



HiFiSphere - Tiny spherical desk speaker box passive/bluetooth



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[VIEW IN BROWSER](#)

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Summary

Tiny spherical speaker housing, calculated and designed for 6,5 cm (2,5") Visaton FRS 7 XWP - 8 Ohm speaker.

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Tags: [box](#) [speaker](#) [bluetooth](#) [hifi](#) [spherical](#)

I wanted to clean up my desk and replace my huge speaker boxes with stylish and tiny new ones. After gathering a few impressions from other projects, I started to design this tiny spherical speaker box for my desk.

The design (size, volume, bass reflex tube) is calculated for the great little Visaton speaker: [FRS 7 XWP - 8 Ohm](#) | [Visaton](#)

The original design is meant to be a passive speaker box, driven by an external class D amplifier, e.g. [Nobsound NS-15G Mini Bluetooth 5.0 Digital Amplifier Receiver TPA3116](#) - [doukaudio](#)

For the speaker terminal, the design considered these terminals: [4x POLKLEMMEN BANANENBUCHSE 2x TERMINAL LAUTSPRECHER KLEMMEN 4MM HIGHEND-HIFI](#) | [eBay](#)

But I'm sure, other speaker terminals with the same thread will fit, too.

Other parts needed:

- thread inserts: [Ruthex M3 Gewindeeinsatz – 100 Stück Rx-M3X5.7 Gewindebuchsen Aus Messing – Stab | eBay](#)
- screws M3, 8mm length: [M3 M4 M5 Linsenkopfschrauben-Stahl-schwarz-hochfest 10.9-ISO 7380-ab 2 Stk | eBay](#)

If you want to print a stereo pair of these boxes for left and right, about a full 1 kg roll of filament is needed.

After a few print tests I had a boxes laying around with printing quality issues. So that I don't have to throw the boxes away, I decided to design an inlay for holding a battery, a charger PCB, a DC/DC converter and a class D bluetooth module. Therefor I was able to convert these already printed boxes into bluetooth speaker boxes. The inlay is mounted inside on the bottom of the sphere using a single M3 screw.

The bluetooth inlay is designed for the following parts:

- Battery holder: [GTIWUNG 8 Stück 1/2/3/4 x 3.7V 18650 Batteriehalter Gehäuse Kunststoff Akku Aufbewahrungsbox mit Wire Leads für Einfaches Löten und Anschließen: Amazon.de: Elektronik & Foto](#)
- Samsung Battery 18650, 3.7V, 3500 mAh, e.g. [2x Samsung 3500 mAh 3,7 V +Case Wiederaufladbare E-Zigarette Akku li-ion | eBay](#)
- DC/DC converter: [AZDelivery 3 x MT3608 DC-DC Netzteil Adapter Step up Modul kompatibel mit Arduino inklusive eBook! : Amazon.de: Computer & Zubehör](#)
- Charger PCB: [Aideepen 6 Stück Type-C USB-C TC4056 5V 1A Li-Ion Lithium-Akku-Ladeplatine Ladegerät Modul mit doppelten Schutzfunktionen: Amazon.de: Elektronik & Foto](#)
- Class D bluetooth module: [Bluetooth 30W Power Amplifier TWS Speaker Sound Module Board Audio Receiver | eBay](#)

Additional parts for the bluetooth variant, replacing the speaker terminals:

- Power On/Off switch (push): [Mini-Druckschalter AN-AUS gleiche Form wie Mini-Taster | eBay](#)
- DC connector: [DC Hohl-Stecker oder Hohl-Buchse Ø 5,5mm Steckverbinder Stromversorgungsbuchse | eBay](#)

Hint for better sound: Insert speaker insulating wool, like [Lautsprecher Dämmung Dämmwatte weiß : Amazon.de: Elektronik & Foto](#)

Hints for printing:

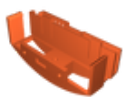
- Use brim.
- Place spherical box on speaker hole.

- Use support but be careful how it is created. Don't let the slicer create support inside the bass reflex tube, you won't be able to remove it later. Use custom support for the speaker cutout to be able to remove it. The cutout needs to be supported to get a straight surface for the speaker chassis.
- Place the topper with the straight surface on the printing bed so that the spherical part can be printed properly.
- Use 0.1mm layer height for the topper part to get a nice finish.
- For the spherical box, 0.2mm layer height will be enough.
- Use at least 30 % infill.
- Be careful with the seam in the slicer program, manually set the seam if you can so you can place it where it is less annoying.
- Normal PLA works great, I used Anycubic Silk PLA in my final desk speaker boxes.

Hints for the bluetooth inlay:

- DC/DC converter: adjust voltage to 12V
- Charger PCB: Remove R6 to disable overcurrent protection. If you want an external charge status LED: Bridge R2, remove LED2 and solder cables as shown in the picture.
- Class D bluetooth module: If you want an external bluetooth status LED, remove the original LED and solder cables to the pads.
- The external status LEDs can be hotglued to the inner wall of the bass reflex opening. The cables can be routed through the bass reflex tube.

Model files



hifisphere-bluetooth-inlay-v1.stl



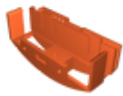
hifisphere-topper-v1.stl



hifisphere-passive-v1.stl



hifisphere-bluetooth-v1.stl



hifisphere-bluetooth-inlay.3mf



hifisphere-topper.3mf



hifisphere-passive.3mf

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