

Alfawise W10 Socket (Fan Update + Full-Size SD Card)

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Summary

Absolutely impressive: a layer thickness of 0.05mm or even better - but absolutely annoying: you're trying to start a...

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Absolutely impressive: a layer thickness of 0.05mm or even better -**but** absolutely annoying: you're trying to start a **jet plane** every time you run a print... even vacuuming the room is more silent than this box!

Knowing the guys from Noctua do very good (but expensive!) fans I've decided to update the box - and - once open, to add a proper full size SD Card slot, to avoid handling of MicroSD Cards (BTW, tolerances are bad, so a MicroSD card can vanish easily inside the box... and opening is the only way to get it back).

Tools you need:

Torx T10**or** M2.5 Allen Key (for most of the M3 screws around the box)

Torx T8**or** M2 Allen Key (for the side housing walls)

Fine Tweezers

Soldering iron (optional)

2.5mm JST crimp tool (optional)

Parts you will need:

10x M3 nut

12x M3x12 screws

4x M3x15 screws

6x M3 washer

1x Full-Size SD Card Adapter (got mine from [Amazon](#))

1x 12V Fan with Noise Reduction (used the Noctua NF-A6x25 from [Amazon](#))

Parts you might need:

2.5mm JST crimp connectors (fan)

Shrinking tube (in case you're soldering)

Fan fixation screws or rubber feet

The socket was designed to replace the original metal socket featuring fixations for both PCBs, fan and a full size SD Card socket (pictures for details).

Files attached:

W10 Socket V4 => replacement socket for the Alfawise W10 SLA Printer

W10 Stabi + Spacer => Stabilizer components, see below for details

Update 13/06/2019:

Added W10 Grid 58 as front cover for the fan on the bottom

Update 19/06/2019:

Added Socket V6 with square nut sockets and some added support on the walls to improve stability. Distance Fan to heatsink was increased to 5mm to get a more smooth airflow around the heatsink since V4 showed some printer hang-up during 5h prints...

Disassembly:

Opening the box is straight forward but a bit tricky: Use the T8 driver and remove the 8 M3 screws that fix the side walls and store them somewhere.

Start on the right side, on the small PCB. Remove the red stuff (rubber glue?) so the connectors can be unplugged.

Move to the left side and unplug the NEMA stepper motor. Go further left, check which cables are not lose yet and remove the red stuff fixing them. Then remove them carefully.

Now, use the tweezers to unlock the ZIF socket on the board **-or-** on the UV lamp housing (my selection) and remove the flat cable - and you're done!

There's one shielded cable left - this can remain attached as the length is quite decent.

Bend the box to the front, so the build platform arm is touching the table and unscrew 6x M3 screws fixing the metal socket using the T10 driver. The sheet metal should wiggle a bit, as the construction is put under tension. Done this, the metal socket can be flipped to the table and the PCBs can be unscrewed (the small one can be moved easily - the big one is still attached to the display I think... so move it carefully).

Once finished - use the T10 driver to remove the 4 feet - they're screwed directly into the metal socket. A slight push will release them in case they're stucked.

Print Settings

Printer Brand:

Anycubic

Printer:

Large Size Chiron

Rafts:

Doesn't Matter

Supports:

Yes

Resolution:

0,2mm layer height, 0,4mm nozzle

Infill:

35%

Filament: Nothing special... what's available...

doesn't matter

Notes:

Used 5 perimeter on a 0.4mm nozzle to get a nice frame without any additional infill, but the EST print time of +7h (S3D), ended at +11h... so it's up to you!

Adding support structures is a must if you want to print without any hassle!

In case you **did not**...

you're as confident as I was printing without any support => this ends in a mess at the assembly areas where the socket is fixed to the box, as bridging does not cover screw holes... The surface was completely spoiled and needed to be replaced... Learning the hard way...

In case you're doing same, have a look on the STL files provided as "W10 Stabi" - they slide into the frame and replace the messy areas completely. The "W10 Stabi Side" needs to be mirrored in your slicer to fit for both sides of the socket. The "Spacer" will be required to lift the backside rubber feet to meet the Stabi parts.

Post-Printing**Adding the SD Card adapter**

Remove all supports, stringing and clean the M3 nut areas from any filament. Check the hole on the right side (SD card symbol) and try to slide the SD Card adapter in from outside the socket - the embossed logo of the adapter should block/lock at the wall (see pictures).

The internal walls are designed to generate some friction when the adapter is pushed inside. Should be enough to keep the adapter in place - in case not, use a 3D pen and add 2 or more fixation points to the internal wall locking the adapter.

Adding the Noctua fan

Use the 4 fixation brackets to locate the fan at the correct position - in case you're screwing the fan into the socket, some millimeter gap will remain to the UV light source heat sink.

Using the provided Noctua rubber feet will add additional decoupling of the fan, so the noise should be even less than screwing - the fan will slightly be touching the heat sink (my setup) then.

Wiring:

If the fan wires do not match the socket on the mainboard PCB, either cut and re-solder the original cable **-or-** use a 2.5mm crimping tool and modify the fan cables to fit the socket.

Using the M3 nuts...

Use 4 of the M3 nuts with M3x15 screws to fix the original W10 rubber feet to the socket - nut holes show the correct position, so straight forward.

The 6 towers are designed to feature M3 nuts inserts used to fix the PCBs at exactly the same position as on the metal socket before. If not done yet, remove any filament and/or supports. Slide the M3 nuts into the towers as shown in the picture (used an earlier version in black) - check direction and do not apply too much force as the design is not that stable - it's just to have a vertical fixation of the PCBs, nothing else!

Move the socket towards the remaining housing, as the PCBs are going to be assembled now. Use 6 of the M3x12 screws to fix them - no need to fully tighten them, as this setup shall keep them in place only.

SD Card adapter cable

As the PCBs are fixed now, the SD Card Adapter cable can be put in position - check the orientation of the MicroSD Card slot and bend the cable to the correct position and size. Use the small cut-out on the left side as orientation where the cable needs to be placed / guided later on.

Attaching the housing

Flip the socket to the housing (platform arm still touching your table) and use the remaining M3x12 screws and M3 washers to locate the screw holes. It's metal sheet - so you might need to wiggle the brackets a bit to get the right position.

Done, the box can be put on the feet again and all wires can be re-connected to the corresponding sockets / stepper motor.

Finally, closing the housing

The 2 side walls are remaining - use the right one first and put it briefly in position and fix it with 4 of the M3 sink screws.

Attach carefully the left side wall as the cut outs have to fit the 12V jack, the main switch and the MicroSD Card socket on the left side. Fix the wall with the remaining sink screws and tighten it in case everything fits and nothing is bended or blocking.

Finally, use plug-in the MicroSD Card adapter cable and you're done!

Optional: Front stabilization

During cleaning and assembly my front section broke right above the chamfer - to avoid this, print the "Stabi Front" part and glue it to the backside of the front wall (pictures for details). This will add 2 more millimeters to the wall and improve stability.

Testing the Update

Currently running a 1:30h print with the Noctua and the temperature is showing around 40°C on the UV light source - more or less exactly the same as with the original blower fan, but with much much much less noise!

Next tests will show the long term stability and can be done over night now ;=)

Running the Longer3D software on Mac - runs with the Alfawise W10 - see below:

Slicer Software

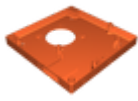
Alfawise is providing a Slicer software for Windows only - so using a Mac you're quite pissed off... unless you're having a look on the Longer3D site (<http://www.longer3d.com/>):

- Search products for the **Orange10** SLA printer
- Scroll down... until you get some download links (above "Related Products")
- Select the link matching your OS (Mac in this case...)
- Unzip the file and run the application (Gatekeeper will complain at first, so use right mouse, open to get it running) - it's a (quite bad) Qt app, but does the job...

Done!

Category: 3D Printer Parts

Model files



w10_socket_v4.stl



w10_stabi_front.stl



w10_stabi_side.stl



w10_grid_58.stl



w10_boden_v6.stl



w10_spacer.stl



w10_stabi_middle.stl

[Find source .stl files on Thingiverse.com](https://www.thingiverse.com/thing/1000000)

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