



Variable Openmod Part 1, Fully Open Source DIY headphones



Armored Soul

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Summary

Fully open source headphones designed for modularity, repairability and comfort. Capable of using most drivers. (Part 1)

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Tags: [headphone](#) [diy](#) [headphones](#) [diyelectronics](#)

Variable Openmod

This is a fully open source headphones designed to be easy to assemble, easy to print out without any supports. It is also made to be highly modular, capable of using most 40-52mm drivers. The overall design itself is also made to be easy to modify for different earcups and whatnot. The headband is also compatible with most of my Static Series headphones. Same with the earcups.

I specifically designed these headphones also for comfort. They are based off my Static Ovals so they are guaranteed to be more comfortable than the majority of headphones.

Only two filament types are used: PETG and TPU.

PETG is used for the entirety of the headphone from the earcups to the headband, while the TPU is used for the suspension band. For the entire headphone, I use 30% gyroid infill. As for the TPU Suspension pad, 15% gyroid infill is probably sufficient.

The only parts not 3D printed are the screws/nuts, electronics and the earpads.

Parts used:

PETG: ~180g

TPU: ~20g

PJ392 Socket: 2

M4x20mm Pan Head Phillips Screws: 10

M4 Hex Nuts (DIN934): 10

Dynamic drivers: 2

Pair JST PH 2pin wiring: 2

HM5 Earpads: 2

Dual 3.5mm to 3.5mm cable (same as Hifiman headphones)

I'd recommend Aliexpress for the majority of parts, MonsterBolts for the screws and nuts. And just use whichever brand you're familiar with for the filament. I use eSun and Sunlu for PETG and Overture and Duramic3D for the TPU.

Note: For the 52mm adapter parts, use it only if the 40-45mm driver's side wall is 4.7mm or less in height.

For more information, instructions and different headphones, check my website:

(Website has been shut down due to lack of funds.)

Imgur link to pictures of how to solder the drivers and socket:

<https://imgur.com/a/5dhxEA4>

Variable Openmod Part 2:

<https://www.printables.com/model/905734-variable-openmod-part-2-fully-open-source-diy-head>

Link to drivers:

https://docs.google.com/spreadsheets/d/1I18ZVEiOJQHK4EqZPyXjhn9TTDELaiebMAgrZp_Bvf8/edit?usp=sharing

Updates:

April 7, 2024 **Mk2**: Updated Yoke. Increased the thickness of the thinnest part from 1mm to 2mm. Added a yoke with 0 degrees of rotation for reference, and a yoke with 90 degrees of rotation.

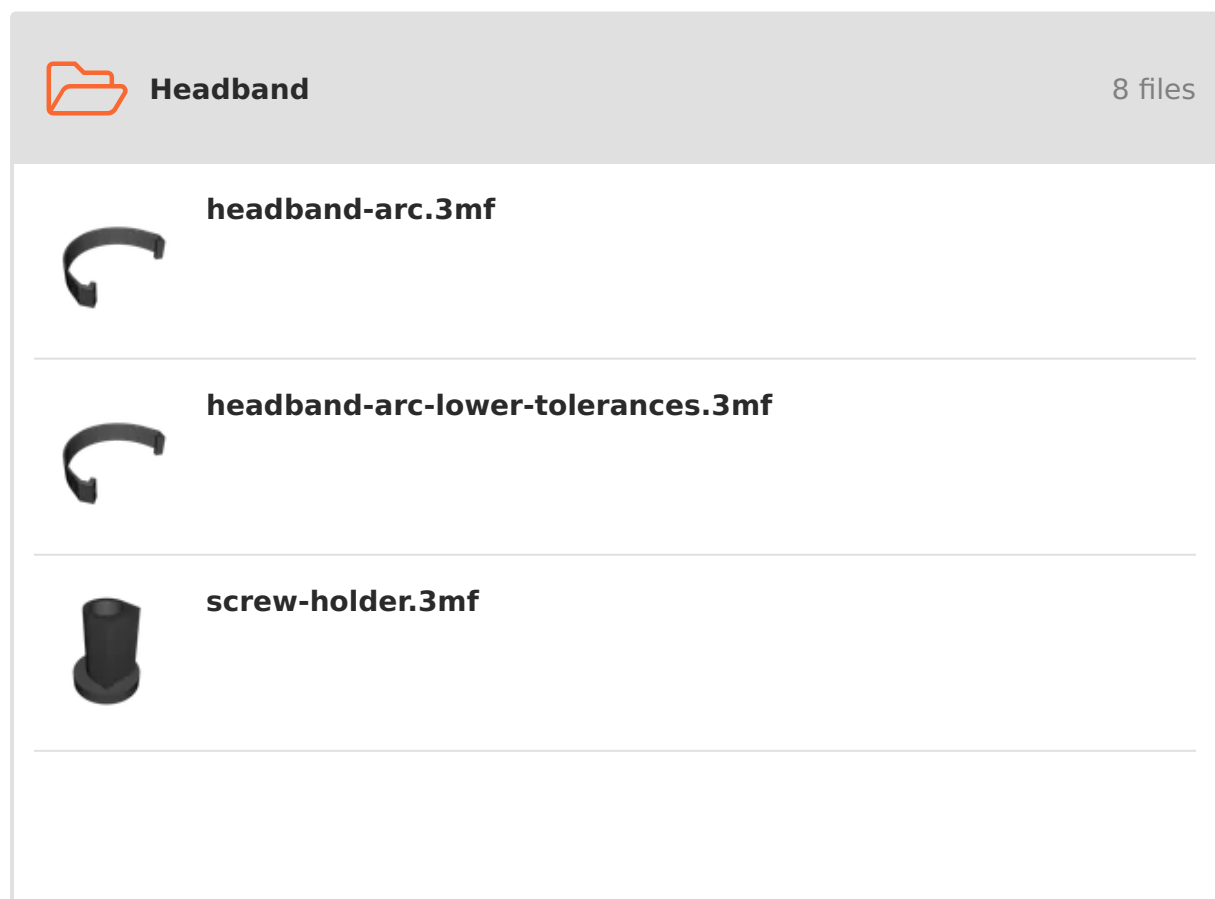
5/10/24 Website is currently down and will go back up in 1-2 weeks. I am currently changing website providers as Wix has no way of stopping credit card fraud apparently. I will try to get some kind of temporary website up in a day or two. Backup instructions should still be available in the file included with the downloads. (Website should be back at around 5/25)

5/11/24 Temporary shopify website has been made.

5/17/24 Website is back up.

5/20/2025 Website has been shut down. Check backup instructions for the assembly instructions. Or the Wayback Machine.

Model files





headband-clip.3mf



yoke.3mf



tpu-suspension-pad.3mf



yoke-mk2.3mf



90-degree-rotation-yoke.3mf



Earcups

20 files



40mm-middle-body.3mf



44mm-middle-body.3mf



45mm-middle-body.3mf



50mm-middle-body.3mf



52mm-middle-body.3mf



closed-shell.3mf



open-shell.3mf



custom-shell-body.3mf



custom-shell-open-grill.3mf



custom-shell-closed-grill.3mf



40mm-pad-mount.3mf



44mm-pad-mount.3mf



45mm-pad-mount.3mf



50mm-pad-mount.3mf



52mm-pad-mount.3mf



40mm-pad-mount-ng.3mf



44mm-pad-mount-ng.3mf



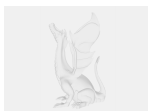
45mm-pad-mount-ng.3mf



50mm-pad-mount-ng.3mf



52mm-pad-mount-ng.3mf



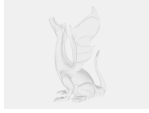
variable-openmod-files.step



variable-openmod-files.f3d



open-source-headphones-mk2-updated-yoke.step



open-source-headphones-mk2-updated-yoke.f3d

Other files



backup-instructions-1.pdf

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