EcubMaker

TOYDIY 4IN1 PLUS

FCC ID:2ATO4TOYDIY4IN1PLUS

Manual


EcubMaker

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Welcome to contact us!

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Disclaimer

Before using TOYDIY, you must read the safety instructions on the next page. We are not responsible for any personal damage caused by violation operation and disobey the safety instruction when using TOYDIY.

Warning: The FDM Toolhead and FDM-Dual Toolhead contain heating elements. Do not touch the nozzle directly by your hands to avoid scald. After printing, let TOYDIY cool down to indoor temperature before cleaning.

Warning: Laser Toolhead contains Laser device. Make sure you wear Safety Glasses when using it. Do not observe the laser directly without Safety Glasses.

Warning: CNC Toolhead contains high-speed motor, violation operation may cause damage to graver, make sure you wear Safety Glasses when using it.

Warning: Never leave the TOYDIY unattended while operating – always stay within sight. Look at it frequently.

Warning: When inspecting the TOYDIY, please plug out it at first, and make sure it has been powered off before checking.

Warning: Do not move the axis by hand directly , otherwise the driver chip on the motherboard will be burnt.

This manual is designed to let new and old customers understand and become familiar to the operatation of the EcubMaker TOYDIY 4in1 3D Printer (herein after referred to as TOYDIY). Let you know how to use our machines correctly. Please read this manual carefully, even if you have been used the other 3D printers of Ecubmaker. Compared with the previous 3D printers, the TOYDIY has made further improvement in many aspects. This manual will introduce those improvement one by one.

In sections A and B, you will learn some basic Settings, such as how to unpack properly and how to do the basic Settings. Section C~E mainly introduces how to level, print, maintain and repair.

We are glad that you choose TOYDIY 4in1 3D printer. This manual will let you know about the operation of TOYDIY, make you create more possibilities in the 3D world.

1.Safety Information-Laser Toolhead

Please read This at first. improper operation of the TOYDIY may cause fire, eyes or skin injury and other serious repercussion . Please read through this section before you start using Laser Toolhead as well as the others who will use Laser Toolhead.

Before You Start

● Wear the Laser Safety Glasses before you set up the Laser Toolhead and keep it throughout the Laser Engraving process.
● Children should only be allowed to use Laser Toolhead under the supervision and assistance of adults at all times.
● Do not use your TOYDIY while under the influence of alcohol or drugs.
● Using Laser should obey the rules and standards, especially when installed in an educational institution or workplace. Make sure that you comply fully with all applicable rules.
● Do not touch the Laser Toolhead of the TOYDIY while the Laser is on. If you were burnt by accident, turn it off immediately and seek help from doctors.

Electrical Safety

To reduce the risk of electric shock or fire:
● Try not to service, repair, or modify the TOYDIY.
● Never try to access the wiring of the TOYDIY.
● Do not open the power supply or any other sealed portion of the TOYDIY.
● If the TOYDIY is damaged, turn off the TOYDIY, unplug the power adapter and contact support@zd3dp.com immediately .
● If there is any emergency or malfunction, turn off TOYDIY and unplug the power adapter.
● Only use properly grounded outlet.

Fire Safety

The TOYDIY's LaserToolhead engrave with a beam of high-intensity infrared light. The Laser can generate extremely high temperatures in the material being engraved. In some condition, it will be possible to ignite the material being engraved and the flame may spread outside of the area . If fire, the flame could destroy your TOYDIY and spread, even fire in the building.

Fire Risk

● Do not use the TOYDIY to Laser engrave anything that is not supported by the TOYDIY, even if you do not intend to engrave it. Learn more about supported materials below.
● Do not stack materials; for example attempting to burn two or more pieces of paper at one time. Multiple pieces are easier to be ignited.
● Do not place anything on top of the TOYDIY.
● Do not store sources of flammable vapors like paint, acetone, gasoline, or alcohol with your TOYDIY in the same room. Flammable vapors could be ignited during operation.
● When engraving complete, certain materials, like plastics, can remain hot. Wait for them cooling down before you touch them.

Safety Instructions

Safety Equipment
● Always equip a properly maintained and inspected fire extinguisher near the machine, and learn how to use it. A wet towel can also be useful in extinguishing small fires.
● Make sure smoke alarms are installed and tested in the building required by local legislation and manufacturer recommendations.
Keep Watching During Operation
● Never leave the TOYDIY unattended while operating – always stay within sight. Look at it frequently.
● A small flame where the laser beam strikes the material is normal. This flame should move with the laser and should not remain lit when the laser has moved past. If there is a lasting flame on the material:

① Power off the machine and unplug the power adapter.
② If it is safe to do so, extinguish the fire with a wet towel or a fire extinguisher.
③ If the fire can not be extinguished or if it spreads outside the TOYDIY, call your local emergency number (for example 911) and evacuate the building.
④ Do not operate the TOYDIY further until you have contacted us for se rvice information at **support@zd3dp.com.**

Laser Safety
● Your TOYDIY Laser Toolhead is a Class 3B laser product. The laser emits enough beam to cause skin and eye injury. The TOYDIY provides a pair of Laser Safety Glasses to protect your eyes. Wear the Laser Safety Glasses before you set up the laser engraver and throughout the laser engraving process.
● Keep a safe distance from the machine when it's laser engraving.

CAUTION!
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
Do not modify or service

CAUTION!
Attempting to modify or service the TOYDIY may result in hazardous laser light exposure.

To reduce the risk of injury:
● Do not attempt service. All service must be performed only by the TOYDIY factory or by factory-authorized technicians.
● Do not attempt to alter or modify the TOYDIY.
● Do not try to open sealed portions of the TOYDIY, including any protective coverings or housings.

Smoke and Fume Safety
● When you use your TOYDIY, the laser creates visible and invisible aerosols, gases, vapors, and particulates (referred to here as "smoke and fumes"). The smoke and fumes can include carbon monoxide and other chemicals depending on the material being lasered and can Causes health hazards. The fan in the

Laser Toolhead Module can blow away some smoke and fumes but it might still be a bit smelly.
● Do not forget to check your local rules for air quality regulations that may apply to you.

Materials Safety
● It' s recommended to only Laser Toolhead the following materials:
Wood, leather, plastic(ABS,PC,etc.) paper,acrylic.
● Do NOT use Laser Toolhead engrave the following materials:
Metal, transparent material, reflective materials, etc.

Materials Must Fit
Materials that do not fit properly may obstruct operation and result in damage and increase risk of fire.
● The size of the material must be smaller than 180 x180 mm (7.0" x 7.0").
● Do not place rolled-up material in the TOYDIY. It may be too tall, or unroll during laser engraving, obstructing operation.

2.Safety Information-CNC Toolhead

Read This First , Improperly operating the TOYDIY can cause injury or other serious consequences from the CNC Toolhead. Please read through this section before you start CNC carving and ensure everyone else who uses it reads this too.

Before You Start

● It is recommended that experienced users and users over 18 years old perform the setup and use the CNC Toolhead.
● Wear the Safety Glasses before you set up the CNC Toolhead and throughout the CNC carving process.
● The CNC Toolhead are sharp. Please handle them carefully and keep them out of reach of children.
● Keep a safe distance from TOYDIY when it is carving.
● Do not use your TOYDIY while under the influence of alcohol or drugs.
● Do not touch the CNC Toolhead while the TOYDIY is on. If you are cut by accident, turn off TOYDIY immediately and seek help from doctors.

Electrical Safety

To reduce the risk of electric shock or fire:
● Do not try to service, repair, or modify the TOYDIY.
● Never try to access the wiring of the TOYDIY.
● Do not open the power supply or any other sealed portion of the TOYDIY.
● If the TOYDIYis damaged, turn off TOYDIY, unplug the power adapter and contact **support@zd3dp.com** immediately.
● If there is any emergency or malfunction, turn off TOYDIY and unplug the power adapter.
● Only use a properly grounded outlet.

Keep Watch During Operation

● Never leave the TOYDIY unattended while operating – always stay within close aside and look at it frequently.

Materials Safety

● It's recommended to only CNC Toolhead the following materials:
Wood, acrylic, PVC expansion sheet, plastic(ABS,PC,etc.)
● Do NOT CNC Toolhead the following materials. They may damage the TOYDIY or cause injury.
Metal, etc.

Materials Must Fit

Materials that do not fit properly may obstruct operation and result in damage and cause injury.
● The size of the material must be smaller than 150 x150 x40 mm (5.9" x 5.9" x 1.5").
● Do not place rolled-up material in the Snapmaker. It may be too tall, or unroll during carving, obstructing operation.

3.Operating Environment

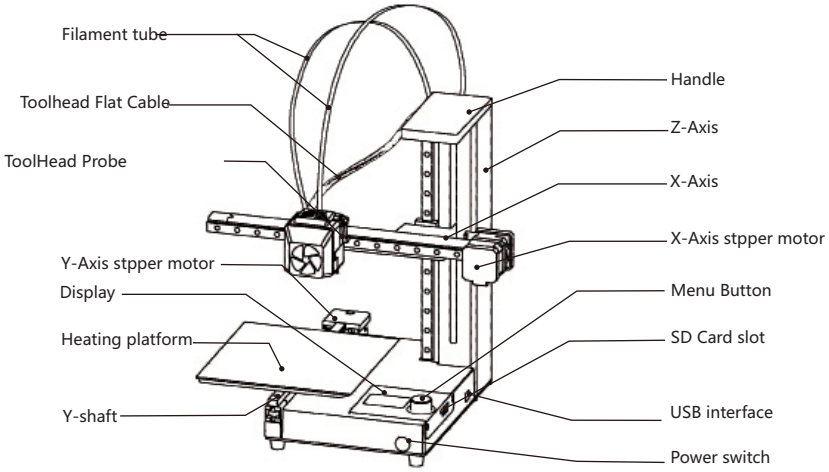
To prolong the life of your TOYDIY and to reduce the risk of fire or mechanical failure, do not put the TOYDIY where it could experience:

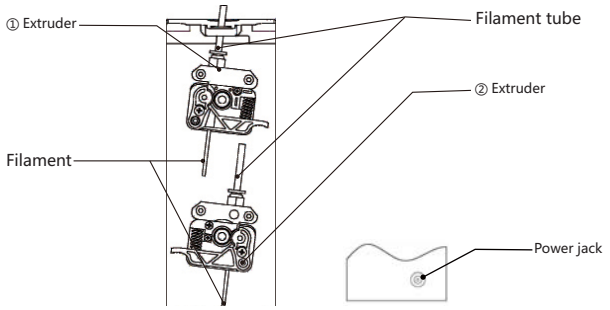
● Extreme temperature or humidity
○ Storage: below 14 degrees Fahrenheit (-10 Celsius) or over 120 degrees Fahrenheit (48 Celsius)
○ Extreme humidity conditions (below 10% or more than 75%)
● Direct sunlight
● Rain, moisture, or liquids
● Excessive hair, dust, or small particles

If any of the following occur, immediately turn off TOYDIY, unplug the power adapter, and contact **support@zd3dp.com** . Do not use your TOYDIY again until the issue has been addressed by support.

● The TOYDIY stops unexpectedly.
● You see any damage to the interior components of the TOYDIY.
● You notice an unusual sound coming from the TOYDIY that was not occur previously.

Mechanical Drawings





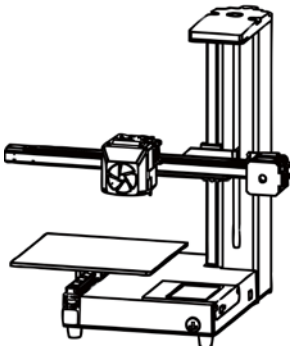
FDM Toolhead FDM-Dual Toolhead CNC Toolhead Laser Toolhead

Specification

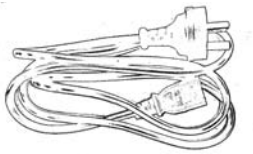
Modle	EcubMaker ToyDIY 4in1 3D printer
Technology	FDM/LASER/CNC
Specialty	4 funcation 、automatic leveling、easy to use
Nozzle	FDMToolhead；FDM-DualToolhead； LaserToolhead；CNCToolhead
Printing Size	180mm*180mm*180mm
Color	Black
Interface	128*64 LED screen
Language	English
LED Light	Yes
Molding Precision	±0.1mm
Position Accuracy	Z Axis 2.5um,XY Axis 11um
Layer Thickness	0.05mm-0.4mm
Printing Speed	Max 24ml/h
Heatbed function	automatic leveling、Enable heating、separating-heatbed;
Heatbed Temperature	max 60℃
Connection	USB on-line Printing SD Card off-line Printing
PC System	Winxp/Vista7/8/10 64bit
Power	Voltage:110V-220V OUTPUT:24V 5A Power:120W；50Hz-60Hz
Weight	14kg
Machine Size	372×315×395mm
Packing Size	460×400×460mm
Slicing Software	EcubWare
File Type	Input STL/OBJ，OutPut Gcode
FDM Toolhead	0.40mm/260℃
FDM-Dual Toolhead	0.40mm/260℃ /Dual-filament printing
LASER Toolhead	Lader-power 1.5W；Laser wavelength:405nm
CNC Toolhead	DC motor 40W；Rpm 10000
FDM filament	PLA-T210
FDM-Dual filament	main:PLA-T210; support：PVA (water-solubility filament)
LASER materials	wood、PMMA（Acrylic）、 Leather、plastic
CNC materials	wood、PMMA（Acrylic）、PVC -expension -sheet、plastic

Packing List

TOYDIY



Power supply and power cord



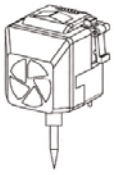
Instructions

FDM Toolhead

FDM-Dual Toolhead

Laser Toolhead

CNC Toolhead



SD Card , SD reader and USB

Safety Glasses

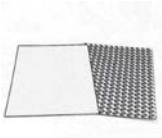
Spanners and Accessories

The accessory list of different configurations will be different, please refer to the real one.

Packing List

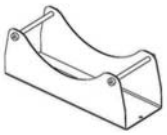
FDM Mountings

Plate Sticker x2



Filament

Support

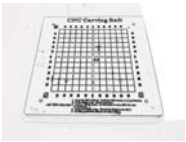


Solid glue

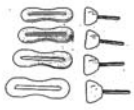
CNC Mountings

CNC Tool

CNC Baseplate x2



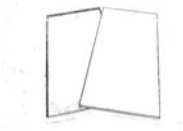
CNC Fixture



Processed raw material

Wood Material

PMMA Material(Acrylic)



Equipment Set

UnI

When you receive TOYDIY, please follow the steps to open the box. Each TOYDIY is strictly tested and packed before it leaves from the factory. Please be careful when unpacking.

Tip: Please take TOYDIY out of the box lightly and carefully. So as to avoid the damage of TOYDIY . If you tear too hard, it may scratches o and even damage TOYDIY.

Unboxing

1.Unboxing

(1) Lay the unopened TOYDIY on the floor.
(2)Open the box, remove the lid and take out TOYDIY user manual. It is recommended that you follow the steps in the user manual to install and know the contents in the box. If you find that anything described in the manual is missing, please contact your vendor.
(3)Take out the pearl cotton used for buffer protection.

2. Remove TOYDIY from the box

(1)Remove TOYDIY from the box, place it on a stable place, and remove the plastic protective bag.

Tip:The Toolhead Flat Cable is not a handle. Never pull or twist the Toolhead Flat Cable.

Initial Start-Up

After unboxing, let's assemble TOYDIY.

1.Mounting Toolhead(The initial default Toolhead is the FDM Toolhead)

2. Plug into the adapter

3.Press the button, the handle light and the screen will be light up.

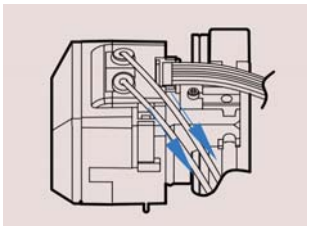
Menu Function

Below is the function menu of TOYDIY.

	EcubMaker TOYDIY		
	FDM 3D Printer	Displays the current firmware Toolhead type	
>	Print Form SD	Print from SD card	->
	Filament		
	Utility		
	Back		
>	File1.gcode	Select file print	
	File2.gcode		
	File3.gcode		
	File4.gcode		
	EcubMaker TOYDIY		
	FDM 3D Printer	Displays the current firmware Toolhead type	
	Print Form SD		->
>	Filament	Material set	
	Utility		
	Back		
>	Set Preheat Temp		
	Preheat		
	Load Filament		
	Unload Filament		
	EcubMaker TOYDIY		
	FDM 3D Printer	Displays the current firmware Toolhead type	
	Print Form SD		
	Filament		
>	Utility	Feature set	
	Back		
	Auto Home	Each axis returns to its original position	
	Move Axis	Manual shaft	
	Set Origin	Set the machining origin of CNC Toolhead	
	Z-Offset	Set the Z-Offset value	
	Change ToolHead	Change ToolHead	
	Restore defaults	Restore defaults	
	Printer info	Equipment information	

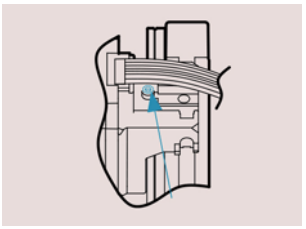
1.Install FDM Toolhead

(1) Power up, if there are filament rest in the Toolhead, please enter the option Filament>Unload Filament at first to exit the consumables, otherwise it will be easy to plug in.

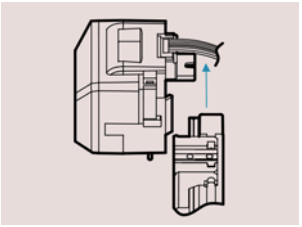


(2) Confirm the current Toolhead type on the screen. If it shows the FDM Toolhead, jump straight to step 4. If it shows other Toolhead, proceed to step 3.

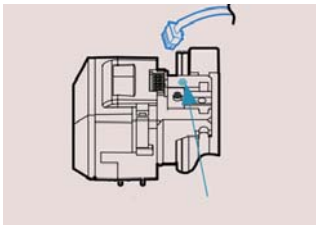
(3) Use Menu Button, enter Utility > Change ToolHeader > Change To FDM Toolhead, browse the contents displayed on the screen and click To the last step.



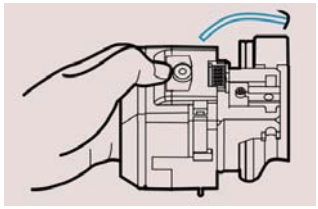
(4) Loose the ToolHead Screw fixing the current Toolhead, remove the original Toolhead upward but keep the cable connected. Remove it and put it aside. Pay attention not to unplug the cable at this moment.



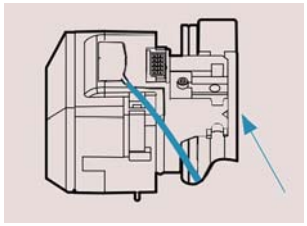
(5) Install the new Toolhead and tighten the current Toolhead with the ToolHead Screw just removed.



(6) Shutdown the equipment. Remove the ToolHead Flat Cable, insert the ToolHead Flat Cable into the new Toolhead, insert the filament tube into the new Toolhead, ensure that it is inserted to the bottom.



(7) Reboot the equipment to check the status of the display screen. If it is not FDM Toolhead, repeat the third step until the firmware program switch complete.



	EcubMaker TOYDIY FDM 3D Printer	Displays the current firmware Toolhead type	
>	Print Form SD		
	Filament		
	Utility		

Tip:

●The original Toolhead needs to be cool down before the operation, to avoid scald.

●When the firmware program is switching, it needs to wait about 5 seconds in the last step before shut down and reboot for switching successfully.

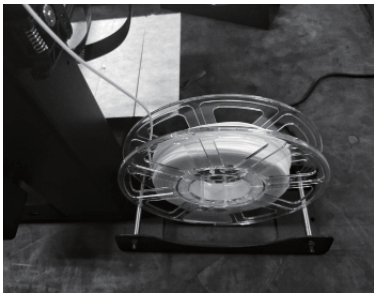
●When pressing the filament tube, make sure to press it to the bottom and then pull out the filament tube, otherwise it is difficult to pull out the filament tube.

2. Install Filament Tube and Filament

(1) Insert both ends of the Filament Tube of the filament into Extruder and the FDM Toolhead separately. It must be pushed to the bottom, otherwise would cause jam.

(2) Unpack the filament, place the filament on the filament support, and insert the filament into the ① Extruder (only enable the ① Extruder for FDM single printing), and push the filament until its end at a distance of 20mm from the Toolhead filament inlet.

(3) Operate the menu bottom to enter the ***Filament > load Filament > load Up Filament*** in the menu, and heat up the filament until the filament can be extruded from nozzle normally. If no thread come out from nozzle, please check refer to the first step to check out if filament is inserted into the specified extruder and the specified position as required.



3. Complete the default file model printing

(1) Insert original SD card and install soft magnetic plate.
(2) Go to the menu Print from SD > FDM 3D Printing Test Modle.gcode, select the file and click Print.
(3) Wait for finish
(4) Take off soft magnetic plate and take the model

4. Special setting - Adjust Z-offset

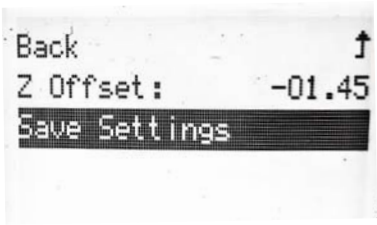
●Z-offset Instructions

Z-offset parameter is used to calibrate the distance between the nozzle and the platform. Normally, before the machine leaves the factory, an appropriate Z-offset value will be set, and the value of Z-offset will be about -0.80mm. However, this value may change after the nozzle being removed and assembled. If the first layer of the default file model is printed, and you notice that the distance between the nozzle and the printing platform should be increased for the nozzle is too tight, then the Z-offset value should be increased (for example, from -0.80mm to -0.2mm); otherwise, the Z-offset value should be reduced.

●There are two ways to set z-offset value :

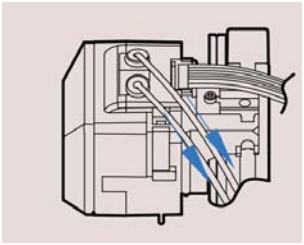
Manual setting: enter the *Utility* > *Z offset* > *Manual Input Z offset*, directly Input the value to be set through the menu bottom, then return to the current interface and click *Save Settings* to Save.

Set: *Utility* > *Z offset* > *Auto Set Z offset*, at this time, put an A4 paper between the platform and the nozzle, and rotate the menu botton to adjust the distance between the nozzle and the platform, so that the height between the nozzle and the platform is just a piece of A4 paper. At this time, the value displayed on the screen is an appropriate Z-offset value, and then return to the current interface and click Save Settings to Save.



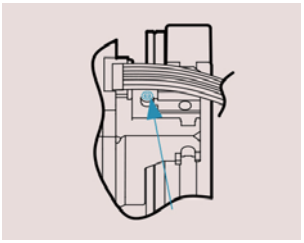
1.Install FDM-Dual Toolhead

(1)Power up, if there are filament rest in the Toolhead, please enter the ***option Filament>Unload Filament*** at first to exit the consumables, otherwise it will be easy to plug in.
There is no need to change the firmware between FDM Toolhead and FDM-Dual Toolhead, all you need is to change the Toolhead.

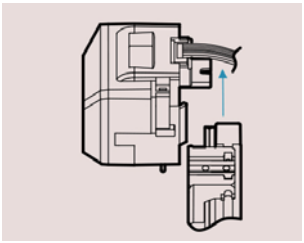


(2) Confirm the current Toolhead type on the screen. If it shows the FDM Toolhead, jump straight to step 4. If it shows other Toolhead, proceed to step 3.

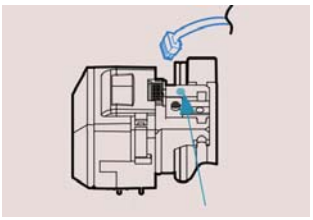
(3)Use Menu Button, enter ***Utility > Change ToolHeader > Change To FDM Toolhead,*** browse the contents displayed on the screen and click To the last step.



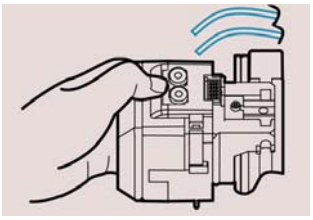
(4) (4) Loose the ToolHead Screw fixing the current Toolhead, remove the original Toolhead upward but keep the cable connected. Remove it and put it aside. Pay attention not to unplug the cable at this moment.



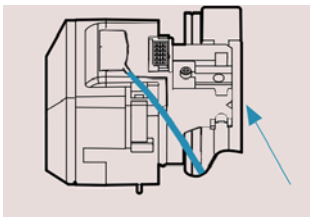
(5) Install the new Toolhead and tighten the current Toolhead with the ToolHead Screw just removed.



(6) Shutdown the equipment. Remove the Toolhead line, insert the line into the new Toolhead, insert the ① Extruder's filament tube into the right side filament tube joint on dual-extuder, insert the ② Extruder's filament tube into the left side filament tube joint on dual-extruder, ensure both side filament tubes are inserted to the bottom.



(7)Reboot the equipment to check the status of the display screen. If it is not FDM Toolhead, repeat the third step until the firmware program switch complete.



	EcubMaker TOYDIY		
	FDM 3D Printer	Displays the current firmware Toolhead type	
>	Print Form SD		
	Filament		
	Utility		

Tip:

●The original Toolhead needs to be cool down before the operation, to avoid scald.

●When the firmware program is switching, it needs to wait about 5 seconds in the last step before shut down and reboot for switching successfully.

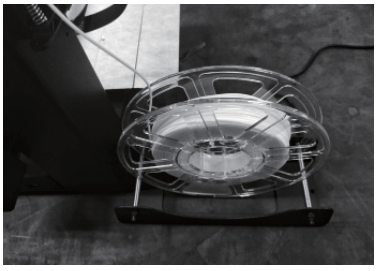
●When pressing the filament tube, make sure to press it to the bottom and then pull out the filament tube, otherwise it is difficult to pull out the filament tube.

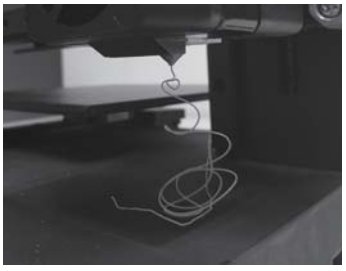
2. Install Thread tube and Consumables

(1) Insert both ends of the Filament Tube of the filament into Extruder and the FDM Toolhead separately. It must be pushed to the bottom, otherwise would cause jam.(extruder1 match to the right filament tube. the extruder2 match to the left guide wire tube.)

(2) Unpack the filament, place the filament on the filament support,insert the main filament into the ① Extruder. Insert the support filament ② into the Extruder and push the filaments until its end at a distance of 20mm from the Toolhead filament inlet..

(3)Operate the menu bottom to enter the Filament > load Filament > load Up Filament in the menu, and heat up the filament until the filament can be extruded from nozzle normally. If no thread come out from nozzle, please check refer to the first step to check out if filament is inserted into the specified extruder and the specified position as required.(this step may bypass as a load up filament operation has been performed in the *"Load Up Filament"* section)



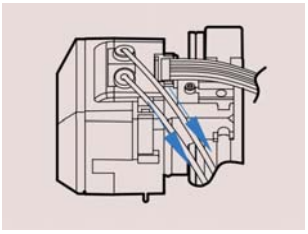


3. Complete the default file model printing

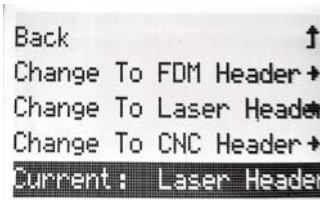
(1) Insert original SD card and install soft magnetic plate.
(2) Go to the menu Print from SD > FDM-Dual 3D Printing Test Modle.gcode, select the file and click Print.
(3) Wait for finish
(4) Take off soft magnetic plate and take the model
.

1.Install Laser Toolhead

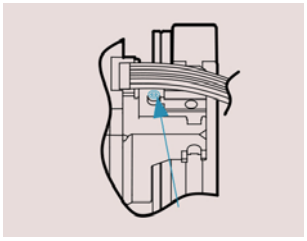
(1)Power up, if there are filament rest in the Toolhead, please enter the option Filament>Unload Filament at first to exit the consumables, otherwise it will be easy to plug in.



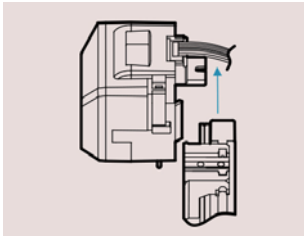
(2) Confirm the current Toolhead type on the screen. If it shows the Laser Toolhead, jump straight to step 4. If it shows other Toolhead, proceed to step 3.



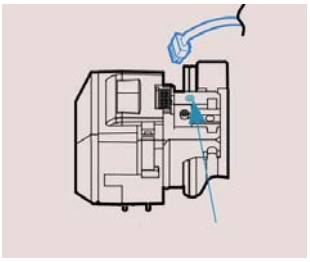
(3) (3) Use Menu Button, enter ***Utility > Change ToolHeader > Change To Laser Toolhead,*** browse the contents displayed on the screen and click To the last step.



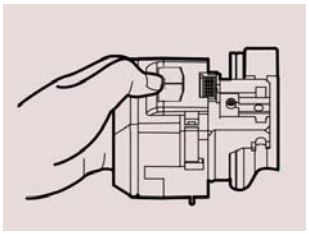
(4) Loose the hand screw fixing the current Toolhead, remove the original Toolhead upward but keep the cable connected. Remove it and put it aside. **Pay attention not to unplug the cable at this moment.**



(5) Install the new Toolhead and tighten the current Toolhead with the toolhead screw just removed.



(6) Reboot the equipment to check the status of the display screen. If it is not FDM Toolhead, repeat the third step until the firmware program switch complete.

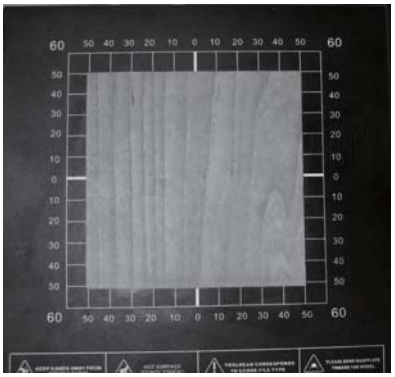


(7) reboot the equipment to check the status of the screen. If it is not Laser Toolhead, repeat the third step until the firmware program switch is completed.

	EcubMaker TOYDIY Laser 3D Printer	Displays the current firmware Toolhead type	
>	Print Form SD		
	Filament		
	Utility		

2. Install Material (wood)

(1) Place the sheet in the middle of the platform and fix the sheet in the middle of the platform. It can be fixed by tape and pressing block.



3. Complete the default file model printing

(1) Insert original SD card and install soft magnetic plate
(2) Go to the menu Print from SD > Laser Engraving Test Modle.gcode, select the file and click Print.
(3) Wait for finish .Please wear safety glasses when observe the processing.
(4) Take off soft magnetic plate and take the model
.

4. Special setting - Adjust the focal length

About Laser focal length:

Laser focal length means the setting that the Laser Toolhead generate the maximum energy. At this state, laser spot will have smallest size and highest energy. Generally, Laser focal length will be set uniformly when the device leaves the factory. However, transportation or some man-made factor may lead slight changes in the focal length of the Laser tube of the Laser Toolhead. When you engraving default file model and finds that the sample does not achieve the desired effect, it may be necessary to adjust the Laser focal length.

Laser focus adjustment mode:

Manual setting:

(1) Remove the soft magnetic plate on the printing platform, expose the metal base plate.

(2) Enter the *Utility* > *Auto Home* menu, and move the toolhead to the initial position.

(3) *Utility* > *Move axis* > *Move X, Move to 90mm;* > *Move Y, Move to 90mm,* >*Move Z, Move to 40mm*.

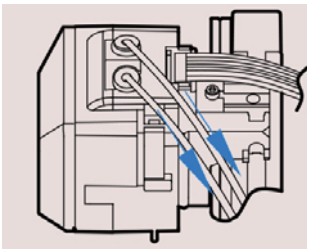
(4) Put on the safety glasses and enter the menu *Preheat* > *FDM header*, then the laser device will be turned on. Rotate the lens on the laser device's head to adjust the spot size. When the spot is the smallest, the current state is the focal length state.

Tip:

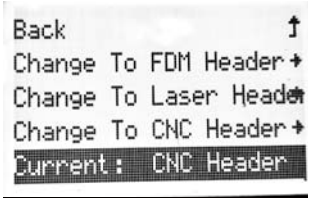
Users are not allowed to adjust the laser focal length unless they are authorized maintenance personnel.

1.Install CNC Toolhead

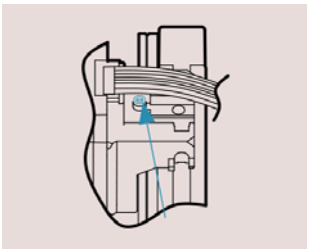
(1)Power up, if there are filament rest in the Toolhead, please enter the option Filament>Unload Filament at first to exit the consumables, otherwise it will be easy to plug in.



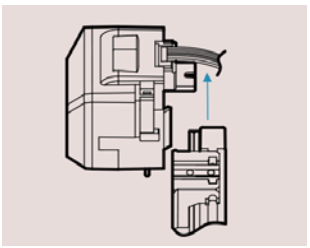
(2) Confirm the current Toolhead type on the screen. If it shows the CNC Toolhead, jump straight to step 4. If it shows other Toolhead, proceed to step 3.



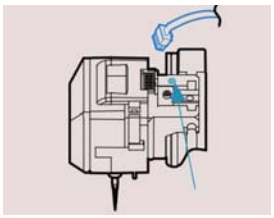
(3) Use Menu Button, enter Utility > Change ToolHeader > Change To CNC Toolhead, browse the contents displayed on the screen and click To the last step.



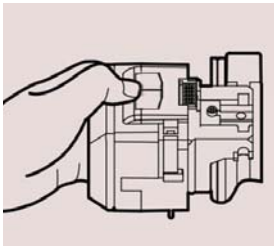
(4) Loose the Toolhead Screw fixing the current toolhead, remove the original Toolhead upward but keep the cable connected. Remove it and put it aside. **Pay attention not to unplug the cable at this moment.**



(5) Install the new Toolhead and tighten the current Toolhead with the ToolHead screw just removed.



(6) Shutdown the equipment. Remove the Toolhead flat cable, insert the Toolhead flat cable into the new Toolhead.



(7) Reboot the equipment to check the status of the display screen. If it is not CNC Toolhead, repeat the third step until the firmware program switch complete.

	EcubMaker TOYDIY CNC 3D Printer	Displays the current firmware Toolhead type	
>	Print Form SD		
	Filament		
	Utility		

2 Install CNC working platform and fixture

3.Install Material (PMMA)

(1) Load the acrylic sheet in the middle of the platform and fix the acrylic sheets with fixtures.

4. Set the processing origin and finish the carving and milling of the default file model

(1) Insert the original SD card and ensure that the workpiece has been fixed.
(2) Enter the menu > Move axis > Move 0.1mm > Move X, Y, Z, let the tip of the CNC tool is point to the center of the surface of the workpiece (refer to the thickness of a piece of A4 paper). Return to the previous interface.
(3) Enter the menu > Set Origin to Set the current coordinate as the Origin of processing.
(4) Enter the menu Print from SD > CNC Craving Test Modle.gcode, select the file and click Print.
(5) Wait for finish.Please wear safety glasses when observe the processing.
(6)Relax the thumb screw and take the model.

Tip:

●How to change the CNC Tool
Loosen the meter screw at the lower end of the coupling on the CNC Toolhead, load the new Toolhead and tighten the meter screw. It is recommended to use the special cutter for this product.
●Set Origin
Start using CNC Toolhead when printing. Set Origin, the central point in the slicing EcubWare, must be Set first.

●The coupling between the tool head and the tool head of a CNC Tool must be tightened, otherwise accidents may occur.

EcubMaker

EcubWare slice Settings

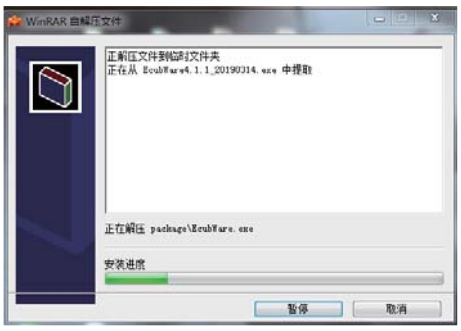
Setup Ecubware

1. Description of slicing EcubWare

EcubWare is a 3D model slicing software that applicable for TOYDIY . Please enter the EcubMaker official website (http://ecubmaker.com.cn/) and get further details in the "download center".

2.EcubWare Download

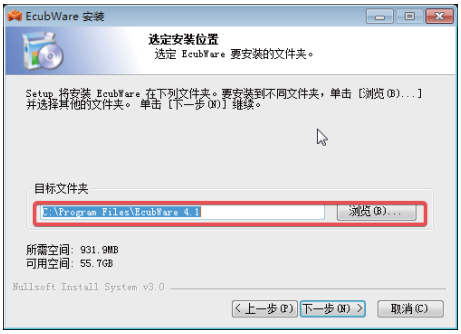
File self-extracting...



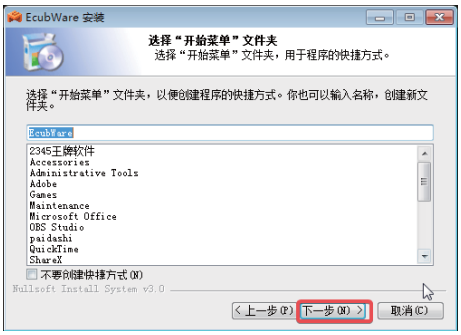
Click next

Setup Ecubware

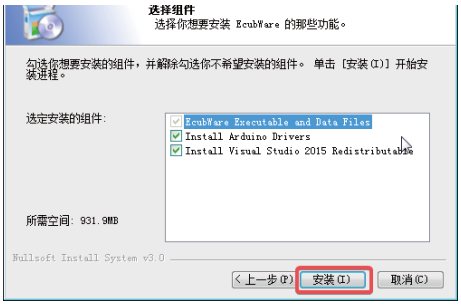
Set the path and click next



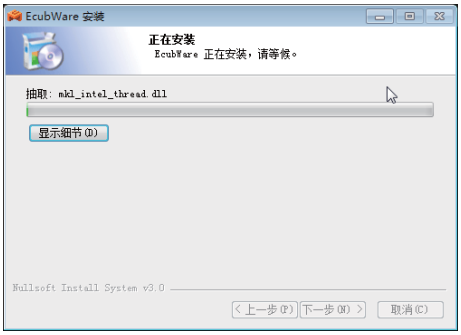
Click next



Click next



Installing...



The installation complete

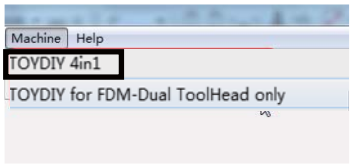
3.FDM 3D print

Applicable Toolhead: FDM Toolhead

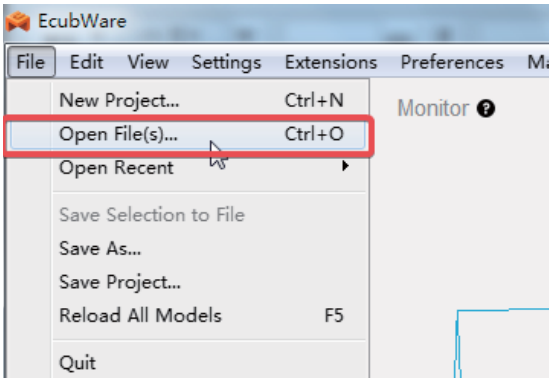
(1)FDM 3D print

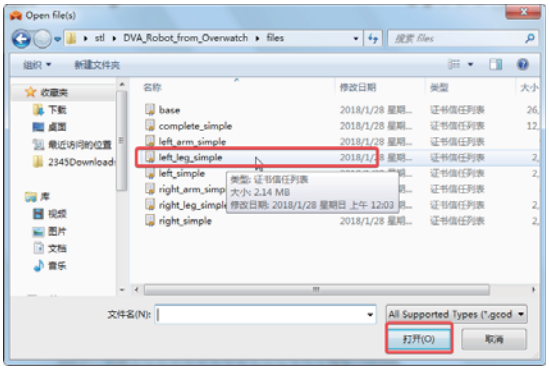
Function: Mainly use to slice single model.

① Open the EcubWare -- select printer type:TOYDIY 4in1

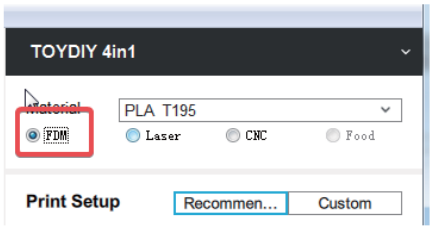


② select STL model and import the model

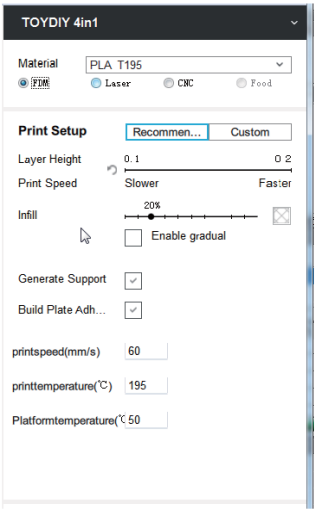


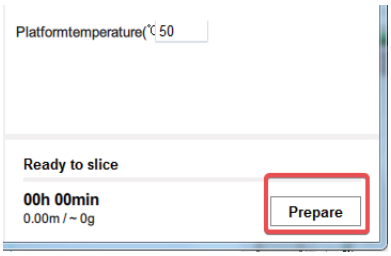


③ Choose FDM Toolhead



④ Adjust the model and parameters





④ Click the "prepare" button to slice. Then, save the generated Gcode file into the SD card. You can print it in TOYDIY 3D printer.

Note:

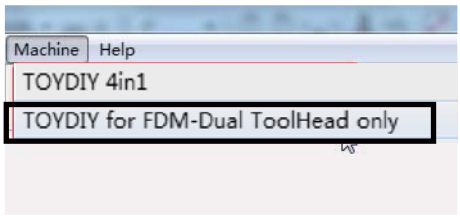
When saving Gcode file, please use English file name.

(2)FDM_Multi-Color 3D print

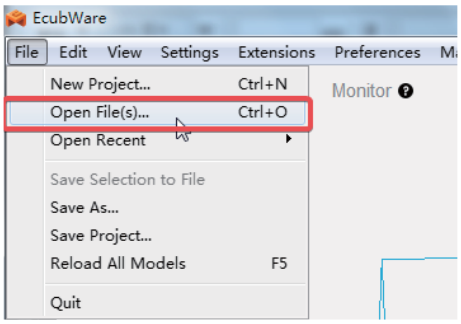
Applicable Toolhead: FDM-Dual Toolhead

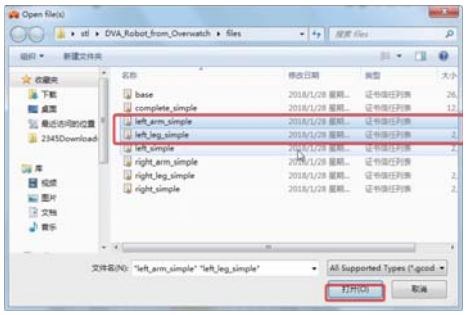
FDM_Multi-Color 3D print means those two filaments are the same material but different color, the material parameters and printing configuration are the same way to print.

① Open the EcubWare -- select printer model TOYDIY for FDM-Dual ToolHead only

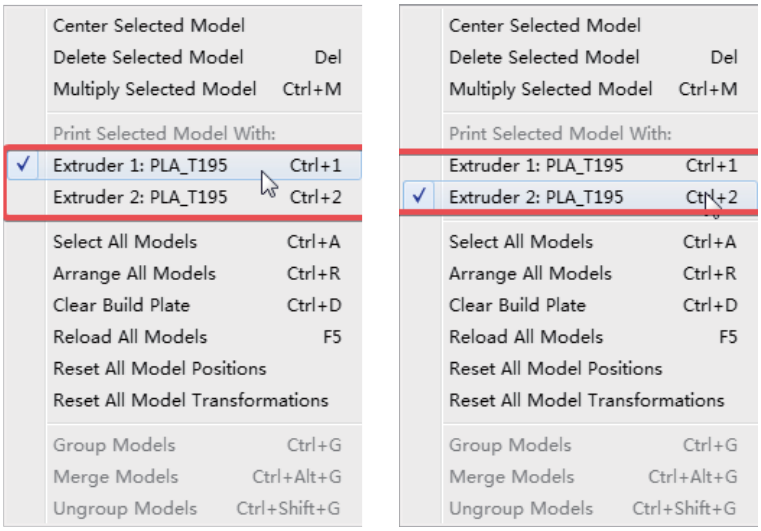


② Select stl model. The Dual-color model needs two stl files that are matched and nested. Import those two stl files into the EcubWare.

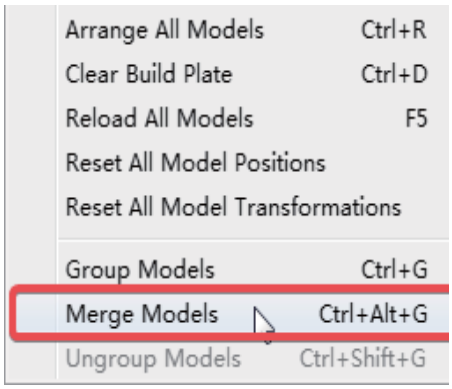




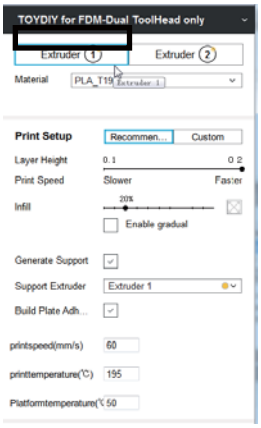
③ Select the same print Filament for each stl file and choose the extruder for both stl file.

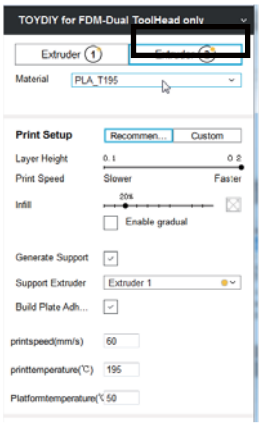


④ Select two models and merge the two stl models into a composite model.



⑤ Set printing parameters for the materials of extruder ① and extruder ② , respectively.

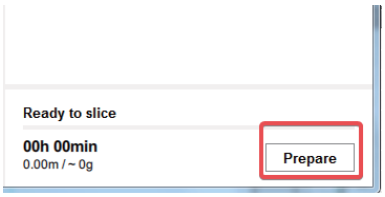


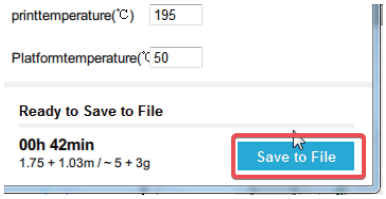


⑥ Click the "prepare" button to slice. Then, save the generated Gcode file into the SD card. You can print it in TOYDIY 3D printer.

Note:

When saving as Gcode file, please use English name file which does not support Chinese name.





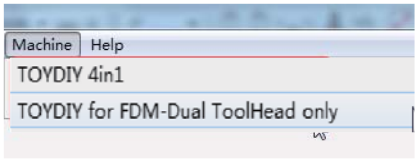
(3)FDM_Multi-material 3D print

Applicable Toolhead: FDM-Dual Toolhead

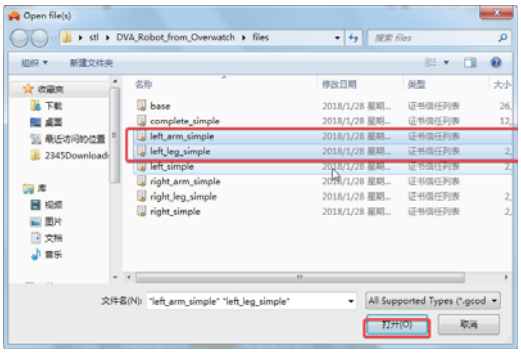
FDM_Multi-material 3D print means different materials of Filaments, their printing temperature and configuration parameters are different.

The main Filament is PLA and the supporting Filament is PVA .

① Open the EcubWare -- select printer model TOYDIY for FDM-Dual ToolHead only



② Choose stl modle

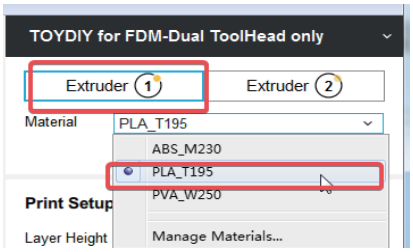


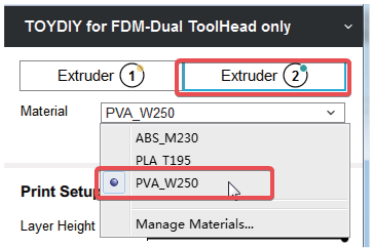
③ Set the print material for two Extruders.

Main Filament choose PLA corresponding ① Extruder (Up)

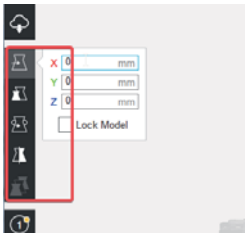
Support Filament choose PVA corresponding ② Extruder (Down)

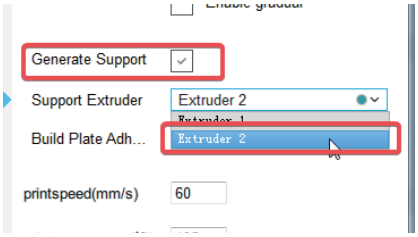
Make sure material loading on TOYDIY is done in this way.





④ Click generate support, and select the extruder ② to generate support
Adjust model parameters

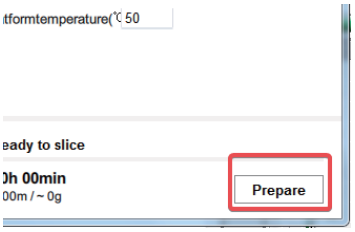


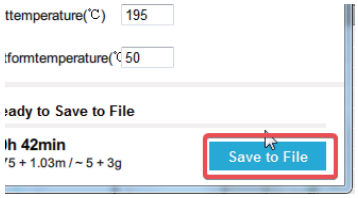


⑥ Click the "prepare" button to slice. Then, save the generated Gcode file into the SD card. You can print it in TOYDIY 3D printer.

Note:

When saving Gcode file, please use English filename.

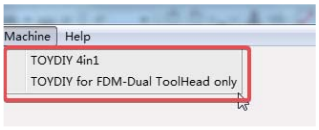


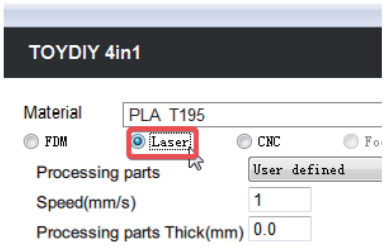


4.Laser Engraving

Applicable Toolhead: Laser Toolhead

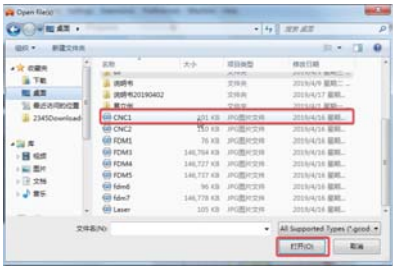
① Open the EcubWare -- select printer model TOYDIY 4in1



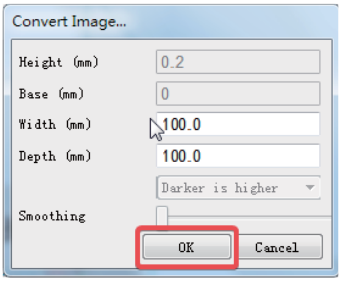


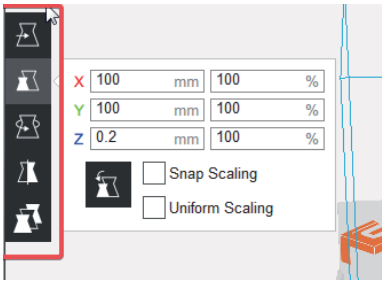
② import pictures.

Image format need to be *.png or *.jpg; The color in the picture must only include black and white , otherwise will affect the engraving effect.



③ Set the image size.
Depth is equal to the length of the picture. After setting, the left side of the main interface view of the software, as the red box show in the fig below, you can set the length (x axis), width (y axis) and height (Z axis) of the graph again.

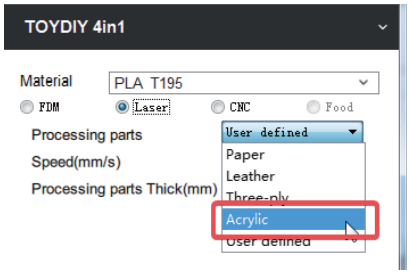




④ Set up the workpiece material.

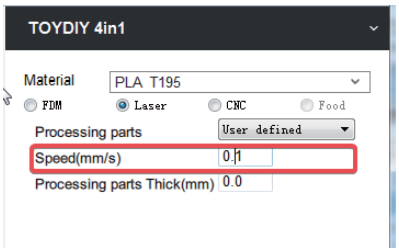
Among them：
Paper
Leather
three-ply
Acrylic
User defined

Different materials need different engraving speed .



⑤ Set the thickness of the material under test and the laser engraving speed. Engraving Speed:The smaller the speed, the slower the engrave, the darker the color.

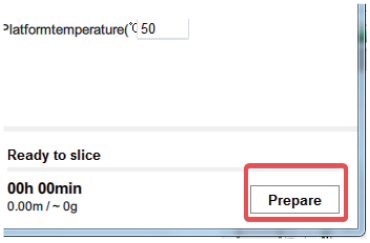
Tip: Do not set the thickness of the workpiece, otherwise there will generate offset value automatically then change the laser focal length.
This parameter needs to be set Only if the workpiece is not on the platform when the Toolhead returns to zero.

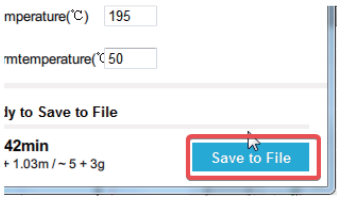


⑥ Click the "prepare" button to slice. Then, save the generated Gcode file into the SD card. You can print it in TOYDIY 3D printer.

Note:

When saving Gcode file, please use English file name.

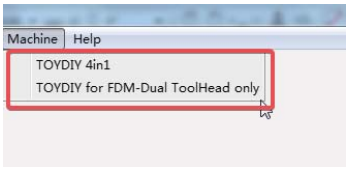


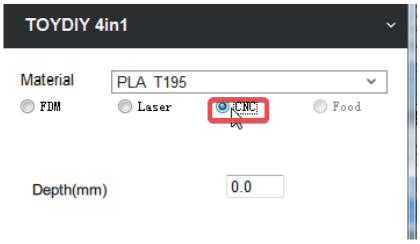


5.CNC Carving

Applicable Toolhead: CNC Toolhead

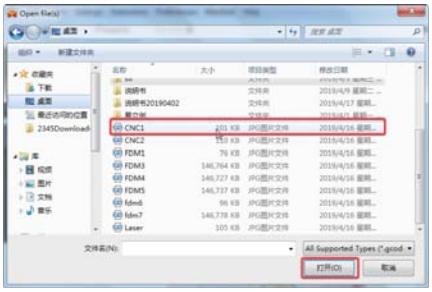
① Open the EcubWare -- select printer model TOYDIY 4in1



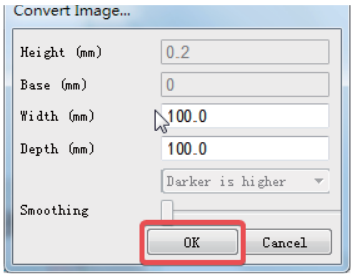


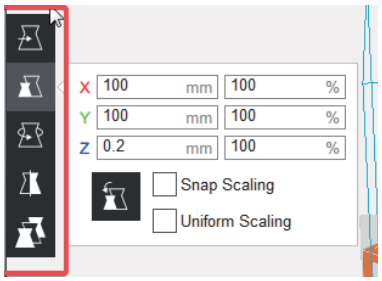
CNC Toolhead shall be selected for CNC Carving. If the other head are selected, the printed Gcode will return error message.

② Import pictures.
Image format need to be *.png or *.jpg; The color in the picture must only include black and white , otherwise will affect the engraving effect.

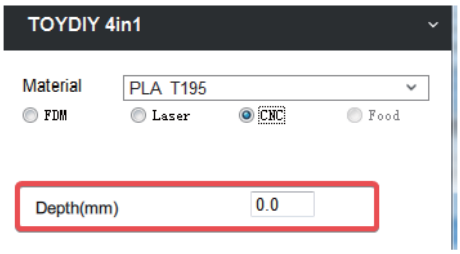


③ Set the image size.
Depth is equal to the length of the picture. After setting, the left side of the main interface view of the software, as the red box show in the fig below, you can set the length (x axis), width (y axis) and height (Z axis) of the graph again.



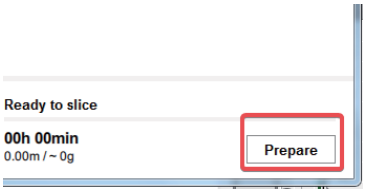


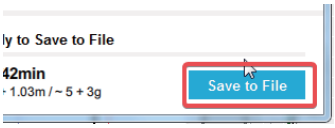
② Set the depth of CNC Craving and milling
The larger the number, the deeper the carving ,the depth range is 0-0.4mm.



⑥ Depth of material under test (mm/s). The larger the number, the deeper the carving,

Note:
When saving Gcode file, please use English file name.



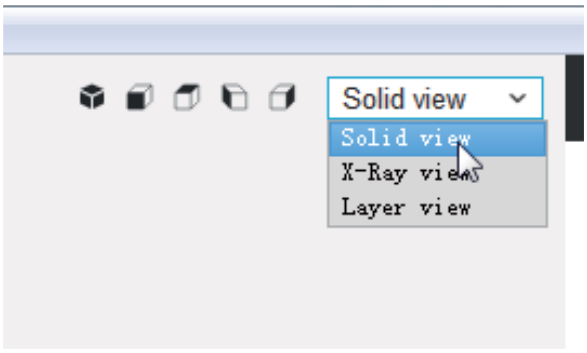


6.Other function

(1)View shows

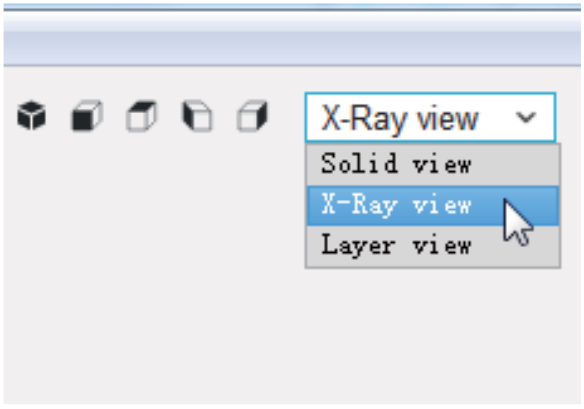
① Entity view

Description: Display the entity of the model intuitively, offer multi-angle observation. The default view in the software is "Solid view", and each view is switch through the buttons in the following red area.



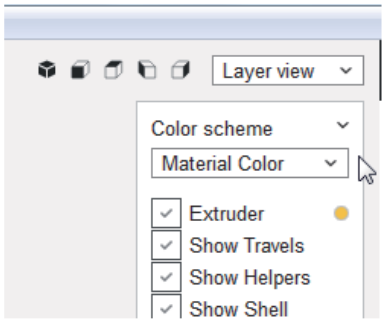
② X-ray display

Description:Can perspective model, observe the internal structure of the model.

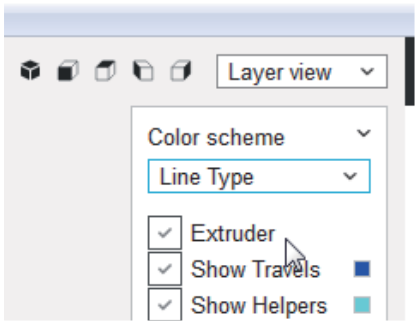


③ Layer shows

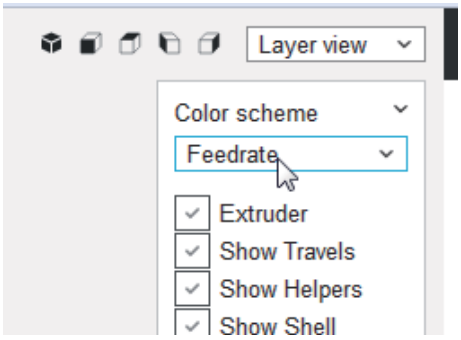
Description: Observe each layer of the model, including color, speed, filling and support。



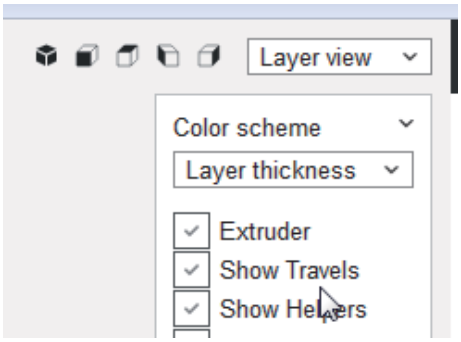
④ Routing type display



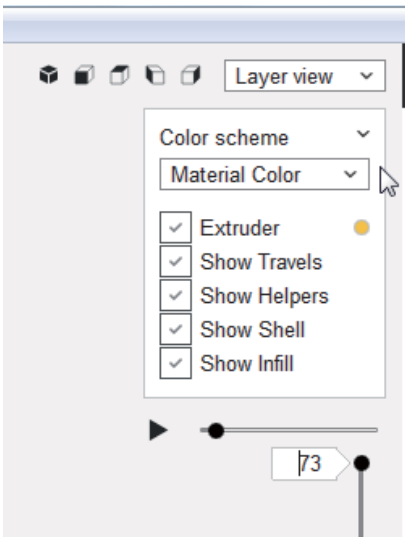
⑤ Speed display



⑥ Layer density display



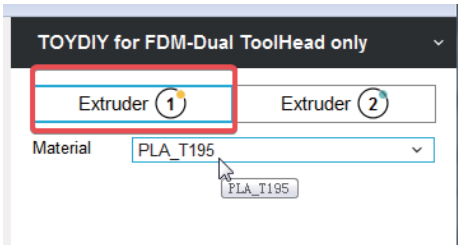
⑦ Drag the slider to display

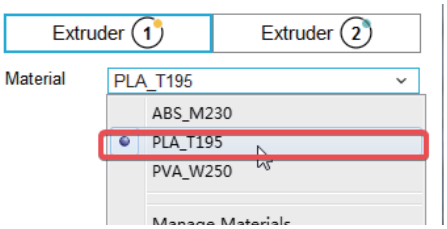


(2)Model color Settings

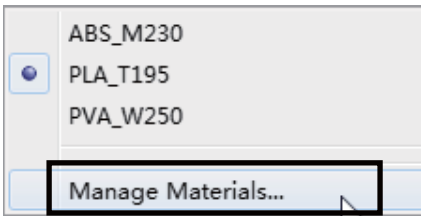
① Same materials multi-color display

Description: easy to observe the multi-color model



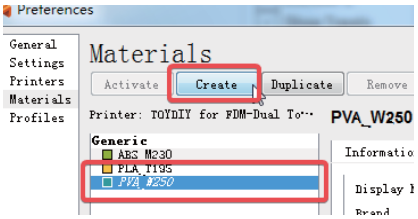


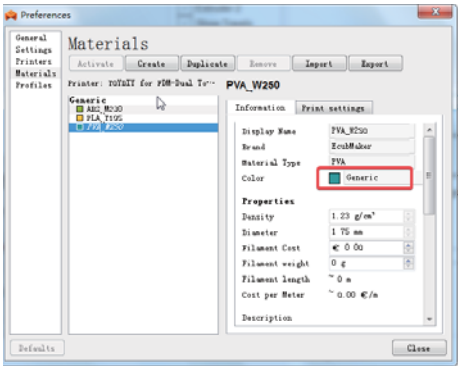
a.Enter Manage Materials



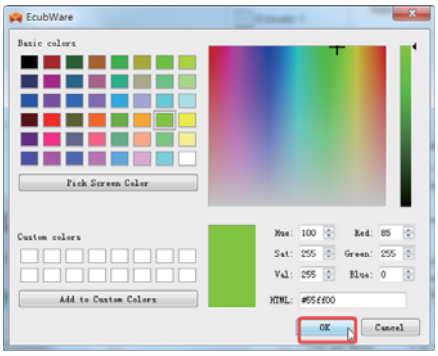
b. Edit colors

Description: create filament type

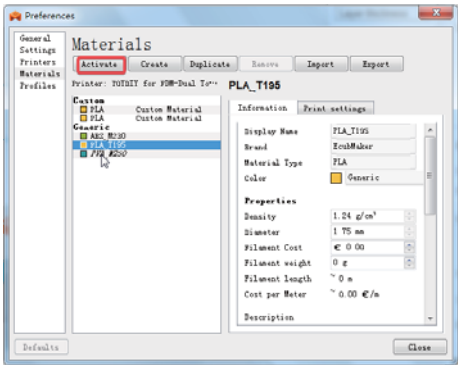


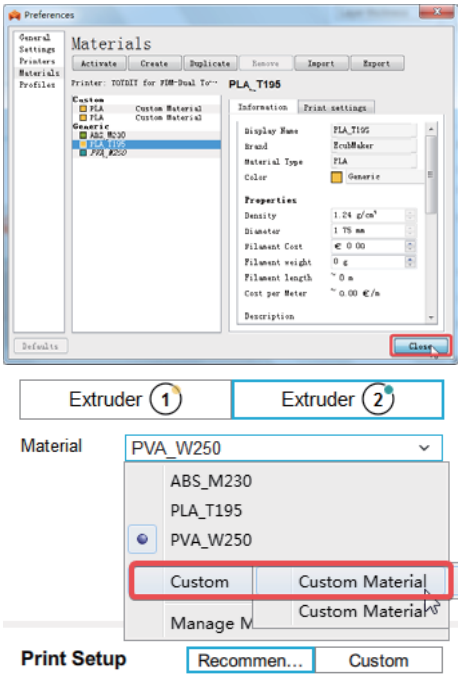


c.Edit the color



d.Activate the color

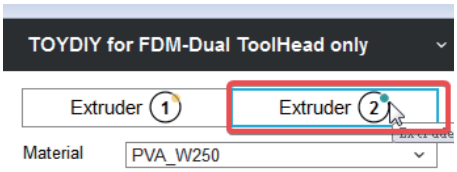


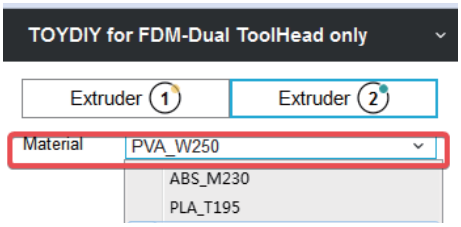


② Two color display for different Filaments

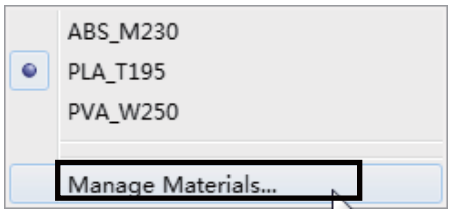
a.**Set the Filaments**

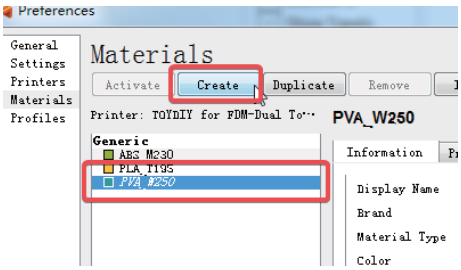
Description: the material types of the two extruders are different and need to be set separately.



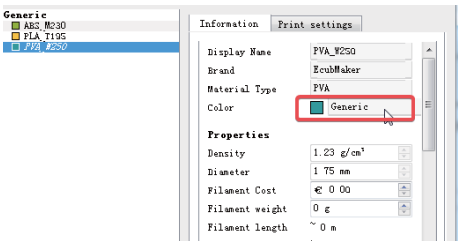


b.Go to the color editor

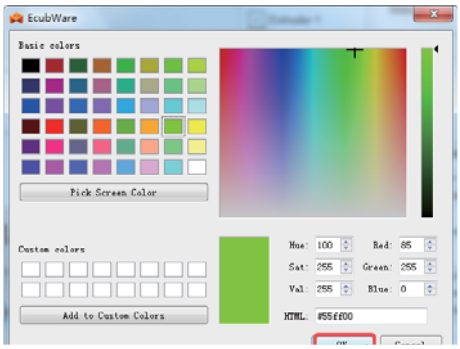


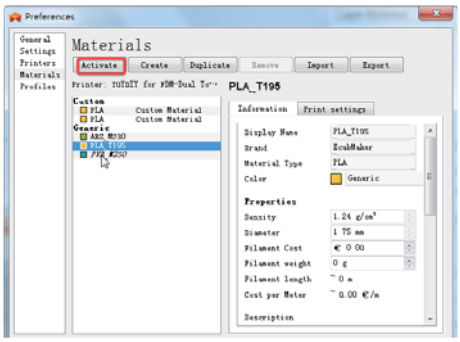


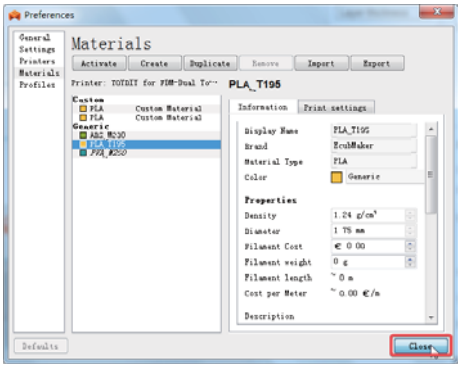
c.Edit filament color



EcubWare Setting



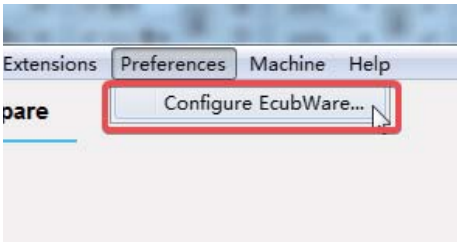




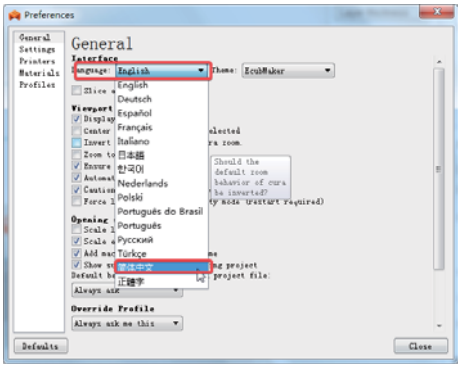
(3)Language Settings

The EcubWare supports multi-language Settings, with English as the default. The language setting method is as follows:

Open Preferences -- Configure EcubWare:



② Language selection:

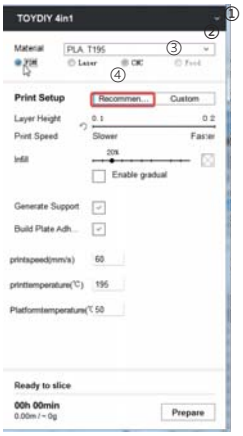


③ Reboot the EcubWare to implement the language switch.

(4)Print parameter setting

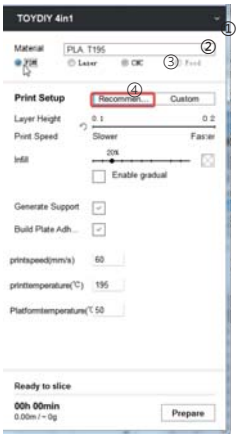
Description: the setting of printing parameters is mainly used for FDM printing. Laser Engraving and CNC Craving will not display the setting interface.

Recommended Settings



① :Model selection.TOYDIY 4in1，TOYDIY for FDM-Dual Toolhead only，
TOYDIY 4in1：Used for FDM_single print, Laser Engraving and CNC Craving；
TOYDIY for FDM-Dual Toolhead only：Used for FDM-Dual print.
② :Filament selection.
③ :TOYDIY 4in1：Select the corresponding function such as FDM, Laser or CNC.
④ :Recommended Settings.(Quickly set common parameters)
a:Layer height, 0.1mm print slow, 0.2mm print fast .
b:Fill, range 0-100.
c:Generate support.
d:The printing platform is attached. When selected, raft is used by default.
e:Print speed(Recommended Speed 20). Enter takes effect after setting.
f :Print temperature(Recommended Temperature 500). The temperature of the Toolhead is set and enter will take effect.
g:Platform temperature(Recommended Temperature 50). The temperature of the printing platform makes the
model stick to the floor.

Custom Settings (advanced Settings)



① :Model selection.TOYDIY 4in1 , TOYDIY for FDM-Dual Toolhead only ,
TOYDIY 4in1 : Used for FDM_single print, Laser Engraving and CNC Craving ;
TOYDIY for FDM-Dual Toolhead only：Used for FDM-Dual print.
② :Filament selection.
③ :TOYDIY 4in1：Select the corresponding function such as FDM, Laser or CNC.
④ :Custom Settings.
a : Configuration files. Draft and fine Settings. Draft is general setting, print layer height is 0.2mm, fine is fine setting, print layer height is 0.1mm.
b: quality. Set the layer height.
c: the shell. Set the wall thickness and the bottom and bottom thickness.
d: fill. Set the fill density.
e: material. Set printing temperature, platform temperature, material diameter and flow rate.
f: speed. Set print speed and idle speed.
g: cool. Whether to turn on print cooling.
h: support. Set support position.
i: attachment of printing platform. Set the Raft type of the printing platform attachment. The default is Raft.
j: double extrusion. Filling tower setting, used for double color or double material printing, erase the excess consumables.
k: special mode. Print at the same time (all models on the bottom panel are printed layer by layer) and in line (one model on the bottom panel is printed, and then another model is printed).

EcubMaker

Equipment maintenance

Equipment maintenance

1.Maintenance and cleaning of guide rail

This product USES the stainless steel guide rail, used in the normal environment (25 degrees temperature, 30~60% humidity) will not get rusty. In order to ensure the better performance of the guide rail, it is necessary to coat XYZ three linear guide rail with lubricating oil regularly(usually 1 month) .
After using the CNC function, there maybe swarf on the guide rail, please cleaned up with a brush immediately, otherwise with rail movement,the swarf is very easy to damage the guide rail.

2. Maintenance of printing platform

This product USES the heating film + metal platform+soft magnet plate + sticker (order from bottom to top), combine to printing platform, sticker is one of the consumables, after using long time, there will be deformation, damage, not sticky, etc.it needs to be replaced according to the condition , in order to ensure better print effect. The replacement only needs to be removed from the soft magnet plate and affixed again.
In daily use, the distance between the FDM nozzle and the printing platform should be reasonably set to prevent the nozzle from burning the stickers directly or even the soft magnet plate. After printing, if there are still residual materials on the sticker, the sticker surface should be cleaned up and tidy by scraping with a blade.
When taking the model, try to remove the model after cooling the platform before bending the soft magnetic plate. Every time bending the soft magnetic plate should be bent in the same direction, do not repeatedly bending in different directions, this will lead to the soft magnetic plate broken.

3.CNC plate

CNC Carving Raft is made of PVC expansion sheet. It is used to pad between the metal platform and the workpiece during CNC carving to prevent the CNC Toolhead from hitting the metal platform and causing damage to the metal platform or CNC Toolhead itself. CNC Carving Raft is a consumable and usually it does not need to be replaced for proper use.

4.Laser Toolhead life

Laser Toolhead are consumable. In normal environment (temperature -20 to 40 degrees, humidity 20% to 80%) the service life is 8000 hours. The laser has a wavelength of 405nm, 1500mw power, and a working voltage is 5V. Do not touch the laser when it is working. Keep it in a dry and dust-free sealed bag or box after daily use.

5.CNC Toolhead life

CNC Toolhead is consumables. In normal environment (temperature -20 to 40 degrees, humidity 20% to 80%) the service life is 10000 hours. CNC motor USES carbon brush dc motor, the maximum power is about 40W, DO NOT touch when CNC toolhead working, or observing CNC work ,make sure you ware safety glasses. The toolhead is connected to the CNC tool through a coupling.When replacing the tool, be sure to tighten the meter screw on the coupling to prevent the tool from falling.

EcubMaker

Common faults

Common faults

1.Unable to start-up

Phenomenon: after plugging in the power, turn on the power button. The indicator light is not lighten up and the screen is not lighten up also.
Reason check: this phenomenon usually means there is no power on the whole machine, please check whether the power adapter light, if there is no light, please check whether the city power socket is work is working or not. If the power lamp is on, check that the power adapter is plugged into the device.
Solution: replace the position of the power socket, and re-plug the connection between the power adapter and the device to ensure that the plug is tight.

2.Screen flower screen, white screen, no display

Phenomenon: After power on, the screen light up but display content is not normal, such as white screen or display corruption.
Reason check:This phenomenon is usually caused by unstable current or electromagnetic interference around.
Solution: reboot the device's power. Make sure there are no large electromagnetic sources around.

3.Temperature display alarm

Phenomenon: after power on, Err:MAX MINTEMP PRINTER HALTED Please reset
Reason check: the thermistor in the Toolhead is damaged or not insert the ToolHead Flat Cable
Solution: reboot the equipment and replug the Toolhead line to confirm this phenomenon. If it is still the same after reboot, it indicates that the thermistor has been damaged and needs to be replaced.

4.SD card contents cannot be read

Phenomenon: after power on, the SD card cannot be read when the SD card is inserted for printing.
Reason check: Make sure the SD card is inserted in the right direction, and then re-insert and unplug the SD card. If it cannot be displayed, re-format it and insert it again. Please ensure that the SD card has a gcode file, the name of which is in English.
Solution: re-insert and unplug the SD card. If it still cannot be solved, replace the SD card

5.The menu switch tool header function cannot be activated

Phenomenon: after changing the Toolhead in the menu of the screen, it still not change after rebooting the device.
Reason check: when the Toolhead is selected from the menu, it will take some time to change the firmware program within the system. It is recommended to click "ok" at the last step and wait for more than 5 seconds before reboot the device.
Solution: do it again to ensure that the wait for validation is more than 5 seconds.

6.Cannot return to zero (X, Y, impact cannot return to zero, Z cannot return to zero)

Phenomenon: When the autohome operation is performed or the system autohome before printing, a certain axis can not back to zero (usually there will be a strong krkr sound).
Reason check: When returning to zero, check out whether the endstop is triggered (if the endstop is triggered, the indicator light will be bright) at first. If the indicator light is not light, it means that the endstop is not triggered or the endstop line is not plugged tightly. It is necessary to replug the endstop to ensure that the endstop works normally.
Solution: Make sure the endstop can be triggered normally and the red light will be on when it is triggered, otherwise the endstop may be damaged.

7.Automatic reboot

Phenomenon: When the autohome is performed, the device will reboot automatically after the autohome is completed.
Reason check:Ensure the normal connection of Toolhead line. Observe the autohome process of the device. If the auto leveling probe on the Toolhead is not pressed or lifted normally, the system will determine the abnormality and reboot.
Solution: Remove the Toolhead to check whether the press down and up of the automatic leveling mechanism of the Toolhead is smooth. If there is obvious stuck, please check the disassembly tutorial of the Toolhead.

8.Z-offset setting is not successful. The first layer is so close or so far to the platform

Phenomenon: When FDM Toolhead is printed, the first layer is so close or so far to the printing platform.
Reason check: When the equipment leaves the factory, we will set an appropriate Z-offset value, but when the equipment hardware is replaced, remove and assemble, the Z-offset value may change accordingly. Generally, when FDM prints the first layer, if the nozzle is too far away from the platform, the Z-offset value needs to be reduced (for example, from -0.2mm to -0.8mm). When FDM prints the first layer, the nozzle is too close to the platform so that the thread can not be extruded. In this case, the Z-offset value needs to be increased (for example, from -0.8mm to -0.2mm).
Solution: Adjust Z-offset value appropriately.

9.The Toolhead can not be reset after changing

Phenomenon: After the change toolhead, the X-axis can not return to zero normally when the device autohome, and the device reboot abnormally or the X-axis limit switch can not be hit.
Reason check: make sure the connection of toolhead flat cable is normal.Besides, because each toolhead has a certain size deviation in the production process, it will cause a certain deviation in the return to zero position of the X-axis. If this situation occurs during the head changing, it needs to fine-tune the fixed position of the x-endstop to adjust and trigger thehome position of the X-axis.
Solution: Adjust the position of the oval positioning hole of the X endstop to change the position of the endstop and match the zero position of different Toolheads.

10.FDM failed to feed/unscrew, plug

Phenomenon: When selecting the function of load filament/unload filament, there is no filament extruded or filament unload in the nozzle.
Reason check: it is necessary to set an appropriate load or unload temperature (ensure that the load or unload temperature of PLA material is above 195 degrees). After the temperature setting is work, the extruder on the back of TOYDIY can be checked for normal rotation after heating. If not, the extruder is abnormal. If the extruder is working normally and makes a tatata sound, it is a sprinkler plug.
Solution: If a jam appears, check out the nozzle disassembly tutorial.

11.FDM print first layer non-stick base plate

Phenomenon: In FDM 3D printing, the first layer is always unstuck and warped.
Reason check: Limited by the power and size of the whole machine, TOYDIY can not print ABS material. Usually, if there is no large plane at the bottom of the model, it is recommended to print raft. When printing PLA material, it is recommended to set the base plate temperature to 50; Coating the printing platform with solid glue will be good to bonding the model and the base plate.
Solution: Follow the recommended to set model parameters , and the effect of using solid glue is very ideal.

12.Laser Engraving in the printing process points of light is very large, did not carve out the pattern

Phenomenon: When using the Laser engraving function, you can see that the laser is open with photoelectricity, but the spot of light is very big, and no pattern is carved.
Cause investigation: when the distance between the laser and the workpiece surface is the focal length, the light spot is a very small point; When it's not in focus, it's a big dot.
Solution: Determine the reason the print is not in focus. Please place the processed object before printing. The Laser Toolhead will detect the thickness of the processed object. If the work is not placed when the Laser Toolhead is set to zero after the start of printing, the work thickness must be specified with the work thickness parameter in EcubWare. See instructions for video or instructions for Laser printing section. If it is determined that it will be performed as required and if it is still unable to focus, the focal length needs to be adjusted. Refer to the corresponding chapter for specific methods.

13.CNC Craving and milling in the printing process, part of the processing pattern, another part of the processing pattern

Phenomenon: CNC craving and milling processing, processing surface in some places have traces, some places do not.
Reason check: because of the cutter and processing surface is not level, so part can not be processed.
Solution: CNC carving washing function at the time of use, the printer is unable to realize automatic leveling function, users need in preparing product installation, set processing origin, judging by moving the XY plane of the machined part and tool level degree, in the bottom of the lower part by increasing the mat to adjust processing surface level degree. Please refer to the section of CNC craving in the manual for details.

EcubMaker

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FCC Caution.

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.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: 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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.