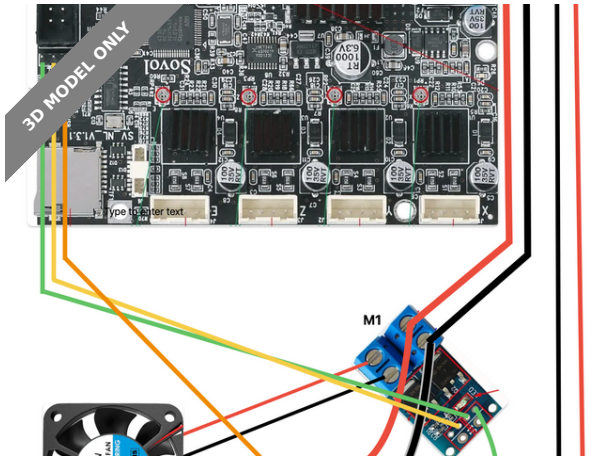

Sovol SV06/Plus Fan Mod with MOSFET Lid for MCU Enclosure

Beau Slim

VIEW IN BROWSER

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Summary

Replacement door for MCU enclosure and instructions on installing 2 MOSFET daughter-boards for fan control

3D Printers > Other Printer Parts & Upgrades

Tags: sv06 sv06plus

MAKE YOUR SV06 QUIETER:

This modification allows for fan control of both the MCU Fan and Hotend Heatsink Fan on the Sovol SV06. I have not yet tested it on the SV06 Plus, but it should work the same.

KLIPPER IS REQUIRED. It may be possible to compile a custom Marlin firmware to take advantage of this mod but that is entirely up to you.

WARNING:

This guide assumes you are comfortable soldering pin headers, stripping wire, using terminal blocks and generally avoiding causing short circuits. I make no guarantees that these modifications will not give you a shock,

damage your printer or start a fire. Having said that, I have been using my SV06 with this modificaiton installed for 6 months without issues.

PRINTED PARTS:

The printed lid is not required. You can drill some holes in the stock lid and mount the MOSFET boards using M2 bolts and nuts.

The printable lid features an array of 3mm holes arranged with the same 32mm spacing found on 4010 fans. This means you can place the fan and MOSFET modules wherever you like and provides mount points for other modifications. See the included photos for my layout.

Slice the lid (SV06_Modular_Door.stl) without top and bottom so that infill can act as a grille for easy air flow. I set Cura to 33% "Grid" infill, and 3 walls. No supports should be needed. I recommend printing in PETG because PLA tends to warp when exposed to heat.

Also print:
2x Modular_MOSFET_Holder.stl
2x Modular_MOSFET_Spacer.stl
1x Modular_4010_Spacer.stl

An alternate door model has been added with hole spacing that works with 6010 fans.

The STEP file contains a simplified version of the door for easy modification.

HARDWARE AND ELECTRONIC PARTS:

- two D8184 MOSFET module boards (called M1 and M2 in this guide)
- soldering iron and solder
- small slotted screwdriver
- wire cutter/stripper
- male 2.54mm pin headers
- female 2.54mm jumper wires
- scrap wire (AWG 22 recommended)

Many different D8184 module boards are available. Getting MOSFET boards that match the pictures should ensure that they will fit the replacement lid.

For the replacement lid:

- To hold the lid shut: 1x M4 threaded insert

- To hold the fan: 2x 16mm M3 screws + 2x M3 threaded inserts (or 2x 20mm M3 screws + 2x M3 nuts)
- To hold the MOSFET modules: 4x 8mm M3 screws (or 4x 10mm M3 screws + 4x M3 nuts)

INSTALLATION:

Unscrew the leads to the Hotend Heatsink fan from the terminal block on your mainboard labeled "Fan".

Unplug the MCU cooling fan from the mainboard. Remove the plastic part from the plug and trim, leaving a crimped stub for easy insertion into the terminal block. If using the replacement lid, install 2x M3 threaded inserts in the fan.

Solder male 2.54mm pins to the 2.54mm headers on the MOSFET boards. You only need 3 pins (1 PWM, 2 ground) on M1 and 2 pins (1 PWM and 1 ground) on M2.

Prepare some scrap wire by cutting and stripping a 50mm and 100mm length of both red and black wire.

Locate the ICSP programming header on your mainboard between the screen header and the USB port. There are 4 pins labled "3V3 IO CK G". We will be using the IO, CK and G pins.

Wiring:
1. 100mm Red scrap from (+) on the mainboard "Fan" block to (+) input block on M1
2. 100mm Black scrap from (-) on the mainboard "Fan" block to (-) input block on M1
3. 50mm Red scrap from (+) input block on M1 to (+) input block on M2
4. 50mm Black scrap from (-) input block on M1 to (-) input block on M2
5. Red (+) from MCU fan to (+) output block on M1.
6. Black (-) from MCU fan to (-) output block on M1.
7. Red (+) from Hotend Heatsink fan to (+) output block on M2.
8. Black (-) from Hotend Heatsink fan to (-) output block on M2.
9. Green (gnd) and Yellow (CK) jumper from programming header on mainboard to GND and PWM on M1.
10. Orange (IO) jumper from programming header on mainboard to PWM on M2.
11. Green (gnd) jumper from extra GND pin on M1 to GND pin on M2.

Tips:
I bent the pin headers on M1 and M2 toward the middle at 45 degrees so that the jumper wires don't interfere with the case closing.

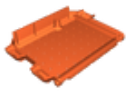
KLIPPER CONFIGURATION:

The hotend heatsink fan will only run if the hotend is active or the temperature is above 50C. The MCU fan will run at full-speed if either heater is active and will run at half-speed for 5 minutes after both heaters are turned off. Both fans will run at 100% if Klipper is in an "emergency shutdown" state. Otherwise they will be off. Sweet silence! Add the following to your printer.cfg:

```
[heater_fan e_sink_fan]
pin: PA13
shutdown_speed: 1.0
heater_temp: 50.0

[controller_fan mcu_fan]
pin: PA14
shutdown_speed: 1.0
idle_timeout: 300
idle_speed: 0.5
heater: extruder, heater_bed
```

Model files

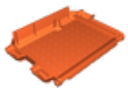


sv06_modular_door.stl

modular_mosfet_spacer.stl

modular_mosfet_holder.stl

modular_4010_spacer.stl



sv06_modular_door_6010.stl

modular_6010_spacer.stl

sv06_modular_door_simplified.step

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