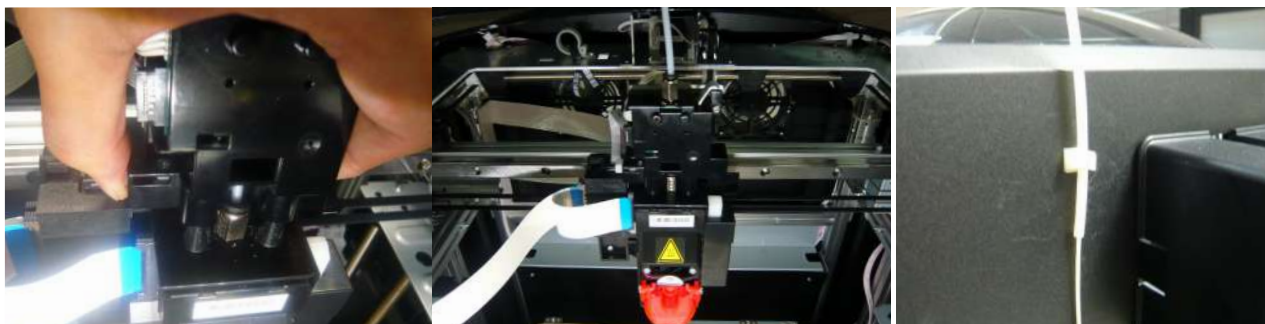
- ## Laser engraver (optional)

The laser engraver module must be purchased separately. Carefully peruse product safety and usage information provided in the laser engraver module user manual before using, operating, disassembling, replacing, or removing this product, and comply with relevant safety reminders.

Product overview

Fan ←

Laser Engraver ←

→ Heating dissipation flat cable slot

Recommended materials for laser engraving

◆ Paper   ◆ Cardboard   ◆ Leather   ◆ Wood   ◆ Plastic

Reminder: Avoid using materials with light or white coloration or bright or smooth surfaces. Better results can be obtained by using materials with gray or darker colors. Plastic materials (such as PP / ABS / PE) can be engraved. Avoid using materials that are transparent, white, or lightly-colored that allows light penetration. The sculpting module is only capable of sculpting planar objects.
The target should thus be placed flatly on the panel. Avoid sculpting warped or curved objects that are not completely flat.
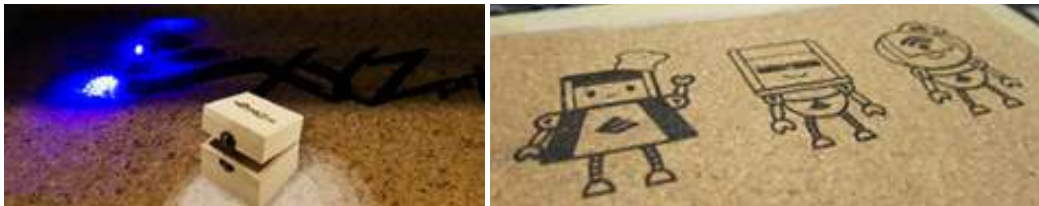
Changing and installing the laser engraver

Before replacing the printing module with the laser engraver module, first eject the filament from the print nozzle. After ejecting and removing the filament, select the CHANGE NOZZLE option.
Wait for the printing module to return to the home position and then switch off the power.

◆ Disassembling the printing module

Press and hold the white button on top of the printing module to quickly detach the printing module.
Press and hold the latch on two sides to unload the filament, and gently press the spring surrounding the feed port to remove the guide tube.

◆ Installing the laser engraver module.

① Connect the bus (make sure it clicks into place).

② Align the opposing angles for two sides of the laser engraver module, push forward to form a snap-fit into the slot to complete proper installation.

◆ **Disassembling the laser engraver module.**

1 Press and hold the white button on top of the laser engraver module to remove the module.

2 Detach the white flat cable to complete the disassembly. Store the laser engraver module properly.

● **Laser engraver software function**

After installing the laser engraver module, open the XYZware software. Select the laser engraver function from the upper right corner of the tool menu bar. Import the picture file for the engraving job. Edit and configure the laser engraving effects, and start the laser engraving process.

● **Functional descriptions**
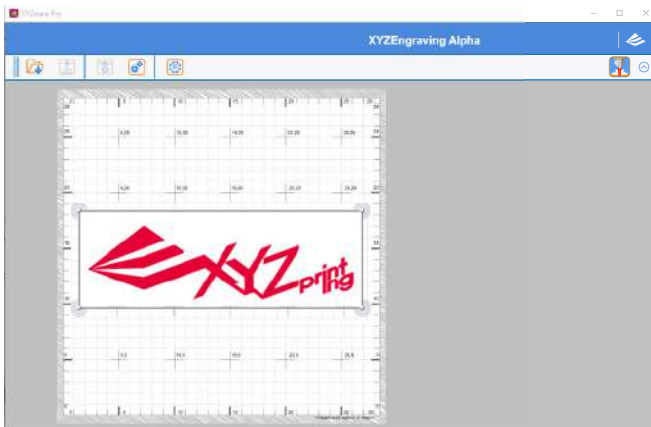
● **Edit and set laser engraving effects**

Engraving mode options: Vector / Bitmap mode.
Set engraving speed, engraving layer, canny edge detection sensitivity, and white color range detection sensitivity.

● **Pausing and canceling the laser engraving process**

PAUSE: Select PAUSE to pause the laser engraving job.
RESUME: After pausing, the user may select RESUME to continue the laser engraving job.
CANCEL: Select CANCEL to cancel the laser engraving project. Confirm the cancellation to cancel the laser engraving job.

● **Product specification**

Laser Wavelength	450nm+5nm/-10nm InGaN	Laser Power	350mW ± 10%
Laser power type	Class 3B	Laser beam diameter	≦ 1mm
Engraving area	28.5 x 28.5 cm	File format	JPG / PNG / GIF / BMP
Laser operation	CW (Continuous Wave)		

Supporting information

If your printer experiences problems, review the following troubleshooting instructions to resolve the issue. If the issue persists, contact the customer service center.

Issue code and troubleshooting

If your printer experiences problems, a relevant service code will be displayed on the printer screen and/or software interface. Please refer to the following service code description table for initial troubleshooting.

Error Code No.	Failure Description	User Action
0 0 1 0	Print bed heated for too long	Please reboot or check the print bed heater & thermistor harness connection (need to open back cover).
0 0 1 1	Print head heated for too long	Please check the Flexible flat cable and reboot.
0 0 1 3	Print bed heated issue-- temperature exceed	Please reboot or check the print bed heater & thermistor harness connection (need to open back cover).
0 0 1 4	Print bed heated issue-- temperature exceed	Please check the Flexible flat cable and reboot.
0 0 3 0	Abnormal--X axis	Check the X axis cable of the motor and the sensor, and check the X axis position of the sensor.
0 0 3 1	Abnormal--Y axis	Check the Y axis cable of the motor and the sensor, and check the Y axis position of the sensor.
0 0 3 2	Abnormal--Z axis	Check the Z axis cable of the motor and the sensor, and check the Z axis position of the sensor.
0 0 5 0	Internal communication error -- memory error	Reboot the printer.
0 0 5 2	Print head memory error	Replace the print head.

Post-sales maintenance and services

Please retain the original packing materials. We recommend packing the printer in its original packaging before sending the printer for repairs during the warranty period. Using other packing materials when sending the printer may result in damages during the shipping process. XYZprinting reserves the right to charge maintenance fees when this occurs.

Federal Communications Commission (FCC) Statement

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
● Reorient or relocate the receiving antenna.
● Increase the separation between the equipment and receiver.
● Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
● Consult the dealer or an experienced radio/TV technician for help.

XYZprinting is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

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.

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of the FCC RF Rules. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and consider removing the no-collocation statement.