Quick Start Guide

terraPen

Welcome

Thank you for purchasing a terraPen plotter!

We look forward to seeing what you make with it. #terrapen

Whats in the box

- terraPen
- Power supply
- Pen height setting puck
- Corners (for holding paper)
- Hex keys (for adjusting pen head)

If you get stuck

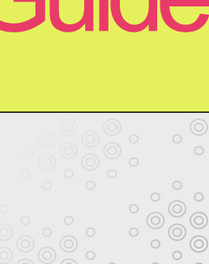
If you have questions or need help, get in touch on discord.

Visit us at terrapen.xyz for more information.

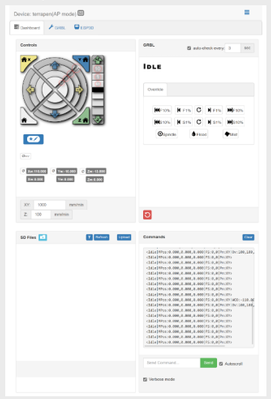
Contact us via the website or email hello@terrapen.xyz

Connecting (Access Point Mode)

Connect the power adaptor to the terraPen controller (located under the base board). When power is applied, the machine automatically powers on.
On first use, the terraPen will start in Access Point Mode. It will appear in the list of available WiFi networks on your device as "TerraPen".
Connect to this network with password "12345678" in order to configure connection settings.



When you connect to the "TerraPen" network on Windows, a brower will open to the terraPen User Interface (UI).
To connect manually, open a browser and go to http://terrapen.local or http://192.168.0.1



From the UI Dashboard you can control the machine (Controls panel), Pause, Resume and speeds up or slow down running jobs (GRBL panel), view and manage files on the SD card and start jobs running (SD Files panel) and see what the machine is currently doing (Commands panel).

From the UI GRBL tab you can view and edit the machines mechanical configuration (feeds and speeds). This is pre-configured with recommended settings. Note: While these can be changed, the machine may not perform as well outside these settings.

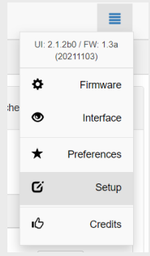
From the ESP3D tab you can configure terraPen network settings and connection options, see controller status information, update the onboard software and restart the controller.

For details on connecting to your WiFi network see "Connecting (WiFi)"

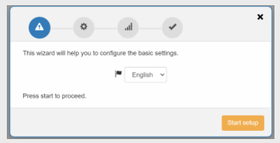
From the main menu (top right) you can configure UI preferences (language, defaults, show and hide panels, setup Wizard)

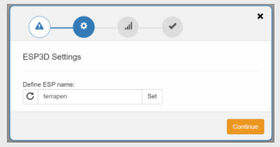
Connecting (WiFi)

After connecting to the "TerraPen" access point and loading the UI click on the menu button (top right) and then "Setup". This will start the setup wizard.



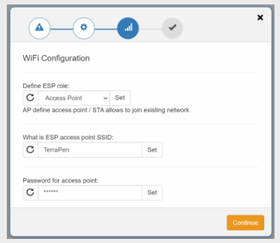
Click on "Start setup"





You can rename your terraPen here if you wish. You may want to do this if you have more than one machine connected to your network (e.g. terraPen1, terraPen2 etc).

Click "Continue"



You will see the current WiFi configuration. This is the default Access Point mode , network name "TerraPen" and password which you can change if required.

Role

To connect your to your WiFi network, change the role from Access Point to WiFi Client and click the "Set" button (it should change to green).

SSID

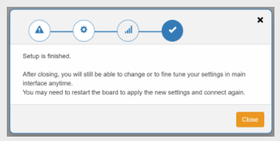
Next enter the SSID or network name of your WiFi network and click "Set".

Password

Enter the password for your WiFi network and click "Set".

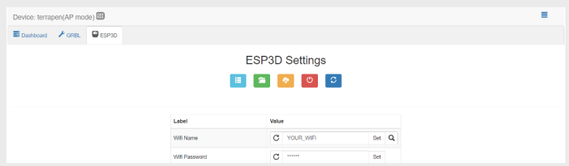
Click "Continue"

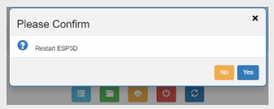
Note: If you make a mistake, the controller will fall back to AP mode after attempting to connect to your network so you can come back here after reconnecting and make any required changes.



Click "Close" to finish

Next select the "ESP3D" tab and click on the power button





Click "Yes" to restart the controller. The controller will then attempt to connect to your WiFI network.
In a browser go to http://terrapen.local to connect to the UI.

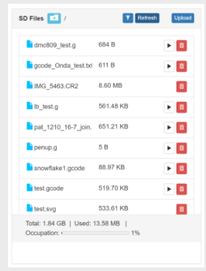
Note: If you are unable to connect you will have to use the IP address to connect. Check your router for the assigned address (e.g. http://192.168.1.145)

Uploading

terraPen is uses gcode files to control machine and pen movement.

You can use various tools to convert your work into gcode, for example there are gcode plugins for Inkscape, or online gcode generators or desktop applications like DrawingBotV3 that can convert images for plotting and directly output gcode or Lightburn, which while designed for laser cutters, generates very well optimized gcode that works great with terraPen. There are also command line tools like vpype that can output gcode. You can even output code directly from your own generative art if you wish.

However you generate your gcode, when you have it, you need to upload it to your terraPen so you can plot it.



In the UI under the "Dashboard" tab, you should see a panel titled "SD Files" (if not , make sure "Show files panel" is checked under "main menu" -> "Preferences"), click on the "Refresh" button to read the SD card. If there are files present on your SD card, they will be listed.

To upload new files, click on the "Upload" button and select the file(s) you want to upload and click "Ok" or "Open".

Your files will now start uploading to the on-board SD card and a progress indicator will be displayed.
Note: Uploading large files can take some time.

Existing files can be deleted by clicking on the "Trashcan" icon.

Files can be stored in folders and folders can be created by clicking the "Add folder" icon.

Total SD card storage space used is also shown at the bottom of the panel.

Plotting

Paper (Work Area)

You can plot anywhere on the bed that the pen can reach. Affix your paper to the bed parallel to the sides of the machine.

Moving the pen head

You can move the pen head by hand or by using the "Controls" panel jog wheel. Click on the segments of the job wheel to move the head in that direction. Outter segments move 100mm, while inner segments move 10mm, 1mm and 0.1mm respectivley.
To move the pen up and down, use the "Pen Up" and "Pen Down" buttons. Note: The Z axis controls may or may not move the pen up or down depending on the configuration and tool head.

Pen Height

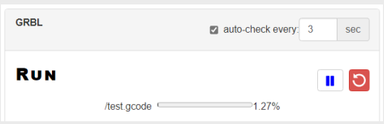
To plot your work, fix your paper to the bed and mount a pen in the pen holder and using the provided puck to set the pen height by lifting the pen holder up as far as it will go (when the controller is in the "Pen Up" mode, the pen lift should stay up by itself), then letting the pen nib fall onto the puck. Tighten the pen holder so the pen is held securely.

Setting Zero

You need to choose a starting point for your work. Where this is depends on what you are plotting and how you have configured the work area in your gcode. If you have not specified an offset in software, set the pen to the left hand side and nearest the front of the machine over your paper and click the "Zero XY" button. When you start plotting, the machine will start from this position.

Starting a Plot

To start a plot, locate the gcode file in the "SD Files" panel and click the "Play" button. The plot should start immediately. You can pause and resume the plot from the "GRBL" panel where a progress bar, "Pause" and "Cancel" buttons should appear.



Note: After cancelling a plot, the UI will display an alarm. Click the "Alarm" button at the left of the message to clear the alarm. You will not be able to move the machine or start a new plot until it is cleared.