

PS-2 Power Supply module

We designed this PS-2 for our CS-75/80/100/120/150/165 modules where they are L-mounted to. We took special care that it can deliver high power for longer periods of time.

Long electrolytic capacitors up to Ø40mm fit standing up. With the height of CS-80 in mind this length could be up to 65mm without exceeding the height of the CS-80 current stage module.

Just add a suitable transformer to this pack to complete this Power Supply.

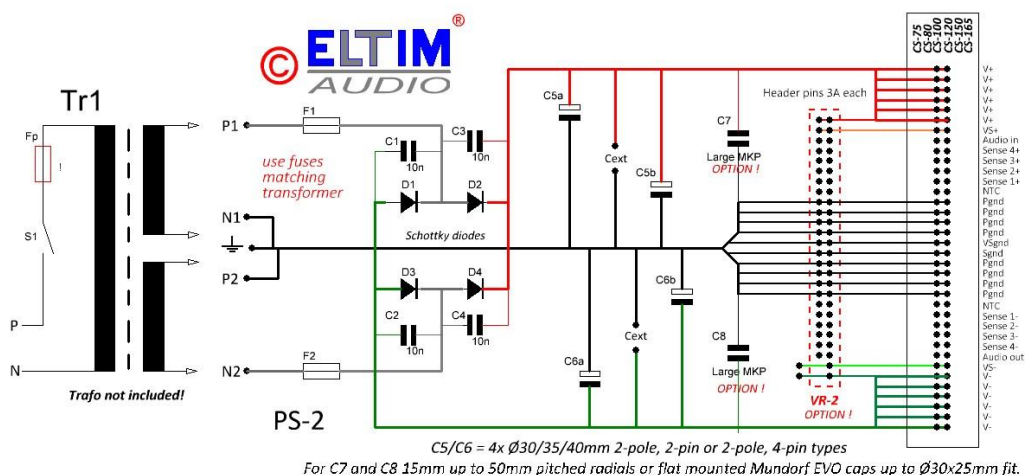
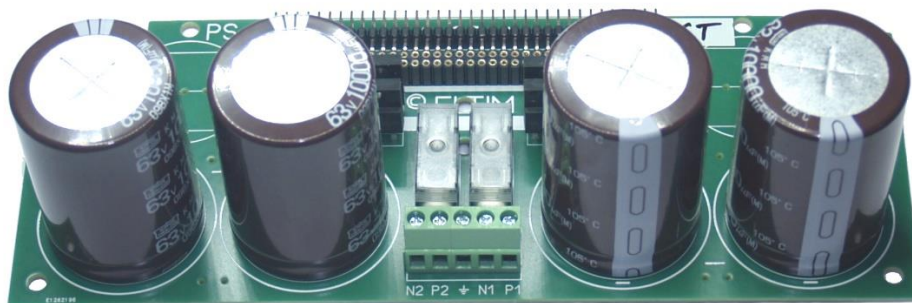
This PS-2 module is capable of powering all ELTIM CS-modules, except PS-40ps (already has a PS).

Besides the transformer wiring, there is NO further wiring needed!

Schematically this is as any other regular linear Power Supply module, with the exception that it exactly fits to our CS-modules, we use extremely wide tracks (95% of all surface actually) and we added some extra parts most linear Power Supplies lack, like caps and cooling around the rectifier diodes, being efficient and fast Schottky types. It is L-mounted to ELTIM CS-modules.

This [PS-2](#) Power Supply module highlights:

- Space saving, L-mounted construction in combination with any ELTIM CS- module.
- 2x2 Ø30/35/40mm large radial mounted electrolytic capacitors fit.
- Both regular 2-pin, pitch 10mm and 2-pole/4-pin 22,5mm radius types like KEMET ALC10 fit.
- Positions for two large MKP capacitors, increasing sound stage and high frequency detail.
- Same width as our CS-amplifier modules.
- Gold plated, 2x36 pin (3A each) angled header connector provides direct contact with CS-board.
- Gold plated, 2x 26 pin female header connector for mounting of a VR-2 Voltage Regulator board.
- 6,3mm Faston blade locations for connecting extra, chassis mounted capacitors.
- Quality, covered fuse holders (max. 10A) in the transformer secondary power lines.
- Unusual wide copper tracks (8mm+) for high power purposes.
- No wiring needed, except for transformer connections by screw terminals.
- Dimensions: 200x80x??mm (depends on height of caps used, max. 65mm ~ CS-80).



Capacitors

On this ELTIM PS-2 Power Supply module fit 4x Ø30/35/40mm serious sized capacitors, 2-pin, 10mm pitched ones or 4-pin/2-pole, pitch 22,5mm. So, about any radial supply capacitors fit.

Also, two significant MKP capacitors, improving overall sound quality, fit. You also could connect extra (chassis mounted) capacitors and/or electronics via extra 6,3mm gold-plated Faston blades, increasing the bass fundament quality.

Wiring

With this module, wiring is most easy. Just L-mount the module to any ELTIM CS-module (except CS-40ps) via the 2x 36 pin angled header connector and all required connections are made already.

Study the schematics and discover that the +V and -V are provided via 2x6=12 pins, which could carry 3A each. So, theoretically you could drain 36A over these contacts, which will never happen. Power ground even uses 2x 8 pins and there are also two pins for the VS-module ground and two pins for the input signal ground.

All three grounds meet at the centre tap earth connection of the board. Also, a lot of copper on the PCB is grounded. Most of our Power Supplies for ELTIM CS-modules are designed this way, minimising hum and noise, just by PCB design.

Transformer

Connect a double secondary windings transformer to the centre screw terminal, that's it. Since our amps run in A/B setting, the efficiency is around 67%. This means that your transformer needs to be able to deliver 150% of max. output power (rated in VA). One winding to P1/N1 and the other one to P2/N2. You could earth the pack via the middle tap. There is no further wiring needed, just connect a transformer to this ELTIM PS-2, input lines to a VS-xx and output lines to a CS-xx. All modules are directly connected by multiple pin headers without further wiring required, a clean amp without bundles of wires.

NOTE: if you don't measure V+ and V- voltages, reverse the connections of one of the sec. windings, then it will work!

If you connected the wrong way, the ac voltages are in counter phase and will cancel each other out due to this.

There are two fuse holders (F1/F2, 5x20mm) on board. Place two fuses, matching the connected transformer specs.

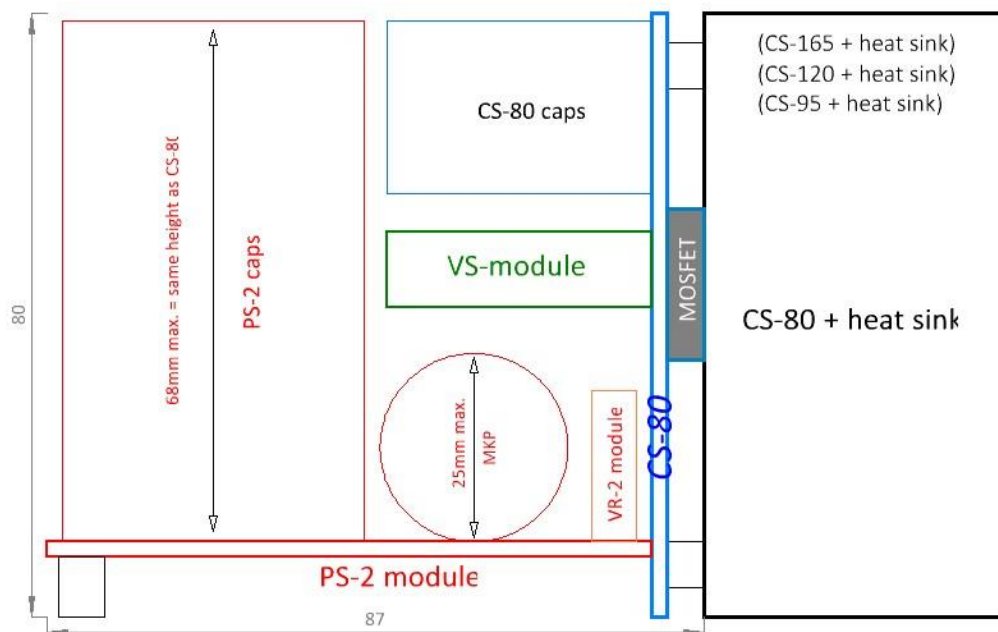
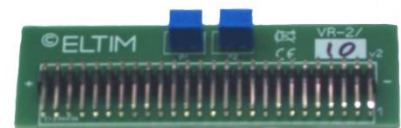
Don't forget to fuse the transformer at the primary side as well !

Voltage Regulator module (optional)

You could improve the sound quality of the pack by mounting a VR-2 [Voltage Regulator module](#). While mounting this, the VS-input stage's power is regulated, causing an even better sound signature. VR-3 is to high i.c.w. CS-75/80!

It fits on this PS-2 at the header marked VR-2. There is no extra work needed, except for removing the two jumpers on the CS-module.

Don't forget to remove these, otherwise your VR-module is bypassed.



Side view

True 1:1 representation of a mounted full pack.

Available modules:

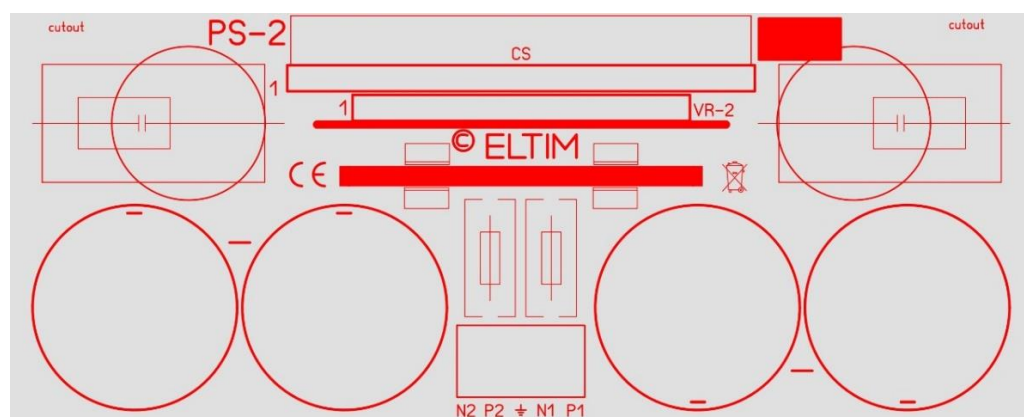
PS-2 ST	with 2x2 RND 10.000uF/63V capacitors, Ø35x50mm, 85°C
PS-2 LKG	with 2x2 NICHICON LKG 10.000uF/63V audio grade capacitors, Ø35x50mm, 85°C
PS-2 ALC10	with 2x2 KEMET ALC10 15.000uF/63V audio grade caps, long life, Ø40x50mm, 85°C
PS-2 MLGO	with 2x2 MUNDORF MLGO 15.000uF/63V audio grade capacitors, Ø35x60mm, 125°C

You could also decide to [buy it as a kit](#) (electrolytic capacitors NOT included, [select what you believe is best!](#)).

Examples of capacitor mounting on ELTIM PS-2 Power Supply module:



2x2 Ø30/35/40mm 2-pin capacitors fit for high power/quality purposes. Pitch 10mm, holes 2mm.
F.e. [Mundorf MLGO](#) 15000uF/63V fit. If not enough, external chassis mounted ones can assist.



2x2 Ø30/35/40mm 2-pole/4-pins types capacitors fit for high power/quality purposes, holes 2mm.
F.e 4x [KEMET ALC10](#) 15000uF/63V 4-pin fit. If not enough, external chassis mounted ones can assist.

In all cases two MKP capacitors pitching 15/22,5/27,5/37,5/50mm or up to Ø30x25mm (radial mounted) fit.
By adding these MKP types the overall sound quality will increase more or less, depending the quality of the MKP's and electrolytic types used. Mount what you prefer and/or can afford. Therefore we ask:

*Do yourself and us a favour and do NOT use a switched mode power supply (SMPS) i.c.w. our High-End amps.
Our VS-xx/CS-xx amps won't perform at max. then and you could be disappointed, or even angry with us.
So far we have not seen an SMPS able to deliver the punch power we can make with these amps.
Besides that, SMPS's also tend to let a linear amp sound "hishing (tsjjj...)" and with "screaming" highs.
Most class-D amps do that anyway, so there you wouldn't notice..... They only make power, [ours also make music.](#)
Do you believe SMPS is more efficient? An SMPS has around 70%, our linear ones around 95% efficiency!*

With this knowledge: the advantage of higher efficient (@ full power only!) of class-D designs is completely destroyed while using an SMPS feeding it.... It only makes sense for compact/light designs.

A linear amplifier and linear power supply like this PS-2 together show a higher efficiency, especially for home use equipment where its nor running at full power all the time!

And then we are not even talking about the difference in sound quality.

Class-D's don't need alignments and use cheaper parts, so cheaper to produce. Why do you pay similar then?
Stop believing all these commercial, fast selling nonsense talks please. Facts matter. *Time to change.*

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PS-2 ST + CS-165 HEX12 + VS-20 example

CS-165 provided with extra supply capacitors.

CS-165 fitted on [MODU heatsink](#) 3PD04200

At left side connectors speaker and input connections.

Green connector at front centre connects a double windings transformer.