BIGTREETECH

KNOMI 2

VERSION 2024-01-05

Version	Date	Revisions
v1.0	2023.11	Original
v1.2	2024.01	Corrected: The direction of antenna pasting. Updated: The printed part for the StealthBurner Main Body for KNOMI 2 has been updated to version 1.1. The gap has been increased to accommodate the Orbiter V2.0 and prevent issues caused by printing tolerances.

Thanks for **CHAOTICLAB** providing guidance on Voron's official style build guide.

Specifications

| Screen	
Display Size	1.28 inches
Display Area	32.4(H)mm x 32.4(V)mm
Resolution	240 RGB × 240 dots
Viewing Angle	178°
Backlight Brightness	400 Cd/m²
Backlight Lifespan	>20,000 hours
Chip	GC9A01
Power Supply	
Input	DC 5V 1A
Logic Voltage	DC 3.3V
Rated Power	5W
Communication & Memory	
Communication	ESP32-WIFI 802.11 b/g/n (802.11n, up to 150 Mbps), operating center frequency range: 2412 - 2484 MHz
Screen Communication	SPI
Wireless Connectivity	Onboard 2.4GHz Wi-Fi + Bluetooth Low Energy (BLE) SoC IEEE 802.11 b/g/n (2.4GHz Wi-Fi) and Bluetooth 5 (LE)
Flash	16MB
PSRAM	8MB
Operating & Storage Conditions	
Firmware Support	Klipper
Operating Temperature	-20℃ to 70℃
Storage Temperature	-30℃ to 80℃

DOES USING KNOMI 2 IMPACT YOUR STEALTHBURNER'S PERFORMANCE?

We have customized installation print parts for KNOMI 2, facilitating its easy installation into your Voron StealthBurner. In particular, our StealthBurner Main Body not only retains the original fan positions but also incorporates a circular ventilation opening at the top, enhancing compatibility and optimizing heat dissipation.
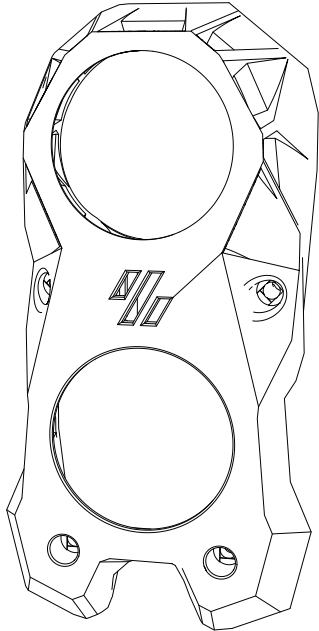
Mounting Plate

StealthBurner Main Body for KNOMI 2 v1.1
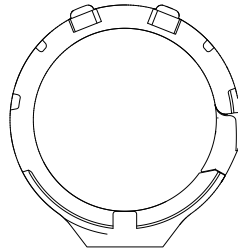
DOWNLOAD THE PRINTED PARTS
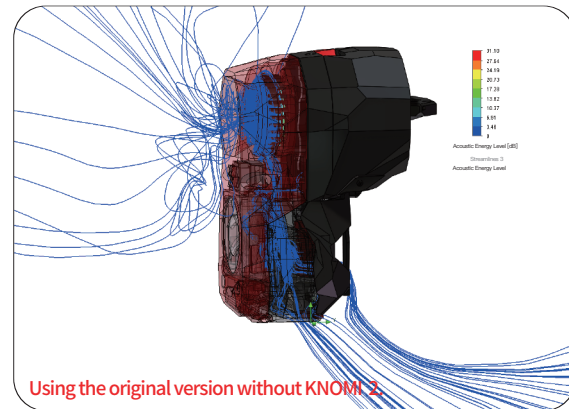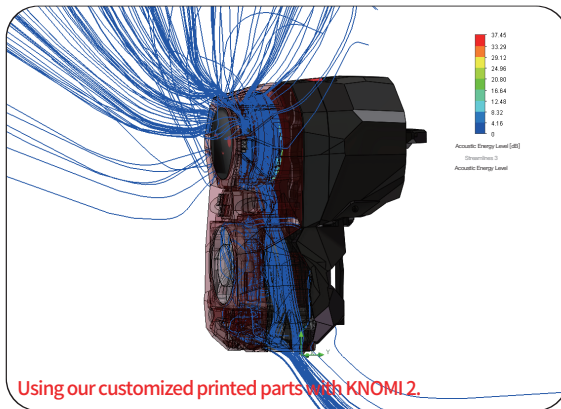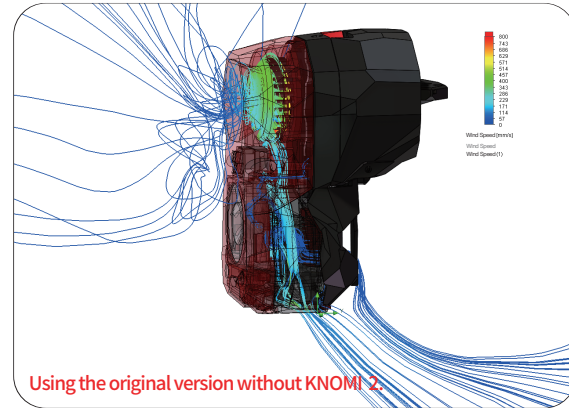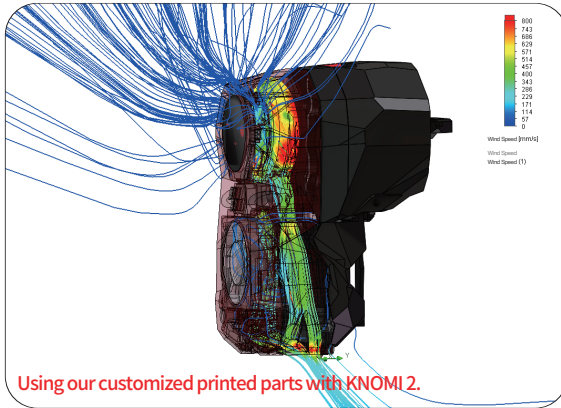
https://github.com/bigtreetech/KNOMI

MOUNTING PLATE

Before you start the assembly, we recommend preparing these two printed parts in advance. The Mounting Plate is designed with a snap-on feature due to size limitations and considerations for the air duct design. This may cause some wear and tear through repeated disassembling and reassembling. Hence, we suggest printing several extra copies of this part for future use.
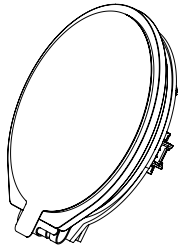
We conducted a comparative analysis measuring wind speed and acoustic energy levels between the original StealthBurner and our customized version featuring vents and KNOMI 2 add-on. The results showed that both versions performed similarly, indicating that adding KNOMI 2 will not compromise the performance of the StealthBurner.
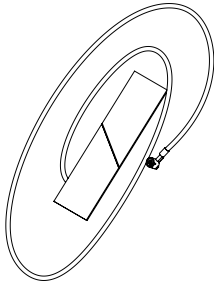

Using our customized printed parts with KNOMI 2.

Using the original version without KNOMI 2.

Using our customized printed parts with KNOMI 2.

Using the original version without KNOMI 2.
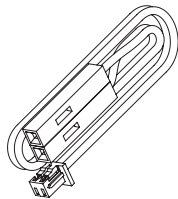
KNOMI 2   1pc

ANTENNA   1pc

CABLE (ZH1.25 2-Pin to Dual DuPont 2.54 1-Pin)   1pc

38.48mm

35.65mm

41.12mm

38.42mm

BOOT

POWER IN
DC 5V

+

−

USB-C (UART TO USB)
DC 5V IN
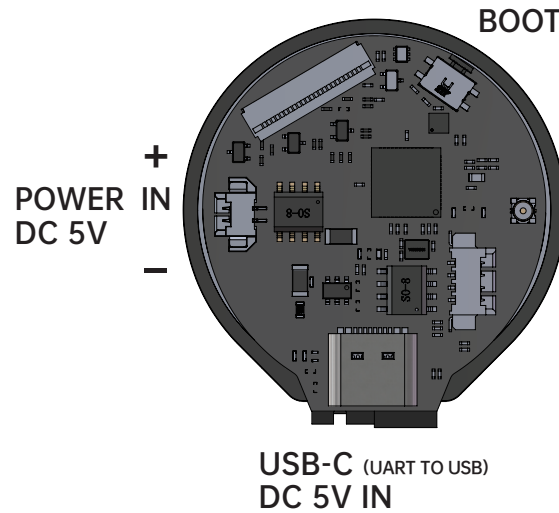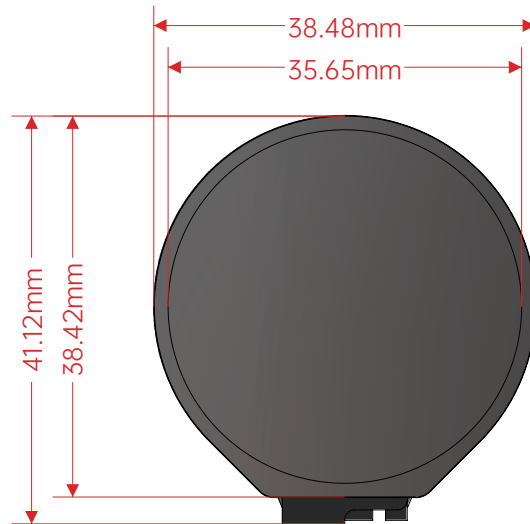
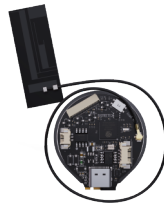**KNOMI 2 STARTUP**
Power KNOMI 2 via the USB-C or ZH1.25 connector. On power up, KNOMI 2 will display the HELLO interface indicating readiness for network configuration.
This interface appears in three cases: first boot, after factory reset, or if unable to connect to the previously set Wi-Fi within 15 seconds of boot.
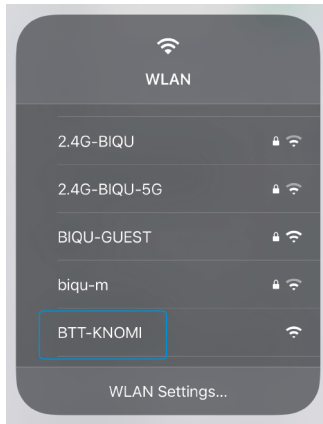

Before initial setup and powering on, ensure the external antenna is connected. After successful configuration, the antenna can be removed for installing in the StealthBurner. Note that the antenna will need to be reattached per this manual's instructions after final assembly.
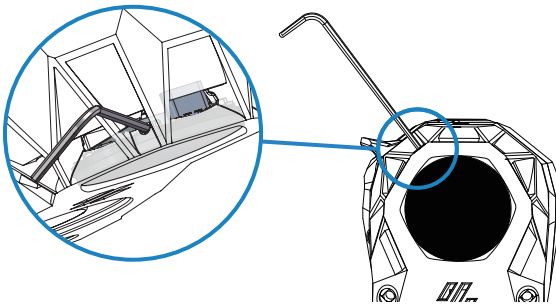
If KNOMI 2 is already installed in the StealthBurner but you need to switch Wi-Fi networks, you can also press the BOOT button using a thin tool like a hex key.

Your browser will automatically open up the configuration page. If it does not redirect automatically, you can manually enter "**http://knomi.local**" in your browser to access it.

SSID	RSSI	STATUS
BIQU-GUEST	-52	
BIQU	-55	connected
ChinaNet-BQCAIWU	-66	
biqu-m	-68	
TF-WiFi	-70	

Refresh

③ Once you see the word "connected" appear under STATUS, this indicates a successful network connection.

② In the SSID box, select the Wi-Fi name that the printer is connected to. After entering the password in the pop-up dialogue box, click the Connect button.

Submit

Klipper IP 192.168.0.43   Submit

① Enter the printer's IP address, and then click the Submit button.

STA

AP-SSID: BTT-KNOMI

AP-PWD:

Submit

Update FW   Restart

CONNECTING TO KNOMI 2
Use a device that supports Wi-Fi to find and connect to the "BTT-KNOMI" network.

WLAN

2.4G-BIQU

2.4G-BIQU-5G

BIQU-GUEST

biqu-m

BTT-KNOMI

WLAN Settings...

Approximately 10 seconds later, KNOMI 2 will switch to the main interface.

ROUTER ENCRYPTION MODE
Due to device compatibility issues, KNOMI 2 cannot configure networks with WPA PSK encryption mode. If you're having trouble getting your network to configure successfully with KNOMI 2, please check the encryption mode of your router. You may need to switch your router's encryption to a mode like WPA/WPA2 PSK mixed mode, or another mode.

KNOMI has lost touch with the
WiFi, please try to restart
KNOMI or check the
WiFi condition.

CONNECTION LOST
This status on KNOMI 2 indicates it has lost connection to the WiFi hotspot. Potential causes:
1. You changed the WiFi name or password, requiring a long press of the BOOT button to get
    to the HELLO interface and reconfigure KNOMI 2's network connection.
2. KNOMI 2 is too far from the WiFi hotspot, resulting in poor signal quality.
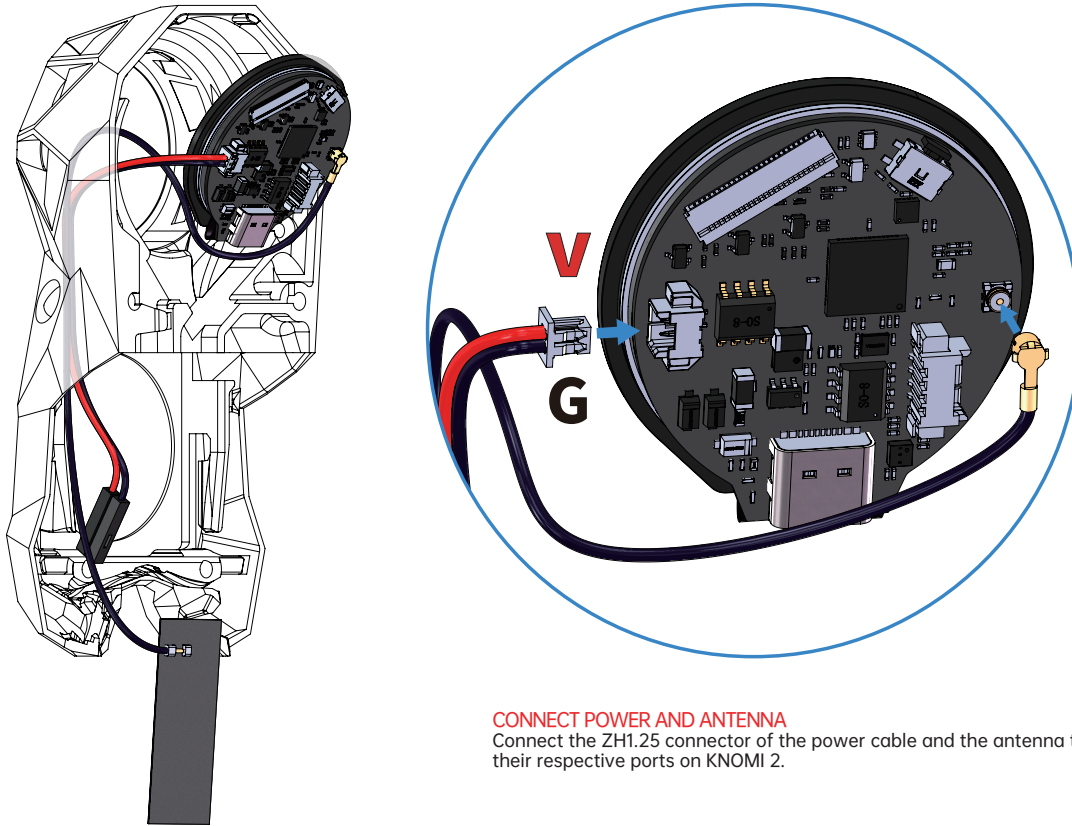
StealthBurner Main Body for KNOMI 2 v1.1
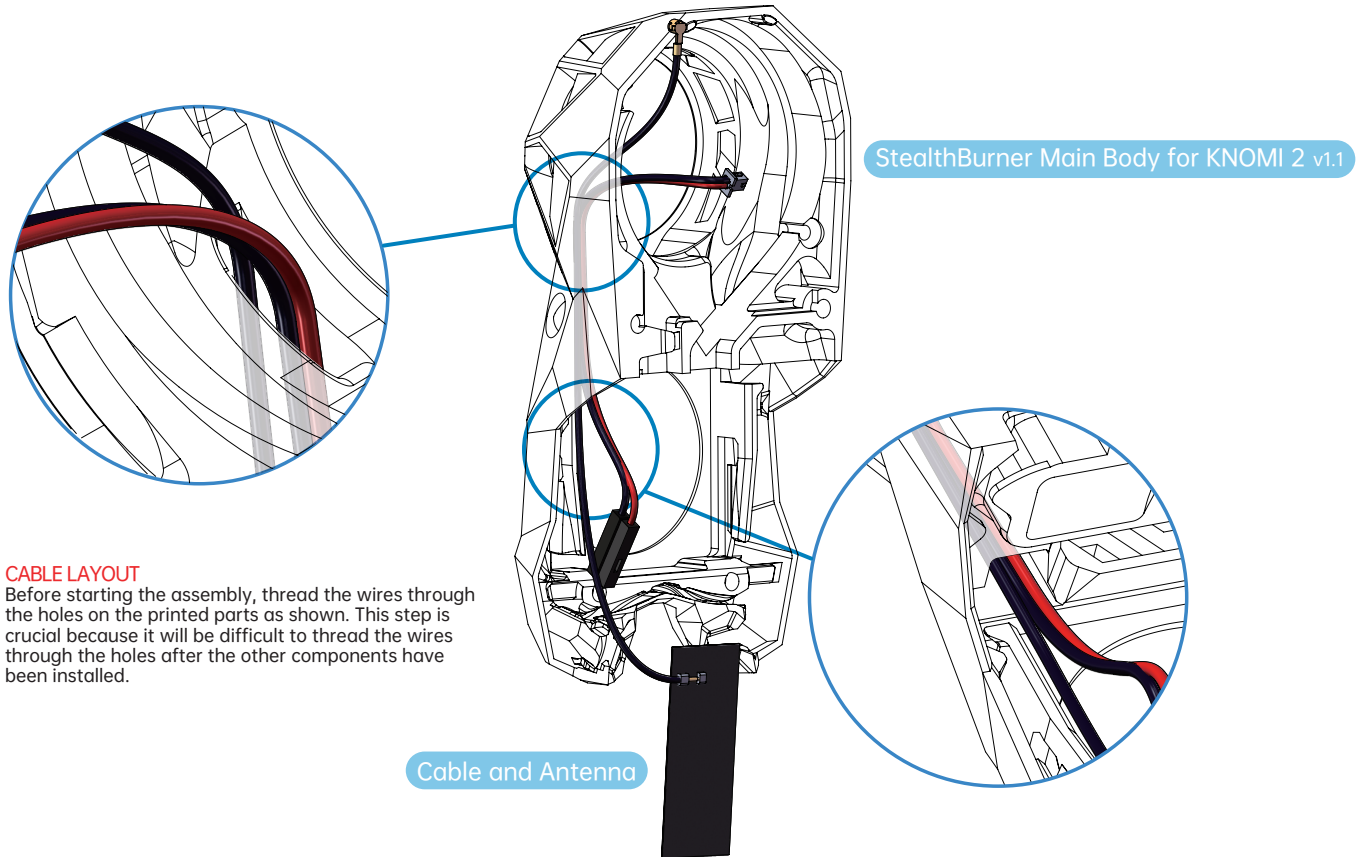
CABLE LAYOUT

Before starting the assembly, thread the wires through the holes on the printed parts as shown. This step is crucial because it will be difficult to thread the wires through the holes after the other components have been installed.
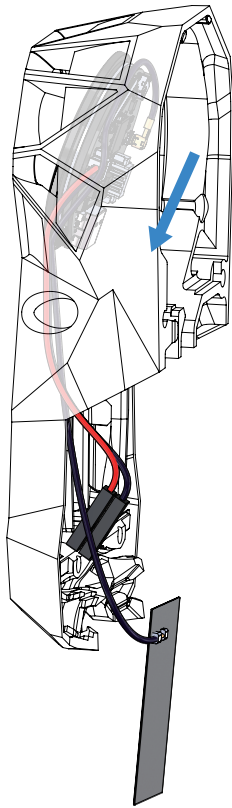
Cable and Antenna

CONNECT POWER AND ANTENNA
Connect the ZH1.25 connector of the power cable and the antenna to their respective ports on KNOMI 2.
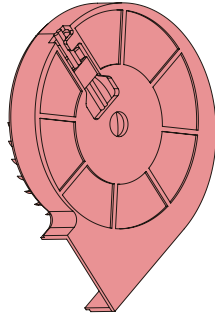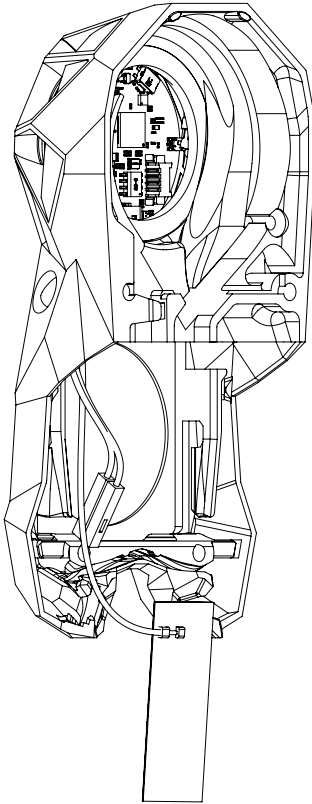
Mounting Plate

TIPS
To insert KNOMI 2, first, tilt KNOMI 2, aligning its bottom with the corresponding position on the StealthBurner Main Body for KNOMI 2 v1.1 and position it. Then, carefully integrate the entire KNOMI 2 into the StealthBurner Main Body for KNOMI 2 v1.1 until it is completely flush with the surface.
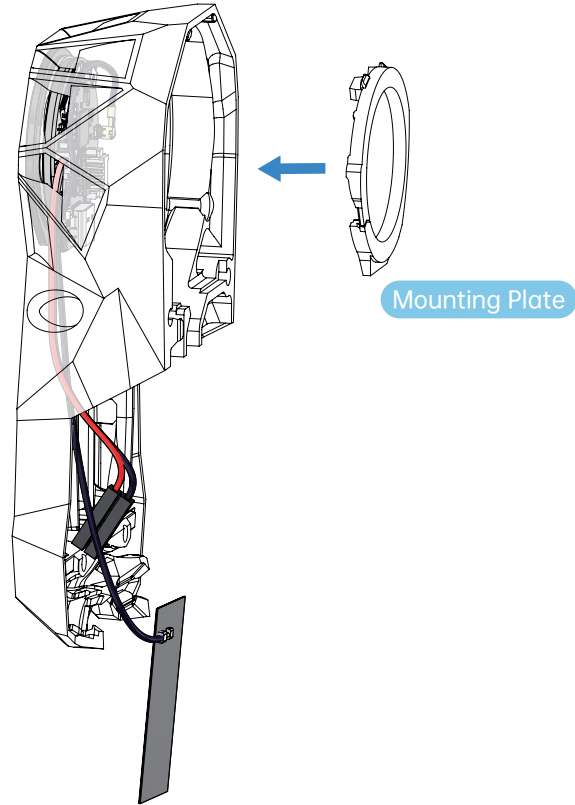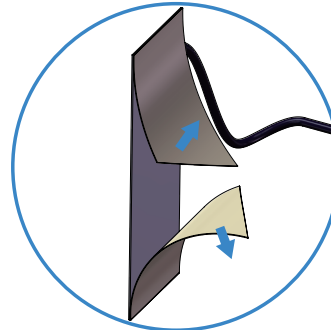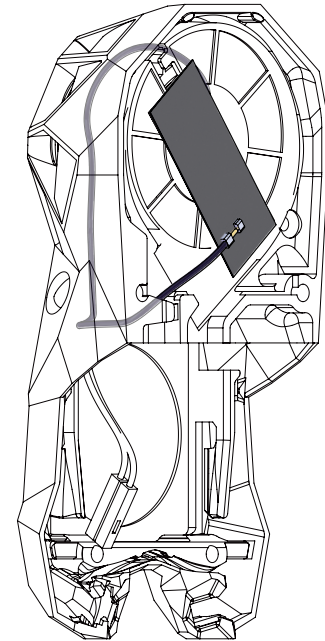
TURBINE FAN
Install the turbine fan using the same steps as without KNOMI 2.

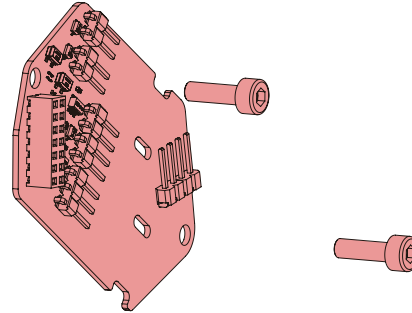**ANTENNA INSTALLATION**
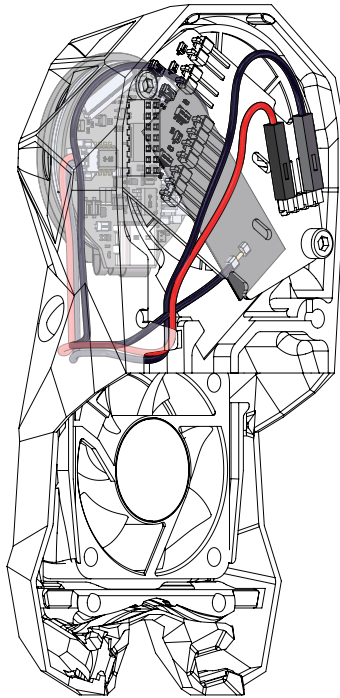After removing the backing paper from the antenna, stick it on the back of the turbine fan.
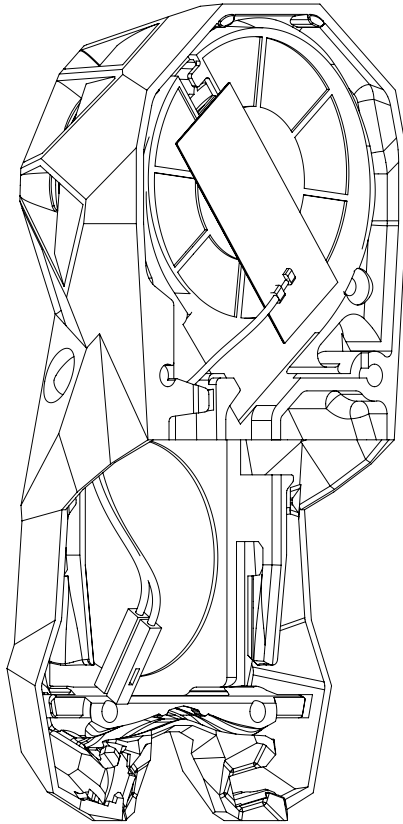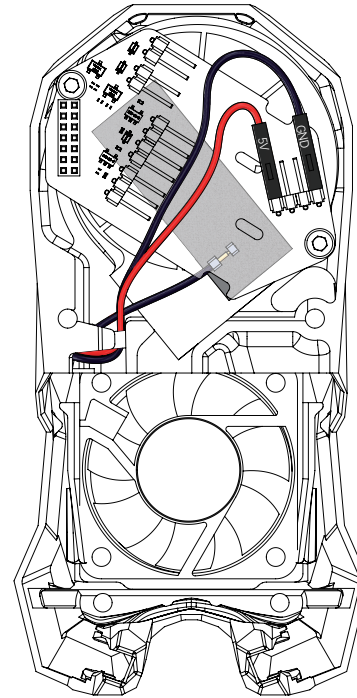
EBB SB0000 CAN
Install the EBB SB0000 CAN or a similar tool board
(you can skip this step if you are not using the
EBB SB0000 CAN or a similar tool board).

POWER CABLE ROUTING
As shown, guide KNOMI 2's power cable through the hole in the printed part, and then direct it towards the rear of the EBB SB0000 CAN.

Power Supply
If you are not using the EBB SB0000 CAN or a similar tool board, after routing the power cable as shown in the diagram, connect it to your motherboard or other power source.

Great job getting KNOMI 2 installed on your StealthBurner!

Now just keep following the regular StealthBurner instructions to get the LED, axial fan, and other parts put together.

Before you power it on, be sure to check carefully for any problems like shorts or reversed polarity.

printer.cfg *

```
001   [gcode_macro _KNOMI_STATUS]
002   variable_homing:  False
003   variable_probing: False
004   variable_qgling: False
005   variable_heating_nozzle:  False
006   variable_heating_bed: False
007   gcode:
008
009   [gcode_macro M109]
010   rename_existing: M109.1
011   gcode:
012     SET_GCODE_VARIABLE MACRO=_KNOMI_STATUS VARIABLE=heating_nozzle VALUE=True
013     M109.1 {rawparams}
014     SET_GCODE_VARIABLE MACRO=_KNOMI_STATUS VARIABLE=heating_nozzle VALUE=False
015
016   [gcode_macro M190]
017   rename_existing: M190.1
018   gcode:
019     SET_GCODE_VARIABLE MACRO=_KNOMI_STATUS VARIABLE=heating_bed VALUE=True
020     M190.1 {rawparams}
021     SET_GCODE_VARIABLE MACRO=_KNOMI_STATUS VARIABLE=heating_bed VALUE=False
022
023   [gcode_macro G28]
024   rename_existing: G28.1
025   gcode:
026     SET_GCODE_VARIABLE MACRO=_KNOMI_STATUS VARIABLE=homing VALUE=True
027     G28.1 {rawparams}
028     SET_GCODE_VARIABLE MACRO=_KNOMI_STATUS VARIABLE=homing VALUE=False
029
030   [gcode_macro BED_MESH_CALIBRATE]
031   rename_existing: BTT_BED_MESH_CALIBRATE
032   gcode:
033     SET_GCODE_VARIABLE MACRO=_KNOMI_STATUS VARIABLE=probing VALUE=True
034     BTT_BED_MESH_CALIBRATE
035     SET_GCODE_VARIABLE MACRO=_KNOMI_STATUS VARIABLE=probing VALUE=False
```

TIPS
You can copy it
It's not a picture.

If the printer has a QGL feature :

```
printer.cfg *
001  [gcode_macro QUAD_GANTRY_LEVEL]
002  rename_existing: BTT_QUAD_GANTRY_LEVEL
003  gcode:
004    SET_GCODE_VARIABLE MACRO=_KNOMI_STATUS VARIABLE=qgling VALUE=True
005    BTT_QUAD_GANTRY_LEVEL
006    SET_GCODE_VARIABLE MACRO=_KNOMI_STATUS VARIABLE=qgling VALUE=False
```

TIPS
You can copy it
It's not a picture.

If there is no QGL but there is a Z_TILT function, you can follow the settings below :

```
001  [gcode_macro QUAD_GANTRY_LEVEL]
002  gcode:
003    SET_GCODE_VARIABLE MACRO=_KNOMI_STATUS VARIABLE=qgling VALUE=True
004    Z_TILT_ADJUST
005    SET_GCODE_VARIABLE MACRO=_KNOMI_STATUS VARIABLE=qgling VALUE=False
```
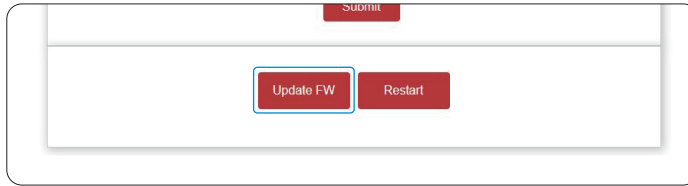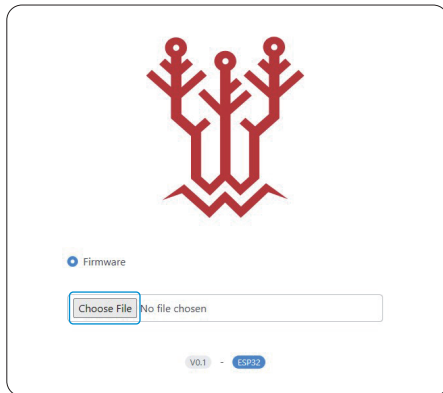
TIPS
You can copy it
It's not a picture.

Enter **http://knomi.local** into your browser to access the KNOMI 2 network configuration page. Scroll to the bottom of the page and click "Update FW".
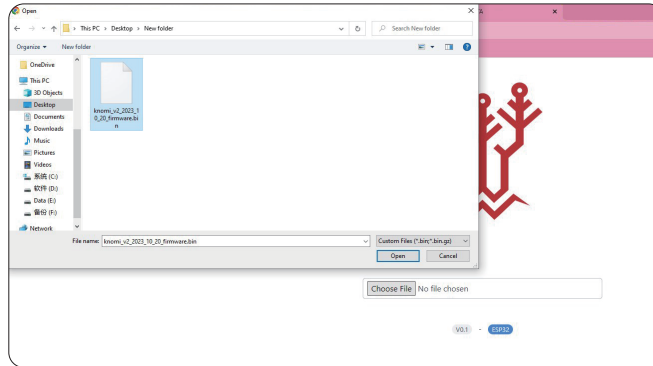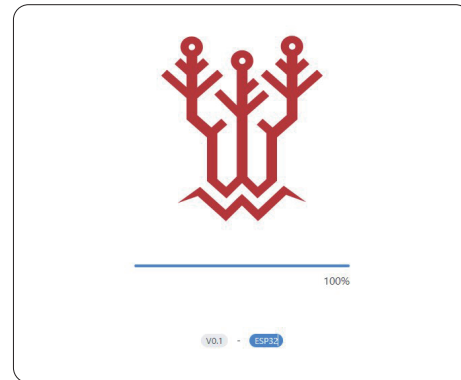

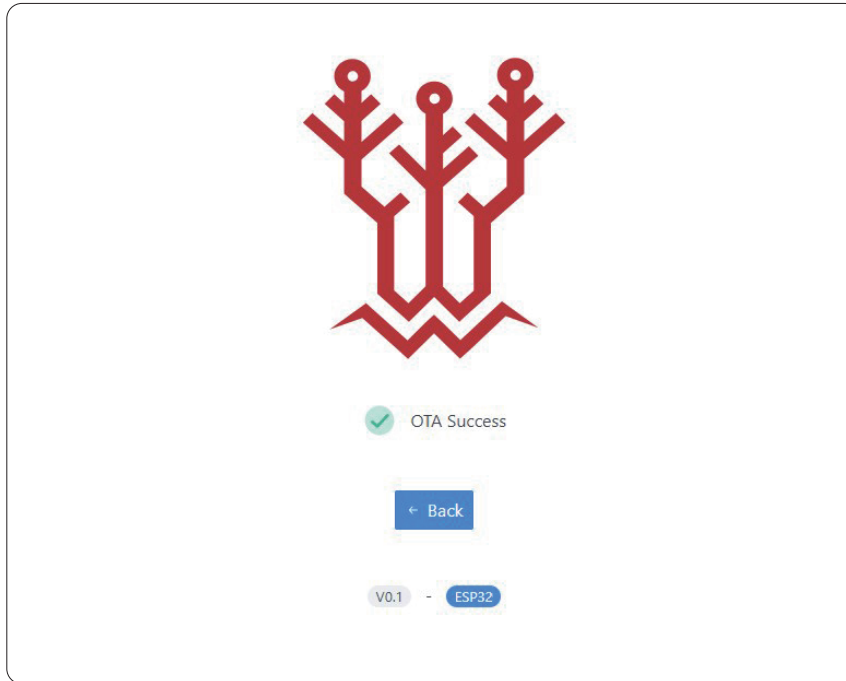Click on"Choose File"on the firmware update page.

Select the xxx.bin file.

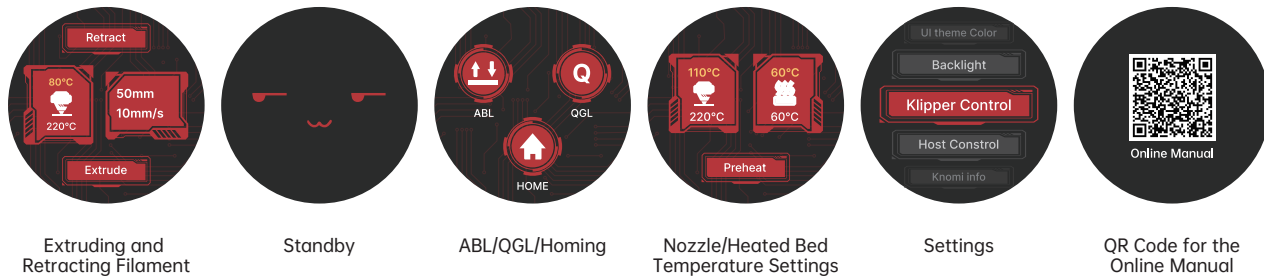The firmware will automatically update over-the-air.

KNOMI 2 will reboot to indicate a successful update. The page will also show information that the update succeeded.
At this point, you can click "Back" to return to the main KNOMI 2 network configuration interface.

KNOMI CONTROL UI INSTRUCTION & GESTURE OPERATION
KNOMI 2 supports full-screen touch, swiping up, down, left, and right, as well as long press operations.
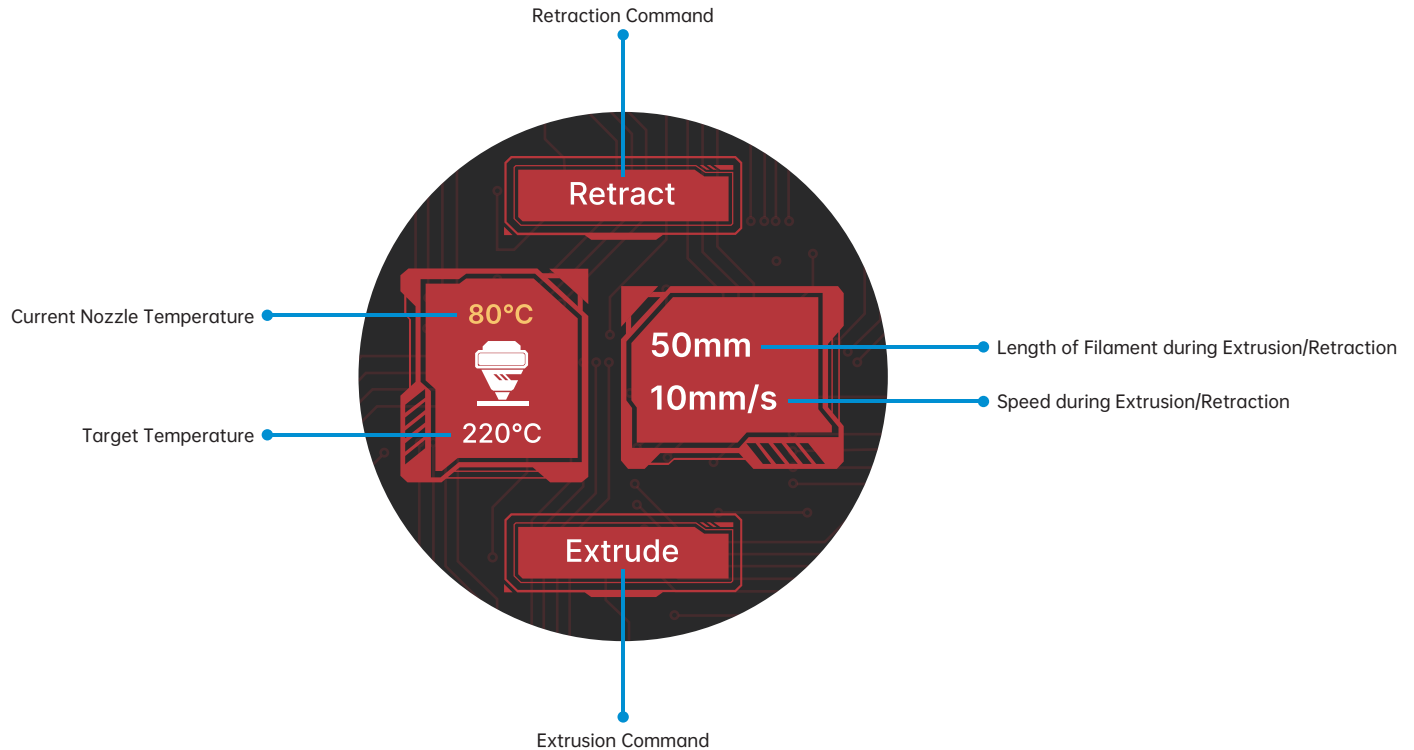
Main Interface

Extruding and
Retracting Filament

Standby

ABL/QGL/Homing

Nozzle/Heated Bed
Temperature Settings

Settings

QR Code for the
Online Manual

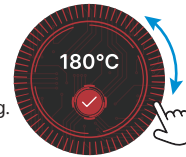| Gesture	Function
Swipe Left/Right	Swipe left and right on the Main Interface to switch between the [Extruding and Retracting Filament] , [ABL/QGL/Homing] , [Nozzle/Heated Bed Temperature Settings] , [Settings] , and [Online Manual QR Code] .
	Swiping Left and Right on Other Interfaces: Returns to the previous interface / No action.
Tap	Confirms your selection.

HOW TO EXTRUDE AND RETRACT FILAMENT?
Swipe right from the Standby UI to access the Extruding/Retracting Filament interface.

Retraction Command

Retract

Current Nozzle Temperature — 80°C

50mm — Length of Filament during Extrusion/Retraction

10mm/s — Speed during Extrusion/Retraction

Target Temperature — 220°C

Extrude

Extrusion Command

1. Tap .

2. Turn the temperature dial clockwise or counter-clockwise to change the setting.

3. When you've picked the temp you want, tap and you'll go back to the Extruding/Retracting Filament interface with the new value selected.

4. Tap , keep your finger on the screen, and adjust the length and speed by scrolling the respective bars up and down until you reach your preferred values, release your finger and tap . KNOMI 2 will automatically return to the Extruding/Retracting Filament interface with the new value selected.

5. Tap or .Your printer will start Extruding or Retracting.

* While on the temperature adjustment dial, you can return to the Extruding/Retracting Filament interface by swiping up from any spot.
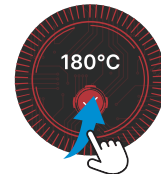
HOW TO ABL/QGL/HOMING?
Swipe left from the Standby UI to access the ABL/QGL/Homing interface.

For ABL

1. Tap [↑↓] .

2. Start ABL?

Represents confirmation to start, KNOMI 2 will display the ABL UI, indicating the machine is performing ABL.

Represents exit, KNOMI 2 will return to the ABL/QGL/Homing interface.

For QGL

1. Tap [Q] .

2. Start QGL?

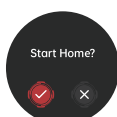Represents confirmation to start, KNOMI 2 will display the ABL UI, indicating the machine is performing QGL.

Represents exit, KNOMI 2 will return to the ABL/QGL/Homing interface.

For Homing

1. Tap [🏠] .

2. Start Home?

Represents confirmation to start, KNOMI 2 will display the HOMI UI, indicating the machine is homing.
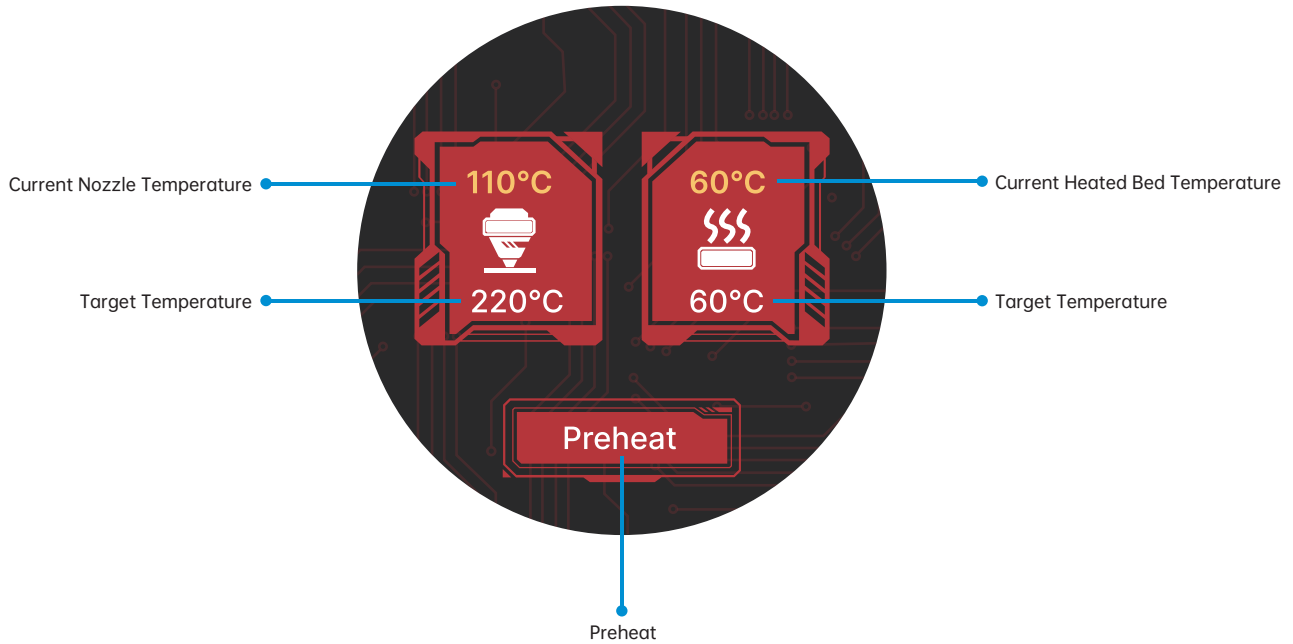
Represents exit, KNOMI 2 will return to the ABL/QGL/Homing interface.

HOW TO ADJUST THE TEMPERATURE OF THE NOZZLE/BED?
Swipe left from the Standby UI to access the Nozzle/Heated Bed Temperature Settings interface.

Current Nozzle Temperature — 110°C

Current Heated Bed Temperature — 60°C

Target Temperature — 220°C

Target Temperature — 60°C

Preheat — Preheat

1. Tap or .

2. Turn the temperature dial clockwise or counter-clockwise to change the setting. When you've picked the temp you want, tap and you'll go back to the Nozzle/Heated Bed Temperature Settings interface with the new value selected. The nozzle/heated bed will heat up or cool down to match that target.
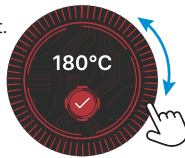
* While on the temperature adjustment dial, you can return to the Nozzle/Heated Bed Temperature Settings interface by swiping up from any spot.
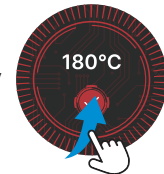
MANUAL TEMPERATURE ADJUSTMENT IS NOT REQUIRED

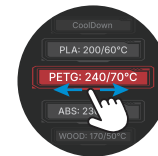Optimal nozzle and heated bed temperature parameters for various filament are preset.

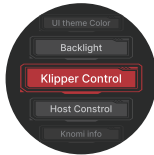Simply tap [**Preheat**] and slide up or down to find your desired filament and tap it.

KNOMI 2 will go back to the Nozzle/Heated Bed Temperature Settings interface and your chosen nozzle/bed temps will be set. The nozzle and bed will start heating up/cool down to reach the target temp.

CoolDown
PLA: 200/60℃
PETG: 240/70℃
ABS: 230/90℃
WOOD: 170/50℃
TPU: 220/50℃
NYLON: 250/90℃
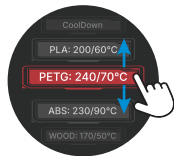
* While on the Preheat interface, you can return to the Nozzle/Heated Bed Temperature Settings interface by swiping left/right from any spot.

SETTINGS
Swipe left from the Standby UI to access Settings Interface.

UI Theme Color	DIY KNOMI UI Color with RGB Selection.
Backlight	Adjust backlight brightness.
[1]Klipper Control	Restart / Firmware Restart.
[1]Service Control	[1] Klipper, Crowsnest, Klipper MCU, Moonraker, KlipperScreen (start/stop/restart available for each).
[1]Host Control	Reboot /Shutdown
Knomi Info	STA: shows KNOMI's network IP when connected to a router; AP: KNOMI's hotspot IP address; [2] Local: The mDNS hostname for KNOMI on the local network. You can access KNOMI's web interface within the same LAN by typing knomi.local directly without needing the IP address; Host: displays the IP of the connected Klipper printer.
Factory Reset	Factory Reset

[1] Advanced setting - please only use it if you fully understand its specific function.

[2] KNOMI has built-in mDNS. You can enter "http://knomi.local" in the browser (The default hostname is KNOMI. If users have modified it, please use the custom name instead of "knomi" in the URL, the URL characters are case-insensitive), or view the IP address on the "Knomi Info".

HOW TO ADJUST KNOMI UI COLORS?

1. On the Settings interface, tap | UI theme Color | .

2. KNOMI 2 has preset red(Default), blue, purple, green. Slide up/down to position the selection box on the desired color, then tap the color name to change the KNOMI UI to that color.
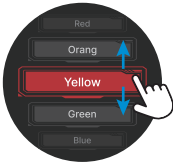
To choose custom colors, slide to the bottom and tap "Custom" to access the RGB color wheel. Select your preferred color then tap   to immediately change the KNOMI interface to your chosen color.

You can further customize the saturation and brightness:
After selecting a color on the wheel, long press the black area outside the wheel to cycle through saturation, brightness, and back to the RGB wheel.
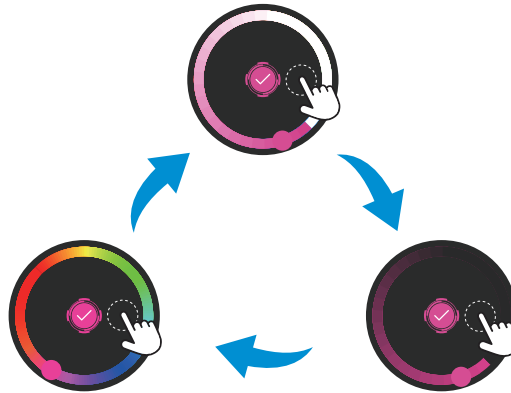
* When you pick a saturation/brightness level, returning to the RGB wheel will show that saturation/brightness.

HOW TO ADJUST BRIGHTNESS?

1. On the Settings interface, tap Backlight .

2. Keep your finger on the screen and slide up/down to adjust the icon. The screen brightness will dim/brighten with the icon. Once at the desired brightness, swipe left/right to go back to the Settings interface.

HOW TO ACCESS THE ONLINE USER MANUAL?

From the Standby interface, swipe left to the QR code for the online manual. Use your phone to scan the code which will directly take you to the online manual.

KNOMI UI Status Icons

KNOMI UI uses visual elements to provide status information at different stages of printer operation :

STANDBY		The printer awaits operational instructions.
HEATING BED	50℃ / 60℃	Target temperature shown below, real-time heating progress displayed above.
HEATING NOZZLE	90℃ / 210℃	Target temperature shown below, real-time heating progress displayed above.

ABL/QGL/HOMING
The printer is performing ABL/QGL/Homing.

READY TO PRINT		The bed and nozzle have reached their respective target temperatures, and the printer is ready to print.
PRINT STARTING		The print head is moving, the print is beginning.
PRINT PROGRESS	75%	Once over 1%, print progress is visually displayed as a percentage and circular progress bar. The jumping XYZ bars reflect acceleration changes in the XYZ axes.
PRINT DONE		The print job is finished.

KNOMI is unable to obtain data from Moonraker. Please confirm the printer is running normally and the Klipper IP set in KNOMI is correct.

KNOMI can get data from Moonraker, but the data returned by Moonraker indicates the printer is in an abnormal state. Please check the detailed error information on a web interface like Mainsail. Once the printer returns to normal, KNOMI will automatically return to the main interface.

Website
www.bigtree–tech.com

GitHub
www.github.com/bigtreetech

Discord
www.discord.gg/5jdwbYYZuv