Product Specification

YAYA 3D Printing Pen

www.3dyaya.com
Catalog

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YaYa 3D printing pen, is a new concept of 3D Printing devices.

It break through the traditional 3D printing device which complex and difficult to operating, even high transportation risk. It’s the first 3D handle-hold printing device on the world.

It took the superiority of traditional CNC 3D printers, combined with the feature of ABS plastic filament, with the help of the excellent 3D printing heating and cooling performance. Then now, the new concept 3D Printing Pen could let the line which flow from the tip became solid from liquid in 1 - 2 seconds.

So it help you draw a real object in the air directly, and just a few sec, what in you mind is absolutely in your hands. It could easily help you to feel the funny of 3D printing in a minute.

In addition, the structure is compact, as the most cheap, easy hand held 3D printing devices, don’t need to learn how to use computers and software to control the device. You can use 3D printing Pen as long as you can use Pen, just need a short time to adopt and adjust, then can skilled at operating it.

So, as It is really great start to experience and learn FDM 3D printing technology, then it must be the first 3D printing device of the life of many 3D users and hobbyist. And, the excellent portability, let it become the most portable 3D printing devices on history, you can draw what you like at any time,
Basic Specifications Define

Specifications

<table>
<thead>
<tr>
<th>Forming Method</th>
<th>FDM (Fused Deposition Modeling)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print Direction</td>
<td>Omnidirectional multi-dimensional</td>
</tr>
<tr>
<td>Nozzle Diameter</td>
<td>0.7mm</td>
</tr>
<tr>
<td>Valid Printing Area</td>
<td>No limited</td>
</tr>
<tr>
<td>Heating temperature</td>
<td>240°C inside Pen</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>12V 3A</td>
</tr>
</tbody>
</table>

Shape Specification

<table>
<thead>
<tr>
<th>Size</th>
<th>Ф31-45*179mm (The Diameter range of the Widest between thinnest)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>161g</td>
</tr>
</tbody>
</table>

Reliability

<table>
<thead>
<tr>
<th>Extrusion Device</th>
<th>10,000 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Device Life</td>
<td>30,000 hours</td>
</tr>
<tr>
<td>Heating Device Life</td>
<td>6000 hours</td>
</tr>
<tr>
<td>Print Heads Life</td>
<td>10,000 hours</td>
</tr>
<tr>
<td>Cooler Device Life</td>
<td>10,000 hours</td>
</tr>
<tr>
<td>Button Life</td>
<td>150,000 times</td>
</tr>
<tr>
<td>Temperature sensor Life</td>
<td>12 years</td>
</tr>
<tr>
<td>DC Power Plugs Life</td>
<td>5,000 hours</td>
</tr>
</tbody>
</table>
Operating Environment

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>10 ~ 30°C</td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>20~ 60 % RH (No condensation)</td>
</tr>
<tr>
<td>Keeping Temperature</td>
<td>-10 ~ 60°C</td>
</tr>
<tr>
<td>Keeping Humidity</td>
<td>10 ~ 70 % RH (No condensation)</td>
</tr>
</tbody>
</table>

FILAMENT REQUIREMENT

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>ABS Plastic Filament</td>
</tr>
<tr>
<td>Size</td>
<td>1.75mm</td>
</tr>
<tr>
<td>Color</td>
<td>Many Colors, Fluorescence, even glow in the dark</td>
</tr>
</tbody>
</table>

Notice: Avoid using 1.75mm PLA Plastic Filament for much times, or it may cause the nozzle blocked.

FEATURES

1）We have made a complete extrusion and heating process test and adjusting function Optimal parameter preset before they ship out of the factory.

2）In order to help you drawing the different stuffs in the different places, so you could control 3D Printing pen extruding speed by turn the speed Switch.

3）3D printing Pen has the function called Auto Sleep Mode, if you do not work with YAYA 3D Printing Pen over 15 minutes, it would stop heating the plastic, working light turn off.

Power Supply Specification

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Voltage</td>
<td>12VDC±5%</td>
</tr>
<tr>
<td>Electricity Requirement</td>
<td>2.5A+</td>
</tr>
</tbody>
</table>
Nozzle Specification

BASIC FEATURE

<table>
<thead>
<tr>
<th>Drive Method</th>
<th>Rated Voltage Driver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Voltage</td>
<td>12VDC±10%</td>
</tr>
<tr>
<td>Peak Current</td>
<td>1.2A</td>
</tr>
<tr>
<td>Thermistor</td>
<td>10k 3950-1%</td>
</tr>
<tr>
<td>Nozzle Diameter</td>
<td>0.5mm</td>
</tr>
</tbody>
</table>
# Extruding Motor

## Feature of Motor

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motor Specification</strong></td>
<td>4 Phase 8 Keying Circuit (28byj-48)</td>
</tr>
<tr>
<td><strong>Drive Method</strong></td>
<td>Steady Current Driver</td>
</tr>
<tr>
<td><strong>Initiation Method</strong></td>
<td>2-2</td>
</tr>
<tr>
<td><strong>Coil Resistance</strong></td>
<td>120Ω±7%(25°C)</td>
</tr>
<tr>
<td><strong>Driving Voltage</strong></td>
<td>12VDC±10%</td>
</tr>
<tr>
<td><strong>Drive Current</strong></td>
<td>300mA/phase (Driving)</td>
</tr>
<tr>
<td></td>
<td>300mA×33%/phase (Resting)</td>
</tr>
<tr>
<td><strong>Empty Affect</strong></td>
<td>≥600Hz</td>
</tr>
<tr>
<td><strong>Empty Sum Frequency</strong></td>
<td>≥1000Hz</td>
</tr>
<tr>
<td><strong>Pull In Torque</strong></td>
<td>≥34.3mN.m(120Hz)</td>
</tr>
<tr>
<td><strong>Self Aligning Torque</strong></td>
<td>≥34.3mN.m</td>
</tr>
<tr>
<td><strong>Insulation Resistance</strong></td>
<td>&gt; 10MΩ(500V)</td>
</tr>
<tr>
<td><strong>Insulation Dielectric Strength</strong></td>
<td>600VAC/1mA/1S</td>
</tr>
<tr>
<td><strong>Insulation Class</strong></td>
<td>A</td>
</tr>
<tr>
<td><strong>Temperature Rise</strong></td>
<td>&lt; 50K(120Hz)</td>
</tr>
<tr>
<td><strong>Noise</strong></td>
<td>&lt; 40dB(120Hz)</td>
</tr>
<tr>
<td><strong>Reduction Ratio</strong></td>
<td>1/64</td>
</tr>
<tr>
<td><strong>Step Angle</strong></td>
<td>5.625°/64</td>
</tr>
</tbody>
</table>
Operation Instruction

Led料材/Filament
创作，本机应该无拘无束，
且丰富多彩。
Creation, should be freestyle
and colourful all the time.
1.75mm ABS 塑料耗材，颜色
丰富，无毒无害，
Colorful, Flexible and
Non-toxic.

状态灯/Status LED
请待蓝灯亮后，开始创作。
Start creating after LED
turning into Blue.
红灯显示为正在加热，绿
灯显示为加热完成。
Red means preparing,
Blue means ready to go.
注意，一旦状态灯点亮，
禁止触摸喷头。
Attention: Do NOT touch
the nozzle when the LED
was lighting.

退料键/Reverse button
推丝走线，收放自如。
Designed for reversing to
stop extruding immediately
and change filaments.

挤料键/Extruding button
即按即走，即松即停。
Start extruding when the
button be pressed, it would
stopped when you let it go.
12V安全供电
（DC 12V Power Supply）
安全问题上，我们不敢有半点含糊
We never kid about safety

笔尖/Nozzle
精工，只在毫厘之间
Consumption, only by the slimmeat of margin.
独特的内部结构设计，
出料直径约为0.7毫米
Unique internal structure design, extruding diameter about 0.7mm.

散热孔/Ventilation holes

速度开关/Speed Switch
快慢自定，依需简用
Turn the extruding and reversing into fast mode or slow mode as you like.

笔杆/Main body
有一种意境，叫做人笔合一
Everything starts from people-ori-ented
以人为本，流线造型，打造极致美感
People-oriented, Streamlined design makes perfection.
YAYA 3D pen Operating instruction

Thank you for using this YAYA 3D Printing Pen of our company. In order to let you experience the product swimmingly, detailed instruction is provided which you can find the product’s introduction, usage and other information. Before using this product, please read the manual carefully, so that you can correctly use it. In case of any printing or translation error, we apologize for the inconvenience. As for the content change, we are sorry for no further notice.

General Information
This product is a well-designed portable 3D Printing Pen which applies to household, workshop, College, office and other places. It offers you a chance to indulge yourself in 3D printing at any time and place, and provides perfect 3D Printing service to you and your Family, Friends and colleague.

Operation
1. Plug 12V power adapter DC plug into the DC jack socket at the bottom of YAYA 3D Printing Pen.
2. Plug power adapter into the Extension Cord
3. After startup and entering into standby mode, the mode could also be called warm& heating mode. Now the indicator light should be red now.
4. When the indicator light goes into blue. You now need to insert the 1.75mm filament into the smaller hole at the bottom of the YAYA 3D Printing Pen. And try to insert the filament as deep as you could, until you feel something block you there.
5. Try to use the Extruding Button (the large button on the 3D Printing Pen and the nearest button to the nozzle), and feel the filaments goes into the Pen.
6. Keep press the Extruding Button and do not let it go. And in a few minutes, you would see the filament comes out of the nozzle. Now you could draw anything you like.

Function & Feature Overview
[3D Doodling]
Enable directly drawing the things in the air.
[12V Safety Voltage]
YAYA 3D Printing Pen use 12V Safety Voltage, so it will not hurt people if the wires aged or broken. So you could have fun with the 3D printing more safety.

[Speed Switch]
Based on drawing the different stuffs in the different places, So you could control your 3D printing pen extruding speed by turn the Speed Switch.

[0.7mm copper nozzle]
YAYA 3D Printing Pen use 0.7mm copper nozzle, so the plastic wires come out from the nozzle would be wider than 0.7mm.

[Auto Warm UP]
When you plug the 12V power adapter, the YAYA 3D printing pen would warm up automatically. The indicator light is red.

[Auto Sleep Mode]
If you do not work with YAYA 3D Printing Pen over 15 Minutes, it would stop heating the plastic, so, in this case, it could avoid the danger factor due to heating a long time or forgetting to pull up the power adapter.

[Color Changeable button]
We arrange the reverse button, which is color changeable button. With the help of this button, you could change the different filament in different colors, then you could make more interesting things.

![Button and Jack Diagram]

Definition of Button and Jack
(Real object be taken as final)

1. 【Extruding Button】
Start extruding when the button be pressed; it would stopped when you let it go.

2. 【Reverse Button】
Designed for reversing to stop extruding immediately and change filament.

3. 【Indicator Light】
Start creating after LED turning into blue.

4. 【Speed Switch】
Turn the extruding speed and reverse speed into fast mode and slow mode as you like.

5. 【12V DC Power Jack】
We never kid about safety.

6. 【Filaments Jack】
This jack is for 1.75mm ABS filaments.

7. 【Nozzle】
0.7mm nozzle for the heated filaments

8. 【Heat Emission Hole】
Dissipate the heat in the pen
Introduction of Indicator Light
Red: Warm-up & Heating mode
Blue: Heated mode

Charging Method
One end of wiring be inserted in DC12V, indicator light would turn into red under charging and no indicator light after pull out the charger.

FAQ
1. Do NOT touch the nozzle when you use it, and the nozzle would reach 200°C when you use it.
2. Please pull out the power supply plug after using it, and stop
3. When the indicator light is red, do not press the extruding button, so please wait it turn into blue.
4. Please change the filament before it all goes into the filament jack. If you want to change the filaments, press the reverse button, and wait for the filament comes out. **DO NOT MAKE ALL THE FILAMENTS GOES INTO THE HOLE, THEN THAT WOULD MAKE THE PEN BROKEN.**
5. YAYA 3D Printing Pen use 1.75mm ABS filament, so it may cause little smoke when you using, but it is non-toxic.
6. Please using the 12V 3A Power Adapter.
1. Plug the 12 DC power adapter into the DC jack of the 3D Printing Pen (at the bottom of the Pen), like Figure 1.

At this time, the indicator light is RED, like Figure 2.

2. When the indicator light is RED, DO NOT insert the ABS filaments into the pen through the feeding port, like Figure 3.

When the indicator light is BLUE, now, it’s the time to insert the ABS filaments into the feeding port.
3. Push the 1.75mm ABS filaments into the feeding port when the Indicator light is Blue. And when you feeling the filaments were stopped, then press the Extruding Button (the button with the downward arrow). And now, use your finger to hold the filament lightly and feel the filament goes into the pen slowly, like Figure 5.

Keep press the Extruding Button until you saw the filaments come out from the nozzle. Like Figure 6.

4. The Switch near the bottom of the pen is the “SPEED SWITCH”, you could use this Swith to control the Extruding Speed. Plus “+” is Fast, and Minus “-” is slow. Like Figure 7.

5. When the pen is working, do not touch the nozzle, because the temperature of nozzle is over 200°C. Please be aware of the Burning.
6. When the filaments are almost run out, please change the filaments on time. DO NOT let the Pen “Swallow” the Filaments, otherwise, the Pen might be broken. This Step is very important. Like Figure 9.

The right approach is to change the filaments before it all went into the PEN. Like Figure 10.

7. When you finish your object, and do not need the pen later, please remember to press the reverse button and make the filaments come out. Then put the pen stay far from the children under 7, and it would cool soon.

the filaments might be stopped sometimes when you reversing the filaments, please pull the filaments slightly as the speed of it. DO NOT pull the filaments hardly. Like Figure 11.

Dear customers,
YAYA 3D Printing PEN is different form the other Electronics, it is a new-concept design tools. It need to be used and understood. In order to use the YAYA 3D Printing Pen correctly and safely. Please reading carefully and follow the Operating Demonstration and Operating Instruction.
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