



da Vinci 1.0 AiO USER MANUAL

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Safety and Compliance

Before you use, operate the product, change or remove any parts, components or materials of the product, or maintain the printer, please ensure that you carefully read this User Manual and the safety instructions described below, and strictly follow the instructions of such safety information.

For the latest information about da Vinci 1.0 AiO 3D Printer and XYZprinting products, please visit XYZprinting website (<http://www.xyzprinting.com>) or contact your sales representative.

The following warnings and attention notices are a best effort attempt to cover all scenarios; unfortunately it is not possible to do so. In the case of performing maintenance procedures that are not described in this manual the burden of safety falls to the customer side.

Important Safety Information:

- Do not let children operate this device without adult supervision. Moving parts can cause serious injury.
- Electric shock hazard.
- Do not place the printer on an unbalanced or unstable surface. Printer may fall or tumble causing harm and/or injury.
- Do not place any objects on top of the printer. Liquids and objects that fall into the printer can lead to printer damage or safety risks.
- Do not use flammable chemicals or alcohol wipes to clean this device.
- Do not disassemble or replace the printer cover with none XYZprinter covers.
- Do not touch heated surfaces during or after operation. Heated surfaces can cause severe burns.
- Insert and secure the power cord firmly for proper usage and to avoid potential electricity and fire dangers.
- Do not attempt to service the printer beyond the instructions specified in this document. In the case of irrecoverable problem, contact XYZprinting service center or your sales representative.
- Do not place the printer in humid or dusty environments such as bathrooms and high traffic areas.
- Do not touch the interior of the printer while printing, as it may be hot and include moving parts. Please keep the front door closed during printing to avoid injury.
- Please place and use the printer in a well ventilated area. The process of heating the filament will produce a small amount of non-toxic odor. Having a well ventilated area will ensure a more comfortable environment.
- This printer is only to be used with filament specified by XYZprinting.
- Make sure to set the power switch to the off position and remove the power cord before transporting the device.
- Some components of the printer are moving during operation. Do not attempt to touch or change anything inside before powering off the printer.
- Only use the grounded power cord supplied with the printer to prevent a possible electrical shock.

Copyright

All other trade names and trademarks are properties of their respective owners.

Federal Communications Commission (FCC) Declaration of Conformity

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:



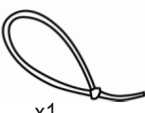
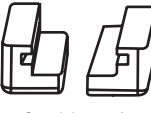

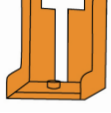

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized dealer or service representative for help.

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.

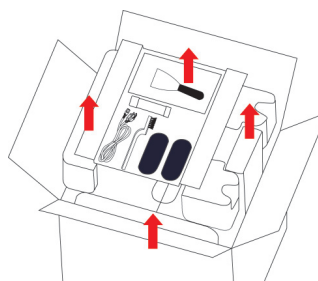
This Device Complies with DHHS Radiation Rules, 21CFR Chapter 1, Subchapter J.

Packaging Support Checklist Note: Please remove all packaging materials as described below before proceeding to step 12.

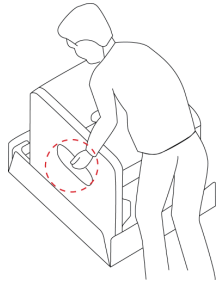
List of packaging Supports	 x2	 x11	 x1	 Cushion x9	 x1	 x1	 x1
Is it removed?							

Unpacking and Setup

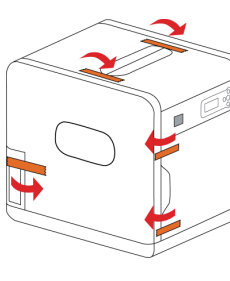
 Note: All packaging materials should be removed before powering up the printer.



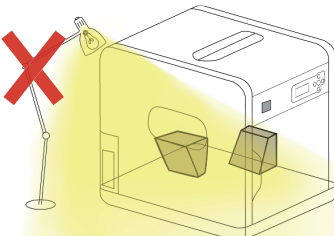
1 Open the box and remove the accessories and cushions.



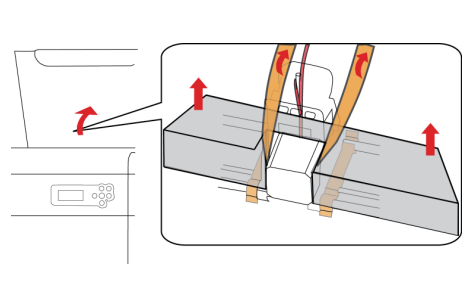
2 Take out the printer by holding the side handles.



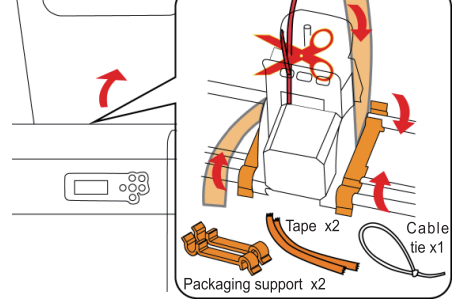
3 Remove the plastic bag and the tapes.



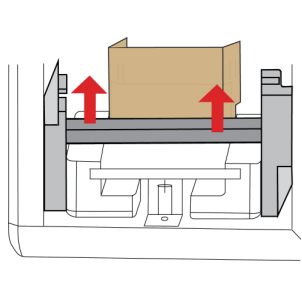
4 Suggested placement:
On a leveled and stable surface **AND** in a dark place without sunlight or other light sourcing shining directly to the scanner modules.



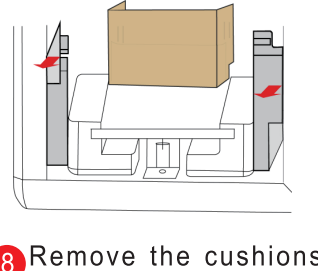
5 Open the top cover, and remove the cushions by the extruder.



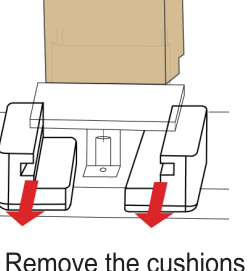
6 Remove the packaging supports and tapes from inside.



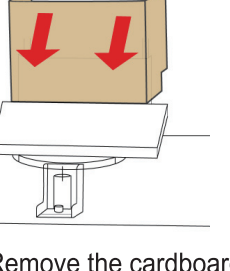
7 Remove the cushion over the print bed.



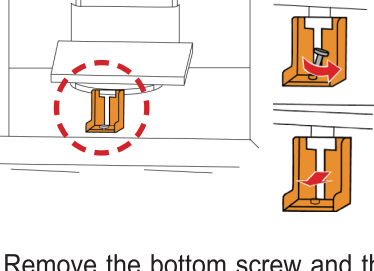
8 Remove the cushions and the tapes from the scanning modules.



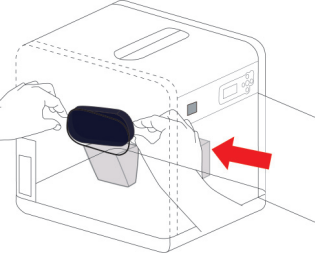
9 Remove the cushions by the print bed.




10 Remove the cardboard.




11 Remove the bottom screw and the plastic piece under the print bed.



12 Install the side cover plates on the printer from inside.

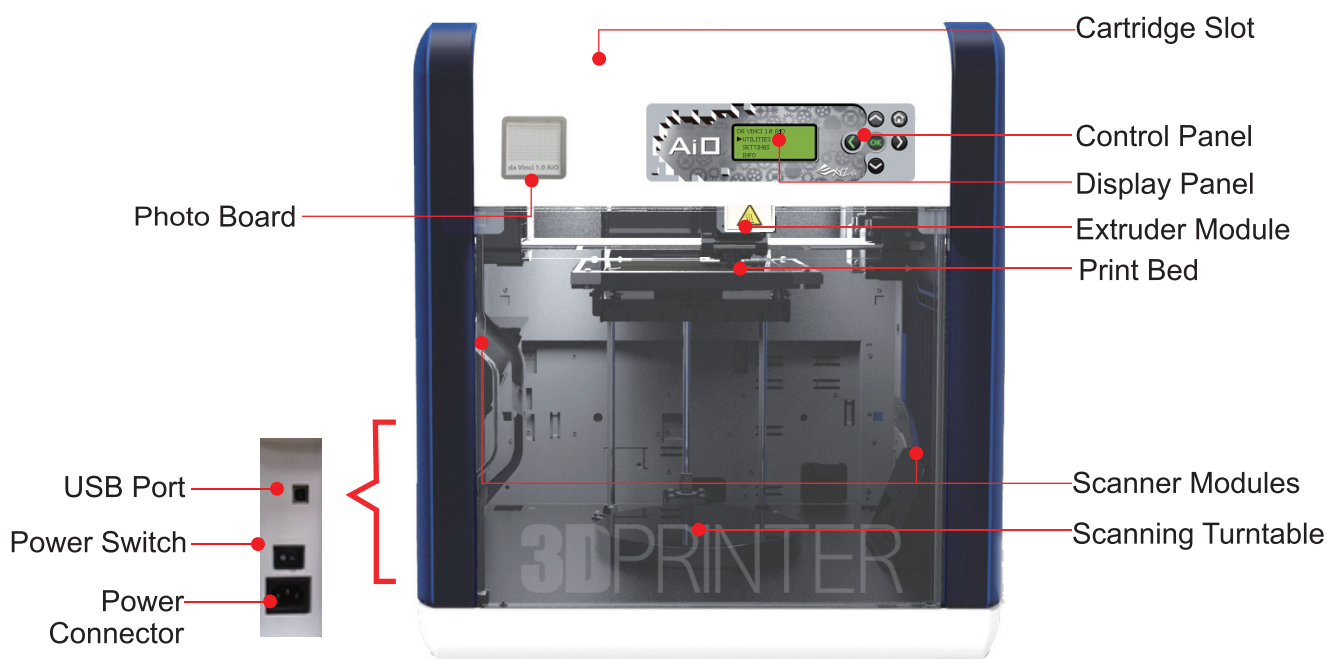


13 Insert Software CD to install XYZscan (for scanning) and XYZware (for printing).



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

Product Overview



Accessory Checklist



· User Quick Guide & Warranty Card



· Software CD



· Filament Cartridge



· Side Cover Plate x2



· Cartridge Locker



· Glue Stick



· USB Cable



· Power Cord

Maintenance Tools



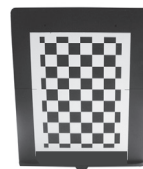
· Scraper



· Copper Brush



· Cleaning Wire x 5



· Calibrating Plate
(See P. 9 for instructions)

Important Safety Instruction for Use of Maintenance Tools



The maintenance tools provided should be only handled by an adult. Please keep the tools away from children. Incorrect handling or maintenance of the printer may cause damage to the product or personal injury. Be sure to maintain the printer while the print bed is cool.



The scraper is used to remove the object from the print bed when printing has finished and the print bed is cool.



Over time, carbon deposits or filament dust buildup in the nozzle may decrease its performance. It is advised to clean the nozzle with the cleaning wire by activating "CLEAN NOZZLE" mode after every 25-hour of printing.



Molten filament may be left on the tip or surface of the extruder and inside the drive gear and may decrease the performance of the printer, or lead to calibration result of "ERR". The copper brush is used to clean and remove the filament pieces from the extruder in these cases.

Important Safety Instruction

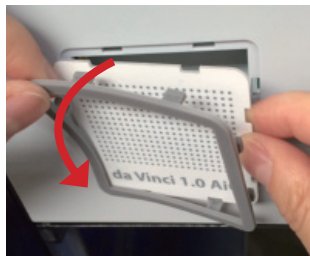


Do not place the printer in humid or dusty environment such as bathrooms and high traffic areas. Do not place the printer on a rickety surface and/or inclined position. Printer may fall down/or tumble and it may cause serious injury. Do not touch the interior of the printer while printing. As it may be hot and include moving parts. Please keep the front door closed during printing to avoid injury.

Photo Board

To personalize your printer, remove the rubber frame, and replace the plastic name plate with your creation:

1. Remove the rubber frame and the name plate

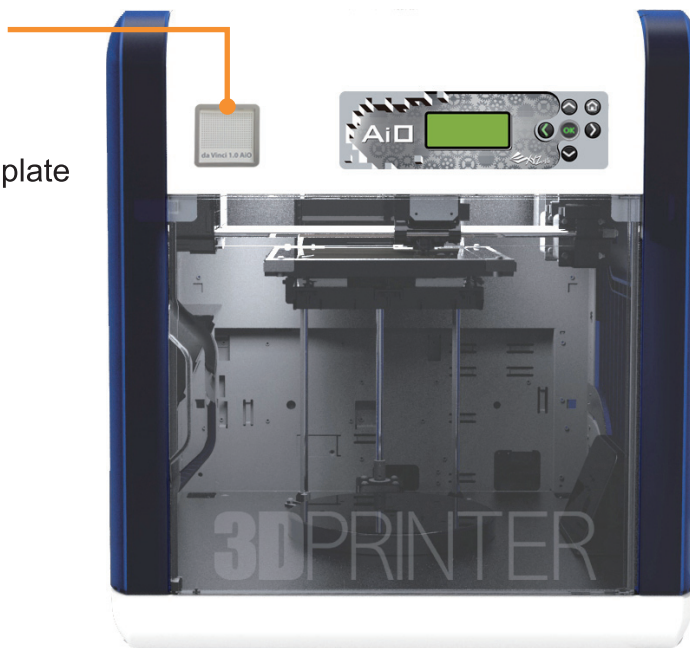


2. Go to photo board maker:
<http://apps.xyzprinting.com/photoboard>

3. Install your creation.



- *Before replacing the board, turn off the printer to prevent exposing your eyes to the LED illumination.
- * Print with the filament in yellow, tangerine, red, and nature for better effect.



See tutorial video

Specifications

da Vinci 1.0 AiO 3D Printer			
Print Technology	Fused Filament Fabrication (FFF)	Weight	27.5 Kg/60.62lbs
Build Volume(WxDxH)	20x20x19cm/7.8x7.8x7.5"	Scan Resolution	0.25mm
Print resolution	100/200/300/400 microns	Point Accuracy	0.25mm
Filament diameter	1.75mm	Scan Density	2140 points/cm ² (13900 points/inch ²)
Nozzle diameter	0.4mm	Laser Wavelength	650nm+5nm/-10nm
AC Input	100-240V, 50~60Hz	Total Laser Power (per laser)	< 3mW
Connectivity	USB Cable	Number of Lasers	2
Display	FSTN LCM (16 Characters x 4)	Laser Power for Classification	Class1, <390μm
Scan Technology	Slit Laser Triangulation	Mode of Operation	CW (continuous wave)
Scannable Object Size (Diameter x H)	3x3cm - 15x15cm/ 1.18x1.18 " - 5.9x5.9"	Beam Diameter	≤ 1mm
Turntable payload	≤ 3 Kg/6.6lbs		

Scanning

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

Object Placement




Recommended that you place the object to be scanned at the center of the turntable. Please note that the scan modules are unable to capture the image from the object which is obstructed or been overlapped (such as open-top containers, or objects with hollow structure). For the objects with overlapped structures, you may try to adjust the placement to make sure that as much of the object is in the line of sight of the scanners.

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: $\leq 3\text{kg}/6.6\text{lbs}$
- Objects with the following features scan better:
 - Stationary objects
 - Non-translucent objects
 - Objects with light-shaded surface, especially white-surfaced objects
 - Cylinder-like objects, objects with round curves
- Moving/living objects may not be scanned
- Objects with very fine spikes, sharp or pointed tip or fur-covered objects may be difficult to scan

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, here are some practices that may help to improve the scanning quality.

Features	Suggestion
Objects with high contrast/glossy/fuzzy/translucent/dark, especially black, dark green and dark blue, surface	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

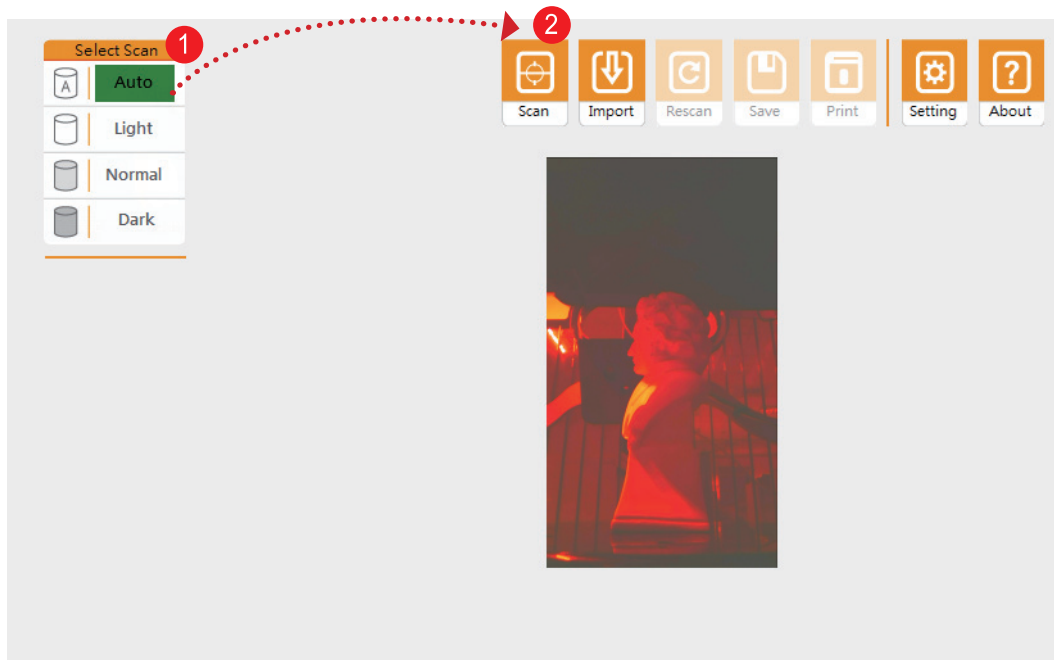
Objects with holes or deep 'undercuts'

Adjust the placement so that the most of the overlaps is in the line of sight of the scanning modules.

Scan Software

When you have settled the object on the turntable, activate scanning via XYZscan. See “XYZscan Manual” for full instructions.

Basic operation:



Select a scan mode based on the shade of the object, and press “Scan” to begin. And then you can perform basic editing in XYZscan or save the 3D model into .stl format for further modification in other 3D modeling programs.

Default scanning mode is "Auto". For unsatisfied scanning result, please try to scan again with a darker scan mode.

Scanning Devices Calibration



Original model

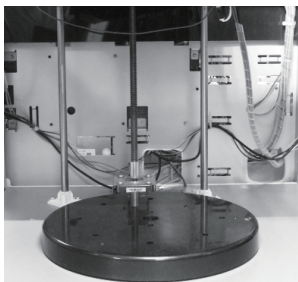


Scanning result before calibration

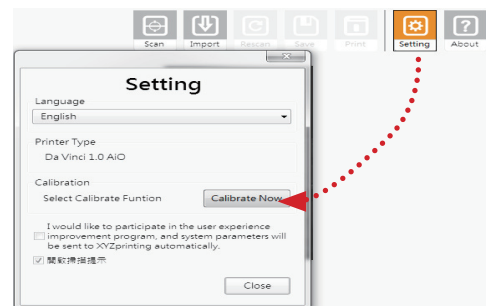


Scanning result after calibration

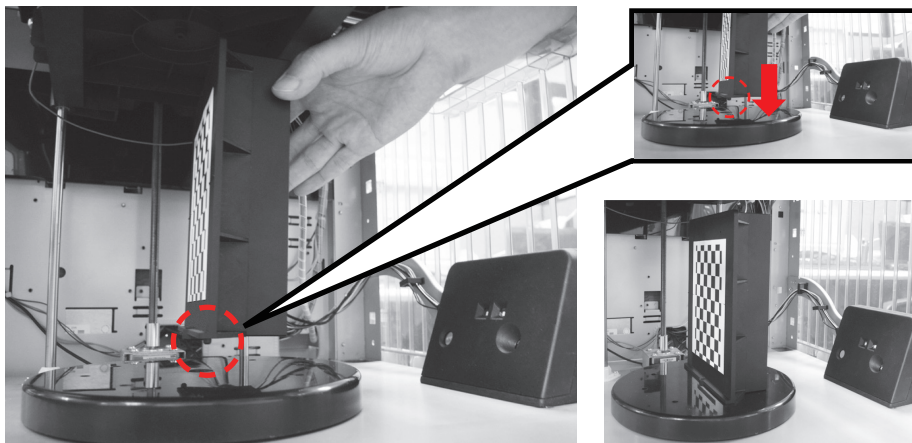
When you find inaccurate scan results, please follow the steps for scanning devices calibration:



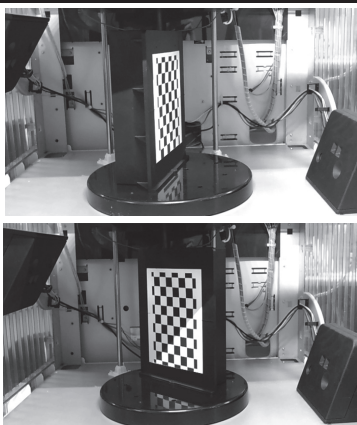
1 Remove the object from the turntable



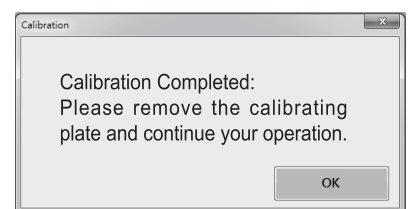
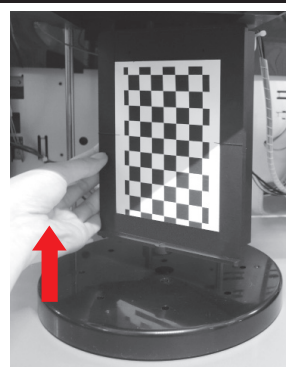
2 In XYZscan, select "Setting" > "Calibrate Now"



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 "Calibrate now" button.



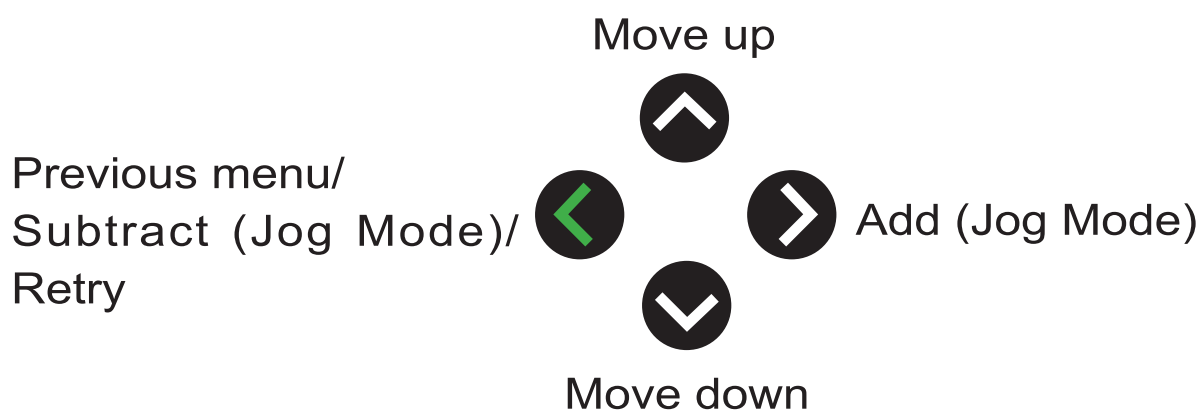
4 Wait until XYZscan and the printer finish calibration (for approx. 7 minutes)




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

Display and Control Panel

To control and maintain the printer, you will need to operate certain functions with buttons on the control panel. Here's the map of the buttons:

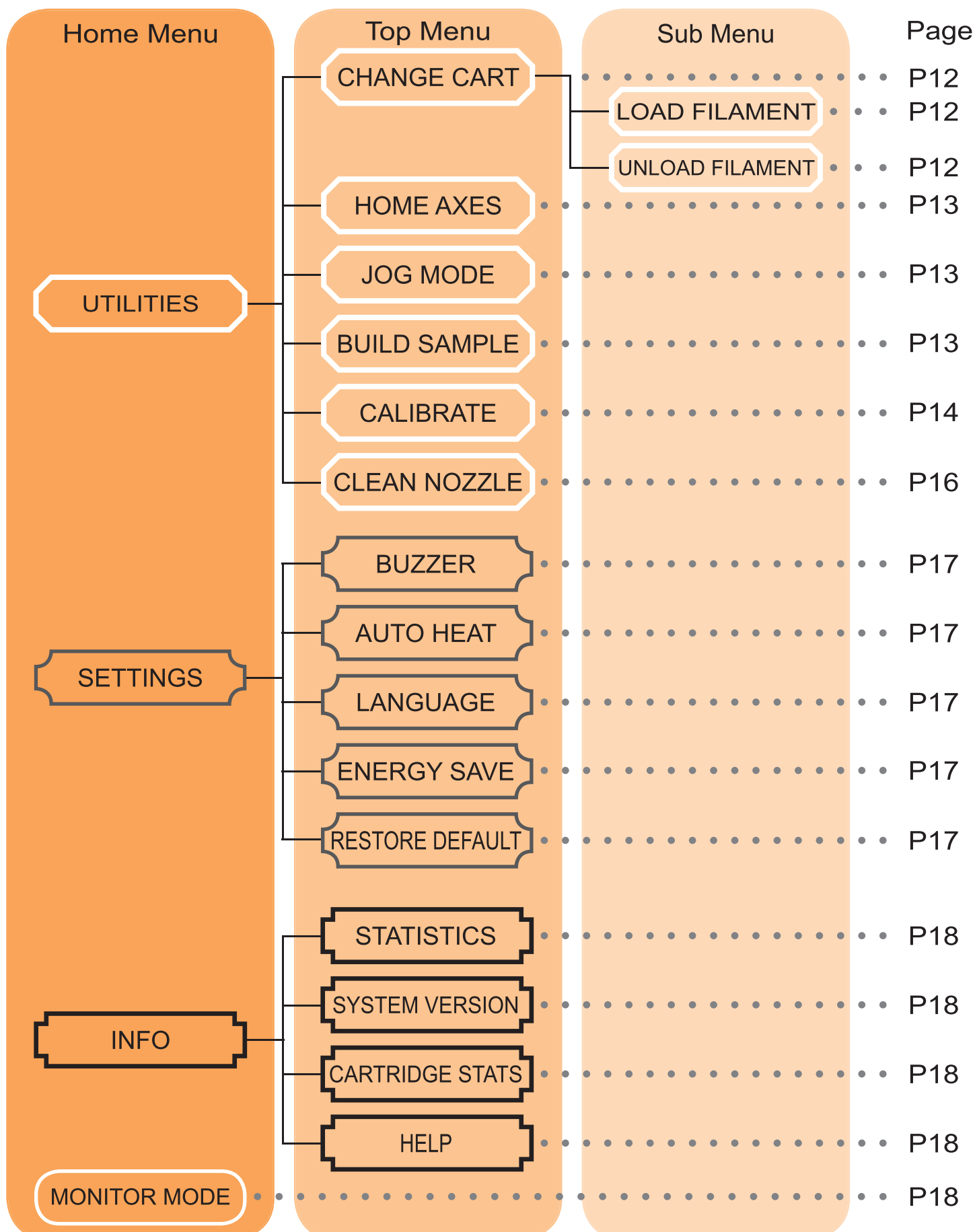


 Confirm selection and settings/Exit

 Home menu

Maps of Functions

The map below shows the functions you may access with the control panel on the printer. For detailed description of each function, refer to the respective page.

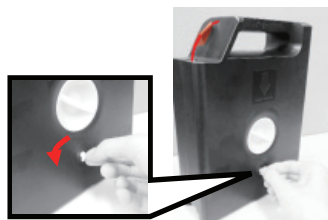


CHANGE CART

The function is used when you want to install, uninstall, or change the cartridge.

LOAD FILAMENT

First install the cartridge to the cartridge slot...



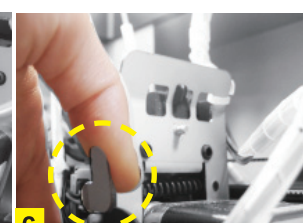
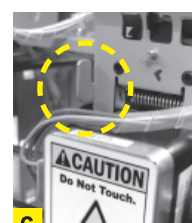
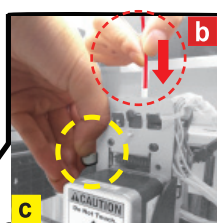
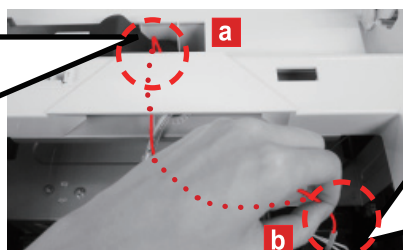
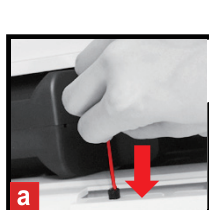
1 Remove the filament stopper and tape.



2 Install the new filament cartridge into the empty slot.



3 Place and push to click the cartridge locker into the slot.



4 Push the filament through the guide hole (a) into the hole in the top of the extruder (b).

Note: The filament will load better when the tip is cut at an angle.

Tips: Grasping the releasing arm while inserting, it will make it easier to push filament into extruder.

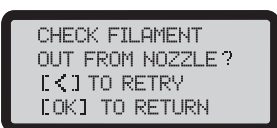
Then load filament using the control panel on the printer...



5 Select "LOAD FILAMENT".



6 Wait for the extruder to heat up and load filament.



7 Check if the nozzle outputs filament and press "OK" to go back to main menu.

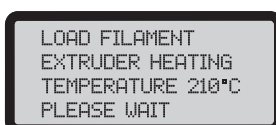
UNLOAD FILAMENT

Note: Always "UNLOAD FILAMENT" as describe below before changing the cartridge. Do not cut the filament off.

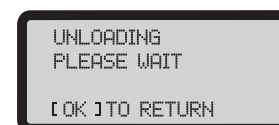
First unload filament using the control panel on the printer...



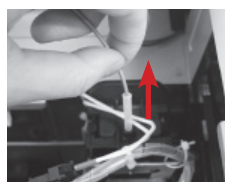
1 Select "UNLOAD FILAMENT".



2 Wait for the extruder to heat up and unload filament.



Remove filament from the extruder when the screen shows "PULLOUT FILAMENT"



3 Pull filament from the extruder gently.



4 Remove the cartridge locker before taking out the cartridge.

HOME AXES

“HOME AXES” moves the extruder to the right back corner, and the print bed to the top.

To home axes:



Select “YES” to proceed.

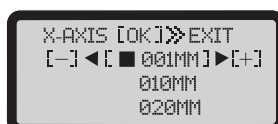
JOG MODE



“JOG MODE” is used to manually move the extruder and the print bed.

To move the extruder:



1. Select “X-AXIS” (to move right and left) or “Y-AXIS” (to move backwards and forwards).



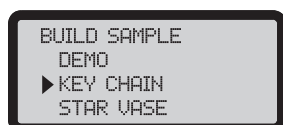
2. Select desired increment of travel with  and  buttons, and press (or hold)  or  button for desired direction to move the extruder. And press [OK] to exit.

To move the print bed, select “Z-AXIS” to proceed.

BUILD SAMPLE

3 sample models are built-in the printer. You may begin your first 3D prints with the samples.

To print a sample:



1. Select a sample to print



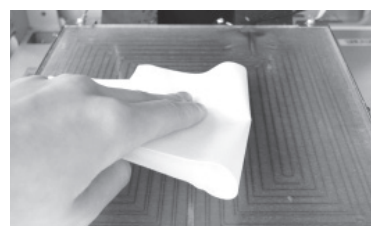
2. Apply glue to the print bed before printing. Glued area depends on the object to be printed.



3. Select “YES” to start printing



4. Remove the printed object when the printing has finished and the print bed has descended.



5. Cover a damp cloth on the print bed (while cold) for 2-3 minutes. Wipe the moistened glue from the print bed with the damp cloth gently. (Use the scraper to scrape off the glue when necessary.)

A level print bed is critical for consistent quality prints. The print bed has been factory calibrated before shipping. Recalibration is only necessary in case of low quality prints.

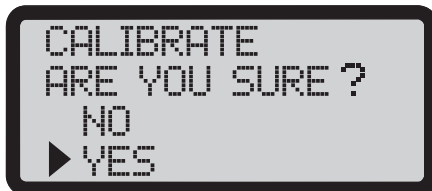


CALIBRATE

1. Check for firmware update

In XYZware, select "About" > "Firmware Update".

2. Activate Calibration



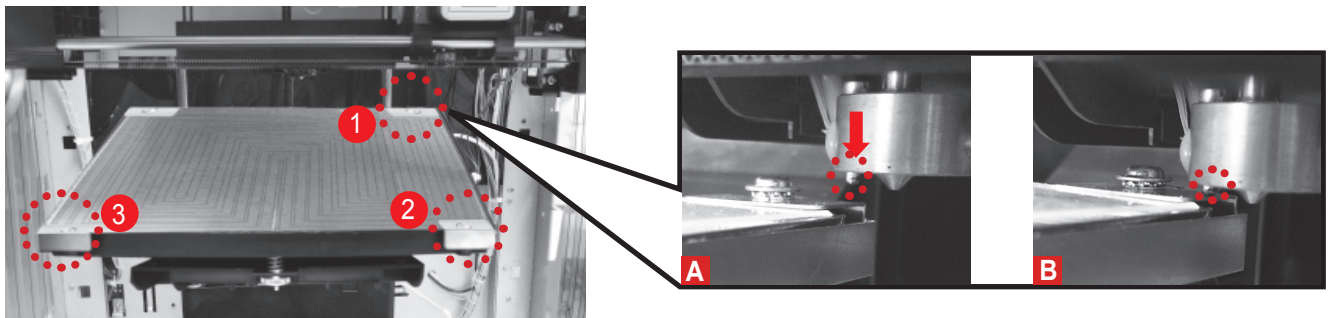
Select "YES" to begin.

(Press and buttons to browse the menu if necessary)

3. Wait for detecting

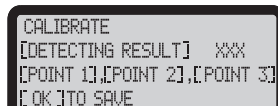
What does "detecting" do:

The printer measures the distance between the detecting pin and ①②③ measurement points at the corners of the print bed to check if the platform is leveled. When the height of the 3 points are no more than ± 20 from each other, the print bed is leveled.



4. Check the detecting result on the display

What the result tells:



•[Detecting result] may show the following:

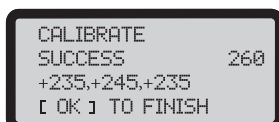
- (1) "SUCCESS" (Leveling is not required)
- (2) "FAIL" (Leveling based on the values of height is required)

•[Point *] may show the following:

- (1) a value (The value indicates the height of point ①②③ ; greater value indicates the higher the detected point is.)
- (2) "ERR" (The detect pin failed to contact the measurement point)

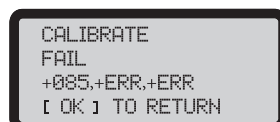
Possible results:

"SUCCESS" - ready to print



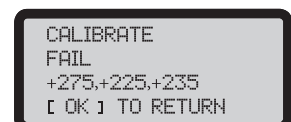
Skip step 5 & 6, and exit to print.

"ERR" - cleaning & leveling is required



Press "OK" and proceed to step 5 & 6 on next page

"Fail" - leveling is required



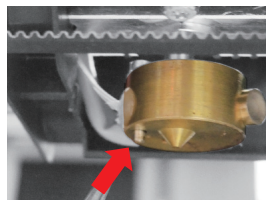
Press "OK" and skip to step 6 on next page

5.Clean the detecting pin

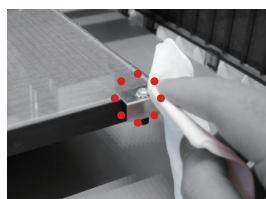
Select “CLEAN NOZZLE” function, and brush the molten filament and dust from the detecting pin while the extruder is heated up.



Activate “CLEAN NOZZLE”:
Select “UTILITIES” > “CLEAN NOZZLE” > “YES”.



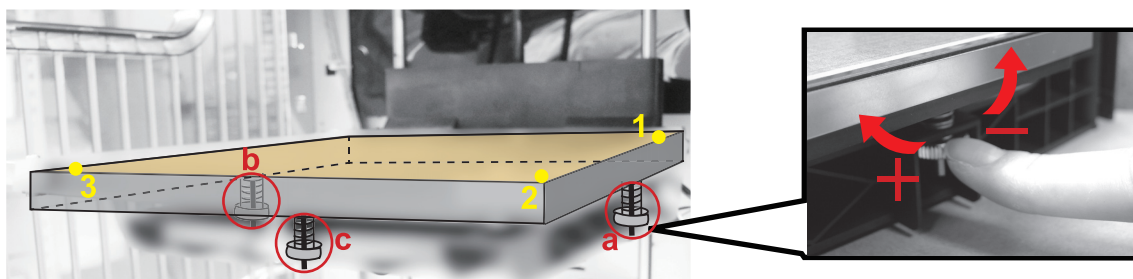
Clean the detecting pin with the copper brush



Clean the 3 measurement points

6.Level the print bed

Turn the 3 turning screws at location "a", "b", "c" under the print bed to level the platform.



How to adjust :

- Turn clockwise to raise, turn counterclockwise to lower.
- Adjust screw A and B may offset the diagonal. (e.g. Left turn screw B will lead to the descendant of point 2.)
- Each full turn leads to a change of 50 to the value shown.

Thumb of rules:

- Adjust the values to the 230 – 260 range.
- 3 values should be no more than ± 20 from each other.

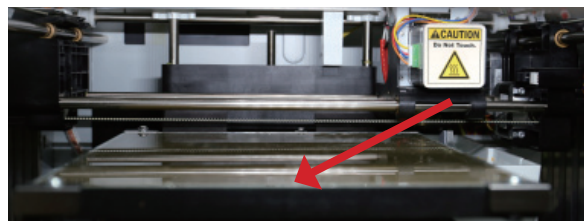
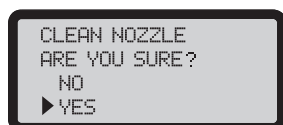
When you have finished the adjustment, repeat the calibration from step 2.

CLEAN NOZZLE

Over time, carbon deposits or filament dust buildup in the nozzle may decrease its performance. It is advised to clean the nozzle after every 25-hour of printing.

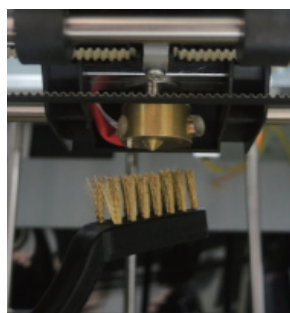
Also, when you find the result of print bed calibration shows “ERR” or any residue on your prints, you may try to clean the nozzle.

To clean the nozzle:



1. Select "YES" to begin.

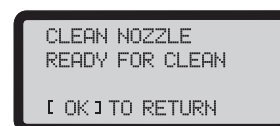
2. Wait until the extruder heats up and moves to the front, and the screen shows “READY FOR CLEAN”



3. Clean the surface of the nozzle using the copper brush.



4. Hold the cleaning wire with the pliers, and carefully pass the wire through the nozzle opening.

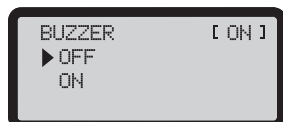


5. Select "OK" to return.

BUZZER

When the buzzer is turned on, the printer will output an audible signal when a button is pressed, print job is finished, or issue is detected.

Buzzer is turned on by default. To switch off the buzzer:

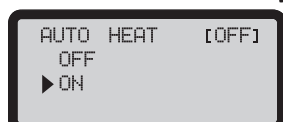


Select “OFF” and press “OK” to change the setting.

AUTO HEAT

When “AUTO HEAT” is turned on, the printer heats up the extruder and the print bed after powered on. This helps to shorten the idle time that is necessary to heat up the printer before printing. However, this mode makes the printer wait in slightly higher power consumption state.

“AUTO HEAT” is off by default. To turn on the function:



Select “ON” and press “OK” to change the setting.

LANGUAGE

You may switch the display language on the printer between English and Japanese.

The default language is English. To switch to Japanese:

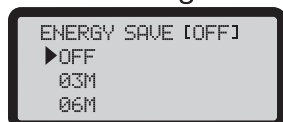


Select “ ニホンゴ ” and press “OK” to change the setting.

ENERGY SAVE

LED luminaires are installed in the printing chamber. To save energy consumed, the lighting will go off after idling for 3 minutes (shown as 03M on the display) by default.

To select a longer time interval:

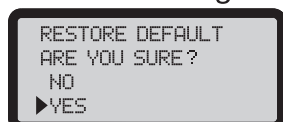


Select “06M” (for auto off after 6 minutes) or “OFF” (for never turn off the LED) and press “OK” to change the setting.

RESTORE DEFAULT

All settings can be reset to factory default with a few clicks.

To reset all settings at once:



Simply select “YES” and press “OK” to reset.

STATISTICS

In “STATISTICS”, you can check the accumulated print time and last print time.

```

STATISTICS
LIFETIME 00006H
LAST TIME 00H34M
[OK] TO RETURN
  
```

SYSTEM VERSION

Firmware version is shown here. For stable printing performance, it is advised to keep the firmware up to date. To check for firmware updates, please go to XYZscan/XYZware.

```

SYSTEM VERSION
1.1J
[OK] TO RETURN
  
```

CARTRIDGE STATS

“CARTRIDGE STATISTICS” provides the information on cartridge level (see REMAINING), and the capacity, color and material of the filament. Press  to read the second page.

```

CARTRIDGE  STATS
REMAINING  059M
CAPACITY   240M
[DOWN]>NEXT PAGE
  
```

```

COLOR BLACK
MATERIAL ABS
[OK] TO RETURN
  
```

HELP

The URL to XYZprinting website can be found here. You may go to the website for the latest information, product documents, tutorial video and more.

```

HELP
WWW.XYZPRINTING.COM
[OK] TO RETURN
  
```

MONITOR MODE

Monitor mode shows the temperature of the extruder and the print bed (see “PLATFORM”). The extruder and the platform will be heat up for printing and calibrating of the print bed and when “AUTO HEAT” is turned on. See below for the working temperature for the parts in different modes.

```

MONITOR MODE
EXTRUDER    046°C
PLATFORM    027°C
[OK] TO RETURN
  
```

Item	Auto Heat Mode	Printing/Print Bed Calibration Mode
Extruder	80°C	210°C
Platform (Print Bed)	50°C	90°C

Support Details

The troubleshooting instruction may guide you to fix the problem. If any error persists, please contact customer service center for support.

Technical Support

Website: <http://support.xyzprinting.com>

Email: US - supportus@xyzprinting.com

EU - supporteu@xyzprinting.com

Other regions - support@xyzprinting.com

When an error occurs, please refer to the service code shown on the printer and/or in the software, and check the suggestion below for troubleshooting.

Service Code	Symptom	Action	Service Code	Symptom	Action
0 0 0 3	Print bed heating problem	Reboot the printer.	0 0 2 9	Cartridge 1 empty	Replace cartridge 1 before printing.
0 0 0 7	Cartridge 1 chip error	Reinstall the cartridge 1 or change a new cartridge.	0 0 3 0	X-axis movement abnormalities	Check motor/sensor connections. Check sensor position.
0 0 0 8	Cartridge 1 chip error	Reinstall the cartridge 1 or change a new cartridge.	0 0 3 1	Y-axis movement abnormalities	Check motor/sensor connections. Check sensor position.
0 0 1 0	Print bed heating problem	Check connections, reboot the printer.	0 0 3 2	Z-axis movement abnormalities	Check motor/sensor connections. Check sensor position.
0 0 1 1	Extruder 1 heating problem	Check connections, reboot the printer.	0 0 3 3	Turntable movement abnormalities	Contact the service center directly.
0 0 1 3	Print bed heating problem	Check connections, reboot the printer.	0 0 4 0	Internal storage error	Check if SD card is inserted correctly.
0 0 1 4	Extruder 1 heating problem	Check connections, reboot the printer.	0 0 5 0	Memory error	Reboot the printer.
0 0 2 8	Cartridge 1 not installed	Install/reinstall cartridge 1.	0 0 6 0	Cartridge 1 empty	Reboot the printer.
5 0 0 1	Calibration failure	Adjust the calibrating plate; make sure the plate is placed correctly (see "Scanning Device Calibration" for details).	5 0 2 2	Left scanning laser error	Reboot the printer.
5 0 1 1	Right camera error	Reboot the printer.	5 0 2 3	Turntable error during calibration	Reboot the printer.
5 0 1 3	Left camera error	Reboot the printer.	5 0 3 1	Storage error during calibration	Reboot the printer.
5 0 2 1	Right scanning laser error	Reboot the printer.	0 2 0 1	Connection error between PC and printer	Reconnect PC to printer, or hotplug the cable between printer and PC.

Error message	Action
The printer is handling other task	Try again after all tasks are completed. Also check the information shown on printer display.
Unable to update printer firmware	Check Internet connectivity/Update firmware again later.
Filament 1 jammed	Unload and reload cartridge 1 and clean the nozzle.
Filament 1 loading problem	Unload and reload cartridge 1.
Filament 1 installation problem	Reinstall the cartridge 1 or change a new cartridge.
Top cover open	Close the top cover.
Filament 1 level low: 30m left	Replace cartridge 1 when necessary.
Filament 1 level low: 5m left	Replace cartridge 1 immediately.

Note:

Please retain all original packaging material and please ship your product with the original packaging for warranty purpose. Shipping without original packaging materials may cause product damaged during the shipment and may cause chargeable service fees.