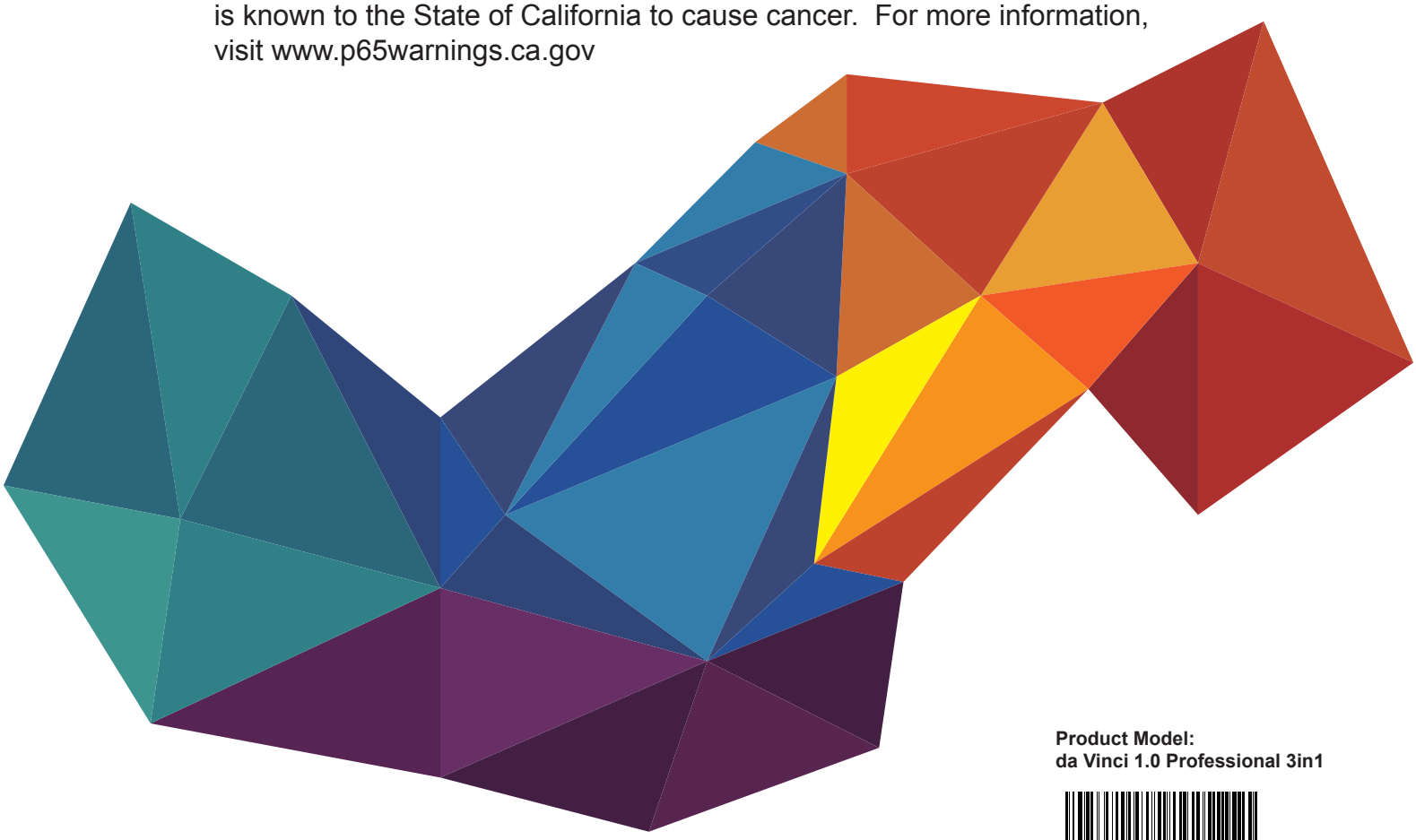
ENG

da Vinci 1.0 Pro 3in1 Quick Guide

- **Product Description**
- **Functional operations and descriptions**
- **Print**
- **Scan**
- **Optional module**
- **Other settings**
- **Support Details**

WARNING: This 3D Printer - when used with a styrene filament (ABS / HIPS / or PC-ABS) can expose you to chemicals, including Styrene, which is known to the State of California to cause cancer. For more information, visit www.p65warnings.ca.gov



Product Model:
da Vinci 1.0 Professional 3in1

HD23F1AS207

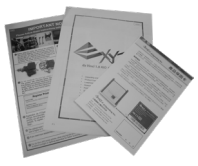
Product Description

Product Overview

Auto Feed System

⚠ Levelness of the Print Bed may be susceptible to vibration during transportation, which may influence print quality. Please adjust the bed with reference to"Print Bed Adjustment" before printing.

Accessory Checklist



· Quick Guide, Warranty Card

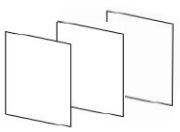
· Filament Cartridge

· Cartridge Locker

· USB Cable

· Software CD

· Side Cover Plate x2



· Bed Tape X 3 pcs
(The bed tape is reusable and it can be replaced when it's worn.)

· Power Cord

Maintenance Tools

· Scraper

· Copper Brush

· Cleaning Brush

· Feeding Path Cleaning Wire

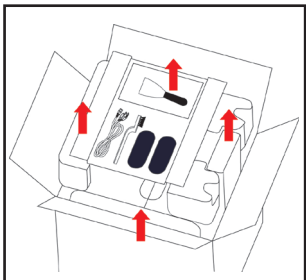
· Cleaning wire x 5

· Calibrating Plate
(See P. 10 for instructions)

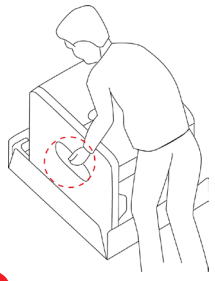
Product Description

Open the box

Note: Please removal all fixed materials before turning on the printer to prevent the machine from damage

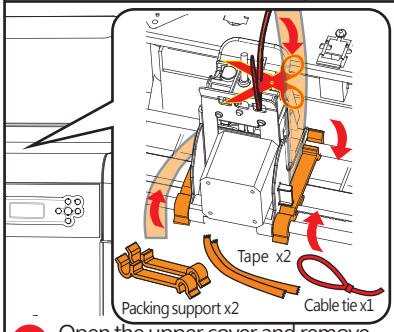


1 Open the box and remove the accessories and the cushion

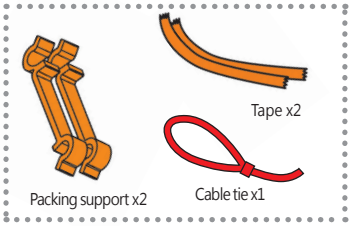


2 Use the grip to take off the machine

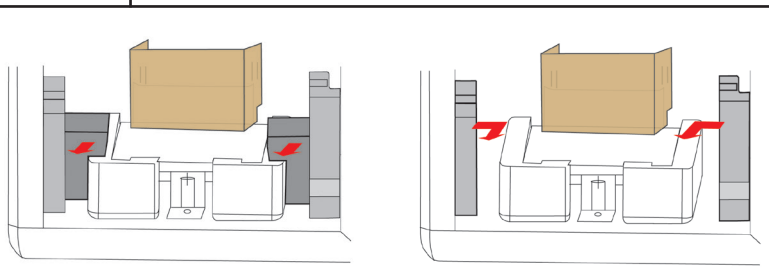
3 Remove all fixing tapes and the packing bag



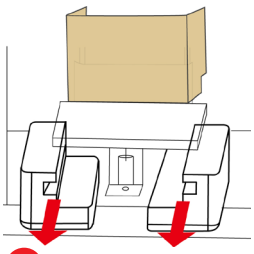
4 Open the upper cover and remove fixities listed above



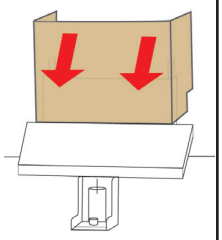
⚠ Pay attention particularly to actual paperboard removal of the fixities listed above except step 11.



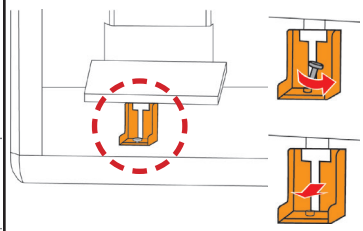
5 Remove 2 foams at the front of the cardboard



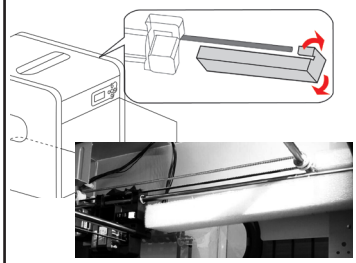
6 Remove the fixing styrofoam beside the bed



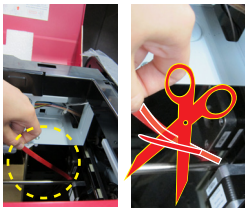
7 Remove fixing paperboard



8 Remove bottom screw and the fixing screw on the bottom of the bed



9 Be sure to remove the fixing foam from the axis



10 Be sure to remove the cable tie as illustrated above

11 Do not cut this white cable tie.

12 Insert the bundled software CD into the computer and install the software according to instruction

Use the USB cable to connect the printer to PC. Connect the power cord to the printer then turn on the power switch

Important Safety Notes

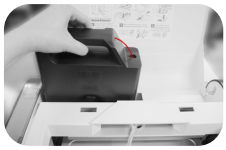
- Do not use the printer in dust rich, highly humid or outdoor environments.
- Do not use the printer on a soft or tilt table to prevent the machine from falling, which may result in damage or personal injury.
- Do not put your hand into the machine during operation to avoid collision risk due to movement of the machine or to avoid burn due to high temperature.

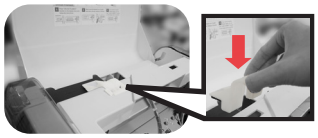
Functional operations and descriptions

Install and Load Filament UTILITIES > CHANGE CART > LOAD FILAMENT

● Install Filament Cartridge from XYZprinting

◆ Remove the filament stopper and tape and install the filament cartridge into the empty slot.





◆ Place and push to click the cartridge locker

● Install Compatible filament

* Print quality cannot be guaranteed if filaments from other brands are used instead.
* The warranty does not cover stuck filaments, product failure, damage, or defects resulting from the use of filaments from other brands or other human errors.

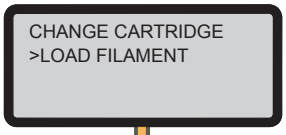
Hang the spool on the filament spool holder prepared by yourself

◆ **Remove the cartridge from the cartridge slot if any to use your own filament**

◆ Insert filament into the guide hole until the printer starts to load filament.
◆ Press the release arm to open the feeding path while inserting the filament
◆ Then, activate LOAD FILAMENT function on the printer

*Recommend using a clips and other tools to cut the tips of the filaments to generate a tapered tip of 45 degrees, and to straighten the filaments to facilitate the filament loading process.

Activate LOAD FILAMENT function on the control panel



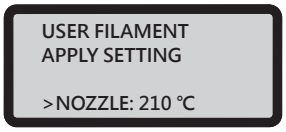
● To use XYZprinting filament and apply the recommended temperature settings,select "YES"

A. Wait for the extruder to heat up

B. As the temperature reaches operating setting the printer loads automatically the filament, and filament loading is completed

C. Check if the filament flows out from the nozzle. If the filament has flowed out, please press "OK" to complete the loading process

● Select "NO" if filaments of other brands are used.



※ To specify your own temperature settings:
Select the printer component using the new settings. To set the heating temperature, please refer to instructions provided for "Temperature Settings" function Select "APPLY SETTING" to start applying your specified temperature settings. The process on the left will start and the printing component will start to heat up.
※ To use pre-defined temperature settings:
Select "APPLY SETTING" directly to enter the workflow shown on the left.

Remarks: The temperature setting in this procedure is applicable only to 3D Builder application software developed by Microsoft. For more information about 3D Builder, please visit the Microsoft website

◆ Filament loading is completed

Functional operations and descriptions

Unloading Filament

● UTILITIES > CHANGE CART > UNLOAD FILAMENT

In unloading filament, activating the filament unloading function on the control panel of the printer

1. Wait for the extruder to heat up to operating temperature and unload the filament.
2. As "PULLOUT FILAMENT" is displayed on the screen, press the release arm and pull out the filament.

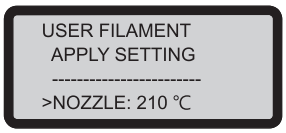
Temperature Setting

● SETTINGS > USER FILAMENT

The user may customize nozzle temperature, print bed temperature and filament unloading temperature in accordance with requirements of different filaments and design objects:

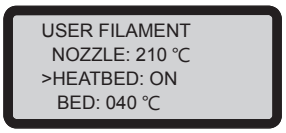
1 Select the item for temperature setting

A Nozzle



Press "OK" to enter temperature setting for nozzle

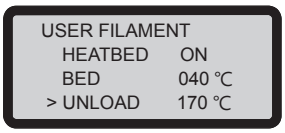
B Print Bed



The HEATBED will heat up by default. To adjust the operating temperature of the print bed, select BED and press "OK".

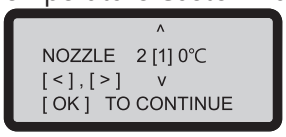
Select "ON" or "OFF" to turn the print bed's heating function on or off. Once turned on the heating function, press "OK" to adjust the temperature setting for the print bed

C Filament Unloading



Press "OK" to enter temperature setting for filament unloading

2 Temperature Customization:



- Use "left key", "right key" to select the digit (single, tens, hundreds) for the temperature to be adjusted.
- Use "up key", "down key" to adjust the value.. The up key is for increasing value, and the down key is for decreasing value. Press "OK" key to apply setting.
- If your customized temperature exceeds allowable setting range, press "OK" and a setting range alert will be displayed.
- Once parameter settings are complete, return to the previous page and select "APPLY SETTING" to save and apply the settings that you have specified.

3 ⚠ Constraints of Customized Temperature Range

NOZZLE	Warming up of the nozzle of the extruder in feeding and printing: 170℃ ~ 240℃
BED(ON)	Temperature elevation range of the print bed: 41℃ ~90℃
UNLOAD	Temperature elevation range of the extruder in unloading: 170℃ ~240℃

Remarks: The temperature setting in this procedure is applicable only to 3D Builder application software developed by Microsoft. For more information about 3D Builder, please visit the Microsoft website

- If the temperature for print bed is specified as [OFF], room temperature printing will be enabled and the print bed will not be heated.
- Excessively low extruder temperature may result in poor filament feeding, result in poor filament feeding that prevents proper extrusion of the filament through the nozzle. Hence, please adjust the operating temperature of the extruder first.

Functional operations and descriptions

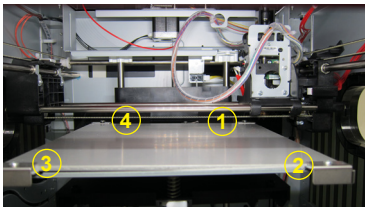
Print Bed Adjustment

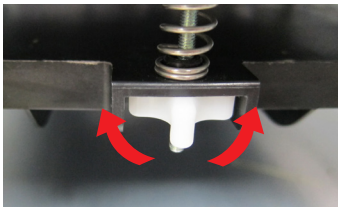
UTILITIES
▶CALIBRATE

Before first printing, please calibrate the bed to guarantee an appropriate levelness of the bed for printing.

- UTILITIES > CALIBRATE

  After the printer is heated up to an appropriate temperature, the distances between measurement points on bed edge ①, ②, ③, ④ and probes are measured automatically to determine levelness of the bed.

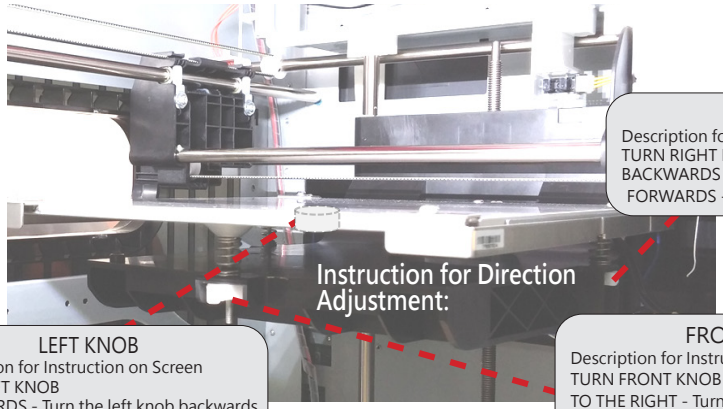




PERFECT
ADJUST MORE ?
> YES
NO

- If the automatic detection function determines that there is no need to adjust levelness of the bed, "PERFECT" will be displayed on screen. At this moment, press "NO" to exit.
  If you see "UNLEVEL BED" in the detection results, you will have to adjust the bed levelness. A prompt window for initiating the calibration process should appear.

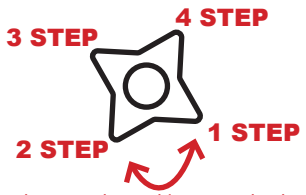
- Calibration Instruction



RIGHT KNOB
Description for Instruction on Screen
TURN RIGHT KNOB
BACKWARDS - Turn the right knob backwards
FORWARDS - Turn the right knob forwards

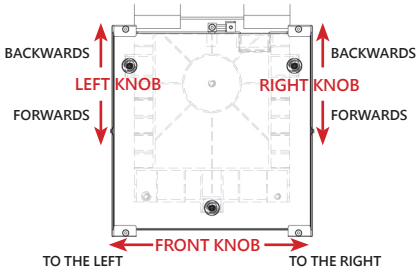
LEFT KNOB
Description for Instruction on Screen
TURN LEFT KNOB
BACKWARDS - Turn the left knob backwards
FORWARDS - Turn the left knob forwards

FRONT KNOB
Description for Instruction on Screen
TURN FRONT KNOB
TO THE RIGHT - Turn the front knob rightwards
TO THE LEFT - Turn the front knob leftwards



(There are three white 4-step knobs under the bed. Each step of turning indicates 90 degrees of rotation and 4 steps of flick indicate a complete circle of rotation of the knob.)

Knob Location and Adjustment Direction



TIPS FOR TURNING
1 STEP=90 DEGREE
4 STEPS=1 CIRCLE
[OK] TO CONTINUE

There are three white 4-step knobs under the bed. Each step of turning indicates 90 degrees of rotation, and 4 steps of flick indicate a complete circle of rotation of the knob as shown in the messages on screen. Press "OK" key to continue viewing adjustment instructions.

TURN FRONT KNOB
TO THE RIGHT :
8.7 STEPS
[OK] TO NEXT

Knobs corresponding to this procedure
Turning direction
Number of turning steps (each step indicates 1 tick/90 degrees of rotation)
After flicking knob in accordance with prompt, press "OK" key to continue

After executing calibration of platform, please make Z-OFFSET vertical calibration, in order to guarantee that the nozzle can print material on platform smoothly.
1. Move the extruder to the center of platform. The distance between nozzle and platform is suggested to enable two piece of A4 paper to be pulled out smoothly.
2. Distance between nozzle and platform is changed positively with the value.
3. After adjustment, press OK to save settings.

UTILITIES
CHANGE CART
HOME AXES
▶Z OFFSET

Calibration fail will be caused, in case of any smudginess at the measurement points on platform, or too long or short of the distance between platform and nozzle. Please adjust as follows: 1. clean platform and nozzle 2. adjust the detection distance between platform and nozzle (please refer to P7).
Please execute "CALIBRATION" again after each operation step is completed, until the detection result displays "perfect".
*Please refer to the tutorial video provided on the official website, for detail operation process of calibration.

Functional operations and descriptions

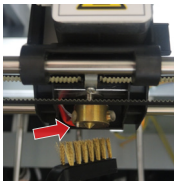
Printer Maintenance

● UTILITIES > CLEAN NOZZLE

Regular cleaning of the print nozzle facilitates to not only extending service life of the printer, but also improves print quality.
Enable "CLEAN NOZZLE" (nozzle cleaning) function. Clean the nozzle after the nozzle is heated up, the bed has been lowered and the extruder has been moved to the front end, and "READY FOR CLEAN" is displayed on screen.

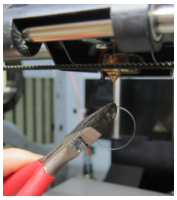
1 Clean the detecting pin with Copper Brush

Filament residues produced during printing may become attached to the nozzle and gear of print module to influence print quality, operation of the printer, and measurement result of the bed. If such a situation is encountered, please use a copper brush to clean the print module by brushing off residue and dirt on the detecting pin .



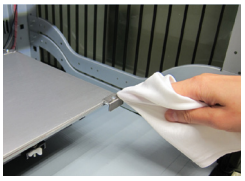
2 Clean Nozzle with Nozzle Cleaning Wire

With increased print frequency, the carbon accumulation and dirt in the nozzle might affect print quality. Thus, we recommend you to clean nozzle for every 25 hours of print. Please clamp the nozzle cleaning wire with needle-nosed pliers to insert it into the opening of the nozzle carefully for cleaning.
(Filament should be unloaded from the extruder before cleaning the feeding path.)



3 Wipe Measurement Points

After the bed is lowered, please switch off power to cool the bed, followed by wiping 3 measurement points with damp cloth.

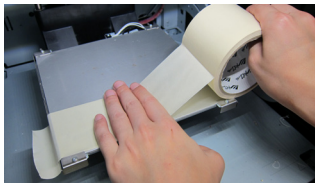


Adjust the distance between nozzle and platform
When the probe cannot contact any measurement point, Z-Axis can be used to adjust an appropriate distance

UTILITIES > JOG MODE > Z-AXIS

1. Select "010 mm" -> "[-], and then the platform will rise 10 mm
   Select "010 mm" -> "[+], and then the platform will fall 10 mm
2. "Calibrate" it again, after nozzle is adjusted and all of the three measurement points can contact the probe.

Print



Before printing, **stick the Bed Tape onto the print bed**, followed by activating print through one of the following "Other settings" ways:

* The Print Bed Tape is reusable. Replace the tape as it is worn out.

Print Built-In Sample

● UTILITIES > BUILD SAMPLE

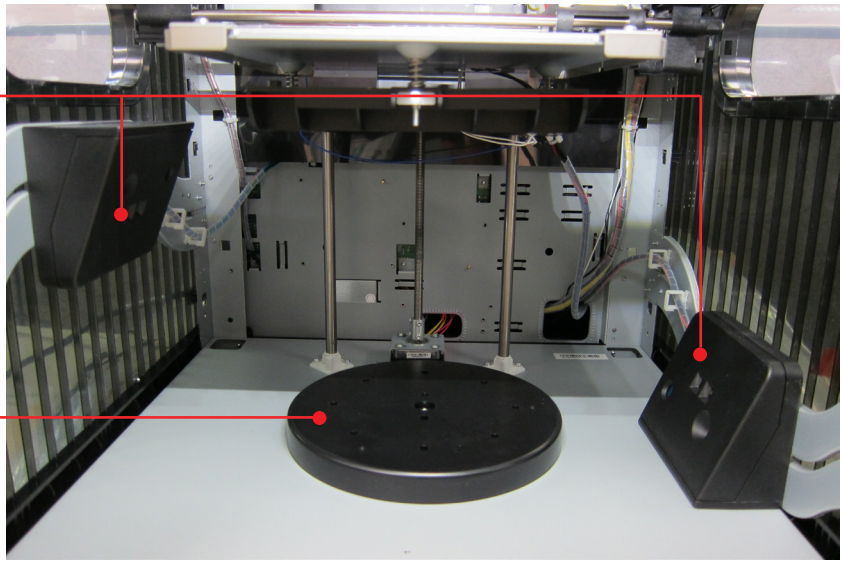
Select the sample to be printed from built-in samples, followed by pressing "OK" key to start print.

Scanning

Scanning takes around 5 minutes. During scanning, the object on the turntable revolves in a clockwise direction. Throughout the process, the laser modules projects linear beam at the object while the camera on the module fi lms a complete image sequence of the rotating object. When scan is fi nished, XYZscan then converts the images captured into a triangulated mesh.

3D laser scanner at the left and right sides

360 degrees automatic rotating platform for scanning

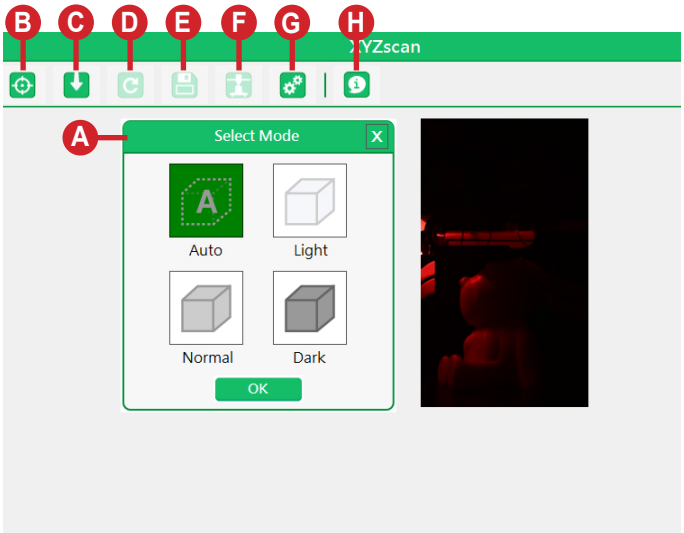


Scan with XYZscan

●XYZscan

Install XYZscan on the PC before scanning. Installer can be found in bundled Software CD and at XYZprinting website:http://support.xyzprinting.com/en/Support/download
Scanning is always activated with XYZscan. With the software, you may also edit/save the scan and send the object for printing.

●XYZscan Overview



A Set scan mode based on the color of the object.
Light: for light-shaded (e.g. white) objects
Normal: for objects with colors that are not easily classifi ed
Dark: for dark-shaded (e.g. brown) objects

B Start to scan: Activate scanning

C Import 3D model files: Import .das fi le for editing or import ".stl".

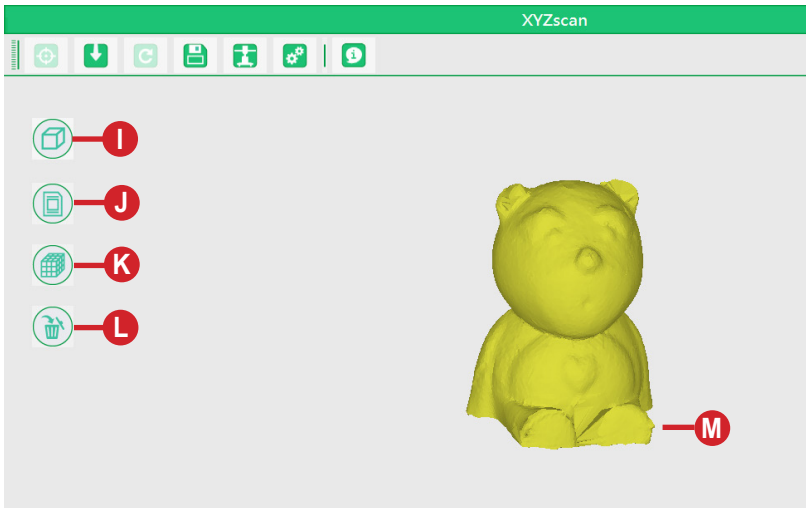
D Scan again with current setting:Re-scan with the same settings.

E Select model quality and save to file :Save the scan as .das/.stl.

F Print model: Send the scan to XYZware for printing.

G Adjust XYZscan settings:Language setup/Calibration.

H Information abour XYZscan:Info/ Software and firmware updates.



I — Viewpoints

J — Model information

K — The quality of a model is defined by the number of facet. Generally more facet could result in better quality

L — Delete model

M — Scanning view

Basic workflow

1 Select a scan mode based on the shade of the object to be scanned. → A → 2 Press “Scan”. → B → 3 Edit your scan (Optional). → I ~ M → 4 Press “Print” to activate XYZware

(Be sure to remove the object from the turntable before printing!)

●Suggested Configuration for Scanning

- Place the printer on a leveled and stable surface AND in a dark place without sunlight or other light sourcing shining directly to the scanner modules for better scan performance.
- Scannable object size (diameter x height): 3x3cm to 15x15cm/1.18x1.18" to 5.9x5.9"
- Scannable object weight: ≦ 3kg/6.6lbs
- Objects with the following features scan better:
  - ◆ Stationary objects ◆ Non-translucent objects ◆ Cylinder-like objects, objects with round curves
  - ◆ Objects with light-shaded surface, especially white surfaced objects
- Moving/living objects may not be scanned
- Objects with very fi ne spikes, sharp or pointed tip or fur-covered objects may be diffi cult to scan

●Object Placement

Place the object to be scanned at the center of the turntable, and adjust the placement to make sure that as much of the object is in the line of sight of the scanners.

●Tips for Improving Scanning Quality

Due to the limitation of the laws of physics, objects with some features may not scan well. If scanning with the correct scan mode setting doesn't help, follw the suggestion below may help to improve the scanning quality

For objects with high contrast/glossy/fuzzy/translucent/dark, especially black, dark green and dark blue, surface, you may try to apply rubber coating (white coating works the best) on the surface. (The coating can be peeled off easily when dry)

Scanning result of a translucent object

Apply rubber coating on the translucent object

Scanning result of the rubber spray-coated object

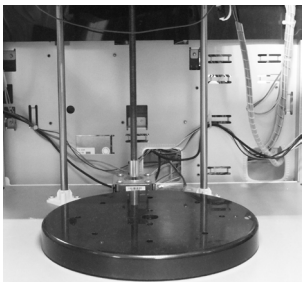
• Scanning Devices Calibration

Original model

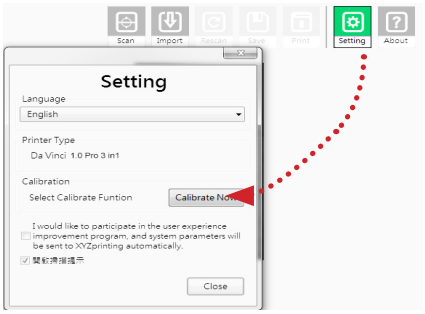
Scanning result
before calibration

Scanning result
after calibration

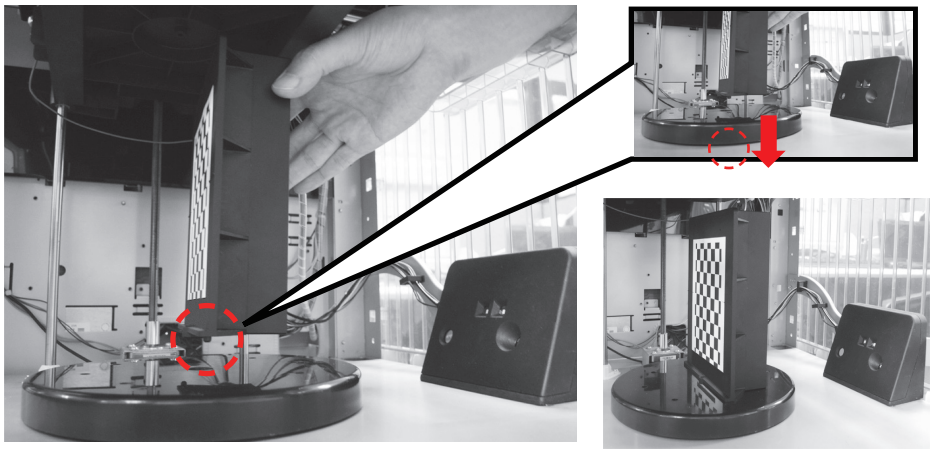
When you fi nd inaccurate scan results, please follow the steps for scanning devices calibration



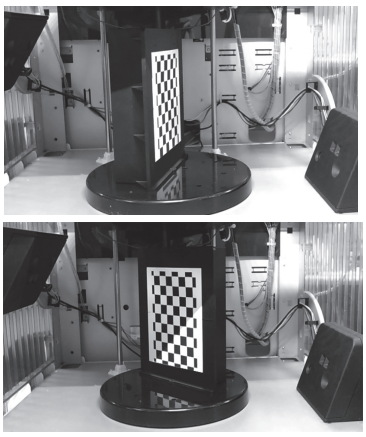
1 Remove the object from the tumtable



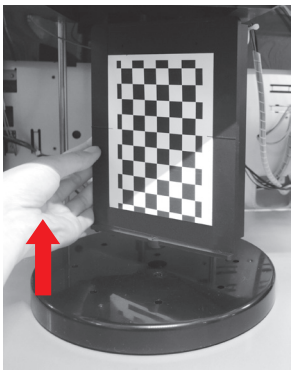
2 In XYZscan, select "Setting" > "Calibrate Now"

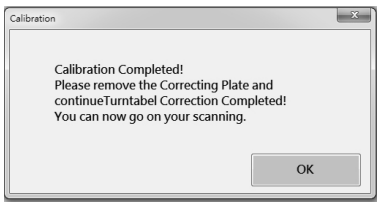


3 Wait until XYZscan shows the instructions of calibrating plate placement, place the plate at the center of the turntable (with chessboard pattern facing the left scanner and insert the tab at the bottom of the calibrating plate into the hole at the center of the turntable), then click “Calibratenow” button.



4 Wait until XYZscan and the printer finish calibration (for approx. 7 minutes)



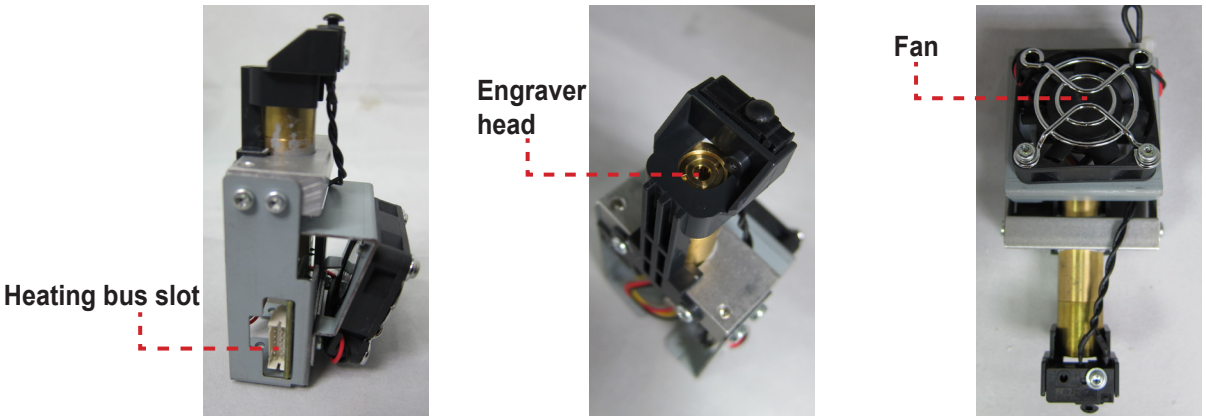


5 When XYZscan prompts of calibration completed, remove the calibrating plate, and click “OK” to finish. You may begin to scan.

Select module

Laser engraver module must be purchased separately.

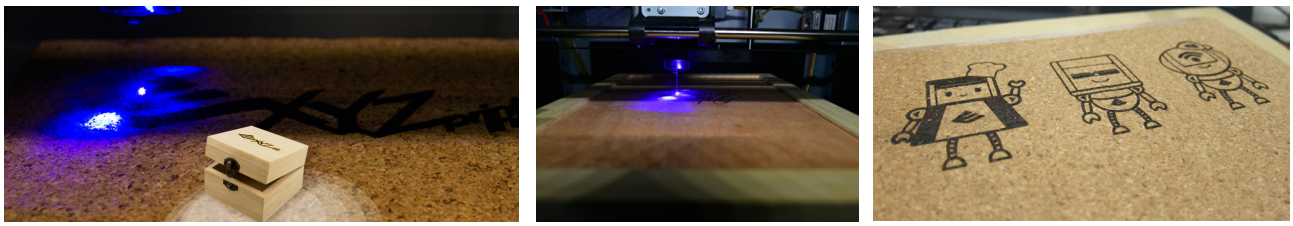
• Product Overview



• Recommended laser engraving material:

◆ Paper ◆ Cardboard ◆ Leather ◆ Wood ◆ Plastic

Note: Avoid using materials that are light colored, white, or have glossy surfaces for laser engraving. Achieve the best engraving results with gray colored or dark colored materials. Plastic materials (such as PP / ABS / PE) may be engraved. However, please avoid using materials that are transparent, white, or lightly colored. The engraving module is only capable of engraving planar objects. The target should thus be placed flatly on the panel. Avoid engraving warped or curved objects that are not completely flat.



• Replace and Installing the laser engraving module:

Before replacing the extruder module with the laser engraving module, check if there are remaining filaments in the nozzle and remove them accordingly. After removing the filament, please select [CHANGE NOZZLE].

- ◆ Wait for the panel to display the message that allows you to switch off the power to replace the printing module before switching off the power.
- ◆ Unplug the heating bus at the side of the extruder module.
- ◆ Pull open the quick-detachment lock to release the extruder module. Tilt the module and remove it from the slot.
- ◆ Install the laser engraver module. Please ensure that the module has been oriented in the correct direction, then connect the heating bus cables.
- ◆ Pull the quick-detachment button. Tilt the laser engraving module and insert it into the installation slot.
- ◆ Press the quick-detachment button and ensure that the module is secured by the locking lever at the correct position to complete the installation.
- ◆ Installation / detachment of the laser engraving module completed. Provide proper safekeeping of the extruder.

• Functions of the laser engraving software:

Once the laser engraver module has been installed, open the XYZware Pro software. Select the laser engraving function located at the upper right of the toolbar. Import the picture file to be engraved, edit and set laser engraving effects, and initiate the engraving process.

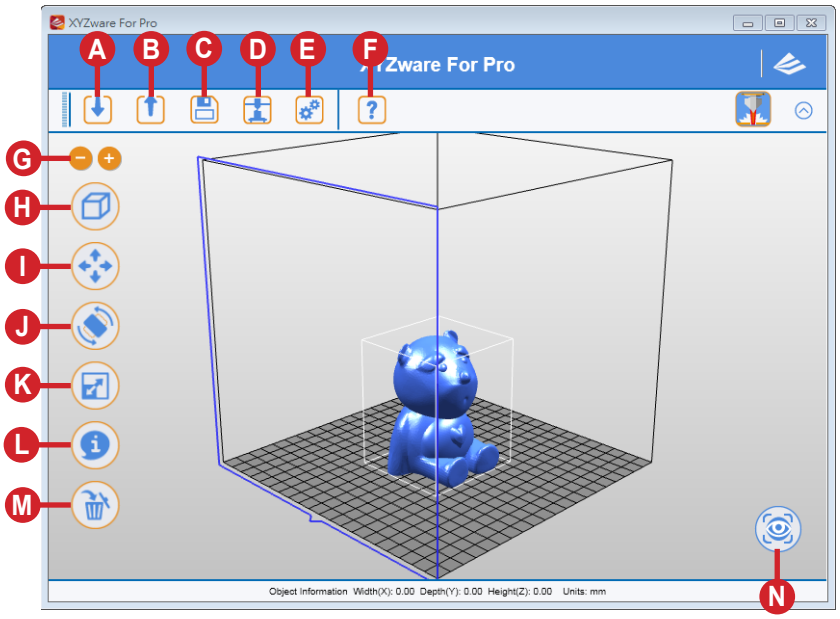
• Laser Specification

Laser Wavelength	450nm+5nm/-10nm InGaN	Laser Power	350mW ± 10%
Laser Power for Classifi cation	Class 3B	Beam Diameter	≦ 1mm
Engraving area	20 x 20 cm	File Types	JPG / PNG / GIF / BMP
Mode of Operation	CW (Continuous Wave)		

Other settings

Transfer print file through computer software “XYZware Pro”

Connect the printer and the computer with USB cable and install XYZware Pro in the computer to transfer print file.



- A — Import .stl, .3w files
- B — Convert to .3w file
- C — Save .stl file
- D — Set print preference, transfer print file
- E — Set software display language, preview color
- F — Query, update software and firmware versions, open link to official website
- G — Adjust display scale
- H — Switch preview angle rapidly
- I — Move location of the model
- J — Change angle of the model
- K — Adjust size of the model
- L — Display information about the model
- M — Delete the model from the virtual platform
- N — Check printer temperature, filament information and print progress

“XYZware Pro” may run in Windows 7 and above and Mac OS 10.8 and above operating systems. You may install it from the bundled CD or download the installation file from the XYZprinting official website.

● Basic Operation Flow

After opening the software, click "Import" to select the model file you desire to print and load it. The user may change relevant settings through “File Conversion” function to satisfy adjustment of print speed and effect.
After setting up the model at the desired size, location and placement, you can also adjust the printing preferences, such as print speed and layer height by clicking the “Export” icon. Click the “Export” button to slice the file.
When the model is sliced, click on the “Print” button to send the file for printing.

For more information on software update, operation instructions and technical supports, please visit the XYZprinting official website: http://www.xyzprinting.com/

Other settings

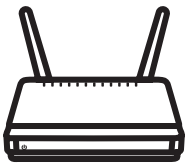
WiFi Connection

The printer supports Wi-Fi connection printing.
Install "XYZware Pro" and activate Wi-Fi setting of the printer in accordance with the following instruction to switch the printer to wireless control mode, such that the print file may be subsequently transferred wirelessly.

●Preparation Prior to Setting

1. The network print function is provided mainly for Intranet application. Please set the printer and the computer in the same domain, that is, link them to the same wireless base station (Access Point)
2. Before linking the printer, settings would be adjusted for the connected wireless base station. For detailed setting way, please refer to the operation instruction of the product or original vendor relevant information.
3. Channel Width may be set to 20 MHz for use of wireless print function. Please refer to original vendor operating instruction of wireless base station to understand adjustment way
4. Please keep the wireless network function in the on state
5. The machine supports the following link security modes. Public key information would be requested to enter in setting printer connection

◆ WEP ◆ WPA ◆ WPA2

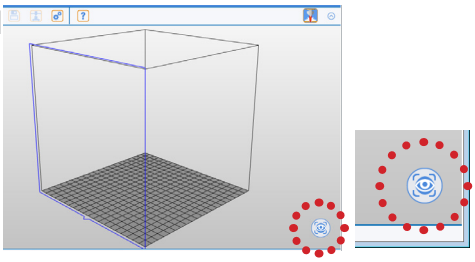


●Wi-Fi Settings

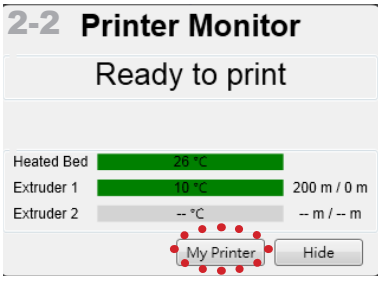
1 Please use a USB cable to link the computer and the printer, and open XYZware Pro.

2 Click the "Printer Monitoring" function icon on the lower right corner on the screen, open "Printer Monitoring" window, click "My Printer" > "Scan" to enter the page for printer search, and click "Wireless Network Settings" to enter the page for wireless print settings.

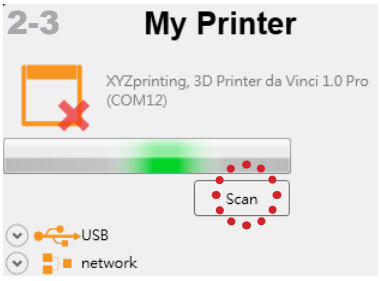
2-1



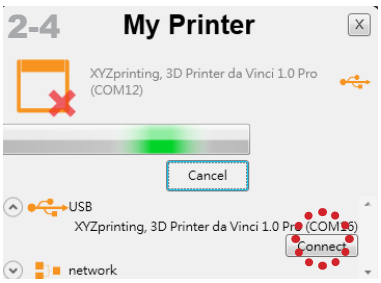
2-2



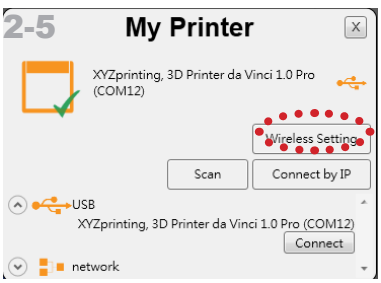
2-3



2-4



2-5

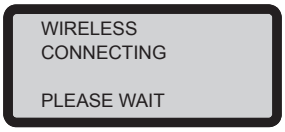


Parameters Description

WiFi Connection

3 Please enter printer name (either English or numeric name), press "Scan" function to obtain wireless base station information with dropdown menu, and select the name of the wireless network you desire to connect.

4 After successful connection, Wi-Fi name will be displayed on screen of the printer.



5 At this moment, USB cable may be taken off to continue the print process.

6 If connection is to be disconnected, please connect USB back between the computer and the printer, and open XYZware Pro again.

Product Specification

Print			
Print Technology	Fuse Filament Fabrication (FFF)	Weight	27.5 KG
Print Dimension (L x W x H)	20 x 20 x 19 cm	Print Material	ABS / PLA
Print Resolution	0.1 / 0.2 / 0.3 / 0.4 mm	Filament Diameter	1.75 mm
Display Screen	2.6 inch LCM	Nozzle Diameter	0.4 mm
Connection Method	USB 2.0 / WiFi	Operating System	Win 7 and above Mac OSX 10.8 and above
Print Software	XYZware Pro	File Format	3w / stl
Scan			
Scan Technology	Slit Laser Triangulation	Turntable payload	≦ 3 Kg/6.6lbs
Scan Resolution (Diameter x H)	3 x 3 cm – 15 x 15 cm/ 1.18 x 1.18"- 5.9x5.9"	Scan Density	2140 points/cm2 (13900 points/inch2)
Scan Software	XYZscan		

Support Details

As the printer encounters issues, please refer to the following troubleshooting instruction to fix the issues. If the issue cannot be removed, please contact customer service center

Error Status	Recommended Process Ways
Printer is busy	Try again after current task is completed, and examine the information displayed on screen of the printer
Firmware of the printer cannot be updated	Check internet connection / Update firmware later
Nozzle is clogged	Unload the filament to clean the nozzle, and then reload the filament
Filament cannot be loaded	Unload and reload the filament
NO CARTRIDGE Filament is not installed correctly	Reload or replace the filament
CARTRIDGE EMPTY Filament ran out prior to a print : remain 0%	Replace filament immediately
FILAMENT LOW Filament residual is low: remain 30%	Replace filament if necessary
FILAMENT END Filament ran out while printing : remain 0%	Replace filament immediately

Notes and Description for Use of Maintenance Tools

- The following tools can be used only in an environment with guidance or monitoring by adult. Do not allow children to obtain maintenance tools in unfamiliar situations in order to avoid danger.
- Please make sure to maintain the printer as the bed is cooled.

- After print is finished and the print bed is cooled to room temperature, the printing object may be taken off with Scraper.

- In order to prevent print quality from impact due to residual and accumulated filament, which results in poor discharge, after long-term use of print nozzle, it is recommended to enable the "CLEAN NOZZLE" (nozzle cleaning) function of the printer every 25 hours of print to clear residuals with nozzle cleaning wire or feeding path cleaning wire. (Filament should be unloaded from the extruder before cleaning the feeding path.).

- Filament residuals produced during print may also attach onto nozzle and gear of print module to influence print quality, printer operation, as well as measurement result of bed. For such situation, please use cooper brush to clean the print module.

● Maintenance and Service

Keep original packaging material in the event of sending your unit back for repair during the warranty period. If other packing materials are used instead, the printer may be damaged during the transportation process. In such situation, the XYZprinting the right to charge repair fee.