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Modifying MK3.5 firmware? How to?

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Trusted Member

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Modifying MK3.5 firmware? How to?

I have a 3s, looking at upgrading to a 3.5.

Here is the snag: I have it modified with a Mosquito hotend, and I would like to increase the nozzle max temp to at least 400.

The way I see it, I have 3 options:

- 1. Modify the Prusa FW. I haven't played with FW since it was just Marlin 1.x as an Arduino sketch on an ATMEGA, so I'd have some catch up homework to do.
- 2. Drop in something like a BTT SKR Pro (will handle the chamber heater, chamber thermister, exhaust fan, etc), and start from scratch with vanilla Marlin or Klipper.
- 3. Leave it a 3s, run Octoprint (can octoprint on a Pi handle the extra GPIO for the extra chamber heater/thermister/vent fan??). This is my least favorite option, honestly.

For simplicity, I think I'd prefer to stay with the Prusa software ecosystem, but not if modifying the FW will be a huge PITA. This printer will NOT get an MMU as it will be in an enclosure and be my high temp dedicated printer. Thoughts and/or instructions?

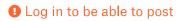
Oh, my other printers:

MK3s (3.5 kit sitting in a box, getting ready for install. Has GPIO board and accelerometer. This printer has an MMU3)

Prusa Mini (OG production run @ Bondtech extruder, revo hotend, ASA-CF printed parts)

Voron 2.4 rev2 from an LDO kit. 350mm goodness!









Posted: 23/10/2024 11:45 pm

Posted: 02/01/2025 6:42 am



RE: Modifying MK3.5 firmware? How to?

Have you found any resources for modding the prusa firmware, I have a similar situation where I would like to keep my temps up on my mosquito and bondtech extruder.



(@nute9)









RE: Modifying MK3.5 firmware? How to?

Hi,



i need to do something similar, but not finding any solution. I need to raise my nozzle temperature to something like 300-320c to be able to print PA6-CF. Did you solve the FW modifying?



(@alkaba)



Active Member



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Posted: 10/03/2025 9:26 pm



alkaba

(@alkaba)



Active Member



Posted by: @rat patrol

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RE: Modifying MK3.5 firmware? How to?

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So i finally found a way to make this possible! You need to:

1. Install Python 3.10

https://www.python.org/ftp/python/3.10.0/python-3.10.0-amd64.exe

2. Download xBuddy source code (zip) https://github.com/prusa3d/Prusa-Firmware-Buddy/releases/tag/v6.2.2

- 3. Extract the zip file to some folder on HDD
- 4. Open the configuration file for MK3.5 (you can use notepad): X:\Prusa-Firmware-Buddy-6.2.2\include\marlin\Configuration_MK3.5.h
- 5. For maximal nozzle temp you need to change three things:

#define TEMP_SENSOR_0 **XX** (you need to use different thermistor for higher temps. PT100 (**147**) or PT1000 (**1047**)

#define HEATER_0_MAXTEMP **XXX** (where XXX is your max nozzle temp - **415** for your purposes)

#define HEATER_MAXTEMP_SAFETY_MARGIN **15** (this works as a "buffer" for the max temp)

6. After modyfing these three values, you need to compile the FW. To do this, go back into the Firmware buddy source code folder and open an terminal or powershell window (shift+right mouse click in the folder - open terminal).

Type: python utils/build.py --preset mk3.5

7. If everything is ok, you need to wait approx 5 minutes to compile the FW.



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previous command again.

- 9. After finishing, you will need to copy your compiled FW into your flash drive. The file is located here: X:\Prusa-Firmware-Buddy-
- 6.2.2\build\products\mk3.5_release_boot.bbf
- 10. After loading the file to flash drive, you need to modify the xbuddy board https://help.prusa3d.com/article/flashing-custom-firmware-core-one-mk4-s-mk3-9-s-mk3-5-s_814967
- 11. Then flash your new FW as usual.

Happy printing!

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Posted: 15/03/2025 4:44 pm

LarGriff liked



LarGriff
(@largriff)





RE: Modifying MK3.5 firmware? How to?

Thanks for the step by step instructions. I got close but the compiler errored after about 3 minutes. I'll keep trying!

MK4S/MMU3

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Posted: 18/03/2025 1:15 am



LarGriff

(@largriff)

2.0

Estimable Member



RE: Modifying MK3.5 firmware? How to?

Seems so easy when others do it... Ha! No luck for me, so far. See screenshot...



3fa77d3b-screenshot-2025-03-18-103112.png

MK4S/MMU3

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Posted: 18/03/2025 4:46 pm





Try to disable firewall temporarily, maybe it is blocking the downloading of the plugins.



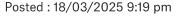
(@alkaba)

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<u>.</u> **Active Member**







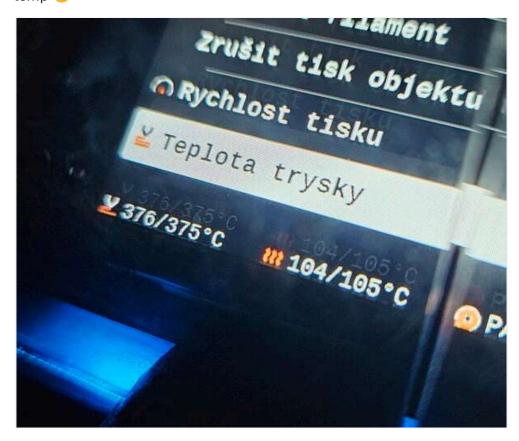
alkaba

(@alkaba)



RE: Modifying MK3.5 firmware? How to?

Well, this picture speaks for itself w mk3.5, pt100 thermistor, copper + nickel plated heater block, titanium/copper bimetal heatbreak, hardened Steel nozzle and pa6-cf filament. The material was boiling at this print temp 🔐



Also i found out, that it is needed to add more range to a given thermistor table. If not, you are capped at a maximum of 300c.

So if you choose (for example) pt100 with 1k resistor (number 110 in config), you need to edit the calibration file of this particular thermistor.

The calibration is found in:

lib/Marlin/Marlin/src/module/thermistor/thermistor 110.h

Just add more lines and change the first number to add more temp range. For example:



PtLine(400...

And so on

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Posted: 27/03/2025 12:54 am



• Rat_Patrol (@rat patrol)

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Trusted Member



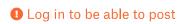
Topic starter answered:

RE: Modifying MK3.5 firmware? How to?

I'm getting an error, not sure what to do about it. Ideas where this variable is or if I really want to change it?

PS C:\Users***\OneDrive\Documents\Prusa-Firmware-Buddy-6.2.2> pyth
Switching to Buddy's virtual environment.

You can disable this by setting the BUDDY_NO_VIRTUALENV=1 env. vari PS C:\Users\\OneDrive\Documents\Prusa-Firmware-Buddy-6.2.2> C:\User







Posted: 30/03/2025 5:53 am



alkaba

(@alkaba)

Active Member



RE: Modifying MK3.5 firmware? How to?

It looks like you dont have specified the "python" variable in the Environment Variables. You can do that when installing python (Add Python to PATH, maybe you didnt check that box when installing) or use these steps:

https://www.reddit.com/r/Python/comments/p7v4po/python_and_the_path_variable_in_windows_10/.

Also the path of your folder is also maybe too long. Try to copy the prusa firmware buddy folder to the root of C:/ and try again.







Posted: 31/03/2025 1:28 am







● JH (@jh-4)

2 2

Member

I followed similar steps for my mk3s (built firmware with values specified for the PT1000 described above) but after the MK3.5S upgrade, the nozzle temp is pegged at 400C (consistent with my max temp). I have tested the thermister with a multimeter and it seems just fine. Any ideas?

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Posted: 06/04/2025 10:12 pm



alkaba

(@alkaba)



Active Member



RE: Modifying MK3.5 firmware? How to?

Posted by: @jh-4

I followed similar steps for my mk3s (built firmware with values specified for the PT1000 described above) but after the MK3.5S upgrade, the nozzle temp is pegged at 400C (consistent with my max temp). I have tested the thermister with a multimeter and it seems just fine. Any ideas?

You need to edit the calibration. As i wrote earlier:

The calibration is found in:

lib/Marlin/Marlin/src/module/thermistor/thermistor_110.h (or different file according to your thermistor setup)

Just add more lines and change the first number to add more temp range. For example:

PtLine(350...

PtLine(400...

If you want to go to 500c, you need to add lines:

PtLine(350...

PtLine(400...

PtLine(450...

PtLine(500...

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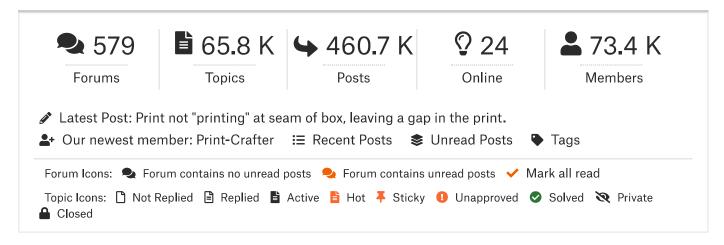


Posted: 08/04/2025 12:30 am









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