MONOPRICE

MP Education Inventor 3D Printer

User's Manual

P/N 30526
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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.

- Take care to avoid touching hot parts, including heat blocks, extruder nozzles, build plate, and the extruded filament.
- Do not wear gloves when operating or repairing to avoid entanglement.
- Keep the printer and all accessories out of reach of children.
- Do not remove or disconnect the USB cable when printing from a computer.
- Do not force or tear anything during unpacking and setup. This may cause damage to the printer and/or its accessories.
- 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.
- Do not install this device on an unstable surface where it could fall and cause either personal injury or damage to the device and/or other equipment.
- Do not subject the product to extreme force, shock, or fluctuations in temperature or humidity.
- 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 unplug it from the power outlet 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.
- 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.

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 during normal business hours (Mon-Fri: 5am-7pm PT, Sat-Sun: 9am-6pm PT) or via email at support@monoprice.com
**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.

<table>
<thead>
<tr>
<th>1x 3D printer</th>
<th>2x Spool filament</th>
<th>1x Lid</th>
<th>1x Thank you card</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x Warning card</td>
<td>1x User's manual</td>
<td>1x AC power cord</td>
<td>1x USB cable</td>
</tr>
<tr>
<td>2x Spool holders</td>
<td>2x Side panels</td>
<td>1x Tool box</td>
<td>2x Build tape</td>
</tr>
<tr>
<td>1x Leveling Card</td>
<td>1x Accessory kit</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tool Box Contents:
- SD Card
- Tweezers
- Graver
- Scraper
- PTFE Tube
- Screws
- Leveling Knob
- Wrench
- Grease
- Allen Wrench
- Phillips Screwdriver
- Unclogging Pin Tool

Accessory Kit Contents:
- 2x M3x8 Bolts
- 1x M3x6 Bolt
- 1x Turbofan Baffle

PRODUCT OVERVIEW

Main Unit
1. Camera
2. Extruder
3. Timing belt
4. Panel
5. Build plate
6. Filament
7. Power input
8. Power switch
9. Touch screen
10. Reset button
11. USB port
12. SD™ card slot

Extruder

13. Filament intake
14. Turbofan
15. Spring presser
16. Cooling fan
17. Turbofan baffle
18. Nozzle

OSD MENU SYSTEM

Top Menu

The Top Menu is displayed after the printer is powered on and initialized.

- Touch the Print button to enter the Print Menu.
- Touch the Preheat button to enter the Preheat Menu.
- Touch the Tools button to enter the Tools Menu.
Print Menu

The Print Menu is displayed by touching the Print button from the Top Menu.

- Touch the Internal Memory button to read the print file from internal memory.
- Touch the SD™ Card button to read the print file from the SD card.
- Touch the Back button to return to the previous menu.

Print File Screen

The Print File Screen is displayed after selecting a print file from internal memory or the SD™ card. The print filename is displayed.

- Touch the File icon to display a list of available model files.
- Touch the Print button to begin printing the loaded print file.
- Touch the Copy button to copy the loaded print file.
- Touch the Delete button to delete the loaded print file.
- Touch the Back button to return to the previous menu.
Print Progress Screen

The **Print Progress Screen** is displayed while printing is in progress. It shows the print filename, the actual and target temperatures, and the print progress with the remaining time displayed.

- Touch the **Stop** button to cancel the print in progress.
- Touch the **Pause** button to pause the print. Touch the **Resume** button to resume printing.
- Touch the **Tools** button to display the **Print Tools Menu**.

![](image)

Print Tools Menu

The **Print Tools Menu** is displayed by touching the **Tools** button on the **Print Progress Screen**.

- Touch the **Filament** button to change filament during printing. Note that the print must be paused first.
- Touch the **Camera** button to turn the camera on or off.
- Touch the **Cancel** button to return to the **Print Progress Screen**.

![](image)
Preheat Menu

The Preheat Menu is displayed by touching the Preheat button on the Top Menu.

- Touch the slider buttons to turn extruder and platform heating on or off.
- Touch the target temperature buttons to set the preheat temperature. The default target print temperature for the extruders is 230°C and 100°C for the platform.
- Touch the Start button to start preheating the extruder(s) and/or platform.
- Touch the Back button to return to the previous menu.

Preheat Temperature Screen

The Preheat Temperature Screen is displayed by touching a Temperature button on the Preheat Menu.

- Touch the arrows above and below the digits to increase or decrease that value.
- Touch the Yes button to save the displayed temperature value and return to the previous screen.
- Touch the No button to cancel any changes and return to the previous screen.
**Preheating Screen**

The **Preheating Screen** is displayed during the preheating process. It displays the preheating progress, as well as the actual and target temperatures of each element.

- Touch the **Stop** button to abort the preheating process.
- Touch the **Back** button to return to the previous menu.

![Preheating Screen](Image)

**Tool Menu**

The **Tool Menu** is displayed by touching the **Tool** button on the **Top Menu**.

- Touch the **Filament** button to load or unload filament.
- Touch the **Level** button to level the build plate.
- Touch the **Home** button to move the extruder to the home position.
- Touch the **Manual** button to display the **Manual Adjustment Screen**.
- Touch the **Setting** button to display the **Setting Menu**.
- Touch the **Status** button to display the **Printer Status Screen**.
- Touch the **About** button to display **About Screen**.
- Touch the **Back** button to return to the previous menu.
Manual Adjustment Screen

The Manual Adjustment Screen displays the X and Y positions of the extruder and the Z position of the build plate.

- Touch the X+ button to move the extruder to the right.
- Touch the X- button to move the extruder to the left.
- Touch the Y+ button to move the extruder towards the back of the printer.
- Touch the Y- button to move the extruder towards the front of the printer.
- Touch the Z+ button to raise the build plate.
- Touch the Z- button to lower the build plate.
- Touch the Back button to return to the previous menu.

Setting Menu

The Setting Menu is displayed by touching the Setting button on the Tool Menu.

- Touch the Language button to select the language for the OSD Menu System.
- Touch the Fan button to turn the fan on or off.
- Touch the WIFI button to display the WIFI Screen.
- Touch the Factory Reset button to reset the printer's settings to their factory default values.
- Touch the Update button to update the printer's firmware.
- Touch the Pulley button to display the Pulley Type Selection Screen.
- Touch the **Camera** button to turn the camera on or off.
- Touch the **Resume Print** button to turn resume printing on or off.
- Touch the **Back** button to return to the previous menu.

**Language Menu**

The **Language Menu** is displayed by touching the **Language** button in the **Setting Menu**.

- Touch the specific language name to set the OSD menu system to use that language.
- Touch the **Down** button to display the next page of languages.
- Touch the **Up** button (not displayed) to display the previous page of languages.
- Touch the **Back** button to return to the previous screen.

**WIFI Screen**

The **WIFI Screen** is displayed by touching the **WIFI** button on the **Setting Menu**.

- Touch the **Reset** button to reset the Wi-Fi® radio.
- Touch the **WIFI On** button to turn the Wi-Fi radio on, release the Wi-Fi hotspot, and set the Wi-Fi on the computer.
- Touch the **Back** button to return to the previous menu.
Pull the Type Selection Screen

The Pulley Type Selection Screen is displayed by touching the Pulley button on the Setting Menu.

- Touch the Down Arrow next to the currently selected pulley type to display a list of available pulley types. Touch the name of a pulley type to select it.
- Touch the Yes button to save changes to the selected pulley type.
- Touch the Cancel button to abort any changes to the selected pulley type.

Status Screen

The Status Screen is displayed by touching the Status button on the Tool Menu. It displays the real-time status of the printer.

- Touch the Back button to return to the previous menu.

About Screen

The About Screen is displayed by touching the About button on the Tool Menu. It displays basic information about the printer.

- Touch the Back button to return to the previous menu.
UNPACKING

1. Place the box on a flat, clean work surface. After opening the box, you can the Build Tape, a Leveling Card, and this User's Manual.

2. Remove the top protective styrofoam piece, which contain the Inventor's lid. Set this aside for now. The Inventor printer and Power Cord are revealed.

3. Lift the Inventor by its side openings and place it on a flat surface. You can now see the Toolbox and USB Cable. Inside the Toolbox, you can find a Carving Knife, a Scraper, a package of Grease, Tweezers, and a Screw Box. The Screw Box contains an SD™ Card, some Screws, a Leveling Knob, and two PTFE Tubes.
4. The Inventor printer has an accessory box on top, which contains the Extruder Accessory Kit and two removable side panels. Remove the box and the foam pad from the Inventor and gently lay the extruder set on the Inventor's build plate.

5. Carefully lift the build plate up.

6. Carefully remove the two spools of PLA filament from under the build plate.

_Congratulations, you have finished unpacking your new Inventor 3D printer!_
HARDWARE ASSEMBLY

The Inventor comes pre-assembled and is almost ready to print. All you need to do is to set the appropriate voltage, mount the extruder set, and install the filament. It will only take about 5-10 minutes to setup the Inventor and prepare for your first 3D print!

1. Lay the extruder set on top of the extruder seat with the two extruder fans facing the front.

2. Secure the extruder set onto the extruder seat with two M3x12 screws, from the bottom up.

3. Use the M2.5 Allen wrench to unscrew the two turbofan bolts.
4. Take the turbofan baffle from the extruder's accessory kit and install it onto the turbofan.

5. Align the bump on the turbofan seat to the hole in the turbofan sub-assembly. Place the turbofan sub-assembly beside the turbofan seat. Insert the bump on the turbofan seat to the turbofan sub-assembly. Screw in the two bolts. Take an M3x6 bolt from the extruder's accessory kit and complete the installation.

6. Lock the filament in place by securing it with the filament spool holder and turning it counterclockwise.
7. Feed the filament through the filament guide tube. Attach the guide tube onto the two filament guide tube brackets.

8. Stick the build sheet to the build plate after installing the filament, as shown in the image below.

9. Ensure that the power switch is in the OFF position. Locate the included power cord and plug it into the Inventor, then plug the other end into a nearby AC power outlet. Optionally, locate the included USB cable, plug one end into the Inventor, then plug the other end into an available USB port on your computer.
LOADING FILAMENT

Perform the following steps to load filament into your 3D printer.

1. Remove the lid from the Inventor.

2. If it is not already powered on, flip the power switch to the ON position. Wait for the system to stabilize, then touch the Tool button on the Top Menu.

3. Touch the Filament button, then touch the Load Left button.
4. Wait for the extruder to heat up to the target temperature. The extruder will alert you when it is at the target temperature.

5. Load the filament by inserting it into the extruder at an upright angle. Filament will start to extrude out of the nozzle. Continue loading to ensure that the filament is extruding in a straight line. Refer to the troubleshooting section if the filament is extruding abnormally. Touch the Done button to finish loading.

Congratulations, you have successfully loaded filament into your printer!
UNLOADING FILAMENT

1. Remove the lid from the Inventor.

2. If it is not already powered on, flip the power switch to the ON position. Wait for the system to stabilize, then touch the Tool button on the Top Menu.

3. Touch the Filament button, then touch the Unload Left button.
4. Wait for the extruder to heat up to the target temperature. The extruder will alert you when it is at the target temperature.

5. Unload the filament by gently guiding it out of the extruder, then touch the **Done** button to finish unloading.

**BUILD PLATE LEVELING**

A properly leveled build plate is required for high-quality 3D prints. If you have any problems printing an object, you should first check whether the build plate is properly leveled or not. A general rule of thumb is to leave a gap that is the thickness of a piece of paper. However, for printing finer objects (150 microns and lower), use a feeler gauge to level the build plate as it requires a lesser gap between the nozzle and the build plate.

The Inventor uses a three-point leveling system for the build plate. At the bottom of the build plate, there is a spring-loaded knob in the front and two in the back. Tightening the knob will increase the gap between the build plate and the nozzle and loosening it will reduce the gap.
Perform the following steps to level the build plate.

1. If it is not already powered on, flip the power switch to the ON position. Wait for the system to stabilize. Touch the Tool button on the Top Menu, then touch the Level button on the Tool Menu. The extruder and build plate will move to the starting position.

2. Take out the Leveling Card. You can view a video of the leveling process by scanning the QR code on the card.

3. Once the extruder and build plate stop moving, slide the Leveling Card continuously back and forth between the nozzles and the build plate, while simultaneously adjusting the knob just enough so that the card causes a slight friction.
4. Touch the **Next** button and wait for the extruder to move to the second position. Slide the card back and forth again and adjust the knob to create the same amount of friction as the previous step.

5. Touch the **Next** button again and repeat the same leveling steps.

6. Touch the **Next** button. The nozzle will move to the center of the build plate. Slide the card through to make sure there is a slight friction. Slowly adjust all screws by the same amount if there is no friction or too much friction.
7. Touch the Finish button to complete the leveling process.

FLASHPRINT SOFTWARE

Installation

The Inventor 3D printer uses MP FlashPrint slicing software to create print files or to print directly from the computer via a wired USB or wireless connection. MP FlashPrint is available for Microsoft® Windows® and Linux®, in both 32-bit and 64-bit versions, as well as Apple® Mac® OS X®. The MP FlashPrint installation packages can be found on the included SD™ card.

Once you have located the software installation package, run the application and follow the onscreen installation instructions.
**Initial Setup**

Once MP FlashPrint has been installed, double-click the application shortcut to start the program. If this is the first time the program has been run, you will be presented with a dialog asking you to select the Machine Type. Choose the **MP Inventor** entry.

You can also select the Machine Type from within the program by clicking **Print > Machine Type > MP Inventor**, as shown in the screenshot below.

![Screenshot of MP Inventor selection](image-url)
Main Interface Overview

The screenshot below shows the three main elements of the software - the Menus, the Icons, and the Build Plate.

The icons have the functions listed in the table below.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Load Icon" /></td>
<td>Loads a model or Gcode file. FlashPrint supports .STL, .OBJ, and .FPP model files. You can also load a .PNG, .JPG, JPEG, or .BMP file and FlashPrint will generate a model from the image. See the <em>Generating a Model</em> section for details.</td>
</tr>
<tr>
<td><img src="image2.png" alt="Supports Icon" /></td>
<td>Enters the <em>Support Edit</em> mode.</td>
</tr>
<tr>
<td><strong>Print</strong></td>
<td>Prints directly from FlashPrint via a USB or wireless connection or exports a Gcode file to the SD™ card.</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>View</strong></td>
<td>Views the FlashPrint home screen from one of six viewing angles.</td>
</tr>
<tr>
<td><strong>Move</strong></td>
<td>Moves the model around on the X/Y plane. Hold the SHIFT key then click to move the mode along the Z axis.</td>
</tr>
<tr>
<td><strong>Rotate</strong></td>
<td>Turns and rotates the model.</td>
</tr>
<tr>
<td><strong>Scale</strong></td>
<td>Scales the size of the model.</td>
</tr>
<tr>
<td><strong>Cut</strong></td>
<td>Cuts the model into several parts.</td>
</tr>
</tbody>
</table>
Loading a File

FlashPrint supports six different ways to load a model or Gcode file, as outlined below.

- Click the Load icon on the main interface, then select the file.
- Drag and drop the file onto the main interface.
- Click File > Load File, then select the file.
- Click File > Load Examples to load one of the sample files.
- Click File > Recent Files, then select the file from the list of recently used files.
- Drag and drop the file onto the FlashPrint icon on the desktop to launch FlashPrint and load the file.

Generating a Model

FlashPrint can generate a 3D model file from a .PNG, .JPG, .JPEG, or .BMP image file. When you load the image file, the following dialog box will be displayed, which allows you to set several model parameters.

**Shape:** Determines the basic shape of the model. You can select Plane, Tube, Canister, Lamp, or Seal basic shapes.

**Mode:** Selects whether the light or dark portions of the image will be the high points of the model.

**Maximum Thickness:** Sets the Z value of the model.
**Base Thickness:** Sets the minimum raft thickness. The default value is 0.5mm.

**Width:** Sets the X value of the model.

**Depth:** Sets the Y value of the model.

**Bottom Thickness:** Sets the thickness of the bottom of tube, canister, and lamp type models.

**Top Diameter:** Sets the diameter for the top of tube, canister, and lamp type models.

**Bottom Diameter:** Sets the diameter for the bottom of tube, canister, and lamp type models.

The following screenshots illustrate the five basic shapes.

**Plane**

![Plane](image)

**Tube**

![Tube](image)
Canister

Lamp

Seal
Changing Views

You can change the camera angle in relation to the model and build area using a variety of methods.

**Drag:** Click the View icon, then drag the camera using one of the following methods.
- Left click and hold, then move the mouse.
- Click and hold the mouse wheel, then scroll up or down.
- Hold down the SHIFT key, right click and hold, then move the mouse.

**Rotate:** Click the View icon, then rotate the camera using one of the following methods.
- Right click and hold, then move the mouse.
- Hold down the SHIFT key, left click and hold, then move the mouse.

**Scale:** Scroll the mouse wheel up or down to zoom the camera in or out.

**Set View:** You can select one of six preset camera angles using one of the following methods.
- Click the View menu, then select one of the six options from the drop-down list.
- Click the View icon, then click it again and a submenu will appear with six options for selection.

**Reset View:** You can reset the camera angle to the default using one of the following methods.
- Click the View menu, then select Home View.
- Click the View button, the click it again and a submenu will appear. Select the Reset option.

**Show Model Outline:** You can set FlashPrint to show the model outline highlighted in yellow. To do so, click the View menu, then select the Show Model Outline option.

**Show Steep Overhang:** When the intersection angle between the model surface and a horizontal line is within the overhang threshold value, the surface has steep overhang and is shown in red when Show Steep Overhang is enabled. To enable or
disable Show Steep Overhang, click the View menu, then select the Show Steep Overhang entry. The default threshold value is 45 degrees.

Model Manipulation

You can manipulate the model using a variety of methods.

**Move:** Click on the model to select it. You can then move it around the build area in a variety of ways.

- To move the model horizontally in the X/Y plane, left click and hold on the model, then move the mouse.
- To move the model vertically in the Z plane, hold down the SHIFT key, the left click and hold on the model, then move the mouse.
- Click the Move button, then enter the distance value. Click Reset to reset the distance values.

  *Note: After moving the model, click Center > On Platform to ensure that the model is in the build area and in contact with the build platform.*

**Rotate:** Click on the model to select it. You can them rotate the model in all three planes in a variety of ways.

- Click the Rotate icon and three mutually perpendicular rings will appear around the model. Click and hold on one ring and move the mouse to rotate the model in that plane.
- Click the Rotate icon, then manually enter rotation angle values. Click Reset to reset the rotation angle values.

**Scale:** Click on the model to select it. You can then scale it in a variety of ways.

- Click the Scale icon, then hold the button and move the mouse to change the scale. The corresponding values will display near the model.
- Click the Scale icon, then enter scales values for the X, Y, and Z axes.
- Click the Scale icon, then click the Maximum button to get the largest size possible for the build area.
• Click the **Scale** icon, then click the **Reset** button to reset the size of the model.

*Note that if the **Uniform Scaling** radio button is enabled, it will scale the model in proportion when changing any size value.*

**Cut:** Click the model to select it, then double-click the **Cut** icon to set the cut plane in a variety of ways.

• Left click and drag the cursor across the model to set the cut angle.

• Select the **X Plane** option to cut the model vertically.

• Select the **Y Plane** option to cut the model vertically.
• Select the **Z Plane** option to cut the model horizontally.

**Extruder**

Double-click the Extruder icon to select the left and/or right extruder for printing.
Supports

Because 3D printing is an additive process, each layer of filament needs a base to be built on. The printer can gradually increase the layer size, so long as the overhang angle is less than about 45 degrees. Otherwise, you need to create support elements to serve as the base for adding additional layers. To edit the supports, click the Edit menu, then select the Supports entry. Alternatively, click the Supports icon. Click the Back button when finished editing the supports.

Support Options: Click the Support Options button to display the Support Options dialog. You can select Treelike or Linear supports. Treelike supports are built at angles, while Linear supports are linear, vertical supports for the overhanging elements. When you click the OK button, the software will generate the appropriate support structures. If the model already has supports, the software will judge whether the existing supports need to be deleted or not on the basis of the type of existing support, and display the corresponding prompt to let you make the choice.
Auto Supports: Click the Auto Supports button to allow the software to judge where supports are needed and will generate corresponding treelike or linear supports. If the model already has supports, the software will delete them and new supports will be generated.

Add Supports: Click the Add button to manually generate supports. Move the cursor to the position where a support is needed, left click to choose the starting point, then while holding down the mouse button, drag the mouse to the termination point. The supports preview will be displayed with the support highlighted. If the support surface doesn't need support or the support column angle is too large, the support will not be generated.

Clear Supports: Click the Clear Supports button to remove all existing supports. If you change your mind, click the Undo option or press CTRL+Z.

Delete Supports: Click the Delete Supports button to remove individual supports. Click the cursor on the support you want to remove to highlight that support and all subnode supports, then click the left mouse button to delete the highlighted support.
Printing a Model

Click the Print icon on the main interface to slice the model and print the resulting Gcode file, either directly from FlashPrint or by first exporting it to the SD™ card.

**Preview:** Check the **Preview** box to preview the model before slicing and printing.

**Print When Slice Done:** Check the **Print When Slice Done** box to start the print as soon as the slice is completed.

**Material Type:** Select the filament type in use.

**Supports:** Enable or disable the creation of supports.

**Raft:** Enables or disable a **Raft**, which is several layers of material on the build plate to help with model adhesion.

**Wall:** Check the **Wall** box to help clear leaking filament from a second extruder during dual color printing.

**Brim:** Check the **Brim** box to print a ring of filament around the model to help prevent warping and assist with bed adhesion.

**Resolution:** For ABS and PLA printing, you can choose **Low**, **Standard**, or **High** resolution. For PLA printing, you can also choose **Hyper**. The higher the resolution, the smoother the model surface, but at a corresponding cost in print speed.
More Options: Click the More Options button to reveal tabs with additional options.

Layer: Click the Layer tab to reveal the layer options.

- **Layer Height:** Sets the thickness of each layer. The thinner the layer, the smoother the model surface, but at a corresponding cost in print speed.

- **First Layer Height:** Sets the thickness of the first layer of the model, which affects how well the model adheres to the build plate. The maximum thickness is 0.4mm and the default value is usually sufficient.

Shell: Click the Shell tab to reveal the shell options.

- **Perimeter Shells:** Sets the number of perimeter shells. The maximum value is 10.

- **Top Solid Layers:** Sets the number of solid layers at the top of the model. The maximum value is 30 and the minimum is 1.

- **Bottom Solid Layers:** Sets the number of solid layers at the bottom of the model. The maximum value is 30 and the minimum is 1.

Infill: Click the Infill tab to reveal the infill options. Infill is the structure that is printed inside the model. Infill directly affects the strength of the printed mode.

- **Fill Density:** Sets the fill density in 5% increments. A 100% density results in a solid model, while a 0% density results in no infill.

- **Fill Pattern:** Allows you to select the shape of the infill structure. You can select Line, Hexagon, or Triangle.

- **Combine Infill:** You can select the layers for combining according to the layer thickness. The combined thickness should not exceed 0.4mm. The Every N Layers option is for all infill, while the Every N Inner Layers affects only the inner infills, which generally save print time.
**Speed:** Click the **Speed** tab to reveal the speed settings.

- **Print Speed:** Determines the speed that the extruder moves while printing filament. It can be set from 10 to 200 mm/sec in 10mm/sec increments. The slower the speed, the higher quality the resulting printed models. For PLA printing, 80mm/sec is recommended.

- **Travel Speed:** Determines the speed that the extruder moves while moving from place to place and not actively printing filament. It can be set from 10 to 200 mm/sec in 10mm/sec increments. The slower the speed, the higher quality the resulting printed models. For PLA printing, 100mm/sec is recommended.

**Temperature:** Click the **Temperature** tab to reveal the temperature options.

- **Right Extruder:** Sets the operating temperature of the extruder from 0 to 248°C, in 5°C increments. Set the temperature according to the type of filament being printed.

- **Platform:** Sets the operating temperature of the build platform from 0 to 120°C, in 5° increments. Set the temperature according to the type of filament being printed.

**Others:** Click the **Others** tab to reveal additional options.

- **Pause At Heights:** Sets the height at which the print will automatically be paused. This is usually done to allow you to change filament at one or points. Click the **Edit** button to set the pause point(s). The print can be paused anywhere from 1 to 59.9 mm.
File Menu

The File Menu contains the following options.

**New Project:** Click File > New Project or press CTRL+N to create a new, blank project. A project saves in one place all the models in the scene, including positions, supports, and settings. If there are any unsaved changes to a previously loaded project, you will be prompted to save the changes.

![Save changes to this file before closing?](image)

**Save Project:** Click File > Save Project or press CTRL+S to save the current project. Projects files have a .FPP suffix.

**Load File:** Click File > Load File or press CTRL+O to load a model, Gcode, or project file.

**Save As:** Click File > Save As to save the project or model file.

**Examples:** Click File > Examples to load one of four built-in sample models.

**Recent Files:** Click File > Recent Files to choose from a list of recently loaded files.

**Preferences:** Click File > Preferences to set several General and Print preferences.

- **Language:** Allows you to select the language used in FlashPrint.
- **Font Size:** Allows you to set the size of the font used in FlashPrint. You can select Small, Medium, or Large.
- **Check for Updates after start up:** Determines whether FlashPrint will automatically check for the existence of software or driver updates.
- **Auto layout newly-imported model:** Determines whether the software will automatically adjust the position of a model immediately after it is loaded.
• **Printing Window Type**: Allows you to choose the Basic (default) print dialog or the Expert dialog, with many more individual settings.

**Quit**: Click File > Quit or press ALT+F4 to exit FlashPrint. If there are any unsaved changes to your project or model, you will be prompted to save the changes.

**Edit Menu**

The **Edit Menu** contains the following options.

**Undo**: Click Edit > Undo or press CTRL+Z to undo the last change. In most cases, you can undo multiple changes, one at a time.

**Redo**: Click Edit > Redo or press CTRL+Y to redo the last change that was undone. In most cases, you can redo multiple undos.

**Empty Undo Stack**: Click Edit > Empty Undo Stack to clear the software's memory of recent undos. This has the same effect as saving and reloading the project or model file.

**Select All**: Click Edit > Select All or press CTRL+A to select all models in the scene.

**Duplicate**: Click Edit > Duplicate or press CTRL+V to copy the selected model(s).

**Delete**: Click Edit > Delete or press the Del key to delete the selected model(s).

**Auto Layout All**: Click Edit > Auto Layout All to automatically arrange the model(s) on the build platform. You will be prompted to set the distance between models, which can be from 1.0 to 50.0 mm.

**Mirror Model**: Click Edit > Mirror Model to mirror the selected model(s) in the X, Y, or Z planes.

**Repair Models**: Click Edit > Repair Models to correct any errors in the selected model(s).

**Supports**: Click Edit > Supports to enter Support Edit mode.
Print Menu

The Print Menu contains the following options.

**Connect Machine:** Click Print > Connect Machine to establish a USB or Wi-Fi® connection to the printer. This option is not available if the printer is already connected.

![Connect Machine](image)

**Disconnect:** Click Print > Disconnect to break a connection with the printer. This option is not available if there is no connection with the printer.

**Print:** Click Print > Print or press CTRL+P to open the print dialog.

**Machine Type:** Click Print > Machine Type. Allows you to select the specific model of 3D printer to use with FlashPrint. This printer is the MP Inventor.

View Menu

The View Menu contains the following options.

**Home View:** Sets the camera to the default position.

**Top View:** Sets the camera to look directly down onto the build area.

**Bottom View:** Sets the camera to look directly up towards the build area.

**Left View:** Sets the camera to look at the build area from the left.

**Right View:** Sets the camera to look at the build area from the right.

**Front View:** Sets the camera to look at the build area from the front.

**Back View:** Sets the camera to look at the build area from the rear.

**Show Model Outline:** Puts a yellow outline around the model.

**Show Steep Overhang:** Highlights in red those portions of the model that requires supports.
Tools Menu

The **Tools Menu** contains the following options.

**Control Panel:** Click **Tools > Control Panel** to modify the printer's settings from within FlashPrint. Note that if you are not connected to the printer, you will be prompted to do so before the Control Panel can be displayed.

- **Jog Mode:** The Jog Mode section allows you to select the distance that the extruder and build plate move with each mouse click.

- **Six Blue Arrow Buttons:** The buttons allow you to manually move the extruder and build plate. The amount they will move with each click of the mouse is determined by the Jog Mode settings.

- **Stop:** Click the Stop button to abort any current movement.

- **XYZ Coordinates:** Displays the current position of the extruder and build plate. You cannot edit the displayed values.

- **Make Current Position Zero:** Click the Make Current Position Zero button to set the zero position for the three axes.

- **Center XYZ:** Click a Center button to move the extruder or build plate to the zero position for that axis.
- **Set X/Y Speed**: Sets the speed at which the extruder moves.
- **Set Z Speed**: Sets the speed at which the build plate moves.
- **Limit Switch**: Displays the status of the limit switches on each axis. If the extruder or build plate are not moved to its maximum positions, the status will show **Not Triggered** in green. If the extruder or build plate has been moved to its maximum position, the status will show **Triggered** in red.
- **Stepper Motor Controls**: Click the **Enable** button to lock the stepper motor so that it does not allow movement. Click **Disable** to unlock the stepper motor so the extruder and build plate can be manually moved.
- **LED Color**: Allows you to set the LED color of the Inventor printer.
- **Motor Speed (RPM)**: Controls the speed of the filament feed wheel.
- **Extruder Duration**: Controls the motor rotation time.
- **Forward**: Feeds filament to the extruder.
- **Reverse**: Unloads filament from the extruder.
- **Stop**: Stops motor movement when feeding or unloading filament.
- **Temperature Control**: Allows you to set the target extruder or platform temperature. Click the **Apply** button to start heating.

**Update Firmware**: Allows you to update the printer's firmware.

**On Board Preferences**: Allows you to check the printer's name.

**Machine Information**: Displays information about the printer, including the firmware version.
Help Menu

The Help Menu contains the following options.

First Run Wizard: Re-runs the wizard that automatically runs the first time FlashPrint is run.

Help Contents: Allows you to read the help files.

Feedback: Allows you to submit feedback.

Check For Updates: Checks for FlashPrint updates.

About FlashPrint: Displays FlashPrint version information.

CONNECTING THE PRINTER

There are three ways of connecting the FlashPrint software with the Inventor printer - a wired USB connection or a wireless Wi-Fi® connection in AP mode or STA (Station) mode.

USB Connection

Perform the following steps to connect your PC to the Inventor printer using a wired USB connection.

1. Plug one end of the included USB cable into the USB port on the printer, then plug the other end into an available USB port on your computer.

2. Power on the printer and your computer, then start the FlashPrint software.

3. Click Print > Connect Machine.

4. Set the Connection Mode to USB and set the Select Machine option to the Inventor printer. If the printer does not appear in the Select Machine list, click the Rescan button. If it still does not appear, reinstall the driver software.
Wi-Fi Connection

Perform the following steps to connect your PC to the Inventor printer using a Wi-Fi® connection. Note that printing from an SD™ card is disabled when Wi-Fi is enabled.

1. Power on the printer and your computer.
2. On the printer, select Tool > Setting > WIFI > WIFI ON.
3. Open your computer's wireless network settings and scan for available Wi-Fi® signals. Select the Inventor1 entry, then click Connect.
4. Open your internet browser. Type 10.10.100.254 and press the Enter key on your keyboard. Enter the username and password to login. The default username and password are both admin. The control panel will appear after successful login.
5. Click the WiFi Set tab on the left, then set the WiFi Work Mode to AP mode or STA mode, then click Restart to make the changes take effect.

AP mode configures the printer's Wi-Fi® radio to act as a Wi-Fi Hotspot/Access Point (AP). You then set your computer's network settings to directly connect to the printer's Wi-Fi AP, rather than your regular Wi-Fi AP.
**STA mode** configures the printer's Wi-Fi® radio to connect to your regular Wi-Fi AP. In STA mode you do not need to change your computer's network settings and can continue to use your Wi-Fi AP, as normal.

If you choose to use **AP mode**, you can set the network name (Inventor1) and password of the hotspot. If you don't want to use a password, enter **NONE**. Click the **Save** button and restart it. Connect your PC to the network named Inventor1 (or the name you set). Open FlashPrint, then click **Print > Connect Machine**. Select **Wi-Fi** as the **Connect Mode** and enter the IP Address, as shown on the Inventor's screen. Click **Connect**.
If you choose you use **STA mode**, input the SSID and password of your existing Wi-Fi® connection. If your Wi-Fi connection does not use a password, enter **NONE** into the password field. Then click the **Save** button and restart it. Restart the Inventor printer, then open the **WIFI Screen**.
Turn on the Inventor again and connect your computer to the network. Open FlashPrint, then click **Print > Connect Machine**. Select **Wi-Fi** as the **Connect Mode** and enter the IP Address, as shown on the Inventor’s screen. Click **Connect**.

If you want to switch between AP and STA modes, touch the **Reset** button on the **WiFi Screen**.

### UPDATING THE FIRMWARE

Each time you start FlashPrint, it will automatically detects and downloads the up-to-date firmware. If an update is available, a dialog box will appear to remind you of the update. Perform the following steps to update the firmware.

1. Click **Tools > Update firmware**. You must sever any existing connection with the printer before updating. If a connection exists, it will prompt you to cut the connection. Click the **Yes** button to cut the connection.

2. Choose the corresponding printer type and firmware version, then click **OK** in the firmware update dialog. After confirming that there is no printer connection, the software will automatically update the firmware.
3. Reboot the Inventor printer and wait 4-5 seconds until the update progress bar is displayed. When the update is finished, it will return to the Top Menu.

4. Touch the Tool button, then touch About to check that the version is correct.

![Machine Information]

**PRINTING**

There are two basic modes of printing: single extrusion and dual extrusion. With single extrusion printing, you can choose which print head to use for making the print. Dual extrusion printing is useful if you want to print with two color or print complex models that require supporting material.

Perform the following steps to print a model on the Inventor printer from a Gcode file saved to the SD™ card.

**Generating Gcode**

1. Plug the included SD™ card into an SD card reader on your computer.

2. Double-click the FlashPrint shortcut to launch the software.
3. Click **Print > Machine Type** and select the **MP Inventor** entry.

![Print > Machine Type](image)

4. Click the **Load** icon to load a **.STL** model file. The model will display within the build area.

5. Double-click the **Move** icon, then click the **On the Platform** and **Center** buttons to ensure the model is in contact with the center of the build platform.

![Move and Center buttons](image)

6. Click the **Print** icon, then change the settings as appropriate for your filament type and model.
   - **Preview**: Check the **Preview** box if you want to preview the model after slicing is done.
   - **Print When Slice Done**: Because we are printing from the SD™ card, uncheck this box to save the Gcode file to the SD card.
   - **Machine Type**: Select **MP Inventor**.
• **Material Right:** Select the type of filament you are using.

• **Material Left:** Select the type of filament you are using.

• **Supports:** If your model has overhanging elements, enable the **Supports** option.

• **Raft:** It is recommended to enable the **Raft** option.

• **Resolution:** It is recommended to select the **Standard** option.

• **More Options:** It is recommended to leave them at the default values.

7. Click **OK** to save the Gcode file to the SD™ card. You can rename the file as desired and save it as either a .g or .gx file. Files with a .gx extension can be previewed, while .g files cannot.

8. Eject the SD™ card, then plug it into the SD card slot on the printer.


10. Ensure that the build plate is leveled and that filament is loaded.

11. Touch the **Print** button on the printer display.

12. Touch the **SD card** button, then locate and load your model file.
13. Touch the **Print** button to begin printing. The printer will begin heating the extruder and/or platform, then will begin printing once the target temperatures are reached. Touch the **Stop** button at any time to cancel the print. Touch the **Pause** button to pause the print.

**USING THE CAMERA**

The Inventor printer includes a camera, which allows you to monitor the print on your phone. Download and install the **XMEye** app from the App store.

After installing the app, perform one of the following connection methods to use the camera.

**Direct Login**

1. If the printer is not already powered on, flip the power switch to the ON position. Wait for the printer to stabilize, then touch the **Tool** button on the **Top Menu**, then touch the **Setting** button.
2. Touch the **Camera** button, then touch the **On** button to turn the camera on. You will see the words **Turned on** in the upper left corner of the screen.

3. Open your phone's Wi-Fi® settings and scan for the camera's Wi-Fi radio. The camera name always starts with xmjp, but will have different combinations of letters and numbers for the rest of the name. If the hotspot does not appear in the list, touch the **Reset** button on the **Camera Screen**. Select the **xmjp** entry, then enter the password **1234567890**.

4. Open the XMEye app after your phone has successfully connected with the camera's Wi-Fi® signal.

5. Tap **Direct Login** to review the video. The camera is now directly connected to the phone. The video will interrupt if the phone moves out of range.
Local Login

1. If the printer is not already powered on, flip the power switch to the ON position. Wait for the printer to stabilize, then touch the Tool button on the Top Menu, then touch the Setting button.

2. Touch the Camera button, then touch the On button to turn the camera on. You will see the words **Turned on** in the upper left corner of the screen.

3. Connect your mobile phone to an available Wi-Fi® hotspot, then open the XMEye app. Tap **Local Login**, then tap the + in the upper right to add a device.
4. Tap **WiFi Config**, then enter the password for your Wi-Fi® access point. Check the **Ensure the indicator** and **Device operation** options, then tap **Complete all the above operation**.

![Add Device](image)

5. Touch the **Reset** button on the printer's screen, then tap **Yes** in the dialog that appears on your phone. Note that the Android™ version of the app does not display this dialog.

![Dialog](image)
6. The app starts to scan for the camera. If a green point appears, the camera is properly configured. If not, you will need to start over from the beginning. Tap the green point on your phone.

7. You can now see the camera in the device list. Tap it to watch the video.

8. After adding the device, the camera Wi-Fi® hotspot signal xmjp-beye-xxxx will disappear. You are now connected to the internet and can review the video from anywhere you have internet access.
RESUME PRINTING

The MP Inventor has the ability to automatically resume printing in the event of a power outage. Perform the following steps to enable print resuming.

1. If the printer is not already powered on, flip the power switch to the ON position. Wait for the printer to stabilize, touch the Tool button on the Top Menu, then touch the Setting button.

2. Touch the Resume Print button to enable print resuming.

3. If the printer loses power during a print, the following dialog will appear after power is reapplied. Touch the Yes button to resume printing.
# SPECIFICATIONS

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<th>30526</th>
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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 during regular business hours, 7 days a week. You can also get assistance through email by sending a message to tech@monoprice.com

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,
(2) This device must accept any interference received, including interference that may cause undesired operation.

Warning: 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.

**Notice for Industry Canada**

This Class B digital apparatus complies with Canadian ICES-003

Cet appareil numerique de la classe B est conforme a la norme NMB-003 du Canada

**EU Declaration of Conformity**

Monoprice, Inc. declares the product described within this user guide or manual is in compliance with below applicable directives. The full text of the EU Declaration of Conformity is available at the following internet address:
https://www.monoprice.com/product?c_id=107&cp_id=10724&cs_id=1072403&p_id=30525&seq=1&format=2 or the CE DoC can be found within this user manual

- EMC Directive 2004/108/EC
- Low Voltage Directive 2014/35/EU
- RoHS2 Directive 2011/65/EU
- WEEE Directive 2012/19/EC
- Packaging & Packaging Waste Directive 94/62/EC
- REACH Directive 1907/2006/EC
WEEE Information

User information for consumer products covered by EU Directive 2012/19/EU on Waste Electric and Electronic Equipment (WEEE)

This document contains important information for users with regards to the proper disposal and recycling of Monoprice products. Consumers are required to comply with this notice for all electronic products bearing the following symbol:

![WEEE Symbol](image)

For Consumers in the European Union: This EU Directive requires that the product bearing this symbol and or its packaging must not be disposed of with unsorted municipal waste. The symbol indicates that this product should be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electrical and electronics products via designated collection facilities appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about the disposal of your unwanted product, please contacts your local authorities, waste disposal service, or the shop where you purchased the product.
Safety Notice

WARNING: Do not use this product near water, for example, in a wet basement or near swimming pool or in an area where accidental contact with water or liquid might occurs.

WARNING: Avoid using this product during an electrical storm. There may be a remote risk of electric shock from the surge caused by lightning.

WARNING: The external power adapter or AC power cord is the equipment’s disconnection device. The power outlet must be located nearby the equipment and its access must be easy.

WARNING: Use this product in a well-ventilated area.

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