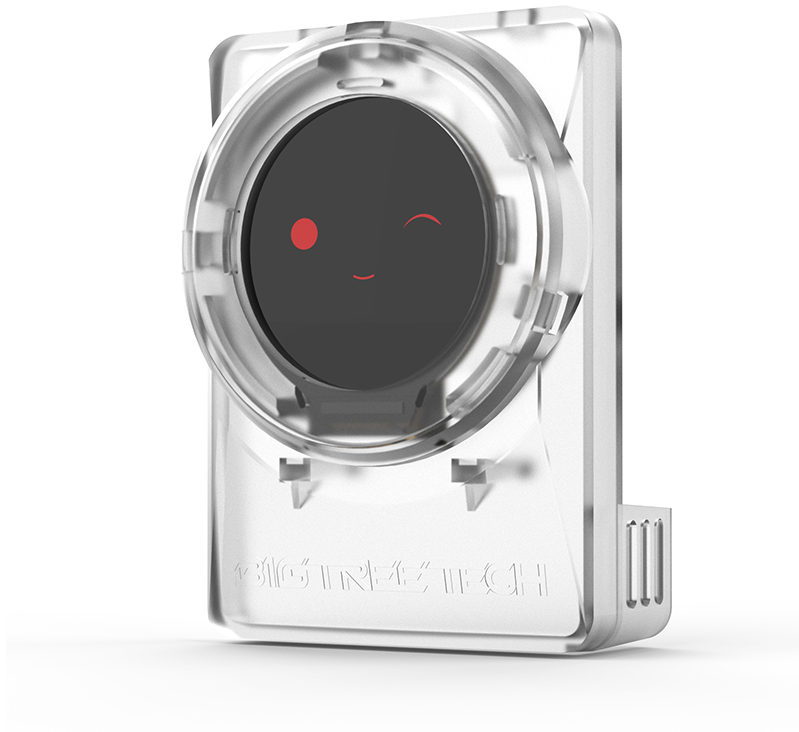


# Panda Knomi



## IMPORTANT NOTES

- Since the Panda Knomi only uses "non-critical", status communication from printers, it is not affected by any authentication processes that have recently been announced by Bambu Lab. For more information on what is and is not affected, please refer to the [official Bambu Lab announcement](#).
- Always make sure you are running the latest Panda Knomi firmware which you can find [here](#)
- We are actively developing a repository where users can share their Panda Knomi themes. We will share this link with users as soon as the repository is ready.
- You can find various printable mounts for the P1, X1 and A1 series as well as cable management tools [here](#)
- Panda Knomi only supports connections to 2.4G Wi-Fi. Please ensure that your router is broadcasting a 2.4GHz access point.
- If the Panda Knomi is unable to communicate with the printer after being bound to it, it will display the message: Invalid IP, Adjusting . This message should display for a maximum of 2 minutes while the Panda Knomi finds the printer on the local network and reestablishes a connection. If it is displayed for an extended period then either the printer or the router may need to be power

cycled. In such an instance you would also have connectivity issues when trying to use Bambu Studio or Bambu Handy locally.

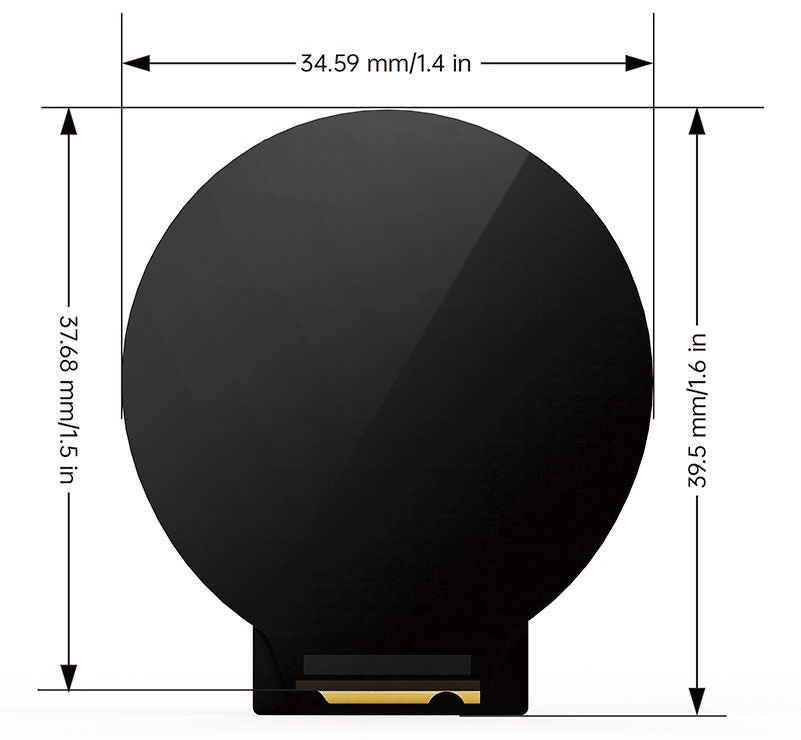
- The Panda Knomi implements a special feature that automatically displays the webUI as soon as you connect to the WiFi access point that it creates. Some browsers and devices have security limitations with this kind of implementation that prevent uploading or downloading of files. If you find that you are unable to upload or download files using the webUI then please exit the web page that automatically popped up and revisit it from the native browser on your device.
- If you encounter any issues during use or have suggestions for future hardware or firmware releases then feel free to visit our GitHub page to [submit an issue](#) and stay in touch with us.
- If you have any issues that are not solved by this wiki then please contact customer support at: [support01@bigtree-tech.com](mailto:support01@bigtree-tech.com) .

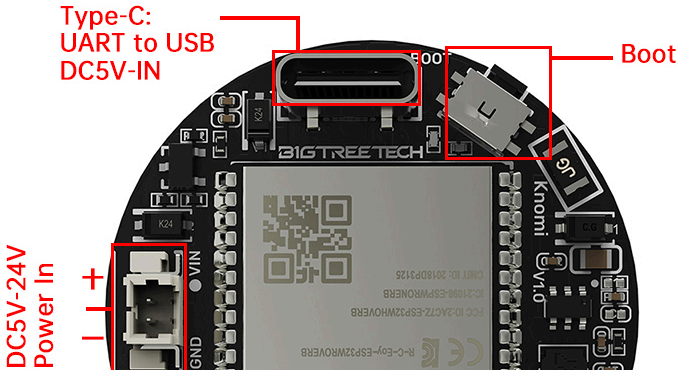
## Specifications

|                       |                                                                        |
|-----------------------|------------------------------------------------------------------------|
| MCU                   | <b>Xtensa dual-core 32-bit LX6 ESP32<br/>up to 240MHz clock speed.</b> |
| Memory                | PSRAM-8MB(4MB RAM + <a href="#">4MB Himem</a> ), Flash-16MB            |
| Logic Voltage         | 3.3V                                                                   |
| Input Power Voltage   | 5V-24V                                                                 |
| Rated Power           | 0.65W                                                                  |
| Dimensions            | 34.6mm x 37.9mm x 3.5mm                                                |
| Display Size          | 1.28"                                                                  |
| Resolution            | 240 x 240                                                              |
| Display Area          | 32.4 (H) mm x 32.4 (V) mm                                              |
| Screen Driver Chip    | GC9A01                                                                 |
| Viewing Angle         | 178°                                                                   |
| Backlight Brightness  | 400 Cd/m <sup>2</sup>                                                  |
| Connectivity          | 2.4G Wi-Fi (IEEE 802.11 b/g/n)                                         |
| Operating Temperature | Panda Knomi: -20°C to +70°C<br>Plastic Shell: -30°C to +130°C          |

|                     |                                                                |
|---------------------|----------------------------------------------------------------|
| MCU                 | Xtensa dual-core 32-bit LX6 ESP32<br>up to 240MHz clock speed. |
| Storage Temperature | -30°C to +80°C                                                 |
| Backlight Life      | Over 20,000 hours                                              |

## Dimensions & Interface





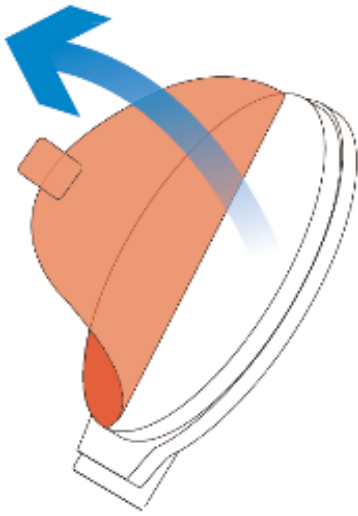
# Installation Guides

The Panda Knomi can be mounted to A1, P1 and X1 series machines.

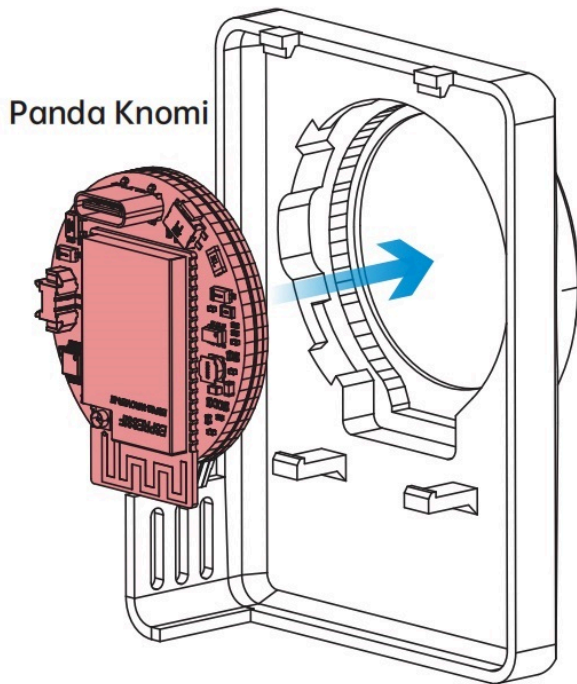
In this initial section, you will learn how to install the Panda Knomi onto the A1 Series toolhead using the BIGTREETECH plastic shell. Later, installation instructions are provided for the gantry mount on the A1 as well as the P1 and X1 series.

## A1 Series Toolhead Mount

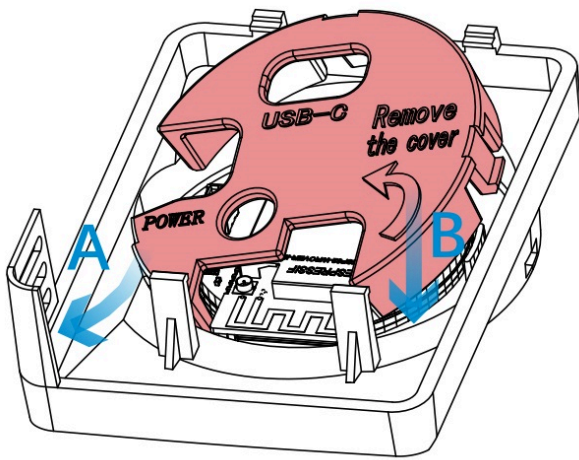
- Gently peel off the protective cover.



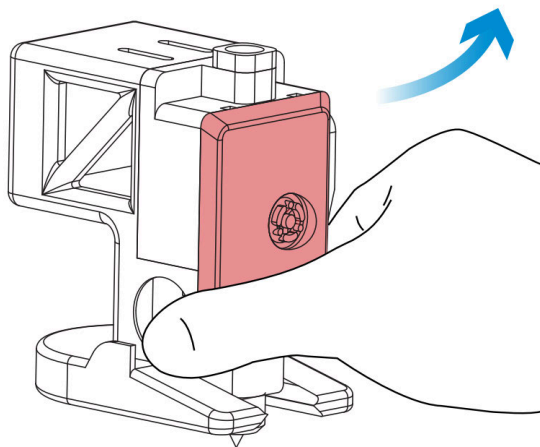
- Position the Panda Knomi directly into the shell.



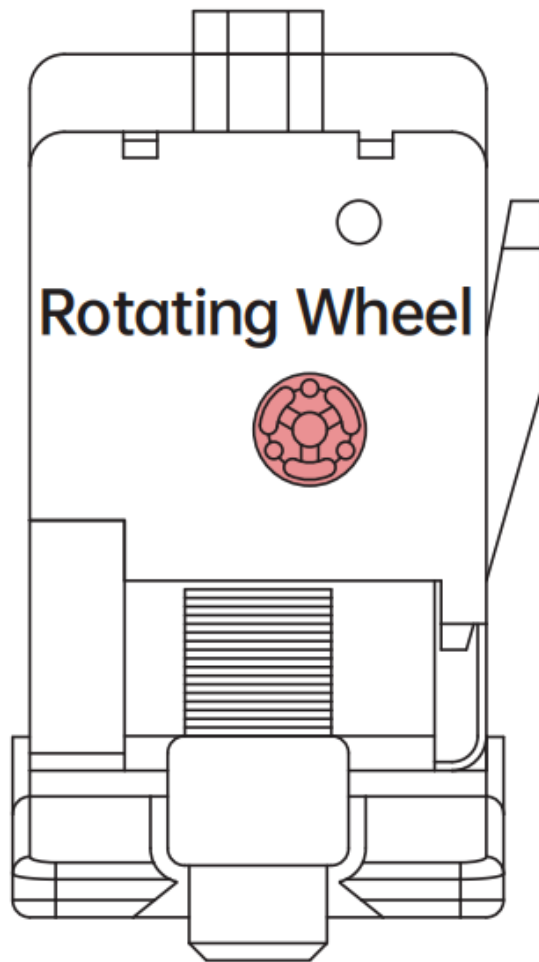
- Align the cover with the locking tab, as shown by Arrow A . Then, gently press down in the direction of Arrow B until it clicks past the tab, securing it in place.



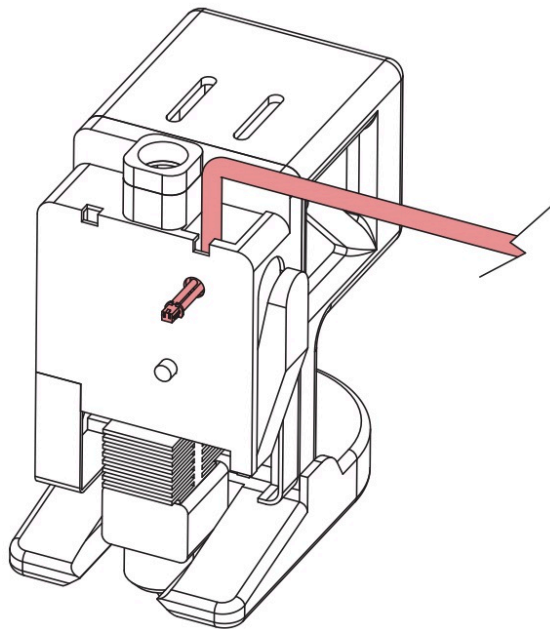
- Press the Toolhead Cover from both sides to unlock and remove the cover.



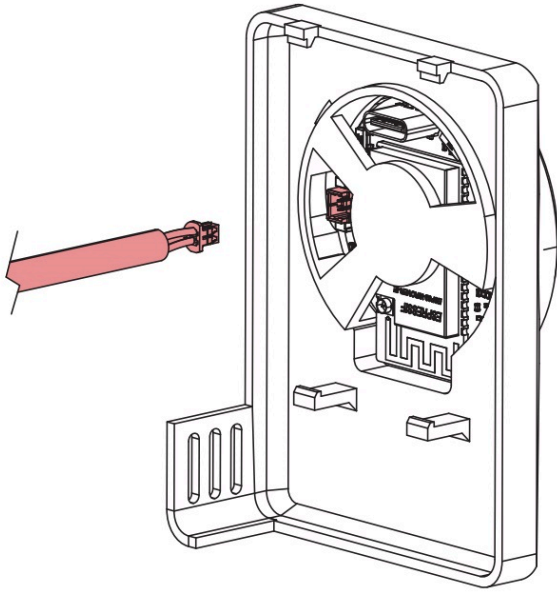
- Then remove the rotating wheel.



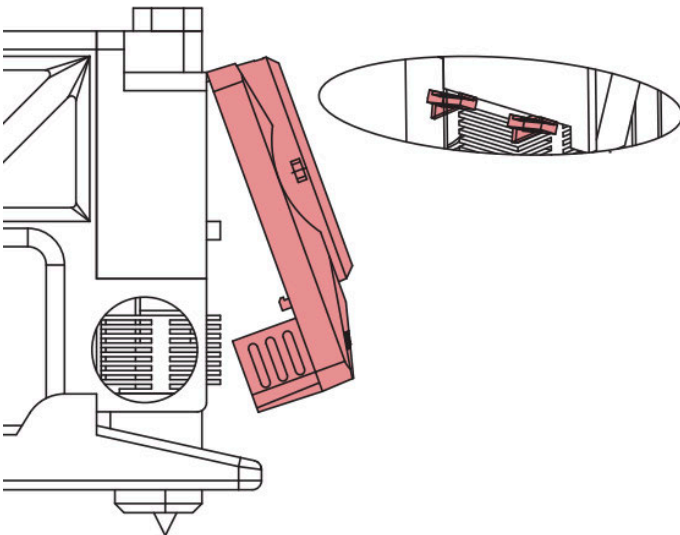
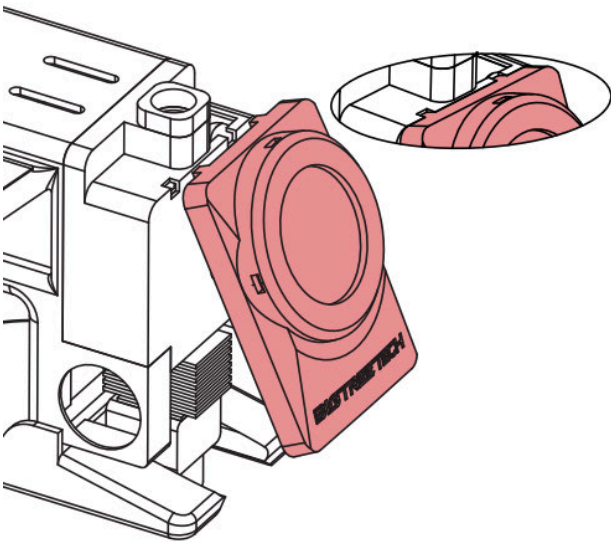
- Pass the power cable through the designated holes.



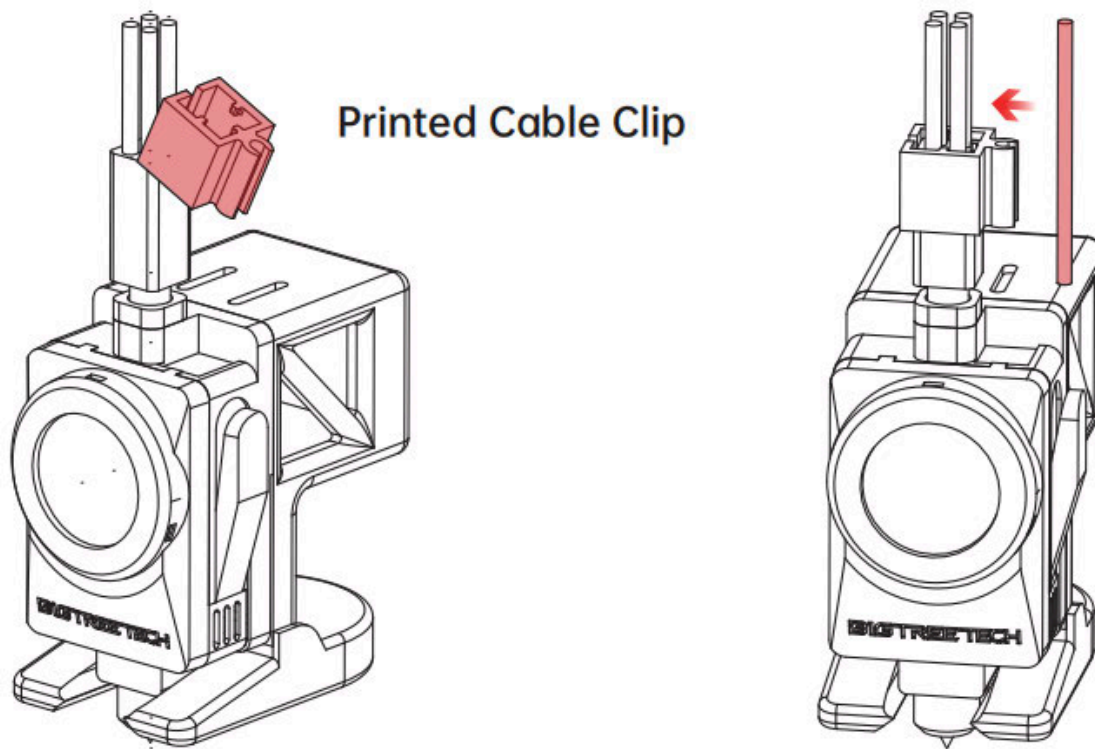
- Then connect it to the Panda Knomi power interface.



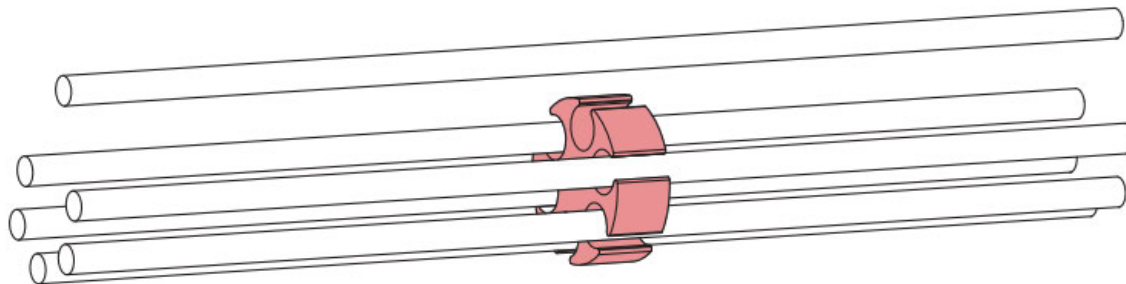
- Snap the Panda Knomi from the top, then gently press to secure.



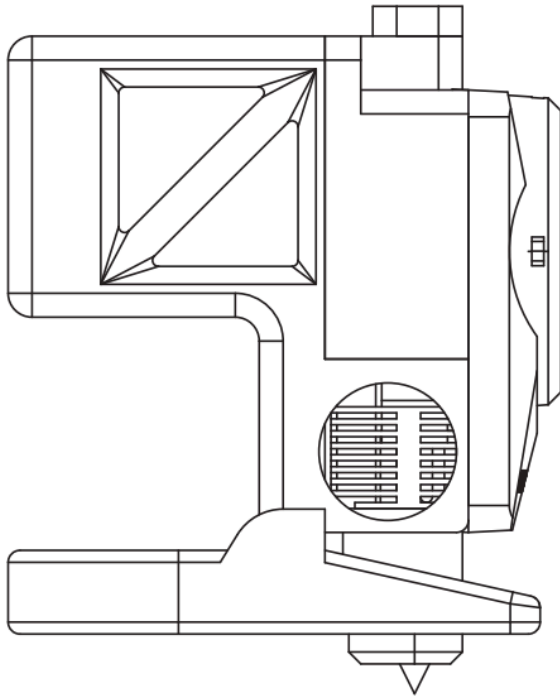
- Finally, you will need to secure the power cable neatly so that it does not interfere with the print. Start by installing the [printable](#) cable clip and then securing the power cable to it.



- If you are using an AMS Lite you will also want to make use of the [printable](#) cable organizer which will allow you to bind all of the PTFE tubes, the toolhead cable and the Panda Knomi power cable together.



- We also recommend using the supplied cable ties to gently bind the toolhead power cable and the Panda Knomi power cable together at points along their length. The cable ties should not be so tight that they pinch the wires only so that they remain in place.
- A1 Toolhead installation Completed



Congratulations on successfully installing your Panda Knomi on the A1 series toolhead. We now present the alternative mounting location guide and then the guide to provide power for A1 series installations.

## A1 Alternative Gantry Mount

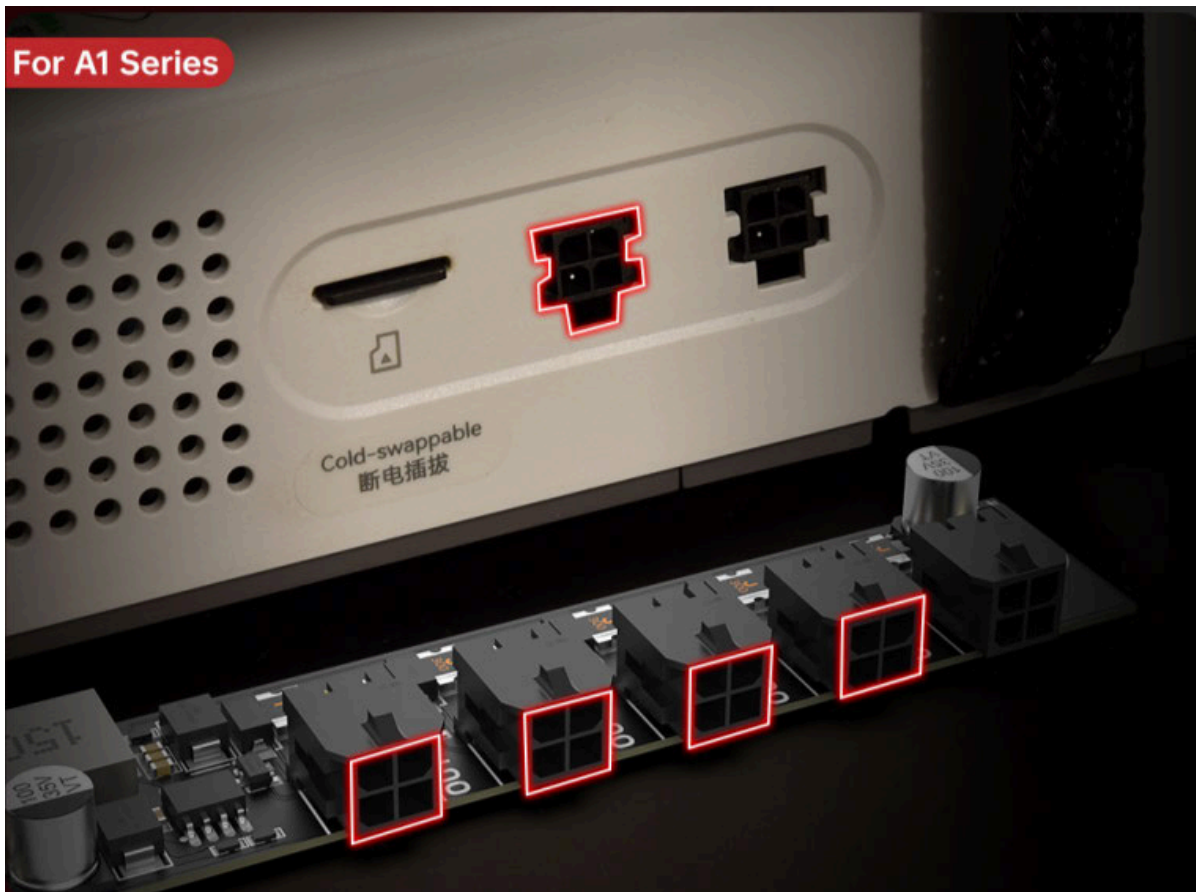
- Another mounting location exists on the A1 series printers that places the Panda Knomi on the gantry.
- To install the Panda Knomi in this location, first remove the front cover that is installed over the gantry motor mount.
- Next, place the Panda Knomi within the gantry mount cradle so that the screen is unobscured.
- Install the gantry mount cradle into the gantry mount face plate.
- Run the power wire through the provided cable channel at the bottom right of the gantry motor mount.
- Plug the power cable into the Panda Knomi.
- Secure the gantry mount in place by first clipping the bottom left and then the remainder of the mount.

Congratulations on installing your Panda Knomi in the gantry mount position. You can now move on to the power guide for the A1 series.

## A1 Series Power

It's now time to get your device powered up. **MAKE SURE THAT YOUR PRINTER IS POWERED OFF BEFORE PERFORMING THIS STAGE.**

- Locate an unused, 4 pin power port at the rear or side of the machine (A1 or A1 mini).



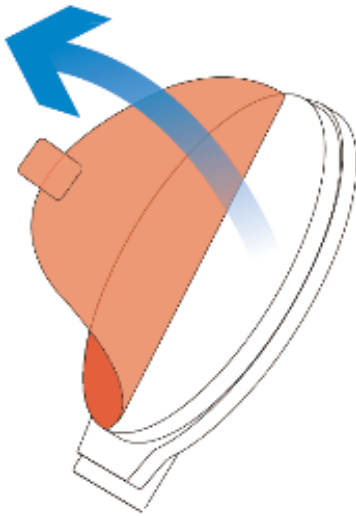
- If there are no available power ports then you can make use of the [Panda Branch](#) (sold separately) which will split one port into four. If using the [Panda Branch](#) for this purpose please take note that it is not designed to provide power to arbitrary peripherals. Only use it within the recommendations of BIGTREETECH to ensure that you do not overload the internal PSU of the printer. The Panda Knomi consumes only 0.65W of power and is well within the specification of what the internal PSU can provide. With that in mind, please set the Panda Branch USB power switch to the 2A setting after connecting the Panda Knomi to ensure that any connected USB peripherals are appropriately current limited.

It's now time to power up the Panda Knomi and get things configured so head over to the [First Time Use Guide](#)

## X1 Series Mounting

- Ensure that you have printed out the [X1 series mount](#) before you start installation.

- Gently peel off the protective cover.

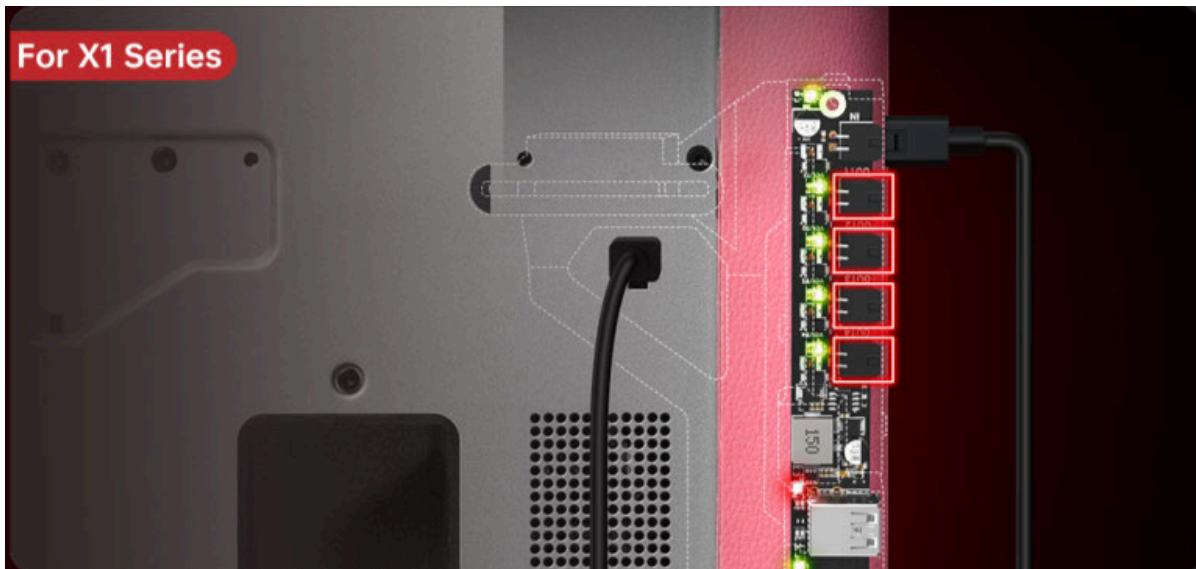


- Place the Panda Knomi into the [back cover](#) with the screen facing forward.
- Clip the back cover into the [round panel](#).
- Press fit the round panel into the [TFT panel](#).
- Insert the power plug into the power socket on the rear of the Panda Knomi.
- Install the whole assembly onto the TFT.

## X1 Series Power

There are several options to provide power to the Panda Knomi when using an X1 series machine.

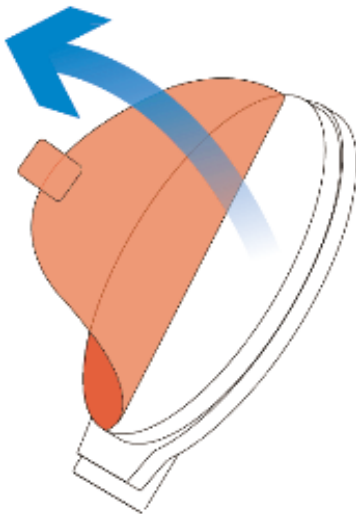
- If you are not using an AMS then you can connect it directly to the AMS output port at the rear of the machine.
- If you are using an AMS then you will need to use a Panda Branch to expand the four pin AMS port and then connect the Panda Knomi to one of the expansion ports. Please take note that the Panda Branch is not designed to provide power to arbitrary peripherals. Only use it within the recommendations of BIGTREETECH to ensure that you do not overload the internal PSU of the printer. The Panda Knomi consumes only 0.65W of power and is well within the specification of what the internal PSU can provide. With that in mind, please set the Panda Branch USB power switch to the 2A setting after connecting the Panda Knomi to ensure that any connected USB peripherals are appropriately current limited.



It's now time to power up the Panda Knomi and get things configured so head over to the [First Time Use Guide](#)

## P1 Series Mounting

- Ensure that you have printed out the [P1 series shell](#) before you start installation.
- Gently peel off the protective cover.



- Place the Panda Knomi into the [shell](#) with the screen facing forward.
- Insert the power plug into the power socket on the rear of the Panda Knomi or into the USB-C port depending on where you are sourcing power from.
- If you are sourcing power from the internal USB port then route the power cable using the cable clips that exist within the machine along the top of that channel.



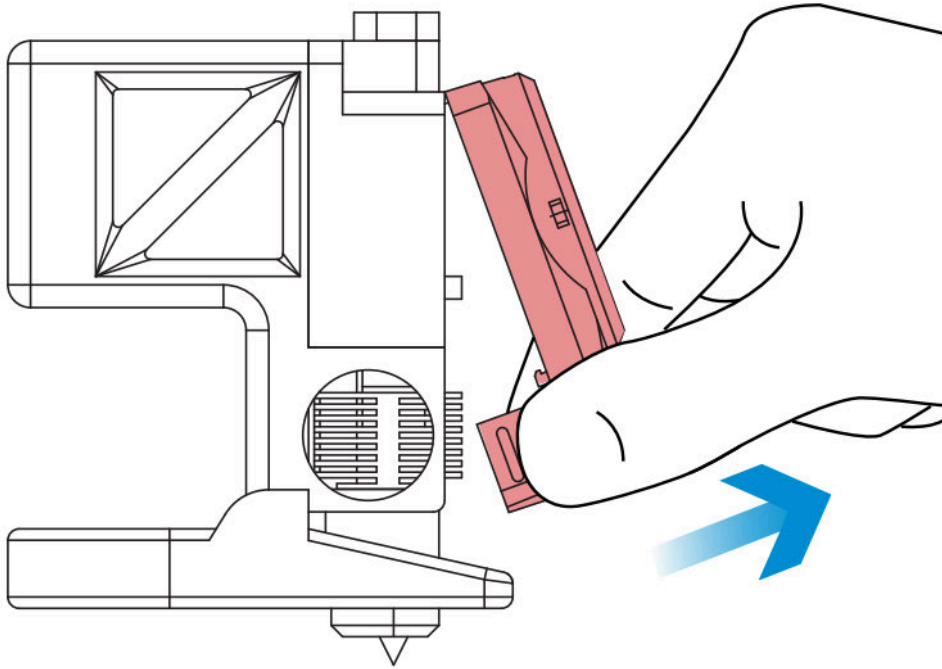
- If you are sourcing power from the rear of the machine then select a cable route that works best for you.
- If you are using an AMS then you will need to use a Panda Branch to expand the four pin AMS port and then connect the Panda Knomi to one of the expansion ports. Please take note that the Panda Branch is not designed to provide power to arbitrary peripherals. Only use it within the recommendations of BIGTREETECH to ensure that you do not overload the internal PSU of the printer. The Panda Knomi consumes only 0.65W of power and is well within the specification of what the internal PSU can provide. With that in mind, please set the Panda Branch USB power switch to the 2A setting after connecting the Panda Knomi to ensure that any connected USB peripherals are appropriately current limited.

It's now time to power up the Panda Knomi and get things configured so head over to the [First Time Use Guide](#)

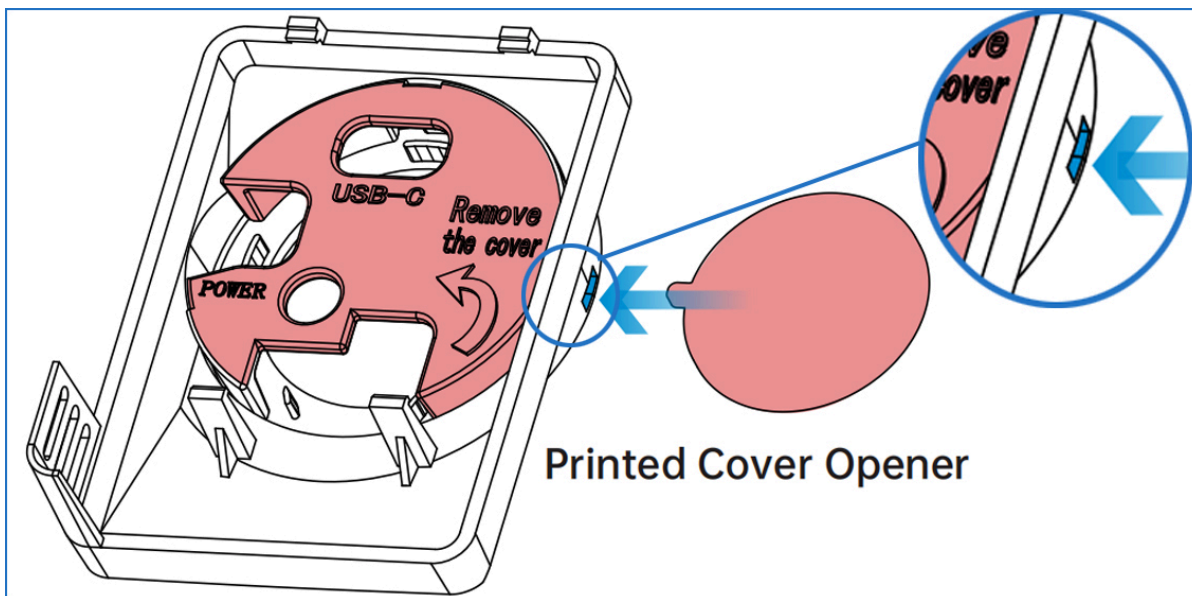
## Disassembly Guide For A1 Series

To disassemble the plastic shell's back cover or to detach the Panda Knomi from the A1 series toolhead, please follow the method below.

- Press the shell from both sides to unlock and carefully remove it from the toolhead.



- Press the blue-highlighted slot using the cover opener, and the cover will pop open. (You will need to download the cover opener model file from [GitHub](#) and print it ahead of time.)



## User Interface Instructions

### First Time Use Guide

#### Access the Web UI

- Start by connecting to the Panda Knomi hotspot. After booting for the first time or a factory reset, you'll see the screen below.



- You can either scan the QR code to connect to the hotspot directly or perform a WiFi scan on your device and connect manually using the credentials below.  
Default credentials:

Wi-Fi SSID: Panda\_Knomi\_XXXXXXXXXXXX

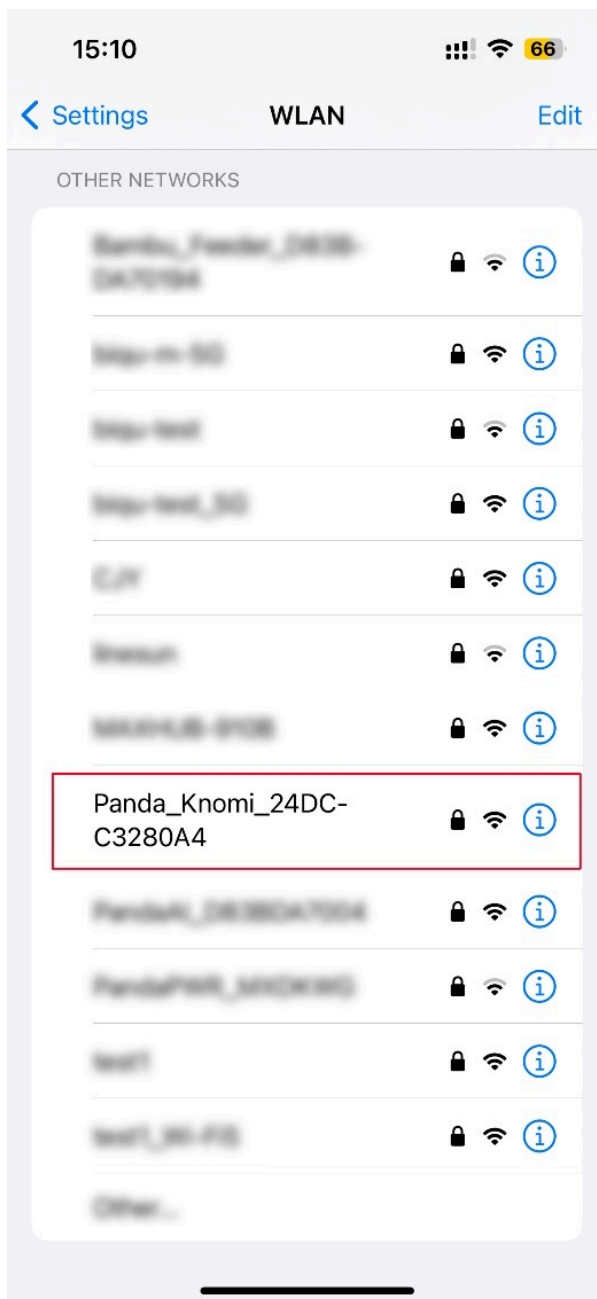
Wi-Fi Password: 987654321

Note: Most modern smartphones are equipped to scan QR codes directly through their camera app. This feature is typically available on devices running iOS 11 or later, and Android 9.0 or later. If you are using an iPhone then you may need to hold the phone a little away from the screen and pinch to zoom in for the phone to recognise the QR code.

- If scanning the QR code doesn't work, you can go to the `settings` menu on the device to connect to the hotspot manually.

Using an iPhone as an example:

- On your phone home screen, go to `Settings` → `WLAN` .
- Turn on `WLAN` . Your device will automatically search for available networks.

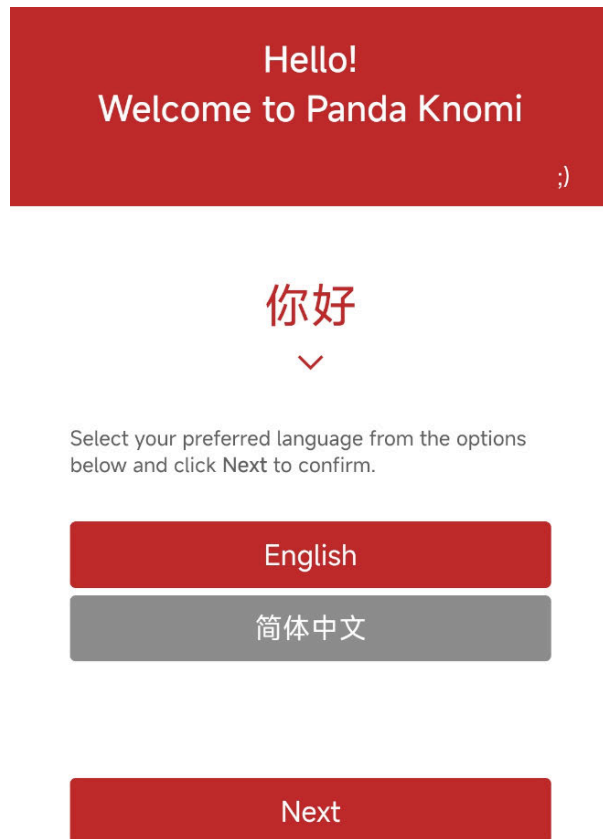


- Tap on the network name starting with Panda\_Knomi\_ and enter the default password: 987654321 .
- After successfully connecting to the Panda Knomi network, you will see a blue checkmark next to the network, and the Wi-Fi icon indicating a connection will appear in the top-right corner of the screen.
- After connecting to the Panda Knomi hotspot, the webUI should automatically appear once you close the camera app on an iPhone or on Android there should be a prompt of Connected (Login/Authentication required) which you should click to enter the Web UI configuration interface. Sometimes due to network reasons, you need to wait for 10~20 seconds for this to appear. If you still cannot enter the Web UI configuration interface after waiting, you can

manually enter [192.168.254.1](#) for firmware versions v1.0.4.1 and later (and use [192.168.4.1](#) for previous versions) in the browser to access the Web UI configuration interface.

## Connect Panda Knomi to the same Wi-Fi network as your printer

- You will be prompted to select a language. After setting the language, tap **Next** to proceed to the Wi-Fi connection interface.



- The Panda Knomi will automatically search for available Wi-Fi networks in the vicinity. Please select the Wi-Fi that the printer is connected to to connect. If the Wi-Fi that the printer is connected to is not found, you can tap the **Scan** button to initiate a new search for networks.

# BIGTREETECH

## Panda Knomi

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### Wi-Fi

Connect the Panda Knomi to the same local Wi-Fi network as the A1.

Wi-Fi Select

Scan

Wi-Fi Password

Connect

Back

- Once the connection is established, tap **Binding** to proceed to the **Printer** interface where you will bind the printer.

WiFi connection successful <sup>x</sup>

Panda Knomi is connected to the specified Wi-Fi network. Click **Binding** to go to the printer binding page, or click **Cancel** to stay on the WiFi & IP page.

Binding

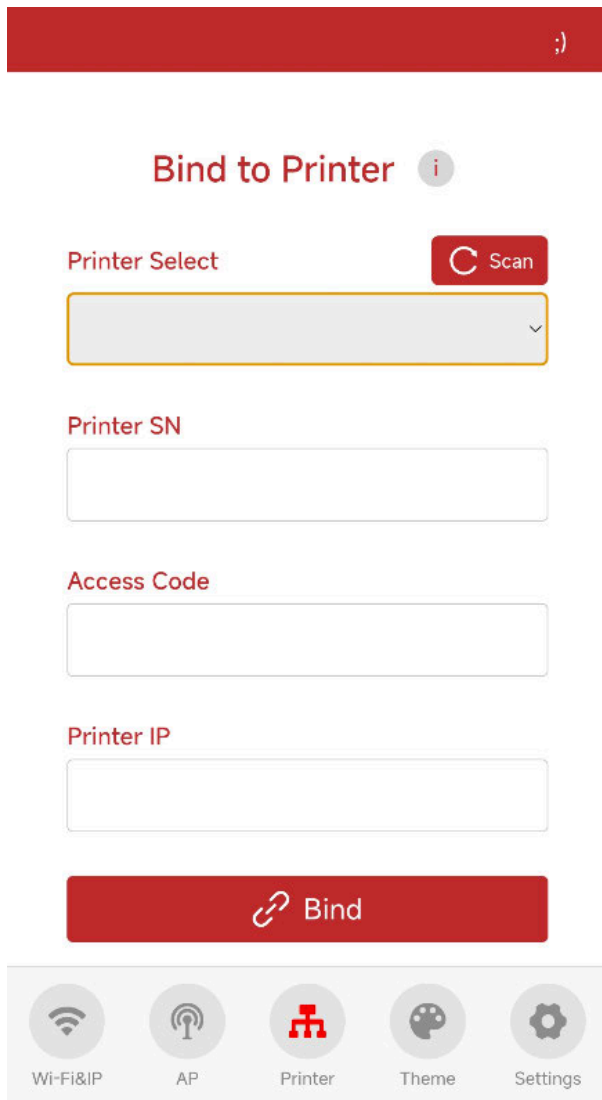
Cancel

## Printer Binding

Note: If the access code field is blank, the printer may be in cloud mode and not linked to a cloud account. Please switch the printer to **LAN Only Mode** or use Bambu Handy/Bambu Studio to bind the printer to a cloud account.

## Automatic Scanning

- In the `Printer` interface, tap `Scan` to scan for printers on the same local network. A full scan takes about 30 seconds. Each additional Bambu printer adds up to 20 seconds to the scan time. Panda Knomi supports up to 20 printers per scan. If the number of printers in your LAN exceeds 20, it may not be able to scan all printers. If the scan fails to identify the printer you want to connect, you can click the `Scan` button to scan again, or [manually input](#) all the information to bind the printer.



;)

### Bind to Printer

Printer Select 

Printer SN

Access Code

Printer IP

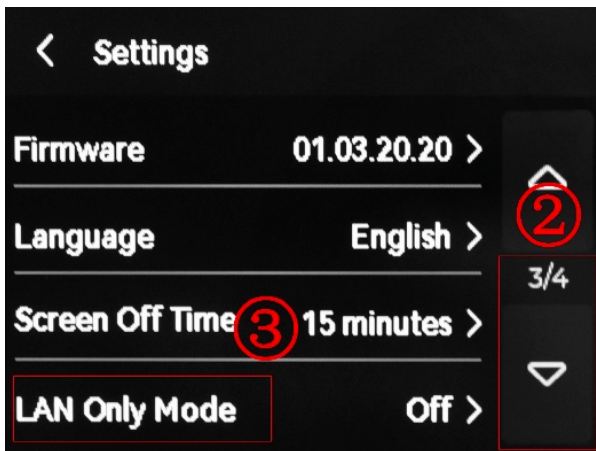
 Bind

Wi-Fi&IP AP **Printer** Theme Settings

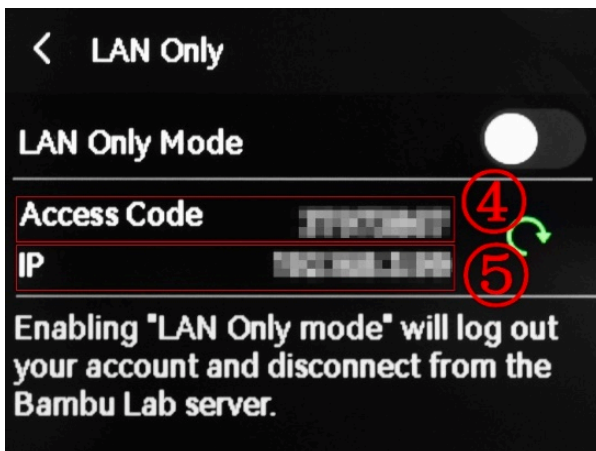
- After scanning, select the printer you wish to connect to. After selecting a printer, the `SN Code` and `IP` will be automatically filled in, but you will need to manually enter the `Access Code` .
  - For A1 Series
    - ① Setting



- ② -> ③ LAN Only Mode



- ④ Access Code



○ For P1 Series

- ① Setting -> ② WLAN -> ③ OK

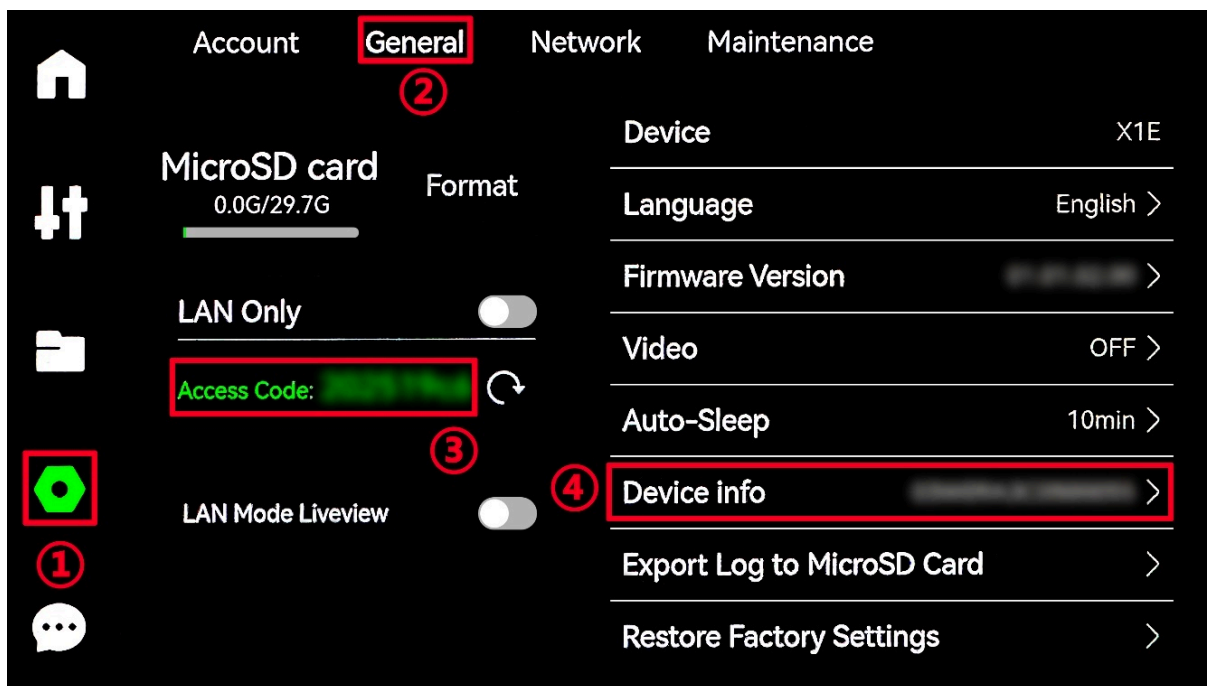


- (5) Access Code

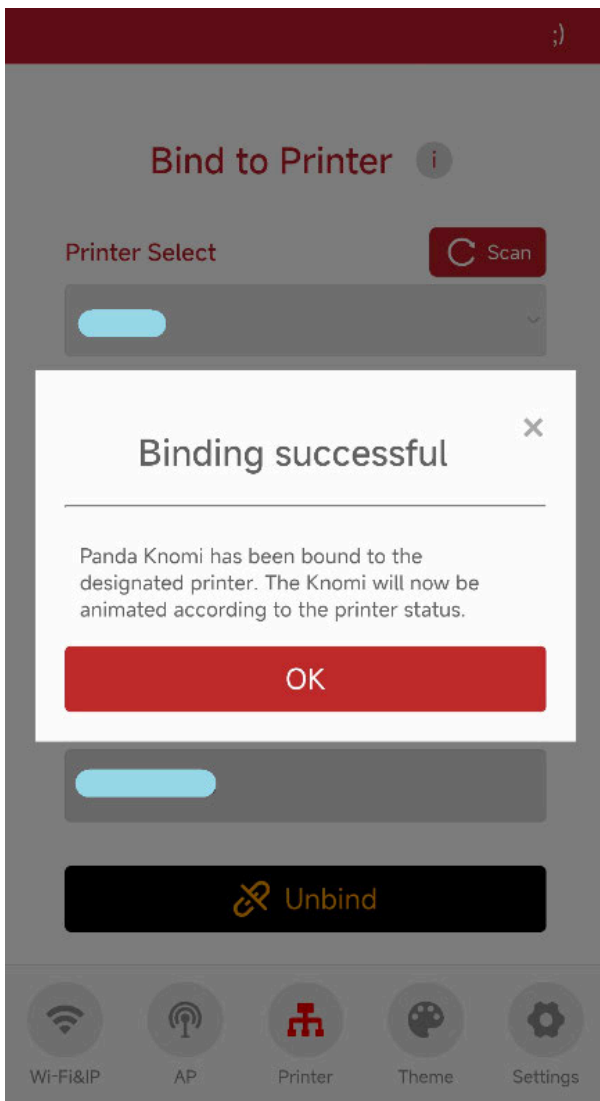


o For X1 Series

- (1) Setting -> (2) General -> (3) Access Code



- Tap Bind . A Binding successful popup will confirm that the Panda Knomi has connected to the printer.



Congratulations! You can now enjoy your Panda Knomi.

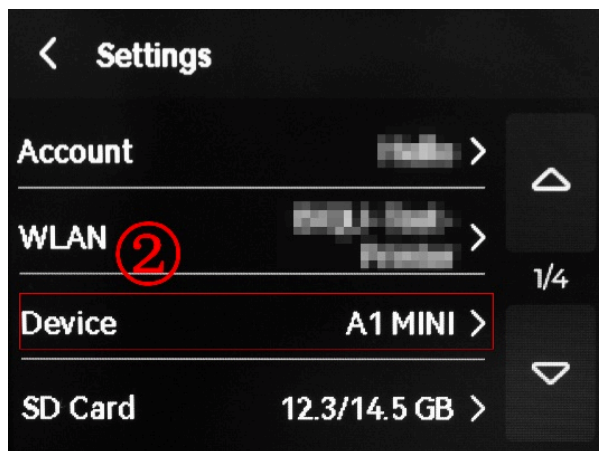
## Manual Input

- Panda Knomi supports identifying up to 20 printers per scan. If the number of Panda Knomi printers in your LAN exceeds 20, it may not be possible to scan all printers. We can **Manually Input** all the information needed to bind the printer.
- If you don't have many Bambu Lab printers in your LAN, but still can't scan the printer, we can also try to **Manually Input** all the information required to bind the printer. If Panda Knomi cannot connect to the printer, it may be that some security features of your router prohibit devices in the LAN from communicating with each other. This is typical for guest networks on routers where device to device communication is restricted. If you are using a guest network then please enable device to device communication on the router or move to a non-guest network. If these suggestions fail then please contact customer service [support01@bigtree-tech.com](mailto:support01@bigtree-tech.com) to assist you with further investigation.

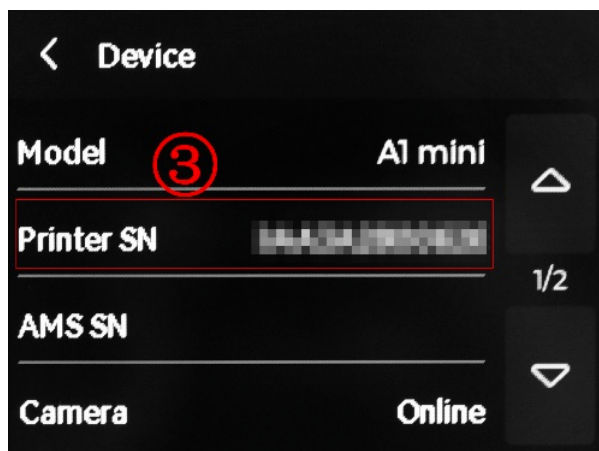
- Find the Printer SN , Access Code and IP on the printer, and enter them into the corresponding input fields on the Web UI.
  - For A1 Series
    - Printer SN
      - ① Setting



- ② Device

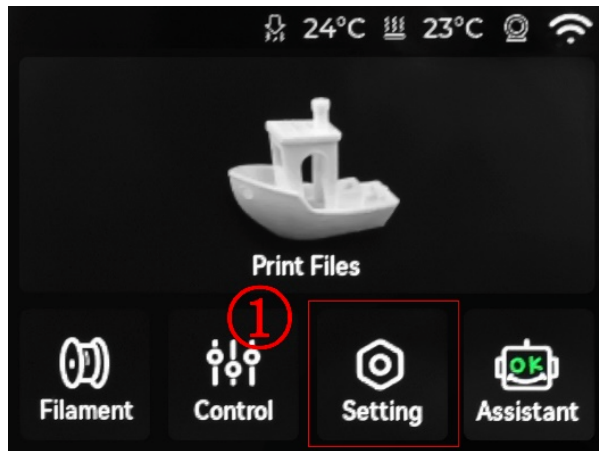


- ③ Printer SN

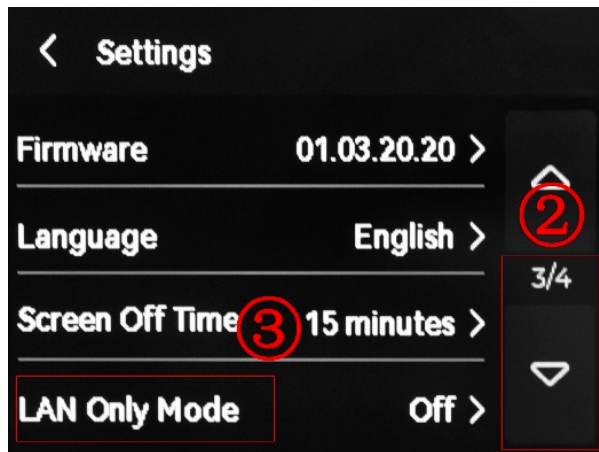


- Access Code and IP

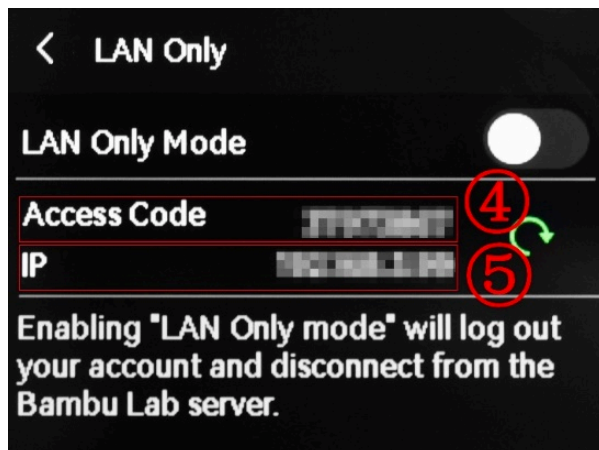
- ① Setting



- ② -> ③ LAN Only Mode

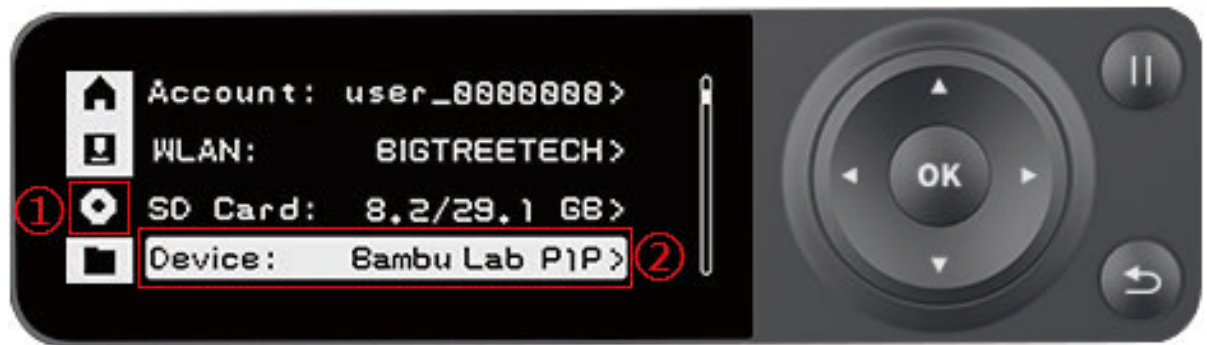


- ④ Access Code , ⑤ IP

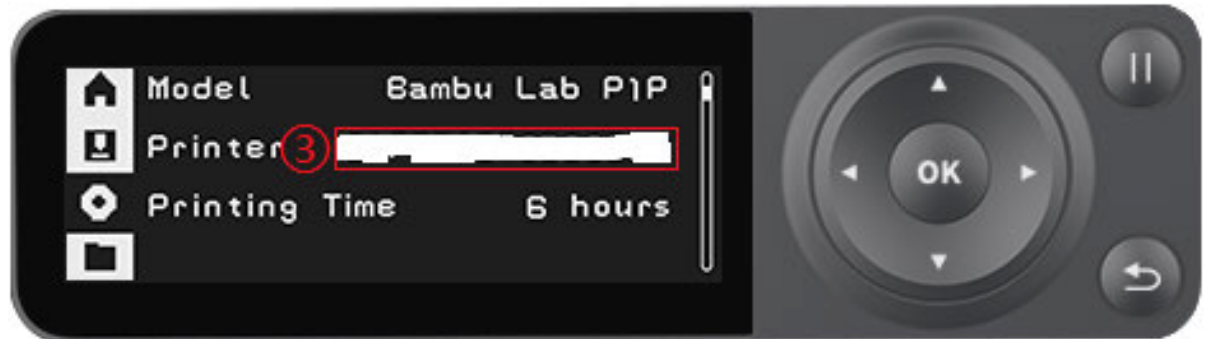


- For P1 Series

- Printer SN
  - ① Setting -> ② Device



- ③ Printer is the Printer SN



- Access Code and IP
  - ① Setting -> ② WLAN -> ③

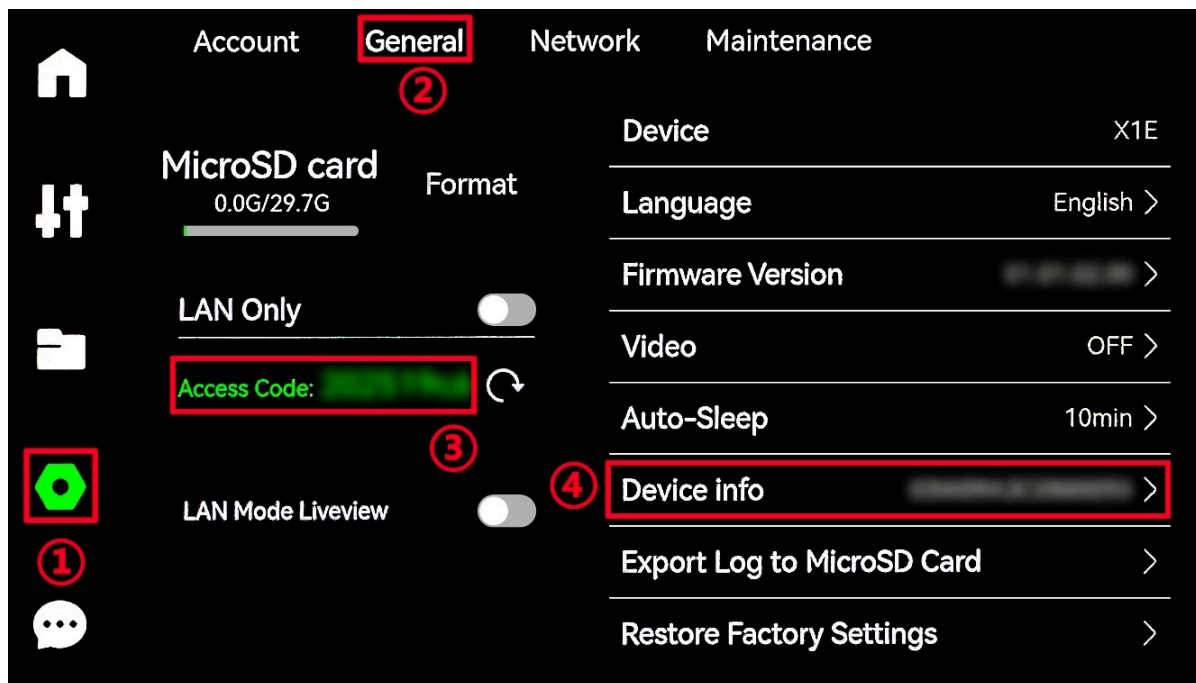


- ④ IP , ⑤ Access Code

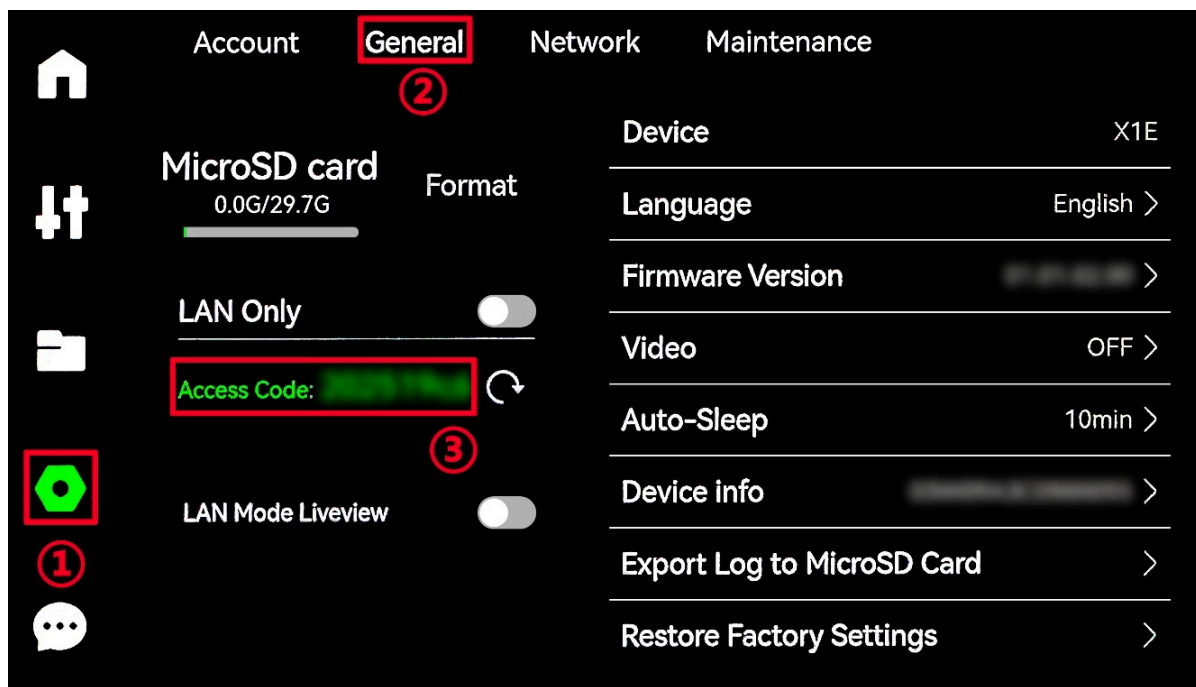


#### o For X1 Series

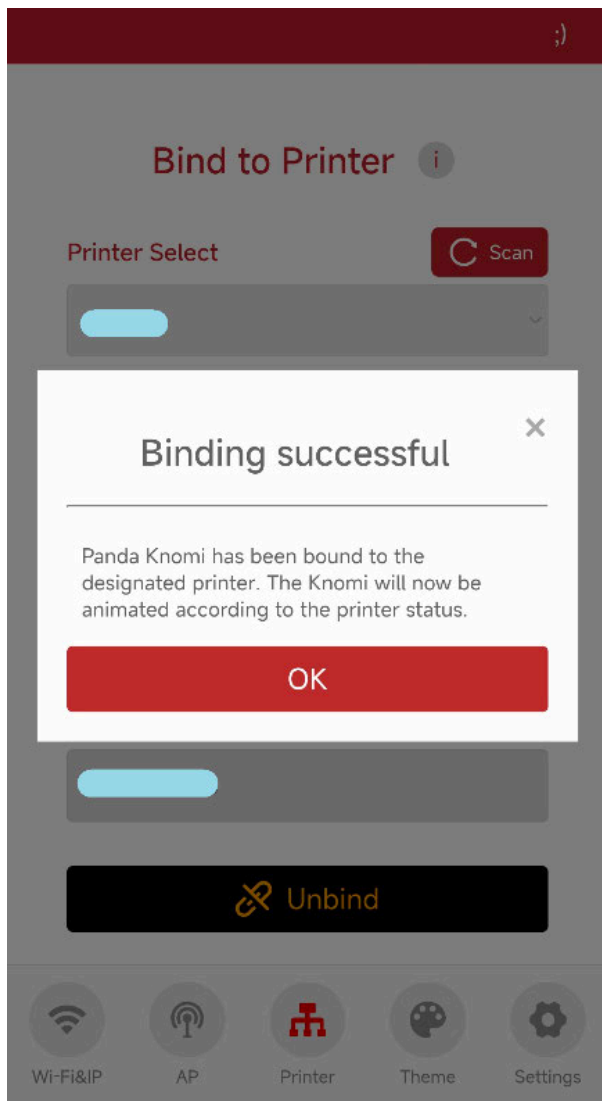
- Printer SN 和 Access Code
  - ① Setting -> ② General -> ③ Access Code , ④ Device info is the Printer SN



- IP
  - ① Setting -> ② Network -> ③ IP



- Tap Bind . A Binding successful popup will confirm that the Panda Knomi has connected to the printer.



Congratulations! You can now enjoy your Panda Knomi.

## Wi-Fi & IP Settings

The first tab that will appear when connecting to the Panda Knomi webUI is the WiFi and AP settings tab.

## WiFi connection successful

STA IP ⓘ

③ 192.168.1.110

You can use this IP address to access this web UI from any device. Copy the above STA IP into the browser's address bar on any device within the same local network (such as an iPhone, iMac, or PC) to open this web UI.

② ↗ Configure Wi-Fi

Host Name ⓘ

④ PandaKnomi .local

Set Hostname

Wi-Fi&IP ⓘ ① AP Printer Theme Settings

- ① Tap the Wi-Fi & IP option.
- ② To change the Wi-Fi network that Panda Knomi connects to, tap "Configure Wi-Fi", this will take you back to the Wi-Fi configuration interface.

Note: When the Panda Knomi switches to a different Wi-Fi network, it will connect to a new local network and IP address. If your device is connected to the same Wi-Fi network as Panda Knomi at the time of this change, you will lose the ability to communicate with it. To reconnect, you'll need to join the new Wi-Fi network to which Panda Knomi has connected. However, to avoid losing connection during this transition, it is recommended to connect your device to the Panda Knomi's hotspot before initiating any changes to the Wi-Fi settings. This way, you can manage the network settings without disrupting your connection to the device.

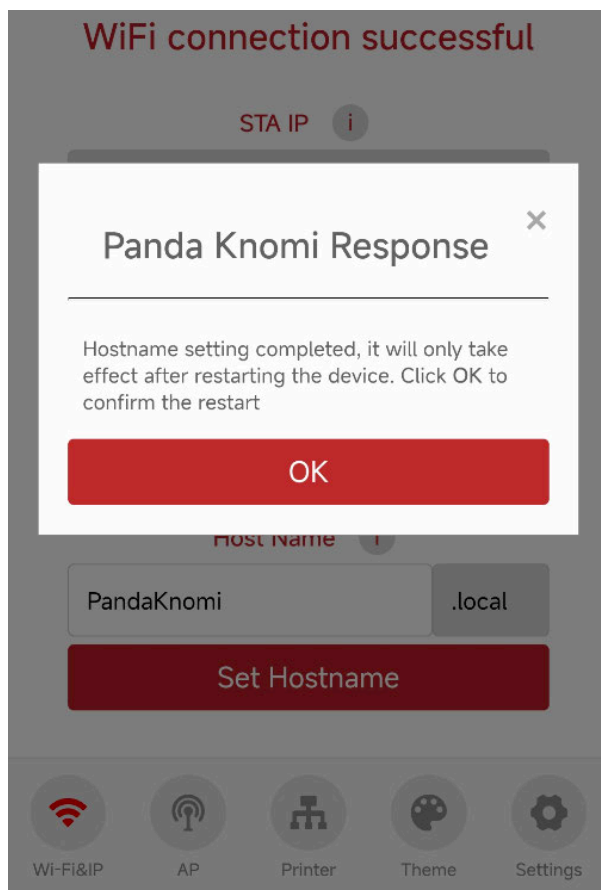
- ③ After configuring the network you'll see the IP address that the Panda Knomi has been assigned on the network appear here. Make a note of this IP address because it is one of the methods you can use to access the web UI again in the future. To access the web UI using the IP address, type <http://IPAddress> into your browser, substituting the string "IPAddress" for the address listed in this field.
- ④ Alternatively, if your devices are on the same network as Panda Knomi, you can access the web UI using the hostname, which by default is PandaKnomi (accessible via <http://pandaknomi.local> , hostname is not case-sensitive).

Note that if a VPN is active on your device, you may need to use the IP address directly, as accessing by hostname might fail.

### Setting the Hostname:

- The hostname must consist only of letters (a-z, A-Z), numbers (0-9), and hyphens (-), and must start with a letter.
- The hostname must be at least 8 characters long and no more than 32 characters. (On firmware version v1.0.2 and earlier, please do not exceed 15 characters, otherwise the device will not start and needs to be updated to firmware version v1.0.3 or later)

After choosing a new hostname, tap **Set Hostname** to update Panda Knomi. A popup will confirm the successful change. The device must be restarted for the hostname change to take effect. This can be initiated by tapping **OK** in the confirmation popup, or postponed by closing the popup with the **x** button. After changing the hostname, you will need to make sure that you use that new hostname to access the web UI.



## AP Interface

The next UI page is the Panda Knomi access point configuration page. The Panda Knomi AP is a hotspot that the Panda Knomi broadcasts that allows you to connect directly to it instead of via another WiFi network. If you do not want this hotspot to be broadcast then you can turn it off but the Panda Knomi will turn it back on in case it is ever unable to connect to the WiFi network that you have

programed into it. This provides a failsafe way of reconnecting to the Panda Knomi in case the primary network becomes unavailable.

If your device is connected to the Panda Knomi AP hotspot to access the Web UI, any changes or shutdown of the Panda Knomi AP settings will disconnect the device. To prevent this, it is recommended to connect your device to the same local network as Panda Knomi before making changes.

## Knomi AP

2

Always ON

☒

3

AP Name

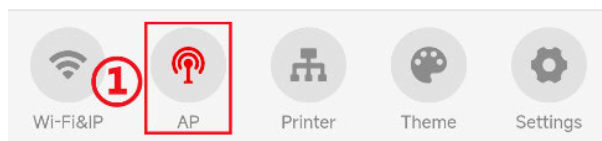
Panda\_Knomi\_B0B21C32E6A0

AP Password

987654321

Confirm

Note: if you're using AP mode to access the Web UI, turning ON/OFF the AP switch or modifying the AP name or password will disconnect you. It's best to access the Web UI using the IP address or hostname through a browser on the same local network to make these changes. Click the text box to change the AP name and password of Panda Knomi. For better security, it's recommended to change the default password (987654321) to a personal one.



- ① Access the AP interface.
- ② Toggle the Panda Knomi AP hotspot on or off. When the AP hotspot is off, the Panda Knomi will no longer broadcast its own WiFi network and you will only be able to connect to the web UI using the WiFi network that it has connected to. Before disabling it, ensure you record the Panda Knomi's IP address and hostname on the current Wi-Fi network. Note that if the Panda Knomi loses connection to the primary WiFi network then it will re-enable the AP hotspot regardless of this setting so that you can connect to it and reconfigure the primary network.
- ③ Modify the Panda Knomi AP hotspot settings. Note that this is specifically for the network that the Panda Knomi broadcasts and not for the network that it connects to. The default configuration is:

Wi-Fi SSID: Panda\_Knomi\_XXXXXXXXXXXX

Wi-Fi Password: 987654321

After modifying settings, there is no need to restart Panda Knomi. It will automatically create the new AP hotspot in the background.

# Theme Settings and IMG sharing

## GIF Status Explanation

This section just explains what the factory default GIFs represent. If you really want to have some fun and define your own GIFs or colours then see the [theme settings section](#).

- Due to hardware limitations, Panda Knomi requires that the size of a single GIF not exceed 1.5MB (1536KB, 1MB = 1024KB), and the total size of all GIFs must not exceed 3MB (3072KB, 1MB = 1024KB).
- In the factory state, the total size of all GIFs is 2664.25KB (slightly different from the sum of all sizes in the table above due to rounding each GIF's size to two decimal places), leaving 407.75KB of available space.

|   | File Name in Web UI    | GIF Effect                                                                          | Conditions for Display (Printer must be bound) | Factory GIF Size | Factory GIF Resolution (Width x Height) |
|---|------------------------|-------------------------------------------------------------------------------------|------------------------------------------------|------------------|-----------------------------------------|
| 1 | gif_idle_standby.gif   |  | The printer is idle.                           | 63.61KB          | 240 x 240                               |
| 2 | gif_nozzle_heating.gif |  | Nozzle is heating up.                          | 135.7KB          | 240 x 240                               |
| 3 | gif_bed_heating.gif    |  | Bed is heating up.                             | 128.55KB         | 240 x 240                               |
| 4 | gif_bed_leveling.gif   |  | Auto-leveling.                                 | 111.28KB         | 240 x 240                               |

|    | File Name in Web UI             | GIF Effect                                                                          | Conditions for Display<br>(Printer must be bound) | Factory GIF Size | Factory GIF Resolution<br>(Width x Height) |
|----|---------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------|------------------|--------------------------------------------|
| 5  | gif_homing.gif                  |    | Homing.                                           | 142.75KB         | 240 x 240                                  |
| 6  | gif_nozzle_cleaning.gif         |    | Nozzle is being cleaned.                          | 164.02KB         | 240 x 240                                  |
| 7  | gif_calibrating_flow.gif        |    | Calibrating extrusion flow.                       | 1023.41KB        | 240 x 240                                  |
| 8  | gif_xy_mesh_mode_sweep.gif      |    | Calibrating resonance compensation.               | 78.45KB          | 240 x 240                                  |
| 9  | gif_filament_check_location.gif |   | Checking filament location.                       | 225.3KB          | 240 x 240                                  |
| 10 | gif_filament_cut.gif            |  | Cutting filament.                                 | 54.09KB          | 240 x 240                                  |
| 11 | gif_filament_pull_back_cur.gif  |  | Retracting filament.                              | 139.41KB         | 240 x 240                                  |
| 12 | gif_filament_push_new.gif       |  | Loading new filament.                             | 164.94KB         | 240 x 240                                  |
| 13 | gif_filament_purge_old.gif      |  | Purging old filament.                             | 52.98KB          | 240 x 240                                  |
| 14 | gif_printing_ok.gif             |  | Printing complete.                                | 22.37KB          | 240 x 240                                  |
| 15 | gif_printing.gif                |                                                                                     | Printing in progress.                             | 157.41KB         | 240 x 240                                  |

## Screen Saver

To prevent screen burn-in from long exposure to static images, Panda Knomi includes a built-in screen saver. Every 15 seconds, a screen saver GIF (non-customizable) will appear for 2 seconds.

- The screen saver GIF is as follows:



- The screen saver is active on the following interfaces:
  - Invalid IMG interface
  - Hello screen after first power on
  - Wi-Fi scan completion
  - Wi-Fi connection failure
  - Wi-Fi password error
  - Binding printer interface
  - Printer scan completion
  - Printer SN error
  - Printer Access Code error
  - One printer HMS QR code interface
  - Multiple printer HMS error interface

## Theme Settings

Theme settings are where the real fun begins with the Panda Knomi. Within this tab of the web UI you will be able to tweak colour settings for the factory GIFs or upload your own, custom GIFs.

## Theme

### Print Progress

Display only percentages.

2

### All GIF Colors

HEX code

3



Default

Adjust the HEX code to change the colors of all GIFs for Ponda Knomi. For specific GIFs, make adjustments below.

4

### GIF Storage space

2627.27KB occupied | 444.73KB available | 3072KB total



By opting to a smaller size GIF, this will free up more storage capacity on the device. For example, if you replace the default Standby.gif (63KB) with an 23KB GIF, you'll free up 40KB of storage for other GIFs.

5

### Specific GIF



Preview Mode



Standby.gif

45.06KB, 224 x 220



Default

Update GIF



Wi-Fi&IP



AP



Printer



Theme



Settings

1

Filament\_Push\_New.gif

164.94KB, 240 x 240

3

Default

Update GIF

Filament\_Purge\_Old.gif

52.98KB, 240 x 240

3

Default

Update GIF

Printing\_OK.gif

22.37KB, 240 x 240

3

Default

Update GIF

Printing.gif

157.41KB, 240 x 240

3

Default

Update GIF

Download IMG

6

Click to export an IMG file. The file will be generated based on your settings, which may take some time depending on your network environment. Please be patient and remain on this page.

Wi-Fi&IP

AP

Printer

Theme

Settings

# Settings

English ▾

## IMG Version

V1.0.2

8

## IMG Update

Select .img file

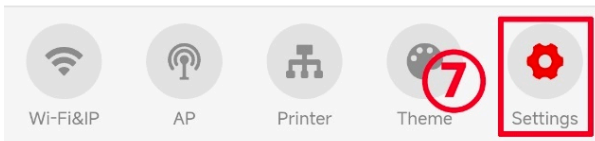
## Firmware Version

V1.0.2

## Firmware Update

Select .bin file

Factory Reset



- ① Go to the Theme interface.
- ② Choose how to display printing progress:
  - Only percentage : Displays real-time printing progress as a percentage.
  - Only GIF : Displays a GIF representing the printing process.
  - Alternating percentage and GIF : Alternates between showing the percentage and GIF every 10 seconds.
- ③ Set GIF Colors



- a) Tap to open the color setting interface for the GIF.
- b) Use the HSL Color Picker. ([What is HSL?](#))
- c) H (Hue) ranges from 0° to 360°.
- d) S (Saturation) ranges from 0% to 100%.
- e) L (Lightness) ranges from 0% to 100%.
- f) A (Alpha/Opacity) ranges from 0.00 to 1.00.
- g) The corresponding RGBA Hexadecimal Value: Each color value ranges from 0 to 255 (0x00 to 0xFF). You can modify these values to get the desired color. For example, #FFFFFF means:
  - R (Red): 0xFF (255/255)
  - G (Green): 0xFF (255/255)
  - B (Blue): 0xFF (255/255)
  - A (Alpha): 0xFF (1.00/1.00)
- h) The corresponding HSLA Values, You can modify these values to get the desired color.
  - H (Hue): 0°
  - S (Saturation): 0%

- L (Lightness): 100%
- A (Alpha): 1.00
- i) Tap to reset to the original GIF color.
- j) Preview the color in the preview area.
- ④ View GIF Storage Usage

Due to Panda Knomi's hardware limitations, the total size of all GIFs cannot exceed 3MB (3072KB). If this limit is exceeded, the Web UI will block the update and display a pop-up reminder.

- ⑤ Set Each GIF Individually (including color and custom GIF images)

Turn `Preview Mode` on/off to show/hide the `Preview` button.

Tapping `Preview this GIF` enters preview mode, allowing you to view the custom GIF on the screen. To exit preview mode, turn off `Preview Mode` or navigate away from the `Theme` interface.

#### Custom GIF Notes:

- Panda Knomi uses a 240 x 240 pixel screen resolution. GIFs larger than this resolution won't display fully, so only GIFs of this size or smaller are allowed.

#### Resize larger GIFs:

- Tap `Select images` button to select GIF, or Drag and drop the GIF into the browser window.
- Make sure that the `Maintain aspect ratio` box is ticked. Avoid changing the aspect ratio to cause inconsistent image effects
- Change the larger of the `Width (px):` or `Height (px):` to 240. If both are the same then you can change either of them.
- Tap `Resize IMAGES`
- Tap `Download resized IMAGES` to download the resized GIF.
- If using the UI color changing feature, the GIF must have a transparent background (usually black is used for transparency if activated within a GIF). Without transparency, color changes will affect the entire image. Note that almost all GIFs you can find online will not be transparent. BIGTREETECH specifically designed our GIFs to have a transparent background and you can too if you are familiar with how GIFs work.
- Due to the nature of how GIFs update the display between frames, the last frame of a transparent GIF must match the first frame otherwise there will be residual pixels during the loop. This is only relevant if you are crafting your own, custom, transparent GIFs.
- The size of a single GIF cannot exceed 1.5MB (1536KB, 1MB=1024KB), and the total size of all GIFs cannot exceed 3MB (3072KB, 1MB=1024KB).

- The new GIF size must not exceed the sum of the replaced GIF size and remaining capacity. Otherwise, the Web UI will reject the replacement. You can check the available capacity in ④ and the size of each GIF in ⑤.

For example, to replace “Standby.gif,” if the factory GIF size is 63.61KB and the remaining capacity is 407.75KB, the new GIF size cannot exceed  $63.61\text{KB} + 407.75\text{KB} = 471.36\text{KB}$ .

- ⑥ Download and Export Custom GIF as IMG File, Conveniently backup or share your custom GIF designs.

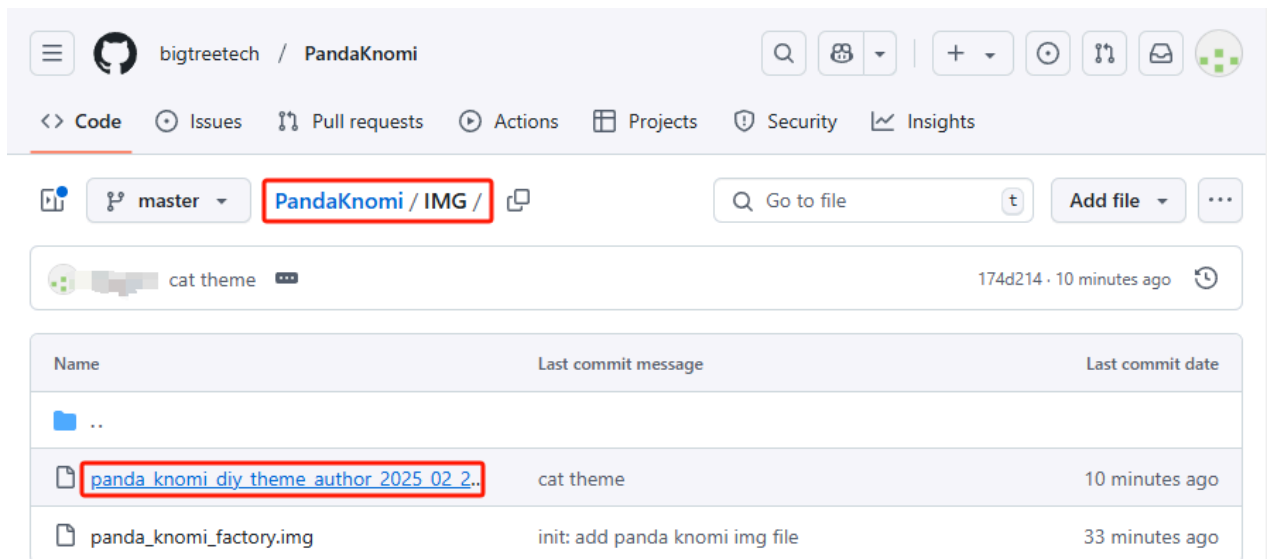
Note: As of firmware V1.0.2 the IMG does not include custom color data information, only GIF image data. Custom color data will be included in V1.0.3.

- ⑦ ⑧ Install Others’ Shared IMG Files to your Panda Knomi.

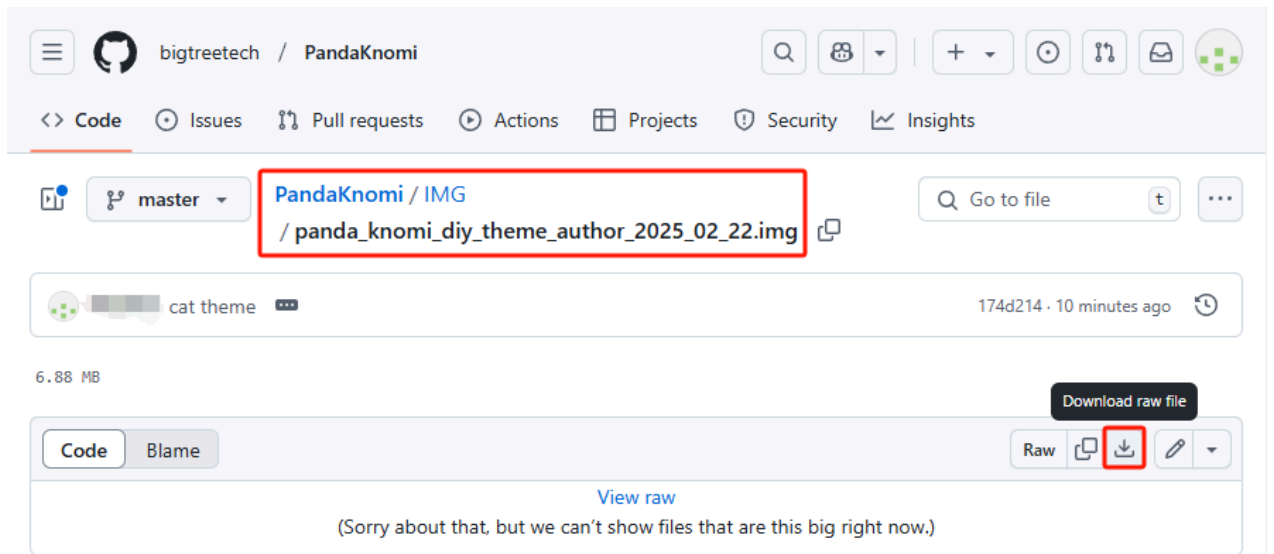
## Apply IMG to Panda Knomi

Note: As of firmware V1.0.2 the IMG does not include custom color data information, only GIF image data. Custom color data will be included in V1.0.3.

- Download IMG Theme file
  - Download Panda Knomi .img files shared by other users in the community.
  - Download from the Github of Panda Knomi.
    - Visit [Panda Knomi's GitHub repository](#)
    - Go to the IMG Folder, select the IMG theme.

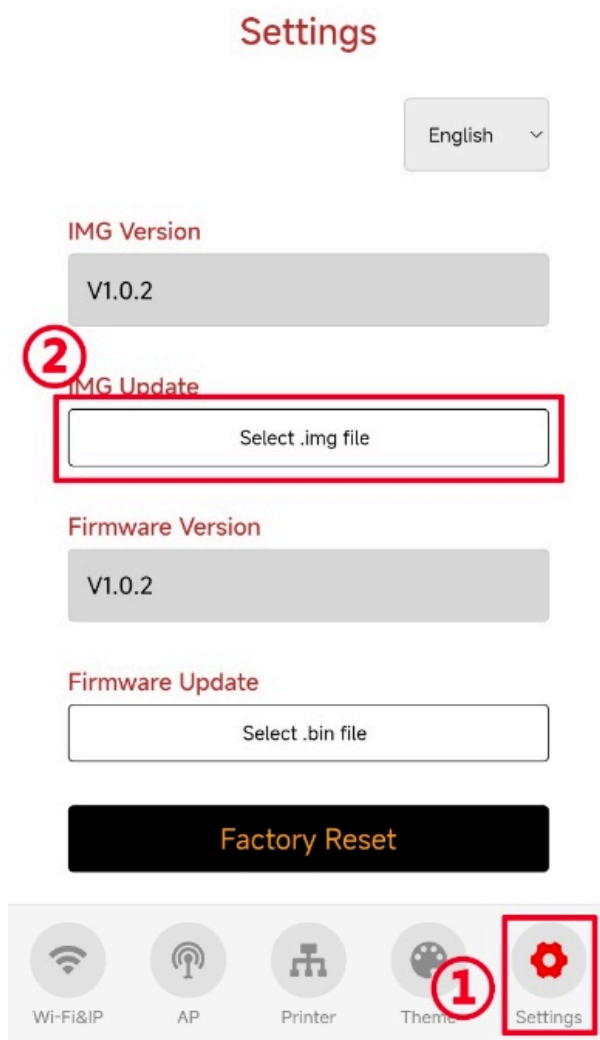


- Click Download to save it locally.



- Then, enter Panda Knomi's Web UI: ① Go to "Settings" → ② Select the .img file you just downloaded.

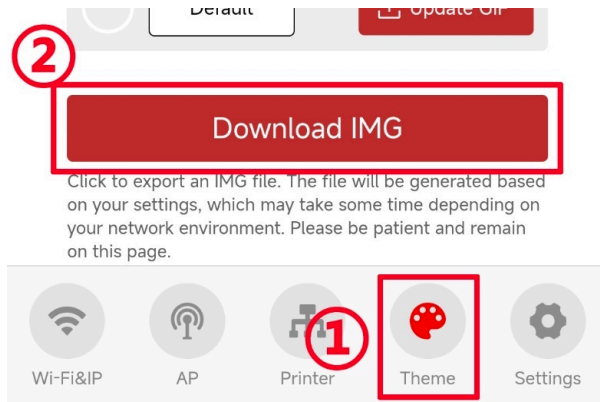
Once the update is complete, Panda Knomi will automatically apply the new IMG file.



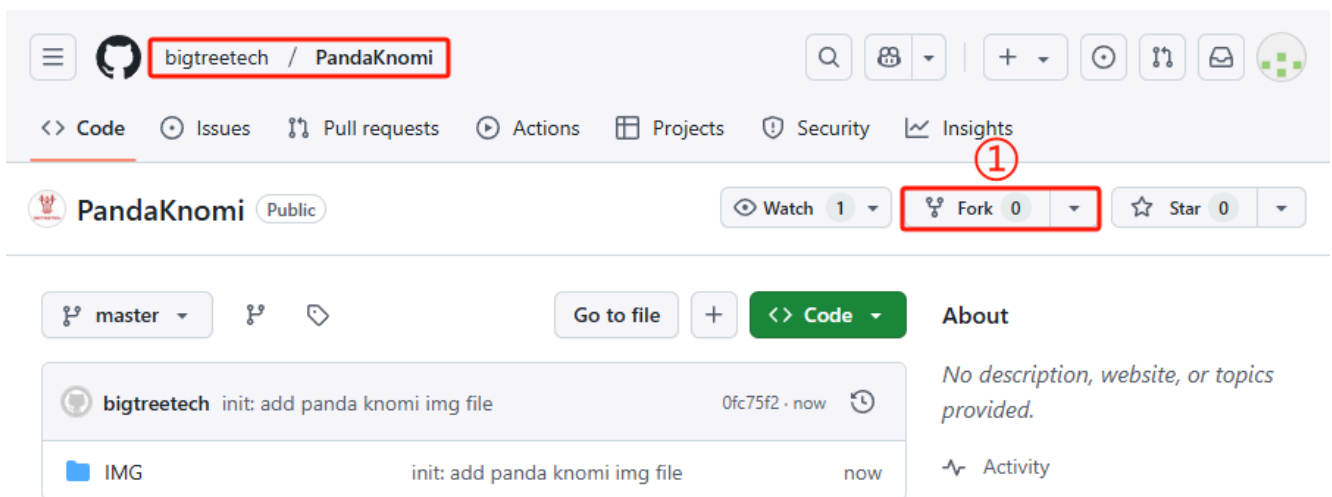
# Export IMG from Panda Knomi to Share

Note: As of firmware V1.0.2 the IMG does not include custom color data information, only GIF image data. Custom color data will be included in V1.0.3.

- ① Go to "Theme" → ② Select "Export IMG," and wait for the file to export.



- Rename it using the following format:
  - panda\_knomi\_diy\_<theme\_name>\_<author\_name>\_YYYY\_MM\_DD.img
    - <theme\_name> : Choose a theme name for the IMG
    - <author\_name> : Author's nickname or name
    - YYYY\_MM\_DD : Date of the IMG file (Year\_Month\_Day)Example: panda\_knomi\_diy\_theme\_author\_2025\_02\_22.img.
- Share IMG theme to GitHub
  - If you don't have a GitHub account, please [create](#) one.
  - Visit [Panda Knomi's GitHub repository](#)
  - Click ① Fork



- Click ② Create fork

## Create a new fork

A *fork* is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project.

Required fields are marked with an asterisk (\*).

Owner \* Repository name \*

 / PandaKnomi

✓ PandaKnomi is available.

By default, forks are named the same as their upstream repository. You can customize the name to distinguish it further.

Description (optional)

- ☒ Copy the `master` branch only
- Contribute back to bigtreotech/PandaKnomi by adding your own branch. [Learn more.](#)

 You are creating a fork in your personal account.

② [Create fork](#)

- Wait for the fork to complete

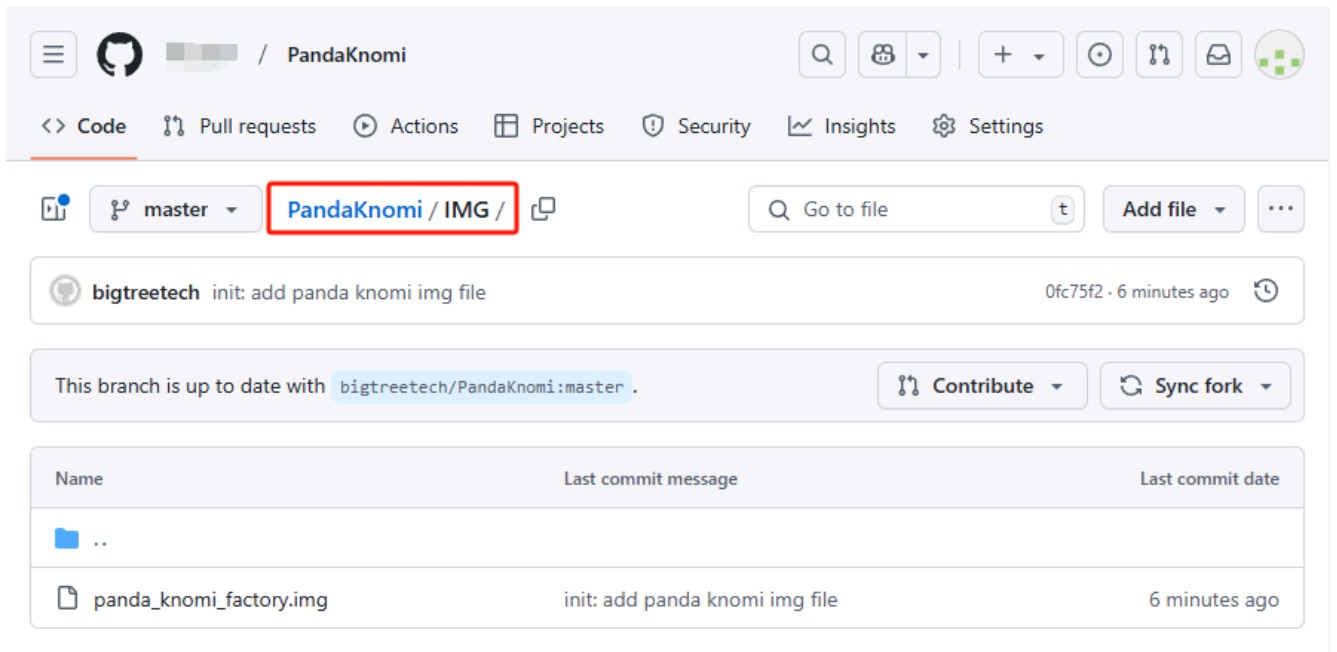


### Forking bigtreotech/PandaKnomi

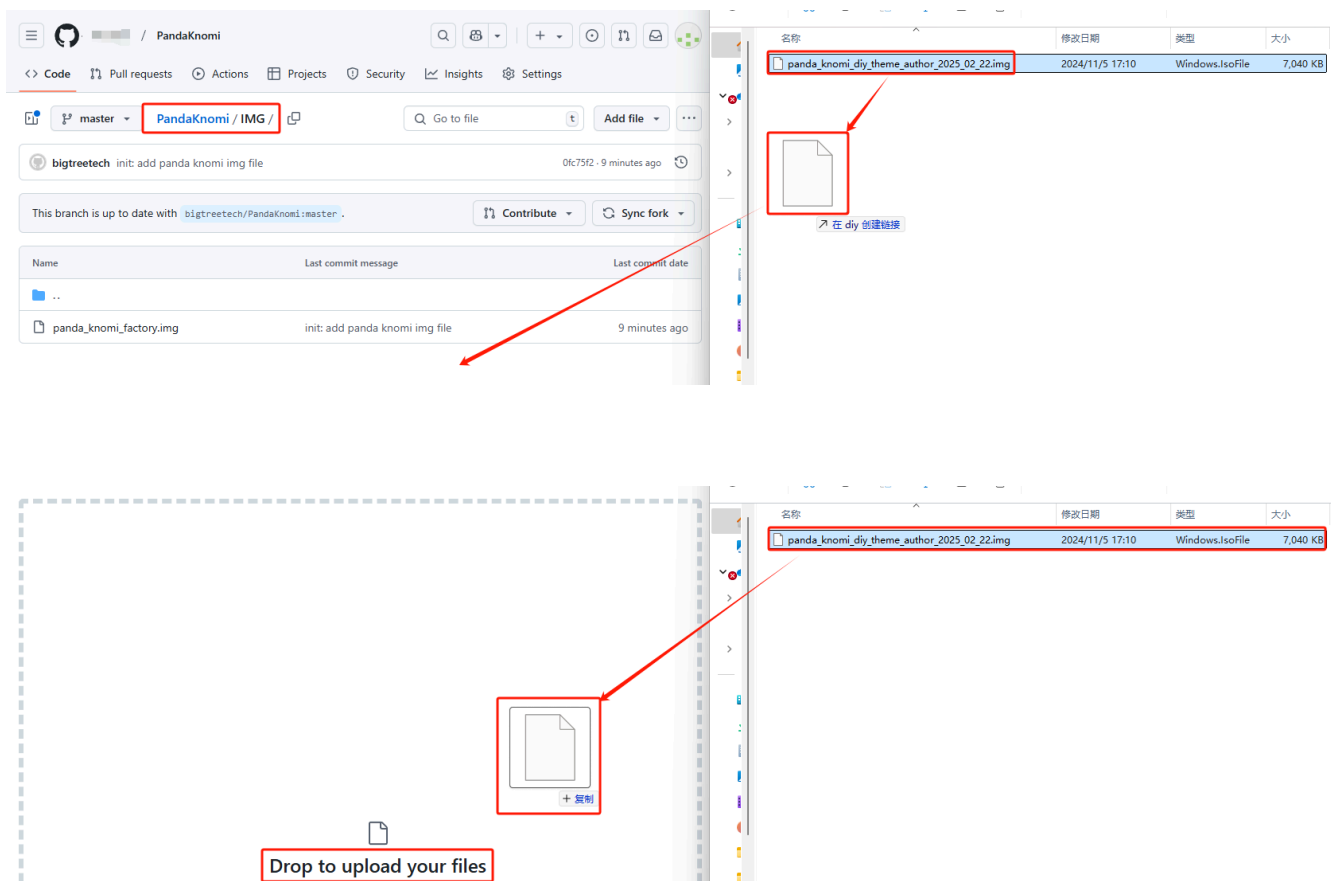
It should only take a few seconds.

 Refresh

- After forking, go to the IMG Folder



- Drag and drop the IMG file into the browser window. The Drop to upload your files interface will appear.



- Enter the ① title , ② description , and ③ commit changes .

PandaKnomi

<> Code

Pull requests

Actions

Projects

Security

Insights

Settings

PandaKnomi / IMG

Drag additional files here to add them to your repository

Or [choose your files](#)

panda\_knomi\_diy\_theme\_author\_2025\_02\_22.img

×

Commit changes

①

cat theme

②

This is a cat theme, which contains various emoticons composed of cats

☒ Commit directly to the `master` branch.

☐ Create a new branch for this commit and start a pull request. [Learn more about pull requests.](#)

③

Commit changes

Cancel

- ① Contribute -> ② Open pull request

The screenshot shows the GitHub interface for a repository named 'PandaKnomi', which is a fork of 'bigtreotech/PandaKnomi'. The repository is public and has 0 stars, 0 forks, and 0 watchers. The main branch is 'master'. A modal is open, indicating that the current branch is 1 commit ahead of the upstream 'master' branch. The modal contains a 'Contribute' button (circled with a red 1) and an 'Open pull request' button (circled with a red 2). The 'Contribute' button is highlighted with a red box. The 'Open pull request' button is also highlighted with a red box. The modal text says: 'This branch is 1 commit ahead of bigtreotech/PandaKnomi:master. Open a pull request to contribute your changes upstream.'

- o Write a ① title , ② description , check ③ Allow edits by maintainers , and ④ Create pull request

## Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also [compare across forks](#). [Learn more about diff comparisons here](#).

base repository: bigtreotech/PandaKnomi base: master head repository: PandaKnomi compare: master

✓ Able to merge. These branches can be automatically merged.

**Add a title**

1 cat theme

**Add a description**

2 This is a cat theme, which contains various emoticons composed of cats

3 ☒ Allow edits by maintainers ?

4 Create pull request

Remember, contributions to this repository should follow our [GitHub Community Guidelines](#).

Reviewers: No reviews

Assignees: No one—[assign yourself](#)

Labels: None yet

Projects: None yet

Milestone: No milestone

Development: Use [Closing keywords](#) in the description to automatically close issues

Helpful resources: [GitHub Community Guidelines](#)

- Congratulations! You've shared your theme.

## Factory Reset

Restoring the factory settings of Panda Knomi will erase all configurations, including language, Wi-Fi settings, custom hostname, custom AP hotspot name and password, bound printers, print progress display selection, and theme color information. However, custom GIFs cannot be restored to the factory defaults. GIFs can only be modified by uploading new ones or updating the IMG file. The factory IMG file is available for download and can be updated from [GitHub](#)

## Via Web UI

- Go to the ① Settings interface and tap the ② Factory Reset

## Settings

English ▼

### IMG Version

V1.0.0

### IMG Update

Select .img file

### Firmware Version

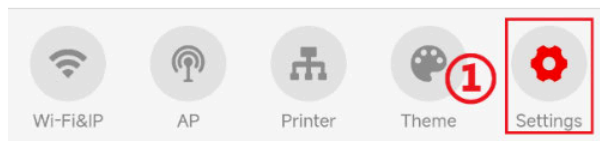
V1.0.0

### Firmware Update

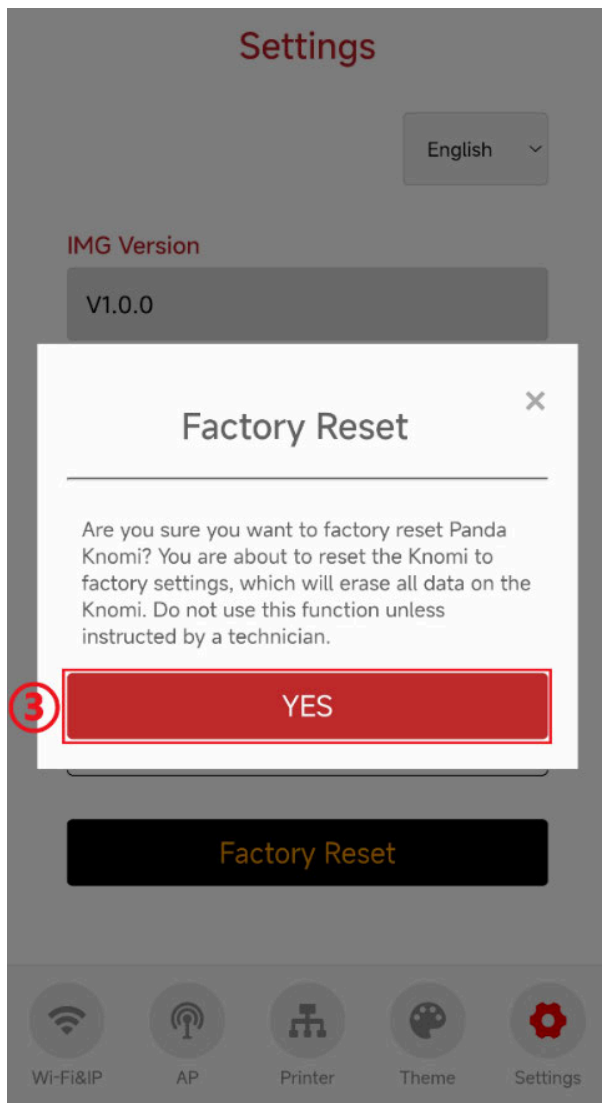
Select .bin file

②

Factory Reset

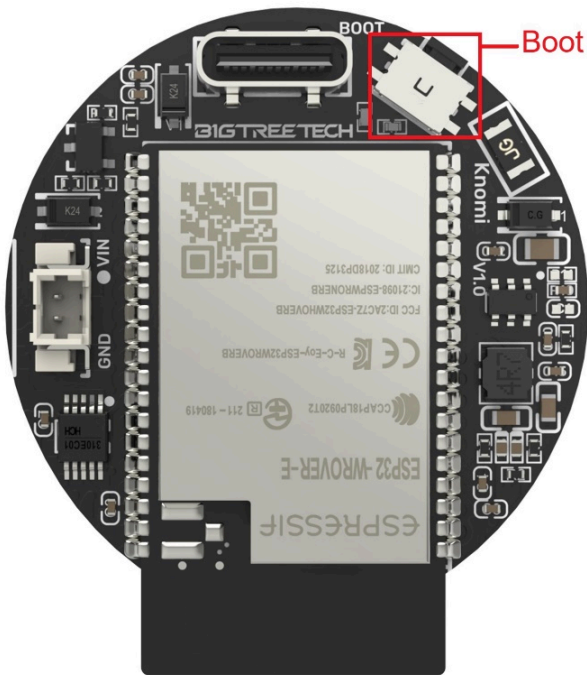


- A confirmation popup will appear, Tap ③ YES to confirm and reset. Panda Knomi will restore the factory settings and restart.



## Via Hardware Button

Hold the Boot button on Panda Knomi for 5 seconds to reset the factory settings. The device will restart automatically.



## Firmware

### Feature requests

If there is something you would like to see in a future release of the Panda Knomi firmware, please let us know by logging a feature request on the official Panda Knomi Github repository.

[Request a feature](#)

### How to update firmware

#### OTA

- Access the Web UI

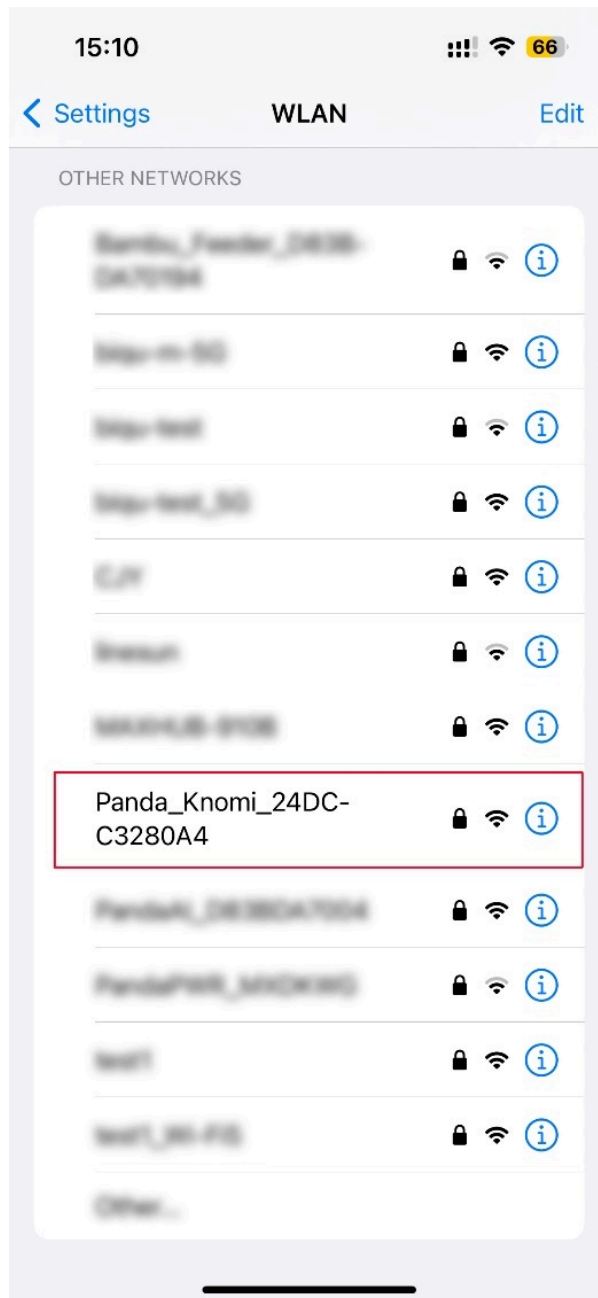
If Panda Knomi is already connected to Wi-Fi, you can connect the device to the same LAN as the Wi-Fi and access the Web UI directly via IP to update the firmware. You can also connect the device to the AP hotspot of Panda Knomi to access the Web UI to update the firmware. You can choose either of these two methods.

- Connect your device to the same local network as Panda Knomi
  - Connect your device to the local area network of the Wi-Fi where Panda Knomi is located (Wi-Fi or Ethernet is OK)
  - Enter Panda Knomi's IP or hostname into your browser. The default hostname is <http://pandaknomi.local>.
- Connect to Panda Knomi's AP hotspot

- Connect your device to Panda Knomi's AP hotspot

Using an iPhone as an example:

- On your phone home screen, go to **Settings** → **WLAN** .
- Turn on **WLAN** . Your device will automatically search for available networks.



- Tap on the network name starting with **Panda\_Knomi\_** and enter the default password: **987654321** .
- After successfully connecting to the Panda Knomi network, you will see a blue checkmark next to the network, and the Wi-Fi icon indicating a connection will appear in the top-right corner of the screen.
- After connecting to the AP, there should be a prompt of **Connected (Login/Authentication required)** , and click it to enter the Web UI

configuration interface. Sometimes due to network reasons, you need to wait for 10~20 seconds. If you still cannot enter the Web UI configuration interface after waiting, you can manually enter [192.168.254.1](#) for firmware versions v1.0.4.1 and later (and use [192.168.4.1](#) for previous versions) in the browser to access the Web UI configuration interface.

- In the configuration interface, go to ① Settings , then tap ② Select .bin file to choose the firmware to update. The device will restart automatically after the update.



## flash\_download\_tool (Type-C)

Note: Panda Knomi firmware updates should be available as a free OTA, This step is only necessary when OTA is not working on your network as may be the case with some network configurations.

- If your computer does not have the CH340 driver, please download and install [CH341SER.EXE](#)
- Download the [Flash Download Tools](#)

Filter

Clear

Technology

☐ Evaluation Kit

Found 3 results

Certification and Test

Expand all +

Download selected

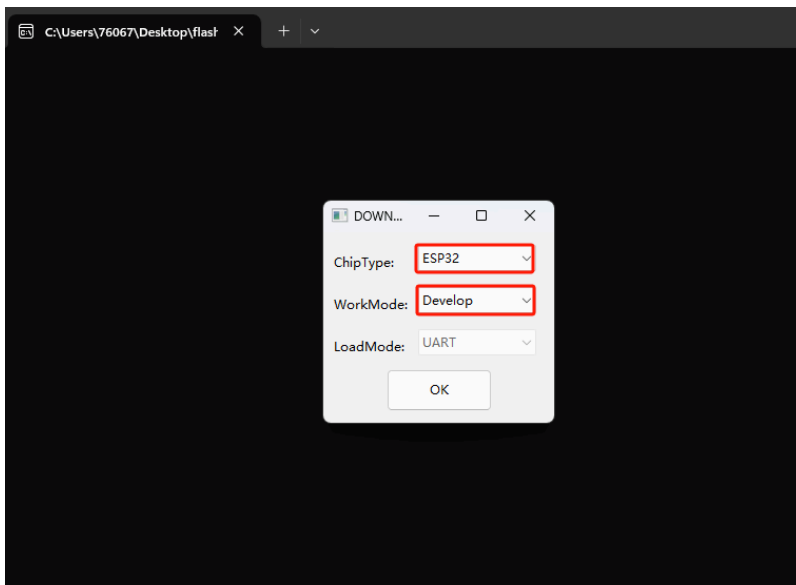
| <input type="checkbox"/> | Title                                               | Platform | Version | Release Date | Download |
|--------------------------|-----------------------------------------------------|----------|---------|--------------|----------|
| <input type="checkbox"/> | + ESP Series Chips WFA Certification and Test Guide | HTML     | latest  | 2024.12.18   |          |
| <input type="checkbox"/> | + ESP RF Test Tool and Test Guide                   | HTML     | latest  | 2024.12.18   |          |

Flash Download Tools

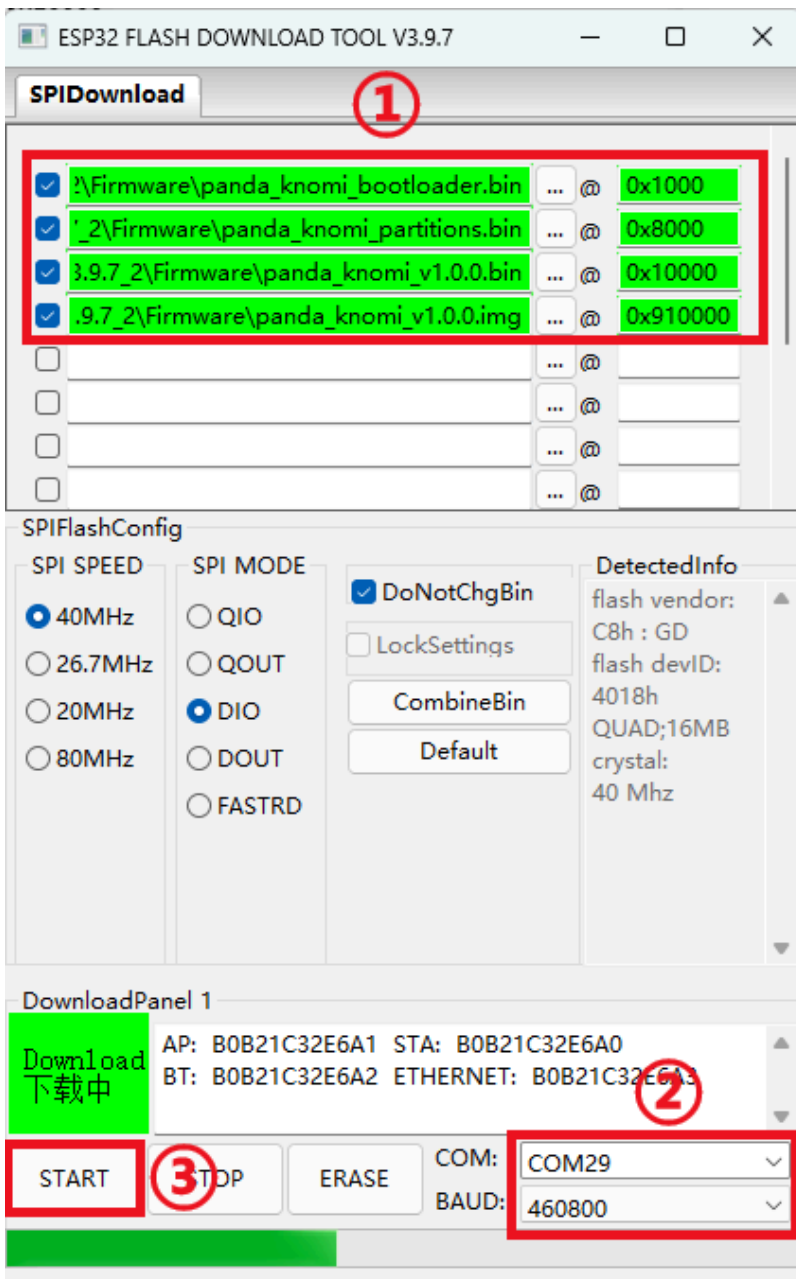
| <input type="checkbox"/> | Title                  | Platform | Version | Release Date | Download |
|--------------------------|------------------------|----------|---------|--------------|----------|
| <input type="checkbox"/> | + Flash Download Tools | HTML     | latest  | 2024.12.18   |          |

- Download the [Panda Knomi firmware](#)
- Hold the `boot` button on Panda Knomi, connect it via `Type-C` to your computer, and a new COM port should appear in the device manager.

- Open `flash_download_tool_3.9.8_6.exe` , and configure as follows:



- As shown in the figure below, configure the flash download tool:



- ① Set the .bin file's writing address, ensuring all checkboxes are ticked:
  - panda\_knomi\_bootloader.bin to 0x1000
  - panda\_knomi\_partition.bin to 0x8000
  - panda\_knomi\_v1.0.0.bin to 0x10000
  - panda\_knomi\_v1.0.0.img to 0x910000
- ② Set the COM port to the Panda Knomi port(We can check it in the computer's Device Manager -> Port ), and choose a baud rate (recommended: 460800).
- ③ Click **START** to begin writing. Once done, power off and restart Panda Knomi.

## Firmware History

### V1.0.4.1

- Optimization: Change the default AP Hotspot IP from 192.168.4.1 to 192.168.254.1 to minimize the possibility of conflicts with the router IP range as much as possible.

### V1.0.4

- Fixed: Use MAC address as the `client_id` for MQTT. To avoid the problem of multiple devices using the same `client_id` being prohibited from connecting by the printer
- Fixed: WebUI adds the ability to set AP Hotspot IP. Panda Knomi defaults to using 192.168.4.1 . If your router also uses this IP range, Panda Knomi will not be able to connect to the printer and needs to be set to a different IP range from the router, such as 192.168.5.1 . After the setup is completed, the device needs to be restarted for it to take effect.
- Fixed: Panda Knomi keeps displaying homing GIF when power loss recovery.
- Fixed: Filter non UTF-8 encoded WiFi SSID(name) because non UTF-8 characters cannot be transmitted through WebSocket TEXT.
- Fixed: Unable to display and connect properly when WiFi SSID(name) starts with a space or has multiple consecutive spaces.
- Optimization: WebUI STA and AP add the function of hiding WiFi passwords.
- Optimization: WiFi connection failure, add a 5-second interval when reconnecting in the background, optimize uninterrupted reconnection to WiFi may cause unstable AP and slow WebUI response issues.
- TODO (known issue): Unable to display and connect WiFi with the " " character in the SSID(name), will be resolved in the next version.

### V1.0.3.1

- Optimization: WebUI custom GIFs with "resolution exceeding 240x240", "single GIF size exceeding 1.5MB" and "sum of all GIF sizes exceeding 3MB" dialog boxes, with added redirect links to wiki instructions for users to adjust GIFs to be compatible with PandaKonmi.

### V1.0.3

- Fixed: Implement dedicated memory management logic for custom GIF, fixed the issue of insufficient memory caused by memory fragmentation when replacing GIFs.
- Fixed: MQTT publish failed retry logic.
- Fixed: MQTT receive buffer size has increased from 14KB to 80KB, because X1C connected to 4 AMS may have a single frame data size of up to 26KB, H2D may up to 50KB.
- Fixed: Disable netbiosns to avoid the problem of devices failing to start when the hostname exceeds 15 characters.
- Optimization: The background color of the QR code is fixed to black, and optimizing the contrast is not clear enough, which sometimes causes the phone to fail to scan successfully.
- Optimization recolor GIF:
  - Colors are directly stored in GIFs, so that color schemes can be moved along with GIF/IMG files, making it convenient for users to share color schemes.
  - Convert the colored RGB to CMYK and merge it with the original color, preserving the anti-aliasing effect of GIF.
  - Delete the configuration of useless alpha transparent channels in WebUI.
  - Add a GIF loading interface to inform users of the current real-time status of Panda Knomi
- Optimization: The 'Invalid IMG' interface only appears when the GIF to be displayed is invalid. The previous logic was that as long as any GIF was invalid, it would appear when any of the GIFs needed to be displayed.
- Optimization: Add error codes to the message of WebUI wifi connection failure to help us locate the cause of the problem.

### V1.0.2

- Fixed: Solve the problem that the TCP connection is occupied and the Web UI cannot be accessed. Now the old connection will be forcibly disconnected and the latest Web UI request will be answered.
- Fixed: MQTT memory leak. Fixed the issue where Panda Knomi may remain in the state of `binding printer` after disconnecting and rebinding the printer more than 100 times.
- Fixed: After unbinding a printer in Web UI, if you immediately click `bind` the printer, Panda Knomi may not bind the printer.

- Fix: After printing is completed, `gif_printing_ok.gif` is occasionally not displayed.
- Optimization: Add the total size limit of GIF, Web UI (pop-up window) + background (refuse to allocate memory) are limited to no more than 3MB, to avoid GIF running out of RAM and causing system abnormalities.
- Optimization: Web UI adds display of GIF storage usage information.
- Optimization: Web UI add the display of the size and resolution of each GIF file.

## [V1.0.1]

- Fixed: When accessing the Web UI, the pop-up window that appears immediately is always in English.
- Fixed: Screen saver function causes the `wifi scan completed` and `Printer scan completed` interfaces not to be displayed.
- Fixed: Unable to connect to WiFi hotspots with encryption method `WPA-PSK`.
- Fixed: The WiFi password error was reported incorrectly. A 3-time retry mechanism was added. An exception will be thrown only after the password error is reported 3 times, and the background will still try to reconnect.
- Optimization: It takes about 25 seconds for the A1 mini printer to complete the deployment of MQTT after it is powered on. Panda Knomi will try to reconnect within 30 seconds after the connection is started, and will throw an `Invalid IP` exception after 30 seconds, to avoid the situation where Panda Knomi reports an error when MQTT deployment is not completed when the printer is just turned on.
- Optimization: When an `Invalid IP` exception occurs, Panda Knomi background automatically listens to UDP and rescans the printer. If a printer with the same SN code is scanned, the new IP will be re-applied to establish a connection.

## [V1.0.0]

- First released factory firmware.

# Technical Support

Did this page help you? If you have any further questions about product usage or encounter other issues, please feel free to contact our after-sales email at [support01@bigtree-tech.com](mailto:support01@bigtree-tech.com).

#### FCC Statement

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

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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