



MP Delta Mini V2 3d Printer



P/N 21666

User's Manual

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SAFETY WARNINGS AND GUIDELINES

Please read this entire manual before using this device, paying extra attention to these safety warnings and guidelines. Please keep this manual in a safe place for future reference.

- This device is intended for indoor use only.
- Do not expose this device to water or moisture of any kind. Do not place drinks or other containers with moisture on or near the device. If moisture does get in or on the device, immediately remove it from its power source and allow it to fully dry before reapplying power.
- Do not touch the device, the power cord, or any other connected cables with wet hands.
- Do not expose this device to excessive vibration, extreme force, shock, or fluctuations in temperature or humidity.
- Do not expose this device to excessively high temperatures. Do not place it in, on, or near a heat source, such as a fireplace, stove, radiator, etc. Do not leave it in direct sunlight.
- Do not place or install this device in an area where it can be exposed to excessive amounts of dust, humidity, oil, smoke, or combustible vapors.
- Use only in a well-ventilated area. Do not use in close, confined spaces.
- Prior to operation, check the unit and power cord for physical damage. Do not use if physical damage has occurred.
- Before plugging the unit into a power outlet, ensure that the outlet provides the same type and level of power required by the device.
- Unplug this device from the power source when not in use.
- Take care to prevent damage to the power cord. Do not allow it to become crimped, pinched, walked on, or become tangled with other cords. Ensure that the power cord does not present a tripping hazard.
- Never unplug the unit by pulling on the power cord. Always grasp the connector head or adapter body.

- Clean using a soft, dry cloth only. Do not use chemical cleaners, solvents, or detergents. For stubborn deposits, moisten the cloth with warm water.
- This device has no user serviceable parts. Do not attempt to open, service, or modify this device.
- Take care to avoid touching hot parts, including heat blocks, extruder nozzle, extruded filament, and the heated build plate.
- Do not wear gloves when operating or repairing to avoid entanglement.
- Keep the printer and all accessories out of reach of children.
- Do not force or tear anything during unpacking and setup. This may cause damage to the printer and/or its accessories.
- Take care not to remove or damage the black PEI build mat on the build platform. This mat is essential to ensure the 3D model properly adheres to the build platform during printing. If this mat becomes damaged or wears out, replace it with painter's tape, Kapton® tape, or ordinary masking tape.
- Do not reach inside the printer during operation.
- Always allow the printer and extruded filament to cool before reaching inside.
- Ensure that the printer is turned off and unplugged from its power source before making repairs or performing service.

INTRODUCTION

Thank you for purchasing this MP Mini Delta V2 3D Printer from Monoprice™! This printer features a single extruder, which is capable of printing with PLA, ABS, wood fill, copper fill, steel fill, bronze fill, and many other materials. You can print from a Windows® or Mac® PC using a Wi-Fi® connection or can print from 3D model files stored on a microSD™ card, without the need for a PC connection of any kind. This printer is easy to setup and easy to use following the instructions in this manual.

FEATURES

- Color touchscreen
- Files sliced with Wiibuilder can be previewed on the screen
- Can print PLA, ABS, wood fill, metal fill, and many other filament types with melting points below 260°C
- Can print using a Wi-Fi® connection or from a model file stored on a microSD™ card
- Free PoloPrint Pro app for Android™ and iOS® devices
- Open frame design for ease of use and maintenance
- Includes an 8GB microSD card with custom Wiibuilder and Cura slicing software packages on the card

CUSTOMER SERVICE

The Monoprice Customer Service department is dedicated to ensuring that your ordering, purchasing, and delivery experience is second to none. If you have any problem with your order, please give us an opportunity to make it right. You can contact a Monoprice Customer Service representative through the Live Chat link on our website www.monoprice.com or via email at support@monoprice.com. Check the website for support times and links.

PACKAGE CONTENTS

Please take an inventory of the package contents to ensure you have all the items listed below. If anything is missing or damaged, please contact Monoprice Customer Service for a replacement.

1x MP Mini Delta V2 3D printer

1x Filament holder

1x Sample filament

1x Plastic scraper

1x 8GB microSD™ card

3x Hex wrench

(1.5, 2.0, and 2.5 mm)

1x AC power adapter

1x AC power cord

1x Touchscreen stylus

PRODUCT OVERVIEW



1. Nozzle

2. microSD™ card slot

3. Color touchscreen

4. Extruder

5. Filament holder

6. Build platform

7. Power switch

8. DC power connector

9. Micro USB port

GETTING STARTED

Warning! Take care not to remove or damage the black PEI build mat on the build platform. This mat is essential to ensure the 3D model properly adheres to the build platform during printing. If this mat becomes damaged or wears out, replace it with painter's tape, Kapton[®] tape, or ordinary masking tape.

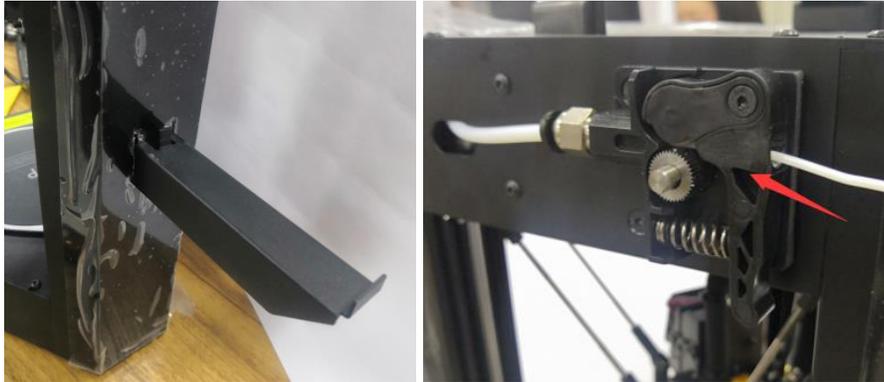
1. Unbox the printer. Refer to the *PACKAGE CONTENTS* section and verify that you received all parts and accessories.



2. Using a pair of scissors or wire cutters, remove the security straps from the printer's **Carriage**. Lift the **Carriage**, then remove the protective carton shell.



3. Locate the two vertical slots on the side, then install the **Filament Holder** and place the sample filament on the holder. Press down on the lever on the **Filament Extruder Gear**, then feed filament into the hole until you encounter resistance. Release the lever.



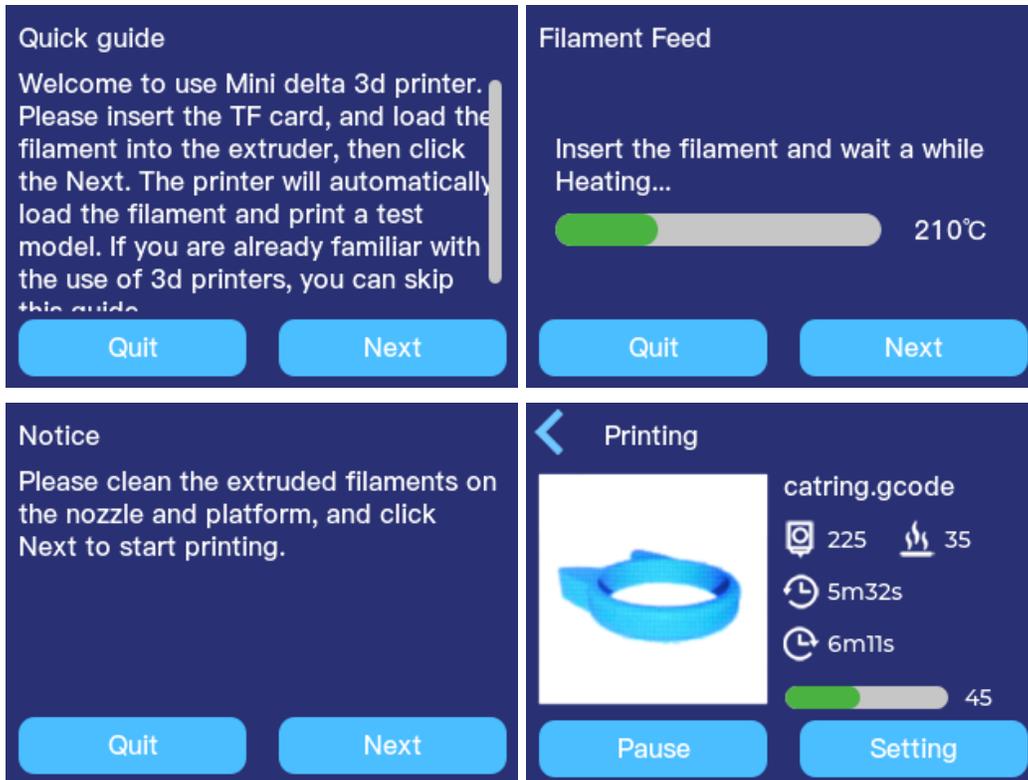
4. Plug in and power on the printer.



5. Select your desired menu language. The printer will then display the **Wifi Setting** screen. Touch the **NO** button to continue. The full Wi-Fi setup and app installation is covered in the *POLOPRINT PRO WI-FI SETUP* section.



- The printer will then display the **Quick guide** screen. Touch the **Next** option, then follow the on-screen instructions to print your first model. Otherwise, touch the **Quit** option to exit to the **Main Menu**.



COMPLETED PRINT REMOVAL

Perform the following steps to remove a finished print.

- Wait until the printer and printed model cools down to room temperature.
- Insert the included Plastic Scraper under the edge of the model, then continue pushing to separate the model from the Build Platform. If you have difficulty sliding the Plastic Scraper under the model, try approaching from a different angle or work it around the perimeter of the model.

Warning! Always push the scraper away from yourself to avoid injury.

POLOPRINT PRO WI-FI SETUP

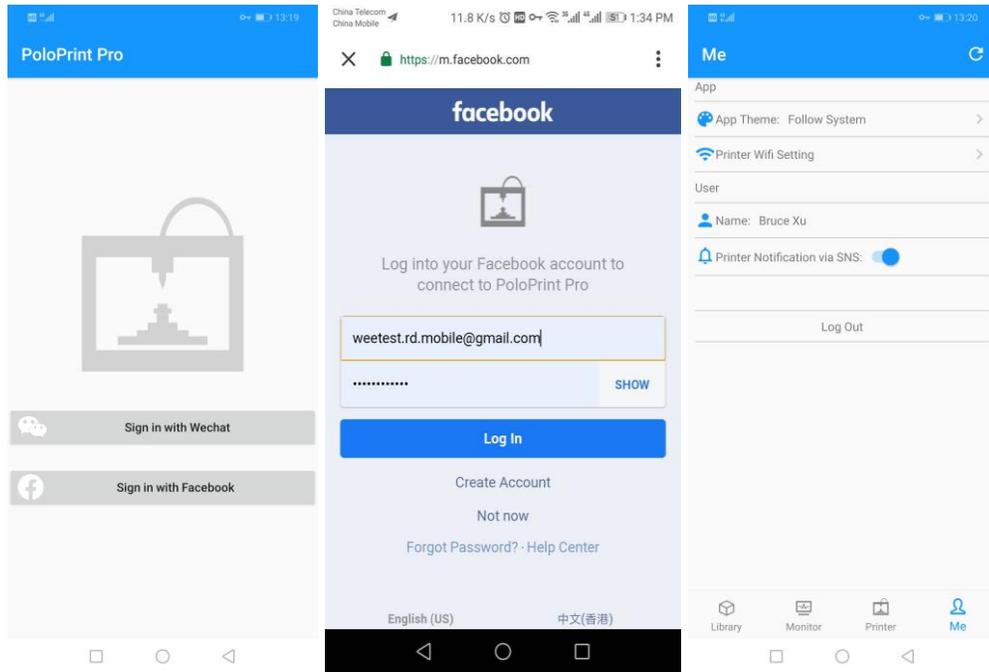
You can connect the printer to a 2.4GHz Wi-Fi® network to print models from your Android™ or iOS® smartphone or tablet using the free PoloPrint Pro app. Perform the following steps to setup the Wi-Fi connection for your device.

Note that you may have difficulty connecting to the Wi-Fi network if you have a 2.4GHz and 5GHz network with the same SSID. Try changing the SSID of the 5GHz network, if this occurs. For best results, move the printer to a location closer to the Wi-Fi router or access point.

1. Download and install the free PoloPrint Pro app from the App Store® or Google Play™.



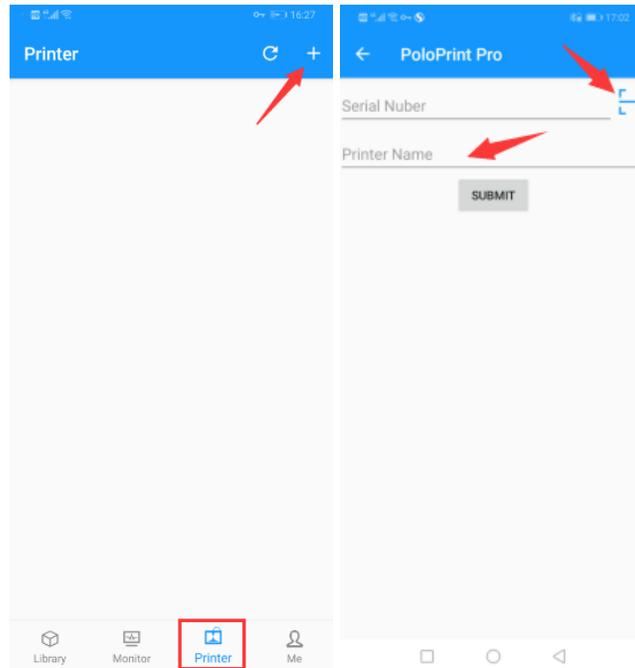
2. Launch the app, then sign in using your Facebook® account. Enable the **Printer Notification via SNS** option. Open Facebook in a web browser, then search for and follow the **3D Printer Message Center** page. Post a sample message, such as "hello", to the **3D Printer Message Center** page.



3. Power on the printer, then select **Setting > Info > QR code** to display the serial number QR code for this printer.

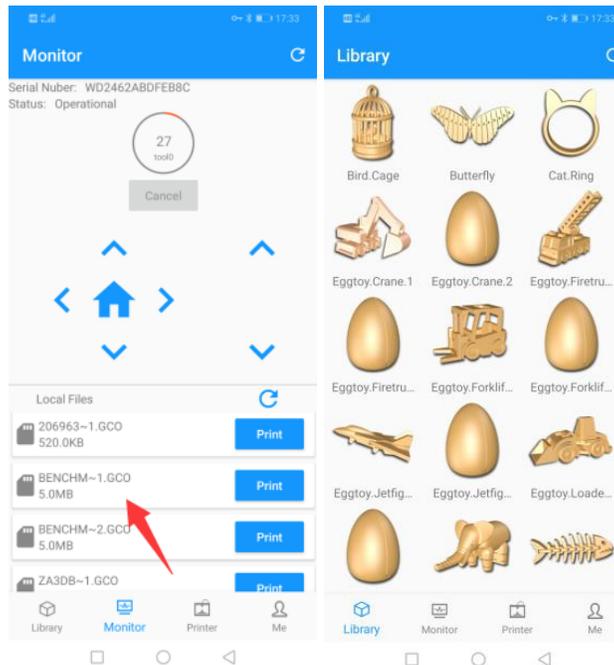


4. Select the **Printer** tab at the bottom of the PoloPrint Pro app, then touch the **+** icon in the upper right to scan the QR code on the printer's screen or manually type in the **Device Serial** from the **Setting > Info** screen. Type in a name for your printer, then touch the **Submit** button.

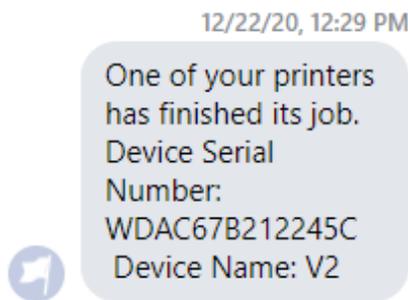


5. Turn off the printer, then restart it.
6. Exit the PoloPrint Pro app, then relaunch it. Wait until the printer shows as **online** in the app.

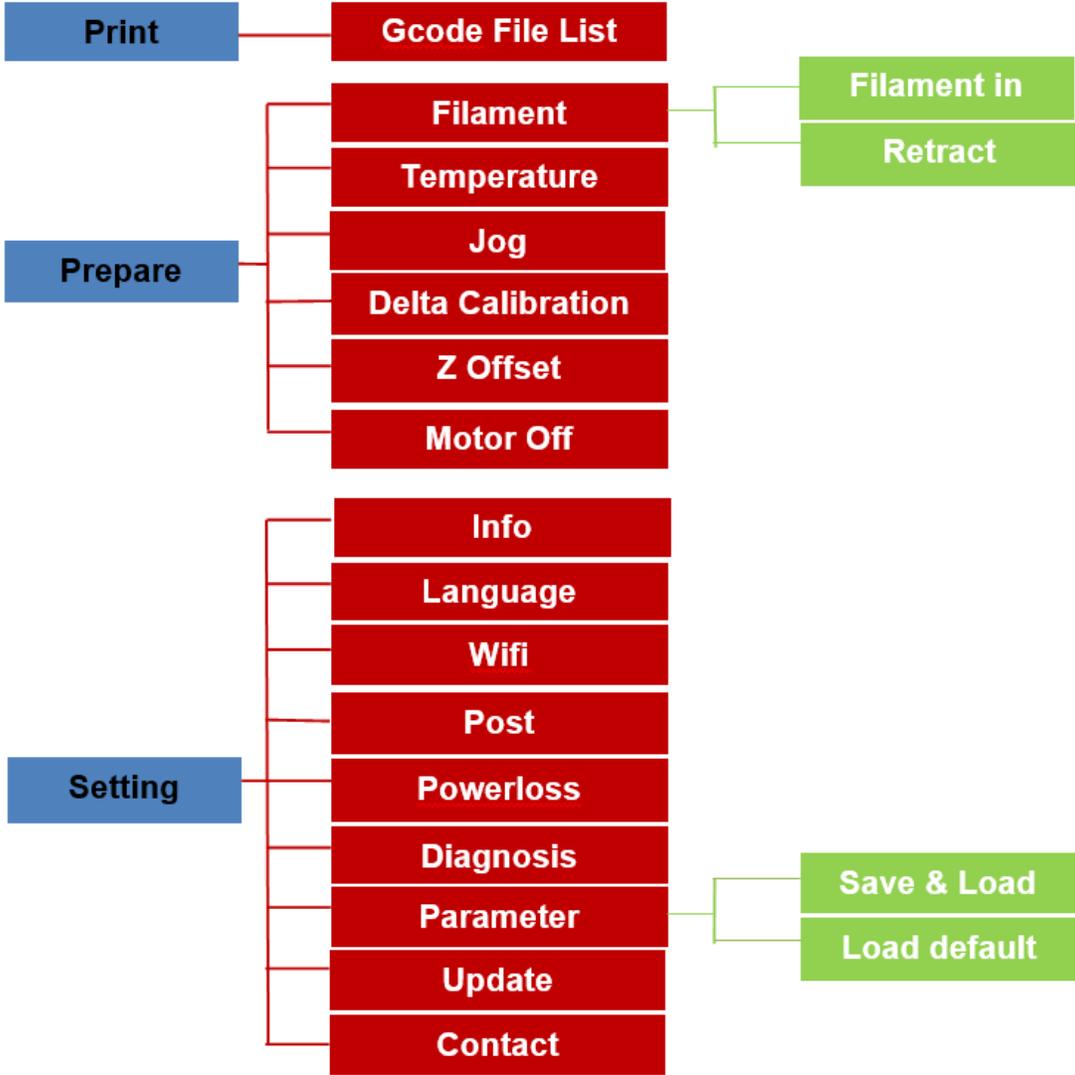
7. You can now print a model from a microSD™ card or one of the library files.



8. After a print is finished, you will receive a message in Facebook® to let you know that the print is finished.

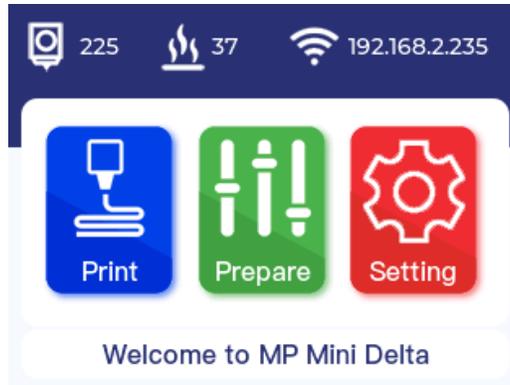


MENU MAP



MENU OPERATION

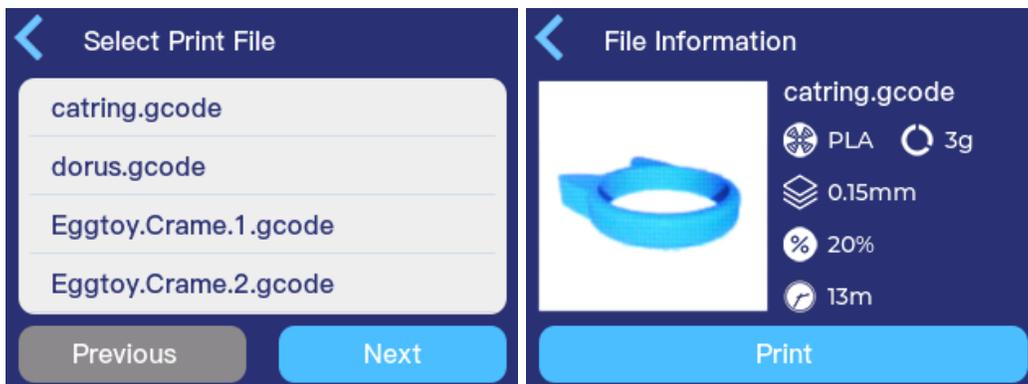
Main Menu



- **Info Bar:** The area above the buttons is used to display information about the printer status. From left to right, it shows the current nozzle temperature, the current build platform temperature, the Wi-Fi® signal strength, and the Wi-Fi IP address.
- **Print:** Displays the **Print Menu**.
- **Prepare:** Displays the **Printer Maintenance Menu**.
- **Setting:** Displays the **Setting Menu**.

Print Menu

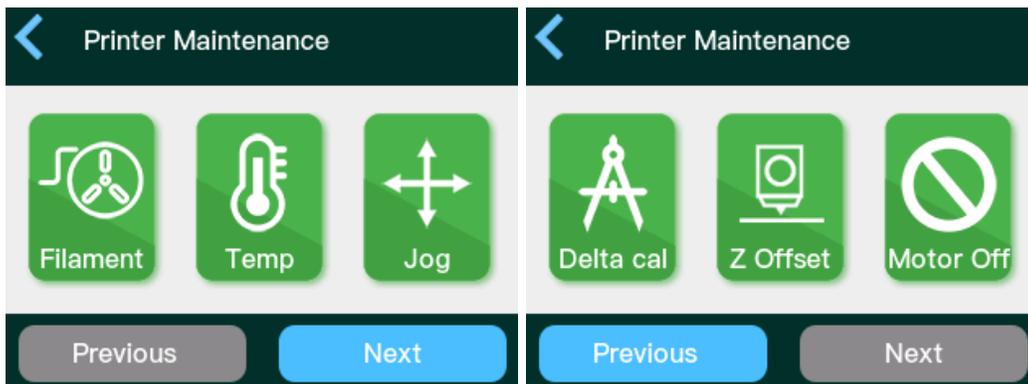
The **Print Menu** displays a list of gcode files in the root directory of the microSD™.



- <: Touch the < icon in the upper left corner of the **Select Print File** screen to return to the **Main Menu**. Touch the < icon in the upper left corner of the **File Information** screen to return to the **Select Print File** screen.
- **Previous**: Touch the **Previous** button on the **Select Print File** screen to display the previous list of files. If already at the top of the list, the **Previous** button is grayed out.
- **Next**: Touch the **Next** button on the **Select Print File** screen to display the next list of files. If already at the end of the list, the **Next** button is grayed out.
- **Filenames**: Touch one of the filenames in the list to display the **File Information** screen for that file.
- **Print**: Touch the **Print** button on the **File Information** screen to begin printing the displayed model.

Printer Maintenance Menu

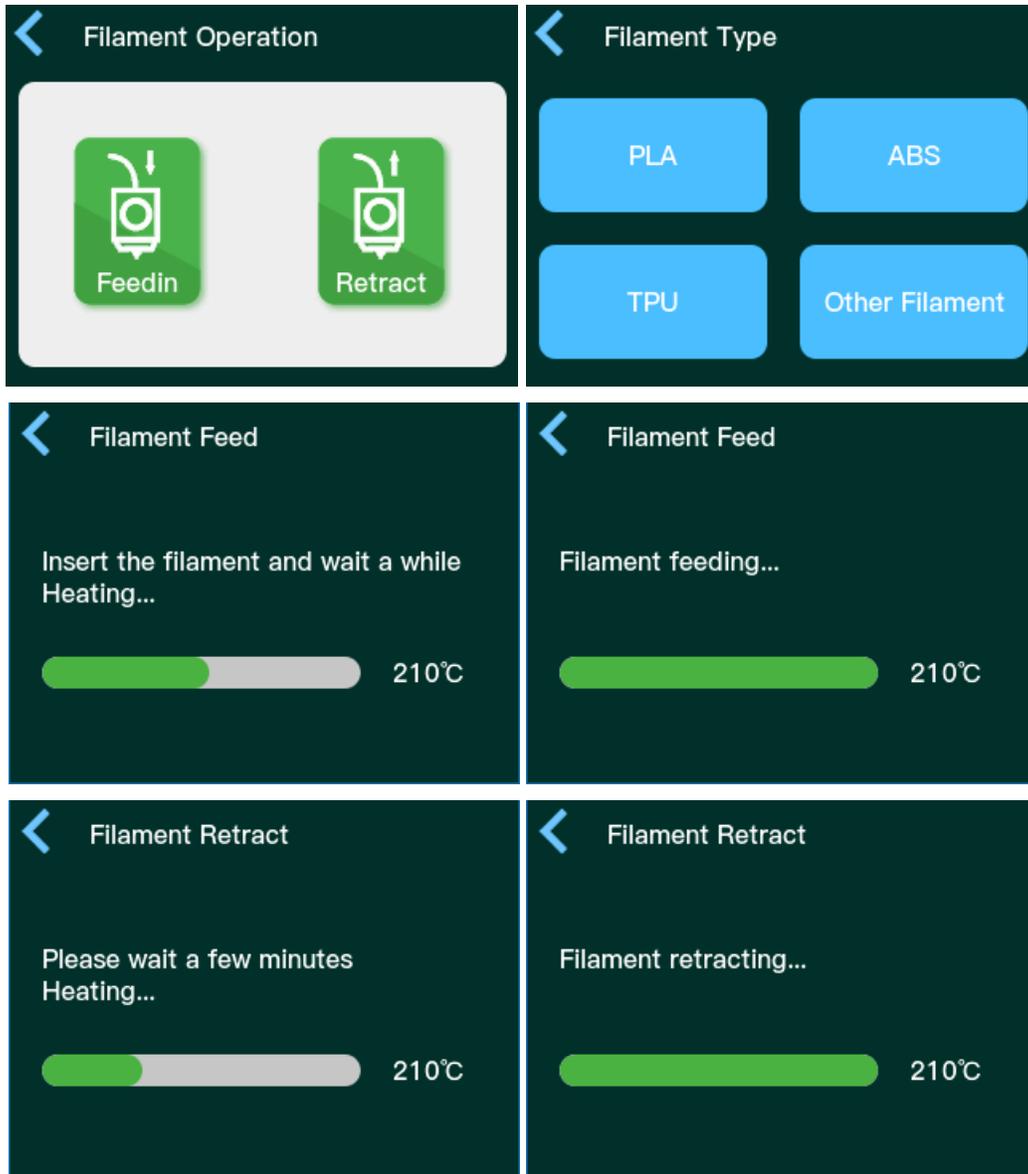
Note that although you touch the **Prepare** button on the **Main Menu**, the screen is labeled **Printer Maintenance**, as shown in the screenshots below.



- <: Touch the < icon in the upper left corner to return to the **Main Menu**.
- **Filament**: Touch the **Filament** button to display the **Filament Operation** screen.
- **Temp**: Touch the **Temp** button to display the **Set Target Temperature** screen.
- **Jog**: Touch the **Jog** button to display the **Jog Mode** screen.
- **Delta cal**: Touch the **Delta cal** button to display the **Delta Auto Calibration** screen.

- **Z Offset:** Touch the **Z Offset** button to display the **Delta Auto Calibration** screen, followed by the **Z Offset Setting** screen. The Delta Auto Calibration process must be performed before adjusting the Z Offset.
- **Motor Off:** Touch the **Motor Off** button to display the **Motor Off** screen.

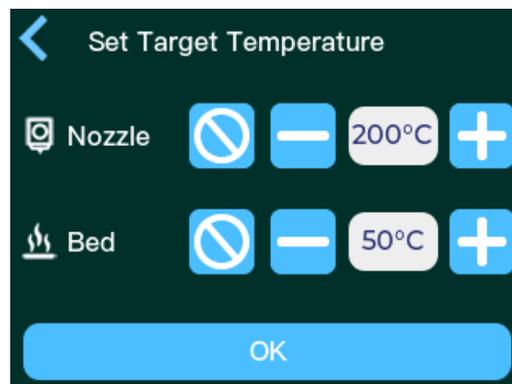
Filament Operation Screen



- <: Touch the < icon in the upper left corner to return to the **Main Menu**.

- **Feedin:** Touch the **Feedin** button on the **Filament Operation** screen to display the **Filament Type** screen.
- **Retract:** Touch the **Retract** button on the **Filament Operation** screen to display the **Filament Type** screen.
- **PLA:** Touch the **PLA** button on the **Filament Type** screen to set the target nozzle temperature to the temperature that is appropriate for PLA filament. The printer will heat the nozzle, then either load or unload the filament, depending on whether **Feedin** or **Retract** was selected on the **Filament Operation** screen.
- **ABS:** Touch the **ABS** button on the **Filament Type** screen to set the target nozzle temperature to the temperature that is appropriate for ABS filament. The printer will heat the nozzle, then either load or unload the filament, depending on whether **Feedin** or **Retract** was selected on the **Filament Operation** screen.
- **TPU:** Touch the **TPU** button on the **Filament Type** screen to set the target nozzle temperature to the temperature that is appropriate for TPU filament. The printer will heat the nozzle, then either load or unload the filament, depending on whether **Feedin** or **Retract** was selected on the **Filament Operation** screen.
- **Other Filament:** Touch the **Other Filament** button on the **Filament Type** screen to set the target nozzle temperature to 260°C. The printer will heat the nozzle, then either load or unload the filament, depending on whether **Feedin** or **Retract** was selected on the **Filament Operation** screen.

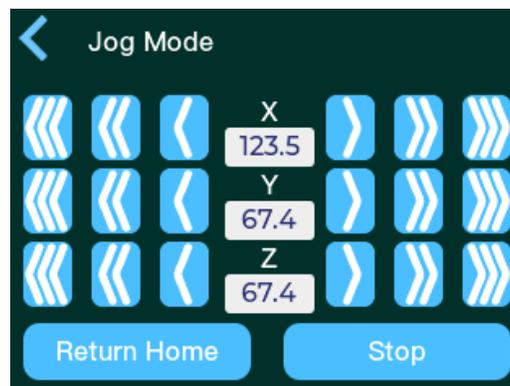
Set Target Temperature Screen



- <: Touch the < icon in the upper left corner to return to the **Main Menu**.

- **0**: Touch the **0** button to quickly set the temperature to 0°C.
- **-**: Touch the **-** button to reduce the target temperature by 1°C. Press and hold the button to rapidly decrease the target temperature.
- **+**: Touch the **+** button to increase the target temperature by 1°C. Press and hold the button to rapidly increase the target temperature.
- **OK**: Touch the **OK** button to begin heating the **Nozzle** and/or **Bed** to the target temperatures.

Jog Mode Screen



- **<**: Touch the **<** icon in the upper left corner to return to the **Main Menu**.
- **<<<**: Press the **<<<** button to decrease the X, Y, or Z position by 10mm.
- **<<**: Press the **<<** button to decrease the X or Y position by 5mm or the Z position by 1mm.
- **<**: Press the **<** button to decrease the X or Y position by 1mm or the Z position by 0.1mm.
- **>**: Press the **>** button to increase the X or Y position by 1mm or the Z position by 0.1mm.
- **>>**: Press the **>>** button to increase the X or Y position by 5mm or the Z position by 1mm.
- **>>>**: Press the **>>>** button to increase the X, Y, or Z position by 10mm.
- **Return Home**: Resets the X, Y, and Z axes to the Home position.

- **Stop:** Stops movement of the X, Y, and Z axes.

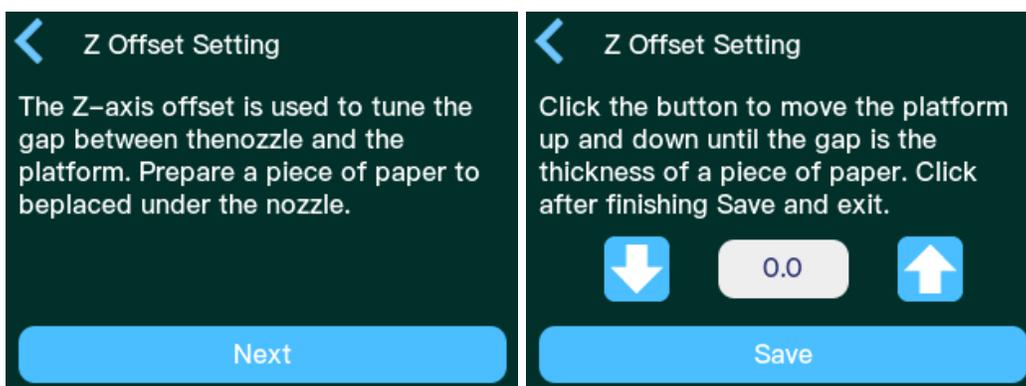
Delta Auto Calibration Screen



- **<:** Touch the < icon in the upper left corner to return to the **Main Menu**.
- **Begin:** Starts the automatic calibration process.

Z Offset Setting Screen

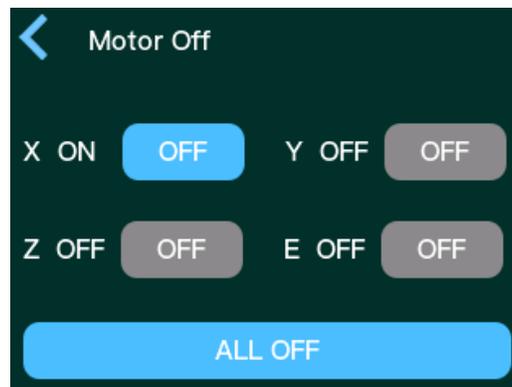
When the **Z Offset** button is touched on the **Printer Maintenance Menu**, the printer will first display the **Delta Auto Calibration** screen. You must perform the Delta Auto Calibration process before adjusting the Z Offset. Once the calibration is complete, the **Z Offset Setting** screen is displayed.



- **<:** Touch the < icon in the upper left corner to return to the **Main Menu**.
- **↓:** Touch the ↓ button to decrease the Z Offset value by 0.1mm.
- **↑:** Touch the ↑ button to increase the Z Offset value by 0.1mm.

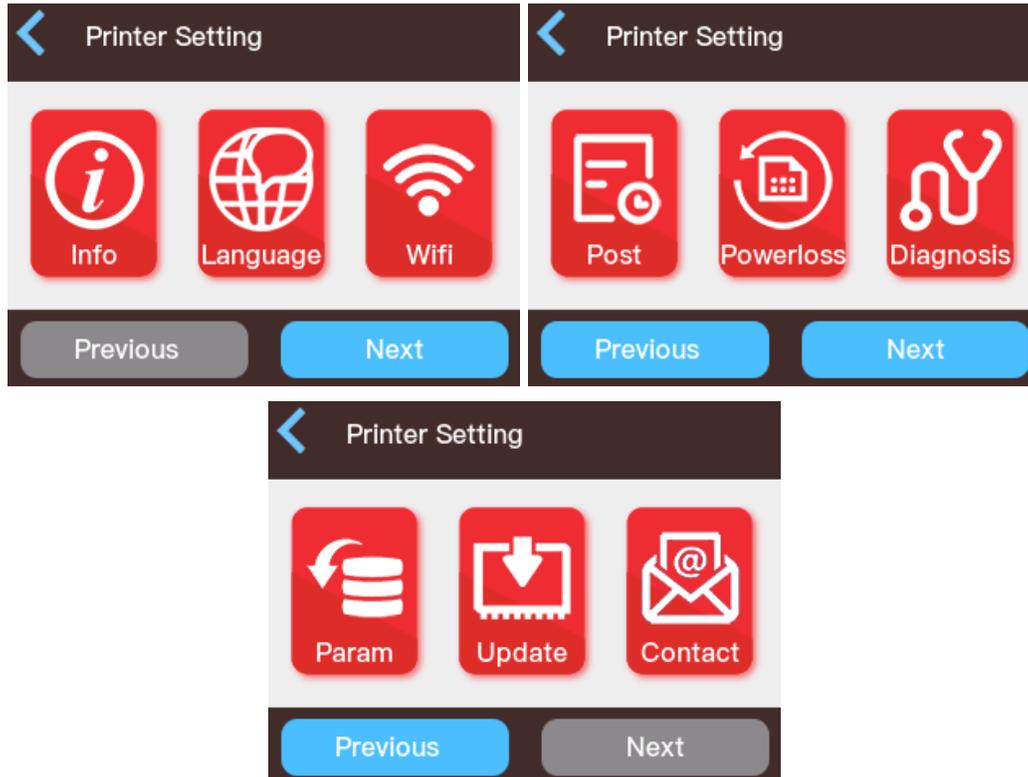
- **Save:** Touch the **Save** button to save the Z Offset value.

Motor Off Screen



- **<:** Touch the **<** icon in the upper left corner to return to the **Main Menu**.
- **OFF:** For the X, Y, and Z axis motors and the Extruder (E) motor, the blue highlight indicates that the motor is ON. You can independently turn each motor OFF by touching the blue **OFF** button. The printer will automatically turn the motors back ON when it is reset or when you start a print.
- **ALL OFF:** Touch the **ALL OFF** button to turn all motors off.

Printer Setting Menu



- <: Touch the < icon in the upper left corner to return to the **Main Menu**.
- **Info**: Displays the **Machine Information** screen.
- **Language**: Displays the **Language Setting** screen.
- **Wifi**: Displays the **WIFI** screen.
- **Post**: Displays the **Post Setting** screen.
- **Powerloss**: Displays the **Powerloss Setting** screen.
- **Diagnosis**: Displays the **Diagnosis** screen.
- **Param**: Displays the **Firmware Parameters** screen.
- **Update**: Displays the **Update** screen.
- **Contact**: Displays the **Contact Us** screen.

Machine Information



- <: Touch the < icon in the upper left corner of the **Machine information** screen to return to the **Setting Menu**. Touch the < icon in the upper left corner of the **Serial number QR code** screen to return to the **Machine Information** screen.
- **QR code**: Touch the **QR code** button to display a QR code that contains this printer's serial number.

Language Setting



- <: Touch the < icon in the upper left corner to return to the **Setting Menu**.
- **English**: Touch the **English** button to change the menu language to English.
- **Deutsche**: Touch the **Deutsche** button to change the menu language to German.
- **Espanola**: Touch the **Espanola** button to change the menu language to Spanish.
- **Chinese**: Touch the **Chinese** button to change the menu language to Chinese.
- **Francaise**: Touch the **Francaise** button to change the menu language to French.

- **Italiana:** Touch the **Italiana** button to change the menu language to Italian.
- **Japanese:** Touch the **Japanese** button to change the menu language to Japanese.

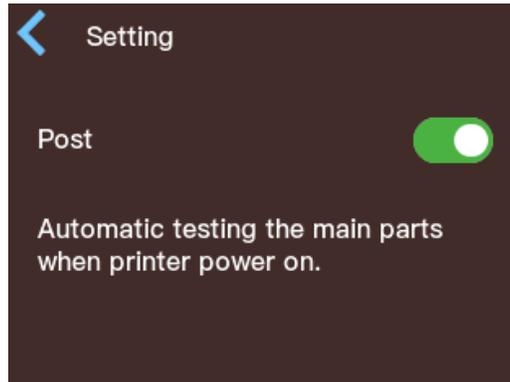
WIFI Screen

The label at the top of the **WIFI** screen indicates the current connection status.



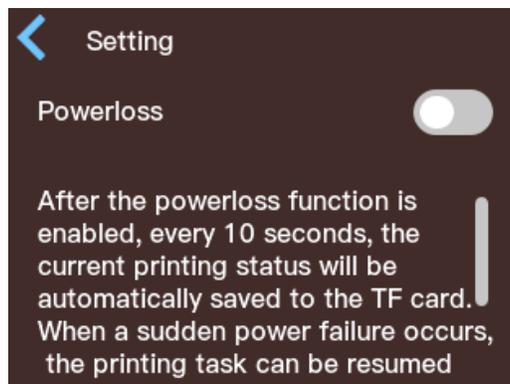
- **<:** Touch the **<** icon in the upper left corner of the **WIFI** screen to return to the **Setting Menu**.
- **Network List:** The list displays the SSID names, number of channels available, and the RSSI signal strength for each available Wi-Fi® network. Drag the vertical scroll bar until the SSID name of the desired Wi-Fi network is shown in the list, then touch the SSID name to select and highlight it.
- **Refresh:** Touch the **Refresh** button to initiate a scan for nearby Wi-Fi networks.
- **Connect:** Touch the **Connect** button to connect the printer to the selected/highlighted Wi-Fi network and display the **Enter WIFI password** screen. If no network is selected/highlighted, touching the button has no effect. If already connected to a Wi-Fi network, the button will change to **Disconnect**. Touch the **Disconnect** button to terminate the active Wi-Fi connection.
- **X:** Touch the **X** button in the lower left corner of the **Enter WIFI password** screen to cancel password input and return to the **WIFI** screen.

Post Setting Screen



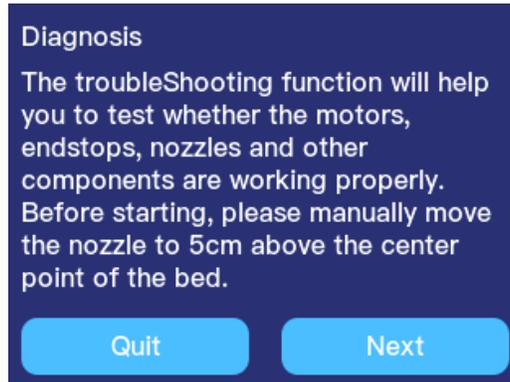
- <: Touch the < icon in the upper left corner to return to the **Setting Menu**.
- **Post**: Touch the slide button to the right of the **Post** label to turn the **Power On Self Test** function on or off. The green highlight on the button indicates that the function is on.

Powerloss Setting Screen



- <: Touch the < icon in the upper left corner to return to the **Setting Menu**.
- **Powerloss**: Touch the slide button to the right of the **Powerloss** label to turn the **Resume Printing** function on or off. The green highlight on the button indicates that the function is on. If power loss occurs, the **Resume Printing** function will automatically continue an interrupted print when power is reapplied.

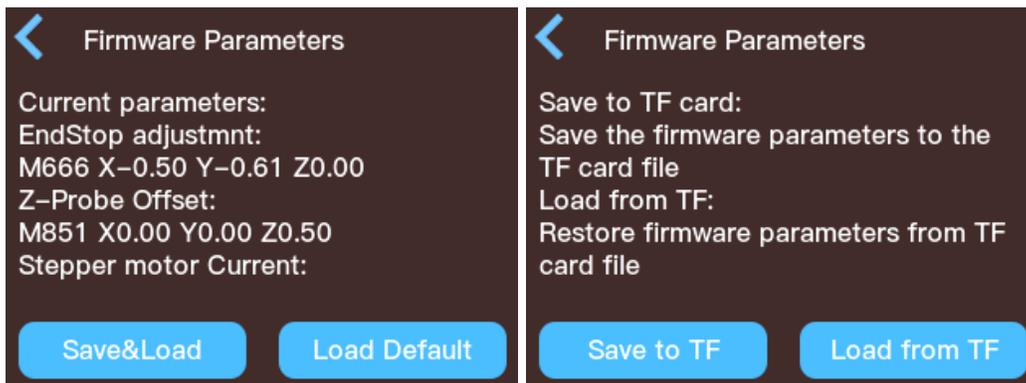
Diagnosis Screen



- **Quit:** Touch the **Quit** button to cancel the diagnostic process and return to the **Setting Menu**.
- **Next:** Touch the **Next** button to start the diagnostic process.

Firmware Parameters Screen

Although this screen is labeled **Firmware Parameters**, this actually is used to save and load all custom user settings, except the machine name and Wi-Fi® settings. Use the **Update** screen to update the actual printer firmware.

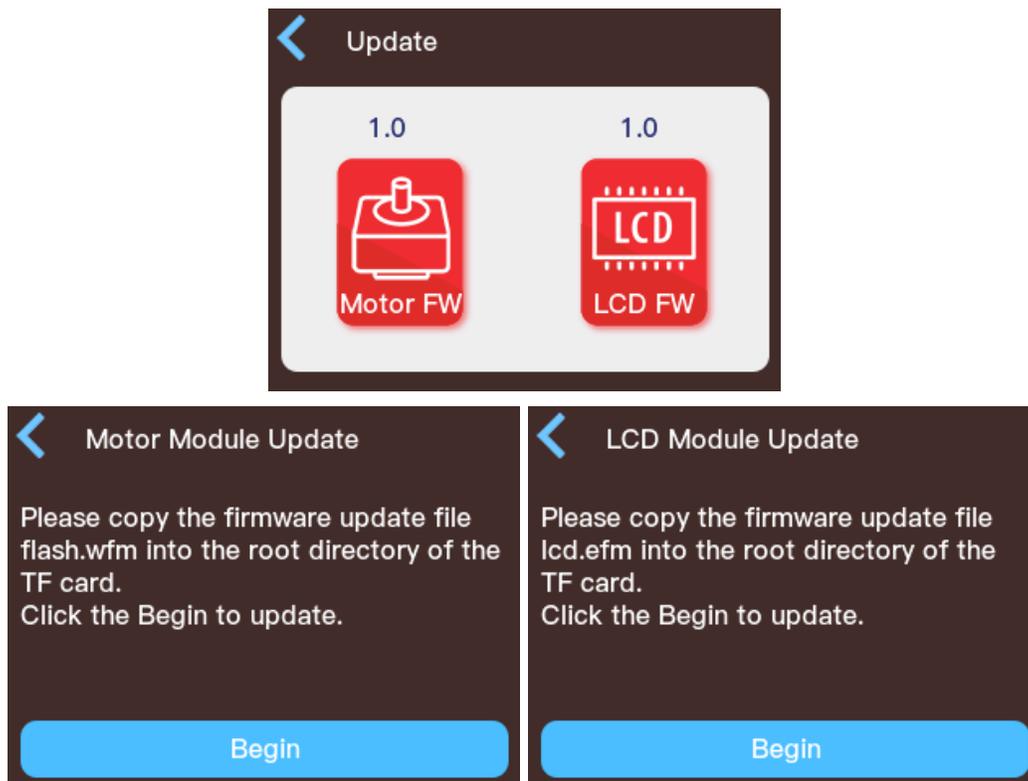


- **<:** Touch the **<** icon in the upper left corner of the first **Firmware Parameters** to return to the **Setting Menu**. Touch the **<** icon in the upper left corner of the second **Firmware Parameters** screen to return to the first **Firmware Parameters** screen.
- **Save&Load:** Touch the **Save&Load** button to display the second **Firmware Parameters** screen, which allows you to Save or Load the settings to or from the inserted microSD™ (TF) card.

- **Save to TF:** Saves all current user settings, except the machine name and Wi-Fi® settings, to a file named **CONFIG.SAV** on the microSD™ (TF) card. Only one set of user settings can be saved to any given microSD card.
- **Load from TF:** Loads the saved user settings from the microSD (TF) card.

Update Screen

The printer has two sets of firmware, one for the **Motor Module** and another for the **LCD Module**. In the event that updated firmware is available, a firmware file will be available for download on the product page of the www.monoprice.com website. Download the zip file, then extract the **flash.wfm** (motor) or **lcd.efm** (LCD) file to a microSD™ card.

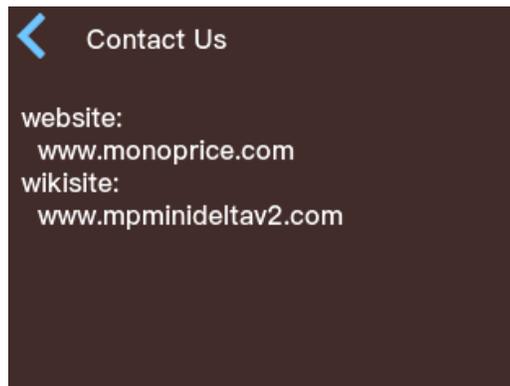


- <: Touch the < icon in the upper left corner to return to the **Setting Menu**.
- **Motor FW:** Touch **Motor FW** button to display the **Motor Module Update** screen.
- **LCD FW:** Touch the **LCD FW** button to display the **LCD Module Update** screen.

- **Begin:** Touch the **Begin** button to install the updated firmware file on the inserted microSD™ card. Once the update is complete, the printer will automatically reboot to load the new firmware.

Contact Us Screen

The **Contact Us** screen displays the Monoprice™ website address and the address for a wiki site dedicated to the MP Mini Delta V2 3D Printer.

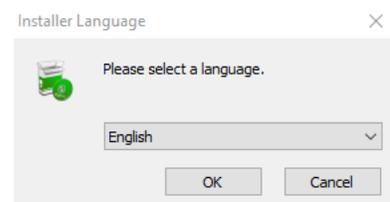


WIIBUILDER SLICING SOFTWARE

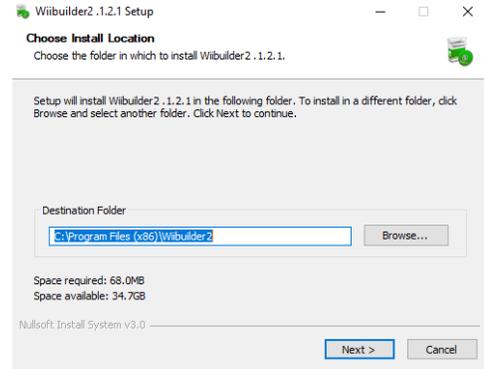
Installation

Wiibuilder is the preferred slicing software program for use with the MP Mini Delta V2 3D Printer and the Windows® operating system. Models sliced with Wiibuilder can be previewed on the **File Information** screen. For your convenience, a customized version of the Wiibuilder installer is included on the microSD™ card. To install Wiibuilder, double click the **Wiibuilder2.1.2.1_setup_Monoprice.exe** file on the microSD card, then perform the following steps:

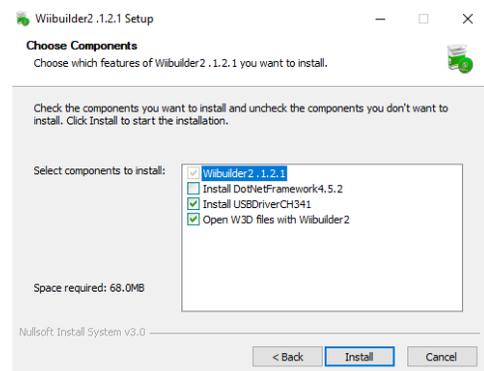
1. Use the pull-down list box to select the language you want to use in the installer, then click the **OK** button to continue. The available languages are English, Spanish, Russian, Simplified Chinese, and Japanese.



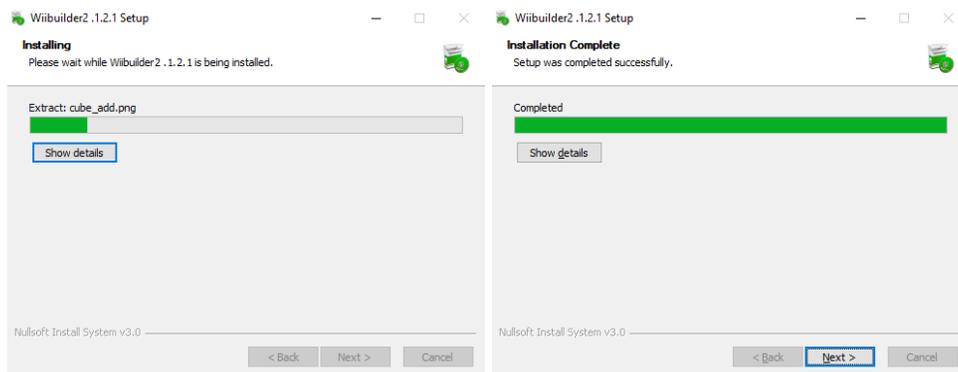
- The installer will now prompt you to select the directory to which Wiibuilder will be installed. If you don't want to use the default directory, click the **Browse...** button, then select your preferred directory. Click the **Next >** button to continue.



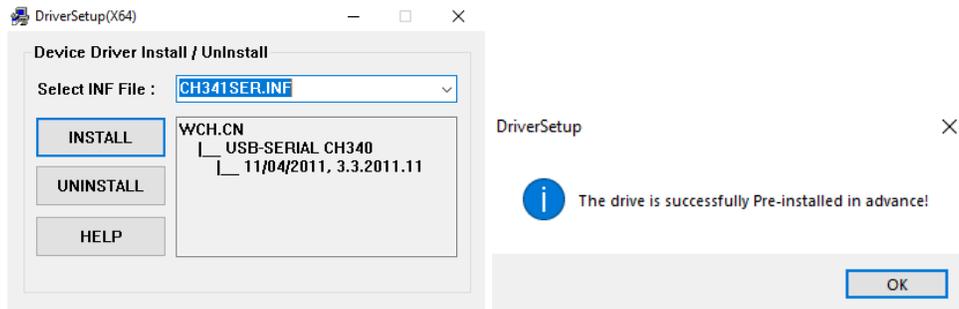
- The installer will now prompt you to select which components will be installed. If you are unsure of which components to install, select all components. Click the **Install** button to continue.



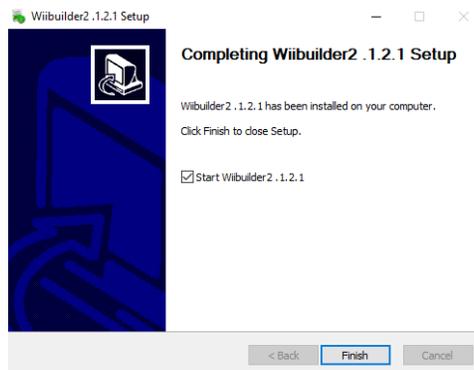
- The install wizard will extract the files and install the program to the specified directory. Once installation is complete, you will be prompted to install the drivers.



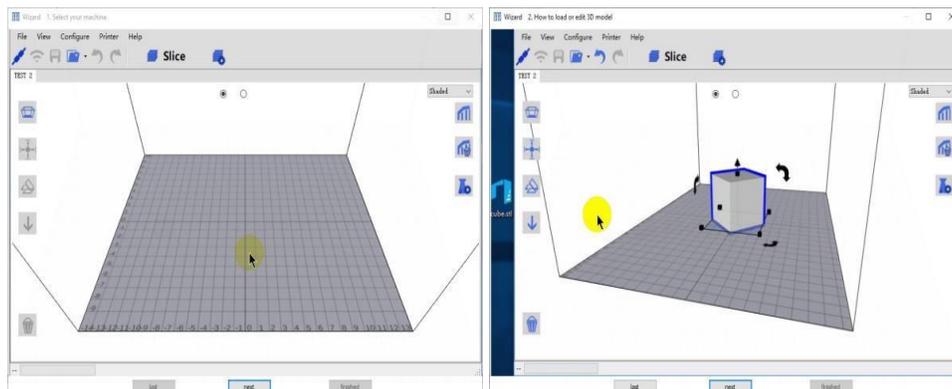
5. A dialog labeled **DriverSetup(x64)** will appear. Click the **INSTALL** button to install the drivers. Once the drivers have been installed, click the **OK** button on the **DriverSetup** dialog, then click the **X** in the upper right corner of the **DriverSetup(x64)** dialog to clear it. Click the **Next >** button on the **Wiibuilder2.1.2.1 Setup Installation Complete** dialog to continue.

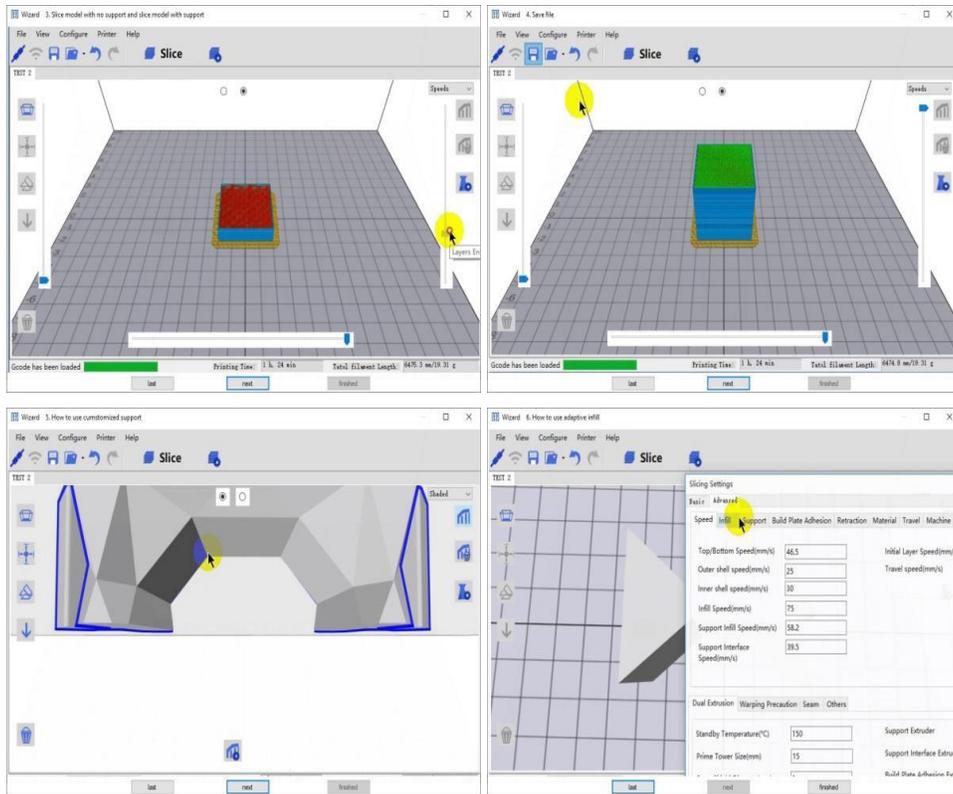


6. Ensure that the box next to **Start Wiibuilder 2.1.2.1** is checked, then click the **Finish** button to exit the installer and start Wiibuilder.



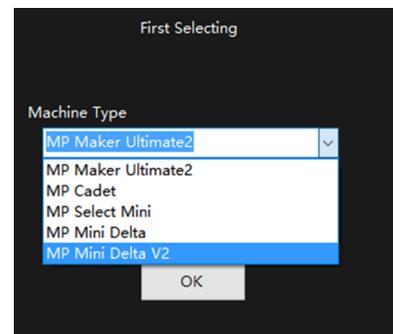
7. Once Wiibuilder launches, it will display a Wizard with 6 pages that show how to perform several common functions. Click the **Next** button to display the next page. If you want to see a previous page, click the **Previous** button. Once all 6 pages have been displayed, click the **Finished** button to close the wizard.





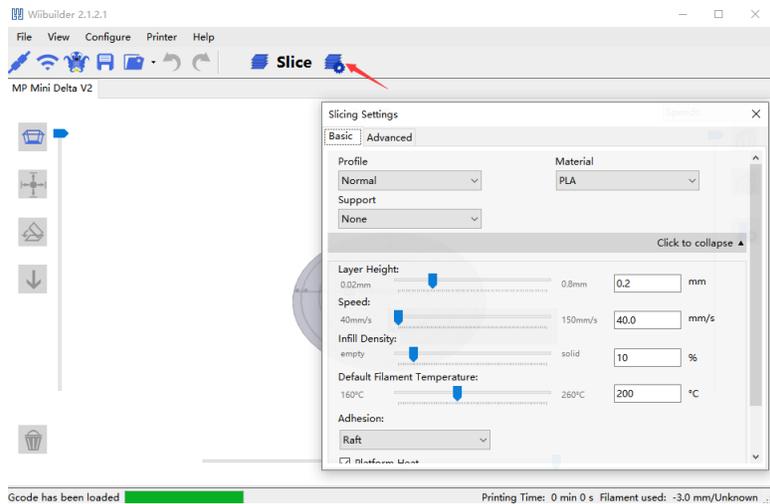
- You will now be prompted to select your printer.
Select the **MP Mini Delta V2** entry, then click the **OK** button to continue.

*Congratulations! Wiibuilder is now installed and configured for use. If you want to see the wizard again, click **Help > RunWizard**.*

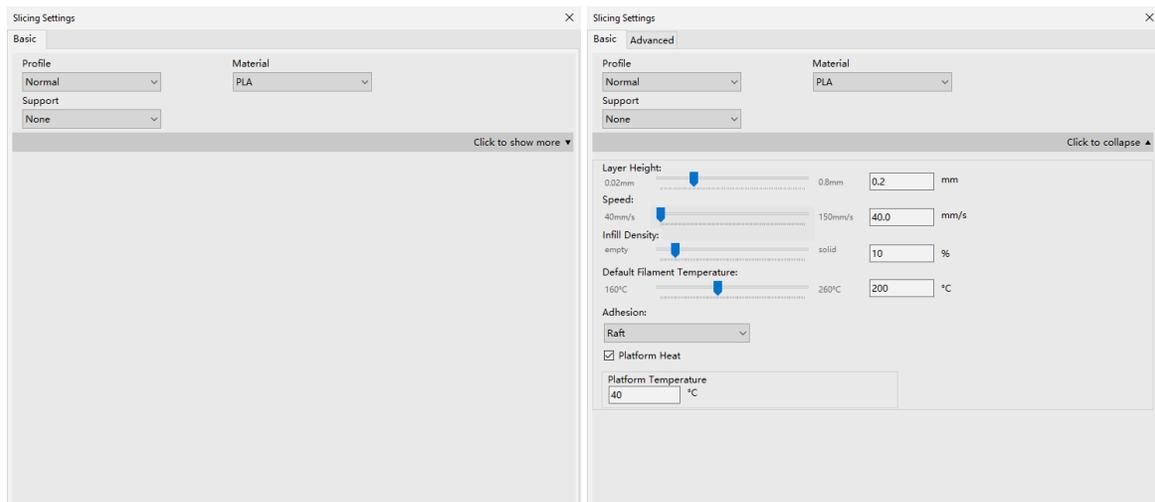


Advanced Configuration

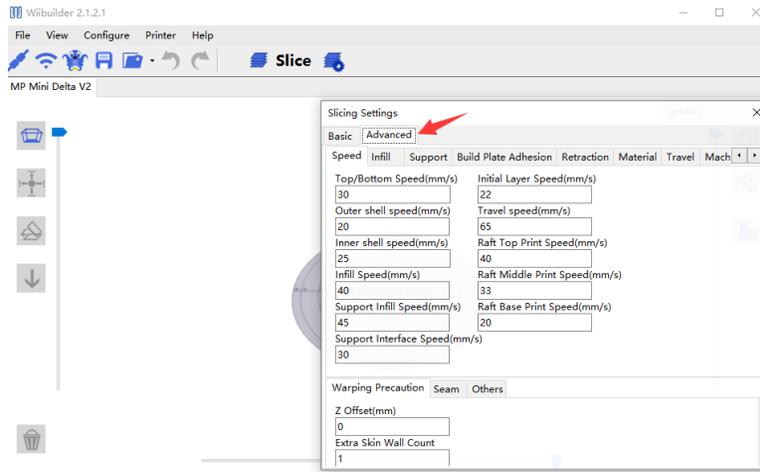
1. Click the **Slicing Settings** icon to display the **Slicing Settings** dialog.



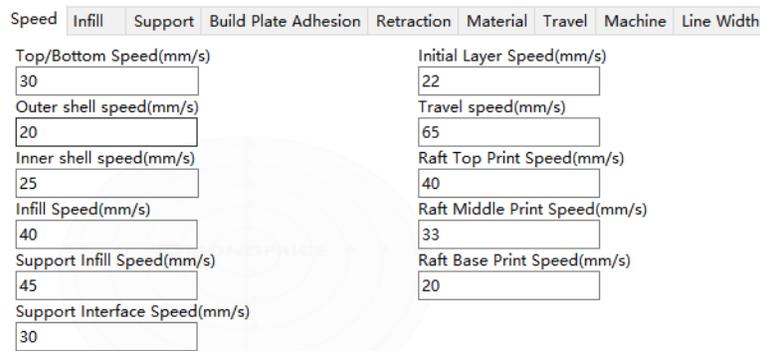
2. If the **Slicing Settings** dialog only shows a **Basic** tab, click the caret to the right of the **Click to show more** label to enable the **Advanced** tab.



3. Click the **Advanced** tab to display a second set of tabs.



Speed Tab



The **Speed** tab features the following options:

- **Top/Bottom Speed (mm/s):** Sets the printing speed of the top and bottom surfaces of the model.
- **Outer shell speed (mm/s):** Sets the printing speed of the external shell surfaces.
- **Inner shell speed (mm/s):** Sets the printing speed of the internal shell surfaces.
- **Infill Speed (mm/s):** Sets the printing speed of the infill inside the model.
- **Support Infill Speed (mm/s):** Sets the printing speed of infill inside the model supports.
- **Support Interface Speed (mm/s):** Sets the printing speed of the top and bottom surfaces of the model supports.

- **Initial Layer Speed (mm/s):** Sets the printing speed of the first layer of the model.
- **Travel speed (mm/s):** Sets the movement speed of the nozzle when not printing.
- **Raft Top Print Speed (mm/s):** Sets the printing speed of the top raft layer.
- **Raft Middle Print Speed (mm/s):** Sets the printing speed of the layers in the middle of the raft.
- **Raft Base Print Speed (mm/s):** Sets the printing speed of the base raft layer.

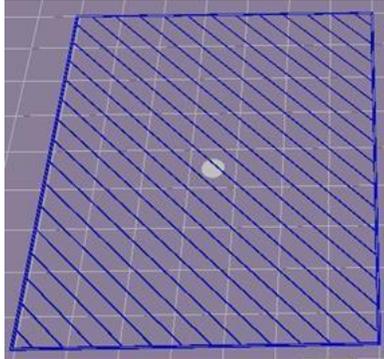
Infill Tab

The screenshot shows the 'Infill' tab in a software interface. The tab is selected, and it contains the following settings:

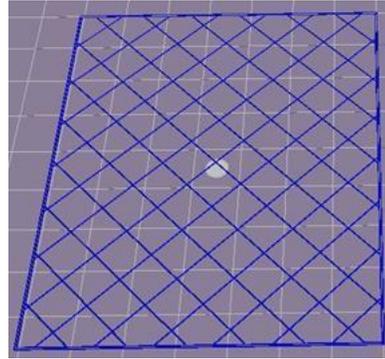
- Infill Pattern:** A drop-down list box with 'Zig Zag' selected.
- Infill Before Walls:** An unchecked checkbox.
- Outer Before Inner Walls:** An unchecked checkbox.
- Enable Adaptive Infill:** An unchecked checkbox.
- Adaptive Infill Threshold(mm):** A text input field containing the value '7'.
- Adaptive Infill Density(%):** A text input field containing the value '60'.

- **Infill Pattern:** Use the drop-down list box to select one of seven different infill patterns. The available patterns are **Lines**, **Grid**, **Triangles**, **Zig Zag**, **Concentric**, **Cross**, and **Octet**. The patterns are illustrated in the table below.
- **Infill Before Wall:** Check this box to print the model after filling and printing the outline.
- **Outer Before Inner Walls:** Check this box to print the exterior walls before printing the interior walls.
- **Enable Adaptive Infill:** For models that need to use adaptive infill for different parts, Wiibuilder slicer can automatically create the adaptive infill rate for different parts.

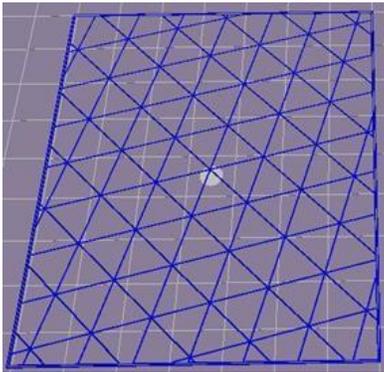
Infill Patterns



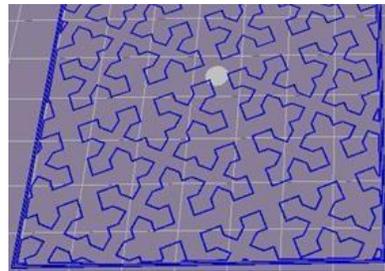
Lines



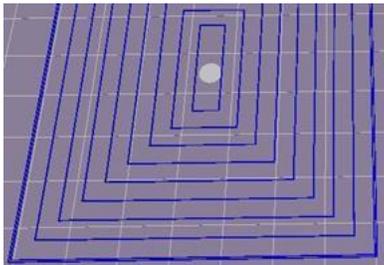
Grid



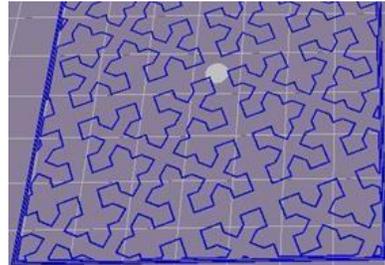
Triangle



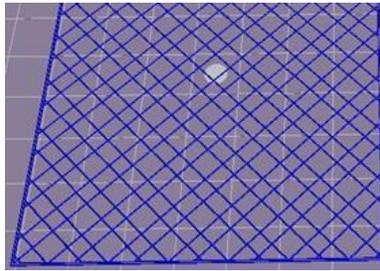
Zig Zag



Concentric



Cross



Octet

Support Tab

Speed	Infill	Support	Build Plate Adhesion	Retraction	Material	Travel	Machine	Line Width
Support Pattern:		Enable Support Interface						
Zig Zag		<input checked="" type="checkbox"/>						
Overhang angle for support(°):		Support Top Thickness(mm)						
60		0.8						
Support infill density(%):		Support Bottom Thickness(mm)						
10		0.8						
Support Top Gap(mm):		Support Interface Density(%)						
0.18		70						
Support Bottom Gap(mm):		Support Interface Infill Pattern						
0.1		Lines						
Distance X/Y(mm):		Connect Support						
0.7		<input type="checkbox"/>						

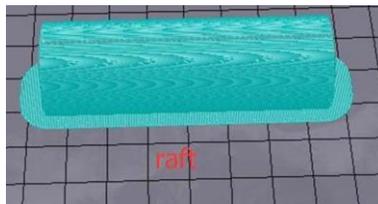
- **Support Pattern:** Use the drop-down list box to select one of five support patterns, including **Lines**, **Grid**, **Triangles**, **Zig Zag**, and **Concentric**. The pattern designs are the same as those of the infill patterns of the same name.
 - **Lines** support is easier to remove and is used on models that require more support.
 - **Grid** support is used on small models, which need fewer supports.
 - **Zig Zag** support is used for models that are particularly difficult to remove. It is stronger than **Lines** support and is better than **Grid** support.
- **Overhang angle for support (°):** The overhang angle is the angle between the support and the surface of the model. Larger settings make the supports easier to remove, while smaller settings provide better support. The default angle is 60 degrees.

- **Support infill density (%):** Determines the infill density for supports. The higher the density, the stronger the supports.
- **Support Top Gap (mm):** The distance between the top of the support and the model surface. The smaller the distance, the more effective the support, but it is more difficult to remove from the model surface, resulting in residual material on the model surface. The larger the distance, the less effective the support, but it is easier to remove from the model surface, resulting in a smoother surface.
- **Support Bottom Gap (mm):** The distance between the bottom of the support and the model surface. The effects of this parameter are the same as the effects of the **Support Top Gap (mm)** parameter.
- **Distance X/Y (mm):** The distance between the support and the model surface in the horizontal plane. The effects of this parameter are the same as the effects of the **Support Top Gap (mm)** parameter.
- **Enable Support:** Check this box to use supports.
- **Support Top:** Determines the thickness of the top layer of the supports.
- **Support Bottom:** Determines the thickness of the bottom layer of the supports.
- **Support Interface:** Sets the percentage of infill used inside the supports.
- **Support Interface Infill Pattern:** Use this drop-down list box to choose one of five infill patterns for the supports, including **Lines**, **Grid**, **Triangles**, **Zig Zag**, and **Concentric**. The pattern designs are the same as those of the infill patterns of the same name.

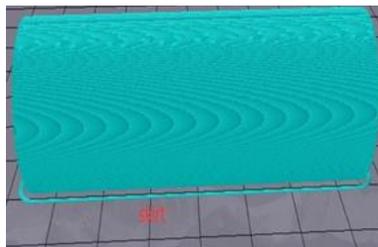
Build Plate Adhesion Tab

Speed	Infill	Support	Build Plate Adhesion	Retraction	Material	Travel	Machine	Line Width
Raft Air Gap(mm)				Brim line amount				
0.24				20				
Raft Extra Margin(mm)				Skirt Line Count				
5				1				
Raft Base thickness(mm)								
0.35								
Initial Layer Z Overlap								
0.09								

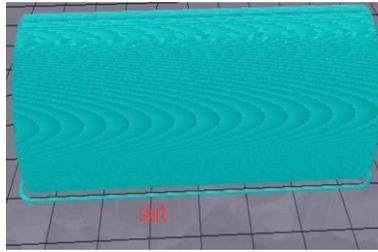
- **Raft Air Gap (mm):** The distance between the raft and the model. This determines the difficulty of removing the raft from the model.



- **Raft Extra Margin (mm):** The distance between the edge of the raft and the model surface.
- **Raft Base thickness (mm):** Determines the thickness of the raft.
- **Initial Layer Z Overlap:** Determines the amount of overlap between the first and second layers of the model.
- **Brim line amount:** Sets the number of ring gaskets that are added to the edge of the model in contact with the build platform.



- **Skirt Line Count:** Sets the number of anti-overflow lines at the end of the model in contact with the build platform.



Retraction Tab

Speed	Infill	Support	Build Plate Adhesion	Retraction	Material	Travel	Machine	Line Width
Horizontal Travel Retraction				Z Hop When Retracted				
<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				
Retract at Layer Change				Z Hop Height(mm):				
<input type="checkbox"/>				<input type="text" value="0"/>				
Retraction speed(mm/s):								
<input type="text" value="28"/>								
Retraction distance(mm):								
<input type="text" value="5"/>								
Retraction Minimum Travel(mm):								
<input type="text" value="0.8"/>								

- **Horizontal Travel Retraction:** Check this box to enable filament retraction when the nozzle is not printing and is moving in a horizontal direction.
- **Retract at Layer Change:** Check this box to retract the filament when switching from layer to layer.
- **Retraction speed (mm/s):** Sets the speed at which filament is retracted.
- **Retraction distance (mm):** The distance the filament is retracted within the nozzle.
- **Z Hop Height (mm):** The distance the nozzle is lifted when filament is returned after retraction.
- **Retraction Minimum Travel (mm):** Sets the minimum nozzle movement distance before printing and before retracting the filament.

Material Tab

Speed Infill Support Build Plate Adhesion Retraction Material Travel Machine Line Width

Filament flow(%):
95

Filament Diameter(mm):
1.75

- **Filament flow (%)**: Sets the flow rate of filament in the melting state. This is set according to the type of filament being used. In general, the flow rate for PLA or PLA Pro is 90 and the flow rate of ABS is 100.
- **Filament Diameter (mm)**: Sets the diameter of the filament being used. This printer only supports 1.75mm diameter filament.

Travel Tab

Speed Infill Support Build Plate Adhesion Retraction Material Travel Machine Line Width

Combing Mode
All

Start Layers at Same Position

Layer Start PositionX(mm)
100

Layer Start PositionY(mm)
0

- **Combing Mode**: This option determines how the nozzle will move when not printing. The **Off** option causes the nozzle to move the shortest distance between the previous extrusion location and the new start location. The **All** option causes the nozzle to move along anything it has already extruded. The **No Skin** option will avoid the outer layers to move the nozzle to the new start location, which can greatly improve print quality.
- **Start Layers at Same Position**: This option changes the accuracy of the model in the same plane. It is generally set by default.
- **Layer Start Position X (mm)**: This option allows you to change the X axis coordinates of the position of the model layer.

- **Layer Start Position Y (mm):** This option allows you to change the Y axis coordinates of the position of the model layer.

Machine Tab

Speed Infill Support Build Plate Adhesion Retraction Material Travel Machine **Line Width**

Right Nozzle Diameter(mm)
0.4

- **Right Nozzle Diameter (mm):** Sets the diameter of the nozzle on the right extruder. This printer only has a single extruder, which is designated the right extruder. The nozzle diameter of this printer is 0.4mm.

Line Width Tab

Speed Infill Support Build Plate Adhesion Retraction Material Travel Machine **Line Width**

<input checked="" type="radio"/> Outer Wall Line Width(mm) 0.4	<input type="radio"/> Skirt/Brim Line Width(mm) 0.4
<input type="radio"/> Inner Wall(s) Line Width(mm) 0.4	<input type="radio"/> Raft Top Line Width(mm) 0.4
<input type="radio"/> Top/Bottom Line Width(mm) 0.4	<input type="radio"/> Raft Middle Line Width(mm) 0.7
<input type="radio"/> Infill Line Width(mm) 0.5	<input type="radio"/> Raft Base Line Width(mm) 0.8
<input type="radio"/> Support Line Width(mm) 0.4	<input type="radio"/> Prime Tower Line Width(mm) 0.4

- **Outer Wall Line Width (mm):** This is the width of the outermost wall line. By lowering this value, higher levels of detail can be printed.
- **Inner Wall(s) Line Width (mm):** This is the width of a single wall line for all walls except the outermost wall.
- **Top/Bottom Line Width (mm):** This is the width of the top and bottom lines.
- **Infill Line Width (mm):** This is the width of a single infill line.
- **Support Line Width (mm):** This is the width of a single support structure line.
- **Skirt/Brim Line Width (mm):** This is the width of a single skirt or brim line.

- **Raft Top Line Width (mm):** This is the width of the lines in the top surface of the raft. These lines can be thin, so that the top of the raft is smooth.
- **Raft Middle Line Width (mm):** This is the width of the lines in the middle raft layers. Making the second layer extrude more causes the lines to stick to the build plate.
- **Raft Base Line Width (mm):** This is the width of the raft base layer. These should be thick lines to assist with build plate adhesion.
- **Prime Tower Line Width (mm):** This is the extrusion width of the prime tower.

Warping Protection Tab

Warping Precaution Seam Others

Z Offset(mm)
0

Extra Skin Wall Count
1

Initial layer Increment(°C)
15

- **Z Offset (mm):** When the Z axis bias is set to a negative value, the nozzle will print closer to the build platform, which helps reduce warping on large models.
- **Extra Skin Wall Count:** This value sets the number of contours on the outer surface of the model.
- **Initial layer Increment (°C):** This value is used to increase the printing temperature of the first layer, which helps reduce warping on large models.

Seam Tab

Warping Precaution Seam Others

Z Seam Type
Shortest

Z Seam X(mm)
100

Z Seam Y(mm)
300

Hiding Seam Preference
Hide Seam

Z Seam Relative

Note: The Z Seam is where the printer finishes its motion when printing the skin (outside layer) of a model. This can result in a small blob where the printer changes the Z height. If in alignment, there can be a noticeable line up the side of the print, referred to as a Z

Seam, because the filament continues to ooze at the start/stop location. The options on this screen are used to mitigate this effect.

- **Z Seam Type:** Determines where the Z Seam will appear.
 - **Shortest:** This option selects the most time efficient start/stop location.
 - **User Specified:** This option allows you to specify the X and Y start/stop location, which determines where the Z Seam will appear.
 - **Random:** With this option, the printer will randomly choose the start/stop location, which prevents building a column.
 - **Sharpest Corner:** The start/stop location and the Z Seam will appear in the sharpest corner of the model.
- **Z Seam X (mm):** This option is the X location of the Z Seam. This option can only be set when the **Z Seam Type** is set to **User Defined**.
- **Z Seam Y (mm):** This option is the Y location of the Z Seam. This option can only be set when the **Z Seam Type** is set to **User Defined**.
- **Hiding Seam Preference:** This option is only available when the **Z Seam Type** is set to **Sharpest Corner**. It determines whether the Z Seam will be on the inside or outside of the corner.
- **Z Seam Relative:** Checking this box will set the Z Seam in respect to the object's center, whereas leaving the box unchecked will set the Z Seam along the absolute position on the build plate. This option is only available when the **Z Seam Type** is set to **User Defined**.

Others Tab



The screenshot shows a software interface with three tabs: 'Warping Precaution', 'Seam', and 'Others'. The 'Others' tab is active. It contains the following settings:

- Skin Layers Thickness(mm)**: Input field with value 0.8
- Horizontal Expansion(mm)**: Input field with value 0
- Enable Print Cooling**: Checkmark
- Enable Draft Shield**: Checkmark
- Wall Line Count**: Input field with value 2

- **Skin Layers Thickness (mm)**: This option determines the thickness of the top and bottom skin layers.
- **Horizontal Expansion (mm)**: Thermoplastics tend to shrink when cooling. This option allows you to fine tune the part size to offset shrinkage for prints that require tighter tolerances.
- **Enable Print Cooling**: When enabled, cooling air will be directed at the printed part.
- **Enable Draft Shield**: When enabled, the printer will print a wall around the model to prevent environmental breezes or drafts from affecting the cooling. This is typically used when **Enable Print Cooling** is disabled for filament that needs a longer cooling time, such as ABS.
- **Wall Line Count**: This option determines the number of walls to print.

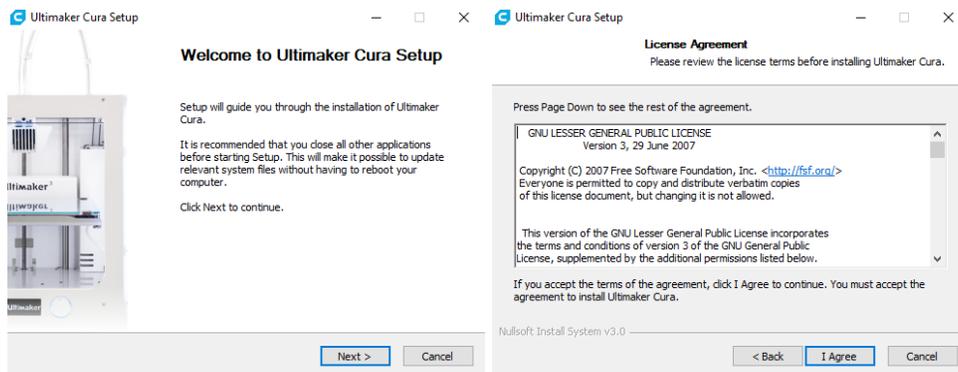
CURA SLICING SOFTWARE

Installation

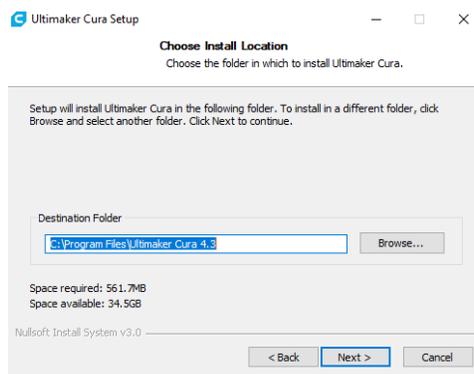
Cura is another good slicing software program for use with the MP Mini Delta V2 3D Printer. Unlike models sliced with Wiibuilder, models sliced with Cura cannot be previewed on the **File Information** screen. For your convenience, a customized version of the Cura installer is included on the microSD™ card for both the Windows® and Mac® OS X® operating systems.

To install Cura, double click the **Cura-4.3.0-win64-Monoprice-20210115.exe** file for Windows or the **Cura-4.3.0-Monoprice-MacOS-20210115.dmg** file for Mac OS X on the microSD card, then perform the following steps:

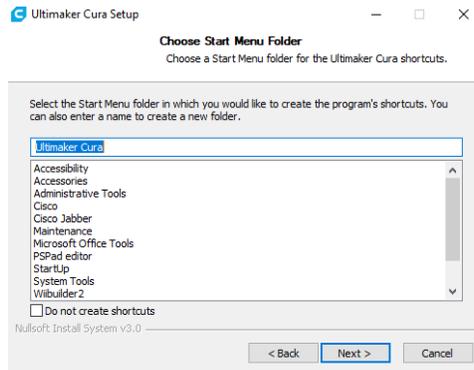
1. The first screen is a **Welcome** dialog. Click the **Next >** button to display the **License Agreement** dialog. Click the **I Agree** button to continue.



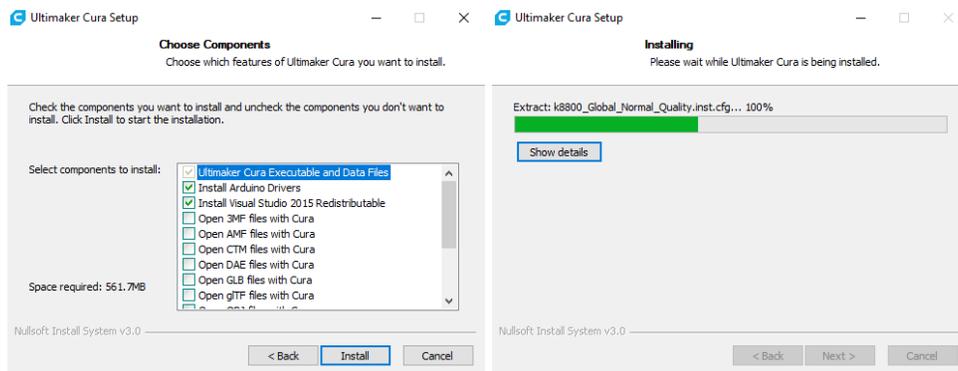
2. The installer will prompt you to select the directory to which Cura will be installed. If you don't want to use the default directory, click the **Browse...** button, then select your preferred directory. Click the **Next >** button to continue.



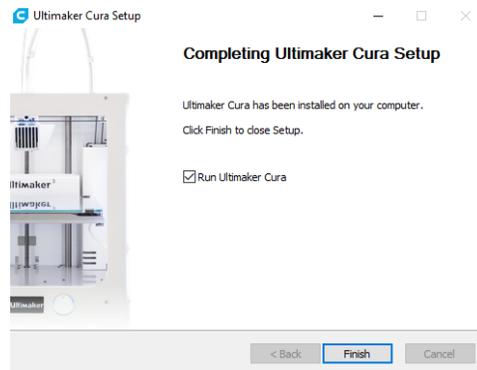
3. You will now see the **Choose Start Menu Folder** dialog. Select an existing folder, type in a new folder name, or leave the default folder name. You can also click the **Do not create shortcuts** check box to skip shortcut creation. Click the **Next >** button to continue.



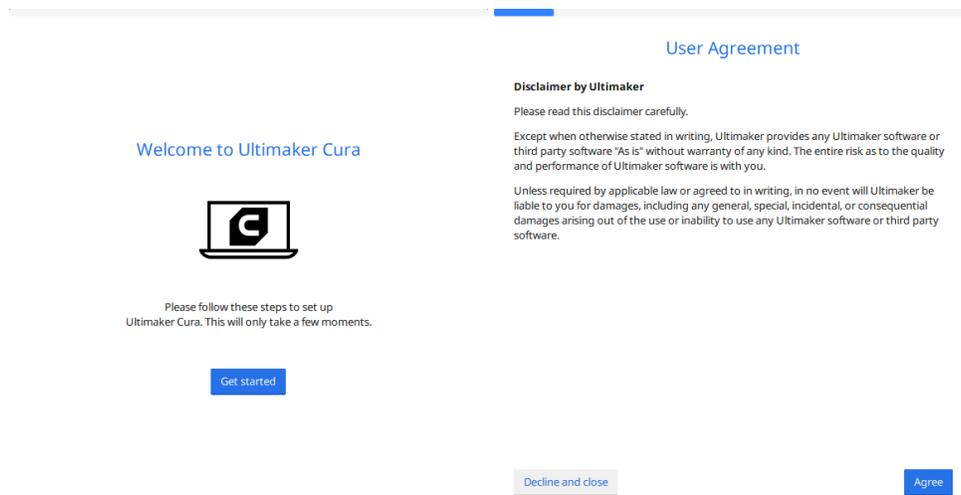
4. By default, the STL file extension will be associated with Cura. Select the file types you want to associate with Cura, then click the **Install** button to continue. If you are prompted by Windows Security to approve a driver installation, click the **Install** button to continue.



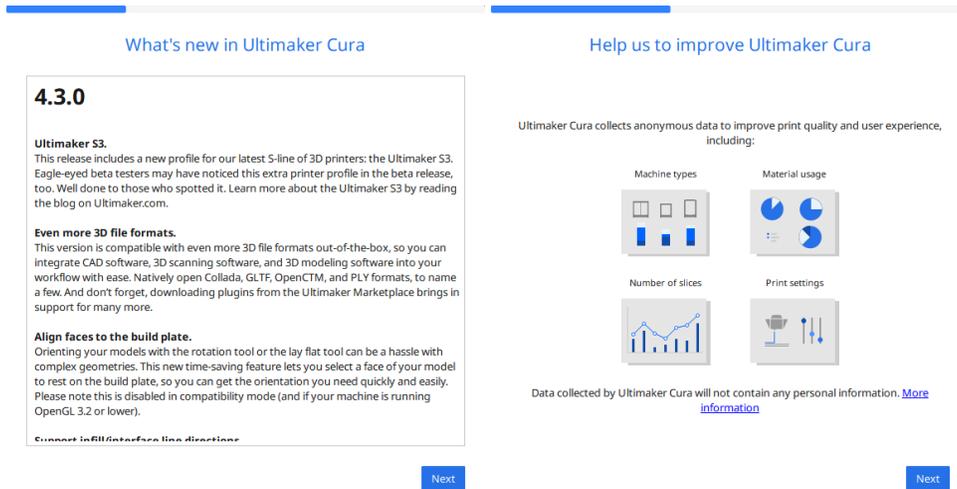
5. Ensure that the check box to the left of Run Ultimaker Cura is checked, then click the **Finish** button to continue.



6. Once Cura launches, you will see a **Welcome** dialog, followed by a **User Agreement** dialog. Click **Get Started** on the **Welcome** dialog, then click **Agree** on the **User Agreement** dialog to continue. If you have already installed Cura on this computer, you will instead be left on the main screen. If this is the case, skip ahead to step 8.

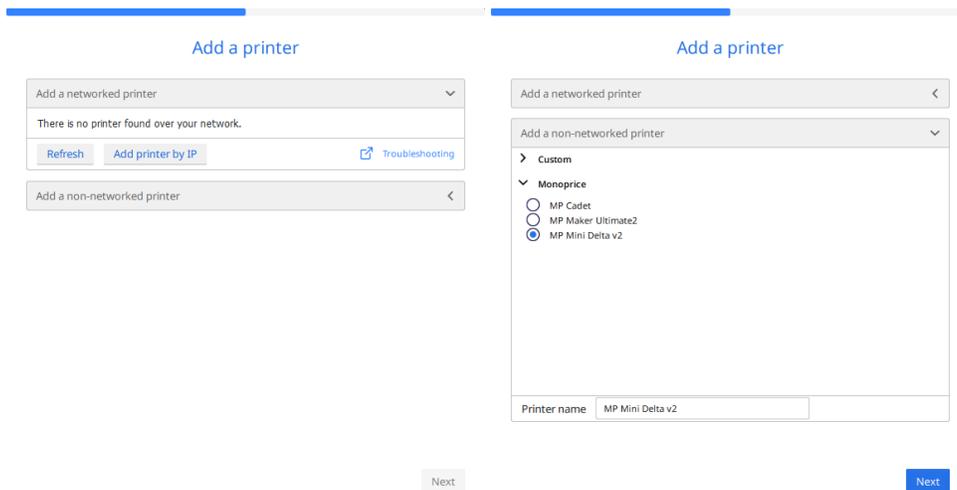


7. Click the **Next** button on the next two dialogs to continue.

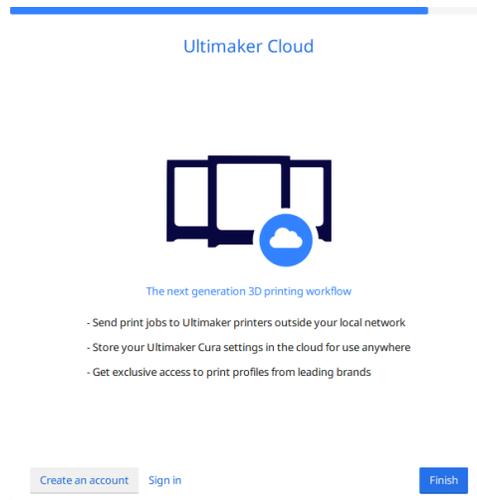


8. On the **Add a printer** dialog, click the caret to the right of the **Add a networked printer** label, then click the caret next to the **Monoprice** label. Click the radio button next to the **MP Mini Delta v2** option, then click the **Next** button to continue.

If you skipped to this step because the **First time run** wizard is bypassed, click **Settings > Printer > Add Printer...** to display the **Add a printer** dialog. Click the radio button to the left of the **MP Mini Delta v2** option, then click the **Add** button. Skip ahead to step 10.



9. The **Ultimaker Cloud** dialog tells you about the cloud and allows you to **Create an account** or **Sign in**. Click the **Finish** button to complete the installation and basic setup.

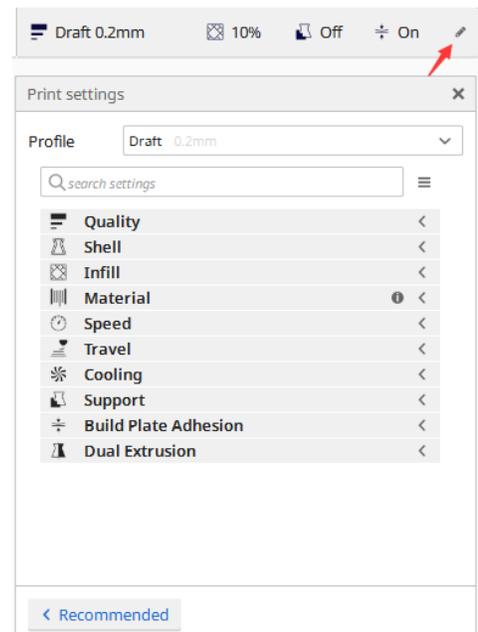


10. Cura will finish launching and leave you on the main screen. The basic parameters have all been set to work with the MP Mini Delta V2. If you want to change or customize the parameters, click the pencil icon in the upper right corner, then select **Custom** to change the settings you need to change.

Note that the **Infill density**, **Support type**, and **Platform adhesion** type options should be set according to the needs of the model you are printing.

The **Infill density** will determine the overall strength of the finished object. If printing a decorative object, a low fill density is appropriate. However, if printing an object that will be used as a tool or part (e.g., a gear), a high fill density will impart maximum structural strength to the finished object.

If printing something with no overhang, such as a cube, you can set the **Support type** to **None**. If the model has areas that overhang the build plate, but which are not overhanging a lower section, you can use the **Touching build plate** option. The



Everywhere option is usually only necessary for very complex models with parts that overhang other parts.

In most cases, the **Brim** option for the **Platform adhesion** type is sufficient and is easier to remove and clean up. The **Raft** option builds a flat layer on which the model is then built that will need to be removed once the print is complete.

Feel free to experiment with these options to achieve the best possible print.

Congratulations! Cura is now installed and ready for use. Refer to the Cura documentation for operating details and information about the various options.

CARE AND MAINTENANCE

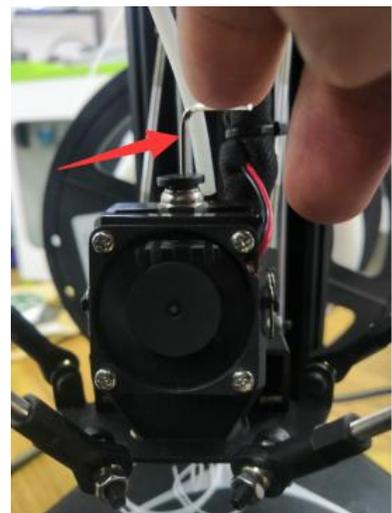
All 3D printers require periodic maintenance, including several maintenance tasks that should be performed on a daily basis.

Cleaning the Nozzle

Extruded filament and filament particles can build up around the nozzle. Use tweezers and a cleaning cloth to remove any extraneous material.

Clearing a Blocked Nozzle

Unplug the filament tube from the air connector. Insert the 1.5mm hex wrench into the top of the air connector and push the filament out from the nozzle. Remove the hex wrench, insert the filament tube into the air connector, and push it in about 1.5mm.



Replacing the Nozzle

Improper operation or the use of low quality or old filament can cause blockage in the nozzle, which may require the nozzle to be replaced. Perform the following steps to replace the nozzle.

1. Unload the filament, then turn the printer off.
2. Use scissors or side cutters to remove the ties and the wrapped cloth.
3. Unplug the nozzle connection plug.



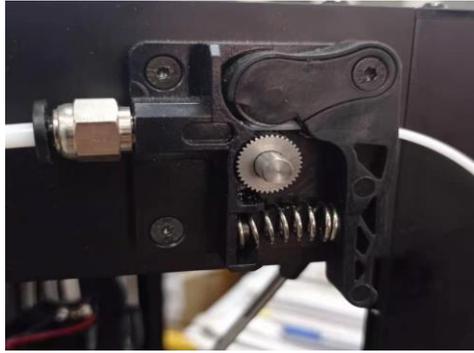
4. Loosen the buckles on each side of the nozzle fan, then remove the fan cover. Use the 1.5mm hex wrench to loosen the lower side nozzle fixing set screw, then gently pull out the nozzle from the bottom.



5. Install the new nozzle, then tighten the set screw to secure it in place. Plug in the connection cable and put on the wrapped cloth. Use cable ties to fix the cable in place. Finally, install the fan cover and fix it in place with the buckles.
6. Turn on the printer, then select **Prepare > Delta cal** to perform the automatic calibration.

Cleaning the Feed Gear

As the printer is used, the feed gear will gradually accumulate filament dust and debris, which can affect its operation. Use tweezers to clean the feed gear every 500 hours of operation.



TECHNICAL SUPPORT

Monoprice is pleased to provide free, live, online technical support to assist you with any questions you may have about installation, setup, troubleshooting, or product recommendations. If you ever need assistance with your new product, please come online to talk to one of our friendly and knowledgeable Tech Support Associates. Technical support is available through the online chat button on our website www.monoprice.com or through email by sending a message to tech@monoprice.com. Check the website for support times and links.

To download the latest drivers, firmware, manuals, etc., go to www.monoprice.com and type the P/N into the search bar. If available, support files are linked at the bottom of the product page.

SPECIFICATIONS

P/N	21666
Print Area	ø100 x 120 mm
Filament Diameter	1.75mm
Nozzle Diameter	0.4mm
Print Speed	20 ~ 150 mm/sec.
Positioning Accuracy	XY: 0.011mm Z: 0.0025mm
Maximum Nozzle Temperature	260°C
Maximum Build Platform Temperature	50°C
Supported Filament Types	ABS, PLA, PLA Pro, TPU, Metal fill, Wood fill, etc.
Supported Slicing Software	Wiibuilder, Cura, etc.
Supported File Formats	.STL, .OBJ, .gcode
Print Interface	Wi-Fi®, microSD™ card
Maximum microSD Card Capacity	8GB
Supported Operating Systems	Windows®, Mac® OS X®
Input Power	12 VDC, 5A
AC Adapter Input Power	100 ~ 240 VAC, 50/60 Hz
Dimensions	9.1" x 8.5" x 14.6" (230 x 215 x 370 mm)
Weight	7.9 lbs. (3.6 kg)

REGULATORY COMPLIANCE

Notice for FCC



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.

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

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

RF Exposure Statement for FCC

Caution

This equipment complies with radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must be at least 20 cm from the user and must not be collocated or operated in conjunction with any other antenna or transmitter.

Notice for Industry Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

RF Exposure Statement for Industry Canada

Caution

This equipment complies with radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must be at least 20 cm from the user and must not be collocated or operated in conjunction with any other antenna or transmitter.

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