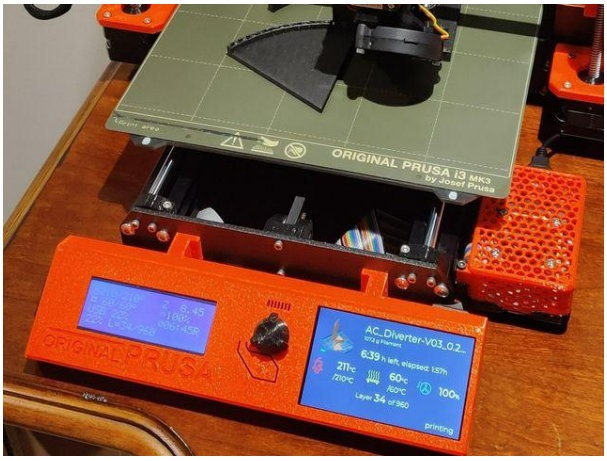

Hyperpixel 4" Touchscreen + LCD + Raspberry Pi4 for Octoprint and OctoDash Prusa for MK3s+

r **rockethorse**

VIEW IN BROWSER

updated 15. 9. 2023 | published 15. 9. 2023

Summary

Yet another remix of the 4” HyperPixel cover for the Prusa MK3S+ for the Pi4 to be used with Octoprint and Octodash

9.85 hrs	1 pcs	0.15 mm	0.40 mm	PET	81 g	Prusa MK3/S/S+

3D Printers > Prusa Parts & Upgrades

Tags: octoprint pi4 touchscreen hyperpixel octodash

LCD panel that works with the awesome Hyperpixel 4" touchscreen with Raspberry Pi4.

This is for: MK3/MK3S/MK3S+ and Pi4

Yet another remix of the 4” HyperPixel cover for the Prusa MK3S+ for the Pi4 to be used with Octoprint and Octodash. The goal of this remix and why it is different than the previous iterations:

1. No USB cables sticking out of the side of the control panel
2. Utilize a standard USB-C power supply for the Pi4 and hyperpixel (instead of a buck transformer)
3. No power USB-C Cable sticking out of the side of the panel or Pi4
4. No soldering on the Pi4 or Hyperpixel screen
5. Easy installation of the Hyperpixel screen without cracking it
6. Utilize a 40mm Noctua 5v fan at 3.3v for total silence
7. A dedicated power switch for the Pi4/Hyperpixel
8. Everything physically connected to the Prusa printer so there are no dangling wires or parts
9. One USB-C power connection at the back of the printer next to the power supply for easy hookup
10. Must look cool and not increase the depth of the overall printer significantly
11. Must run Octoprint and Octodash flawlessly

Update: After using this mod for a year and a half, the only thing I would change would be to delete the fan. I have now concluded that the fan is overkill and not necessary.

Parts utilized:

Raspberry Pi 4 4GB	https://amzn.to/3qjVik3
Pimoroni HyperPixel - 4.0" Touchscreen	https://amzn.to/3wOFF50 -or- https://tinyurl.com/42zw6wax
40 Pin 8" Female to Male Ribbon Cable	https://amzn.to/2TSIfse
GPIO 1 to 2 Expansion Board	https://amzn.to/2UwFsW1
SparkFun USB-C Breakout Board	https://amzn.to/3qpmhcn
Noctua NF-A4x10 5V Fan (40x10mm)	https://amzn.to/2SU37Pz
CanaKit 3.5A Raspberry Pi 4 Power Supply (USB-C)	https://amzn.to/3xLzDC3

Samsung PRO Endurance 32GB MicroSD	https://amzn.to/3gLpIa4
Heat Shrink Tubing	https://amzn.to/3gLwRqN
USB-C Extension Cord	https://amzn.to/3gSjCUl
On/Off Rocker Switch	https://amzn.to/35IXh6n
Jumper Wires	https://amzn.to/3xFpXZW
Miscellaneous Screw Kit	https://amzn.to/3xFpFCk
Female Spade Wire Crimp Terminals	https://amzn.to/3qi0nru

All STL files are included.

UPDATE/NOTE: Please see the comments section for the writeup by @Dadof6 - he does an excellent writeup from his experience on this project. Other makers have utilized his comments with success, so please read his comments before proceeding!

How to assemble summary:

1. You need some moderate to advanced knowledge of how to connect power and how to get power from the GPIO pins of the Pi4. If you mess up anything doing this you will fry your Pi4 for sure. So don’t do this unless you are prepared to fry your Pi4
2. Print the panel
3. Print the bracket you need to hold the hyperpixel (4 different thickness brackets are included so you can use whatever length screws you might have laying around)
4. Print the Pi4 Case
5. Print the Pi4 Case Brackets
6. Install the Hyperpixel into the panel with the GPIO connector at the top, use one of the brackets to hold it in place (2 M2 or M3 short screws needed). Make sure not to put any pressure on the screen when installing because you might crack or somehow damage the screen. If necessary, flex the panel to get the hyperpixel to drop in smoothly
7. Install the power rocker switch in the panel - it needs to go in with the spade connectors on the far right side of the panel (when looking at the panel from the front). If installed incorrectly the spade connectors will hit the hyperpixel screen and you won't be able to connect the power wires to the switch

8. Solder a female breakout wire to ground to the SparkFun USB-C Breakout Board
9. Solder a wire from the SparkFun USB-C Breakout Board V+ to a wire and female spade connector
10. Connect that V+ connected spade connector to the power rocker switch
11. Connect a female spade connector to a female breakout wire
12. Connect that spade connector to the power rocker switch
13. With 2 M2 or M3 short screws, screw the SparkFun USB-C Breakout Board to the inside-side of the right hand panel mounting bracket (2 holes are there for this)
14. Connect the GPIO 1 to 2 Expansion Board to the hyperpixel
15. Solder female breakout connectors to the (+) and (-) leads of the Noctua fan
16. Connect the Noctua fan female breakout connector leads to a 3.3v pin on the GPIO 1 to 2 Expansion Board (connected to the back of the hyperpixel)
17. Connect the ground female breakout connector lead from the SparkFun USB-C Breakout Board to a ground pin on the GPIO 1 to 2 Expansion Board (connected to the back of the hyperpixel)
18. Connect the 5v female breakout connector lead from the power rocker switch to the GPIO 1 to 2 Expansion Board (connected to the back of the hyperpixel)
19. Connect the 40 Pin 8” Female to Male Ribbon Cable (male end) to the GPIO 1 to 2 Expansion Board (connected to the back of the hyperpixel)
20. Install the Prusa LCD - make sure it is allignd square before tightening
21. Install 4 square nuts on the panel brackets
22. Plug the male end of the USB-C Extension Cord into the SparkFun USB-C Breakout Board
23. Use the 4 hex bolts to attach the panel to the printer metal forward bracket
24. Place the Pi4 in the Pi4 case bottom
25. Screw the Noctua fan into the Pi4 case top with the 4 screws that come with the fan
26. Thread the 40 Pin 8” Female to Male Ribbon Cable through the side cutout of the Pi4 case top, install the female end of the cable into the Pi4 GPIO header, and snap close the Pi4 case
27. On the right side of the Prusa, twist fit the Pi4 Case Brackets
28. Screw the Pi4 case from the top down into the Pi4 Case Brackets
29. Cable manage the USB-C Extension Cord to get it from the panel to the back of the printer, and use cable ties to tie it to the printer frame where appropriate

To setup the hyperpixel, follow the instructions here: https://github.com/pimoroni/hyperpixel4/tree/pi4

After following the github installation instructions for installation of the hyperpixel drivers, to properly rotate the screen orientation of the hyperpixel (which survives reboot), you need to text edit the </boot/config.txt> file and comment out this by adding a # sign in front of this line:

dtoverlay=vc4-fkms-v3d

And insert this new line:

dtoverlay=hyperpixel4,touchscreen-inverted-3,touchscreen-inverted-3
display_lcd_rotate=3

Caution: If doing this be very careful because when using the GPIO 1 to 2 Expansion Board to provide power to the Pi4/Hyperpixel and provide power to the 40mm fan you can easily fry things on the Pi4 and Hyperpixel screen. Check everything once, twice, three times before powering anything on!

Original projects this was remixed from:

1. Hyperpixel Panel: https://www.prusaprinters.org/prints/47153-lcd-hyperpixel-4-touchscreen-cover
2. Malolo's snap fit case pi4 Case: https://www.thingiverse.com/thing:3723561

Here is a great looking remix of this panel without the power switch cutout: https://www.prusaprinters.org/prints/70062-hyperpixel-4-touchscreen-lcd-raspberry-pi4-without

Warning: I received a series of private messages from a user who has attempted to replicate this build, but experienced “low voltage” error messages from OctoPrint that they have been unable to resolve, despite valiant effort. I have not experienced low voltage errors, but this appears to be a risk in this build.

Followup: After a year of using this mod and publishing it here, I am thrilled to see how many others are also enjoying this project.

NOTES and DISCLOSURE: This post contains affiliate link(s). An affiliate link means I may earn advertising or referral fees if you make a purchase through my link.

This remix is based on

LCD + Hyperpixel 4" touchscreen cover

by puckpuck

Model files

lcd-hyperpixel.stl

HyperPixel and LCD Panel

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lcd-hyperpixel-brackets.stl

Brackets for the HyperPixel (you only need one, choose the correct thickness)

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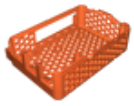
knob.stl

The smaller version of the original knob



case_top_w_brackets.stl

Pi4 Case for 40MM Noctua fan and side slot for GPIO ribbon cable + mounting bracket connector

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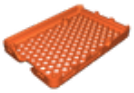
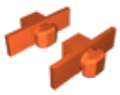


case_bottom.stl

Pi4 Case Bottom



case_brackets.stl

Brackets to connect the Pi4 to the rail

Print files

lcd-hyperpixel_015mm_petg_mk3s_9h51m.gcode

PET | 0.40 mm | 0.15 mm | 9.85 hrs | 81 g | Prusa MK3/S/S+

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