User Manual

PPSTrigger V1.0/V1.1

Introduction

PPSTrigger is a USB-C trigger board that has the ability to tap into PPS (programable power supply) mode of compatible charger. Enable fine voltage request from 3.3V to 21V at 5A max current at any of those voltage. Example application is requesting 5V@5A.

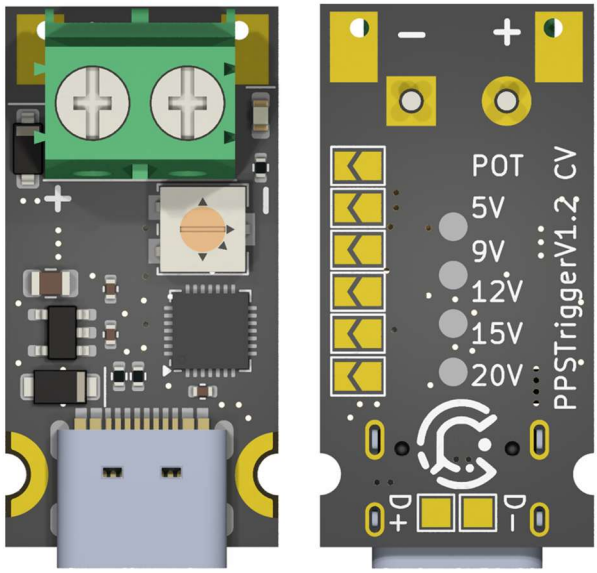


Figure 1: Render images

Specifications

Input/Output Voltage: 3.3V to 21V

Input/Output Current: 5A max

Input protection: VBUS ESD protection

Output protection: Flyback diode

How to use the board

Step 1: Select a USB-C charger/Powerbank that support PPS mode. Select a cable that support 3A (commonly known as 65W cable) or 5A (commonly known as 100W cable)

There are many charger after 2024 already support PPS mode, with some support 3A at all voltage, and some up to 5A at all voltage. Here are some charger that has been tested by CentyLab to support PPS:

- UGREEN 100W USB PD 3.0 – 3A in PPS
- UGREEN 140W USB PD 3.1 – 5A in PPS
- UGREEN 160W USB PD 3.1 – 5A in PPS

Updated: July 2025 - CentyLab

User Manual

PPSTrigger V1.0/V1.1

- Anker 737 GaNPrime 120W – 5A in PSS
- Anker 737 PowerCore 24K – 5A in PPS

```
Profile list detected:
 SRC_SPR_PDO1: Fixed PDO: 5000mV 3.00A ~ 3.24A
 SRC_SPR_PDO2: Fixed PDO: 9000mV 3.00A ~ 3.24A
 SRC_SPR_PDO3: Fixed PDO: 12000mV 3.00A ~ 3.24A
 SRC_SPR_PDO4: Fixed PDO: 15000mV 3.00A ~ 3.24A
 SRC_SPR_PDO5: Fixed PDO: 20000mV 5.00A ~ (More than)
 SRC_SPR_PDO6: PPS PDO: 3300mV~21000mV 5.00A ~ (More than)
 SRC_EPR_PDO8: Fixed PDO: 28000mV 5.00A ~ (More than)
```

Figure 2: Example of charger profile. UGREEN 140W USB PD3.1

Step 2: Select the desire voltage on PPSTrigger board

There is multiple way to select voltage on PPSTrigger board. You can utilize the on-board potentiometer, or solder pad at the back.

Default (no jumper): The device will read the position of the potentiometer and convert to request voltage. Voltage can be adjust at any time during operation.

POT jumper: Read potentiometer position at start up, request voltage and ignore changes during operation.

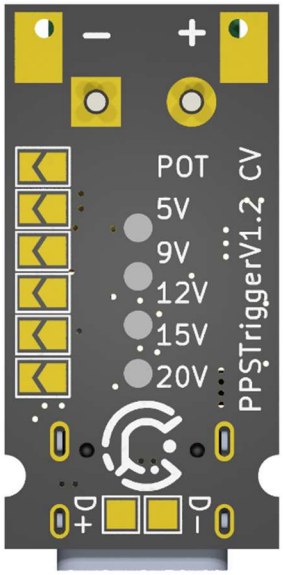
5V jumper: Request 5V at start up, max current

9V jumper: Request 9V at start up, max current

12V jumper: Request 12V at start up, max current

15V jumper: Request 15V at start up, max current

20V jumper: Request 20V at start up, max current



Step 3: (only do once) Plug in the USB-C power and test the voltage with multimeter. This ensure your charger support the voltage you desire.

Step 4: Connect your device via solder pad, or via screw terminal.

Other function

The board also support USB2.0 Full Speed pass through. If you want to use just one USB-C port for either data transfer or power, you can connect D+/D- pad to your device. Keep the data wire twisted and shorter than 10cm if possible. Just make sure you have GND connected!

User Manual

PPSTrigger V1.0/V1.1

Frequently asked question

What if my charger doesn't support PPS mode?

- Your device will still read the potentiometer and request the highest voltage support that is just below your PPS request voltage. Example, if your pot is set to 16V, the PPSTrigger will try to request 15V, else it will request 12V. Current support will depend on your cable and charger proile

Why do I only get 3A out of my PPS profile?

- There are two limitation that can happen with your charger setup. One is the PPS profile only support 3A. But let say if your PPS profile does support 5A, but your cable only support 3A (non emark). Then your limiting factor will be the cable, and the profile will be limit to 3A for safety.

Can I desolder the surface mount potentiometer and replace with a larger one?

- You can totally can. Just replace it with any potentiometer that has end-to-end resistance higher than 1K Ohm, then you should be good. We use 10K Ohm for the surface mount one.

Voltage under load is lower than voltage that I set initially?

- USB-C PD spec allow certain resistance on the cable and connector. At load, these resistance will drop some of your set voltage. Consider safety if you would like to set your target voltage slightly higher to account for the drop.

Warning

Do not use the board in damp/wet enviroment that can cause short circuit or electric shock. Follow good soldering practice to ensure good jump pad connection. Circuit are designed for hobby/DIY use, we have not test the unit for aging and for industrial application. Please contact us if you have any question or concern.