

# PS-165 Power Supply module

In order to provide a most easy way of powering a CS-165 module we developed a stack mounted PCB, exactly matching the dimensions and power connector location of this CS- module.

Eenrummerweg 5  
 NL-9961 PC Mensingeweer  
 Tel. :+31 (0)595 49 17 48

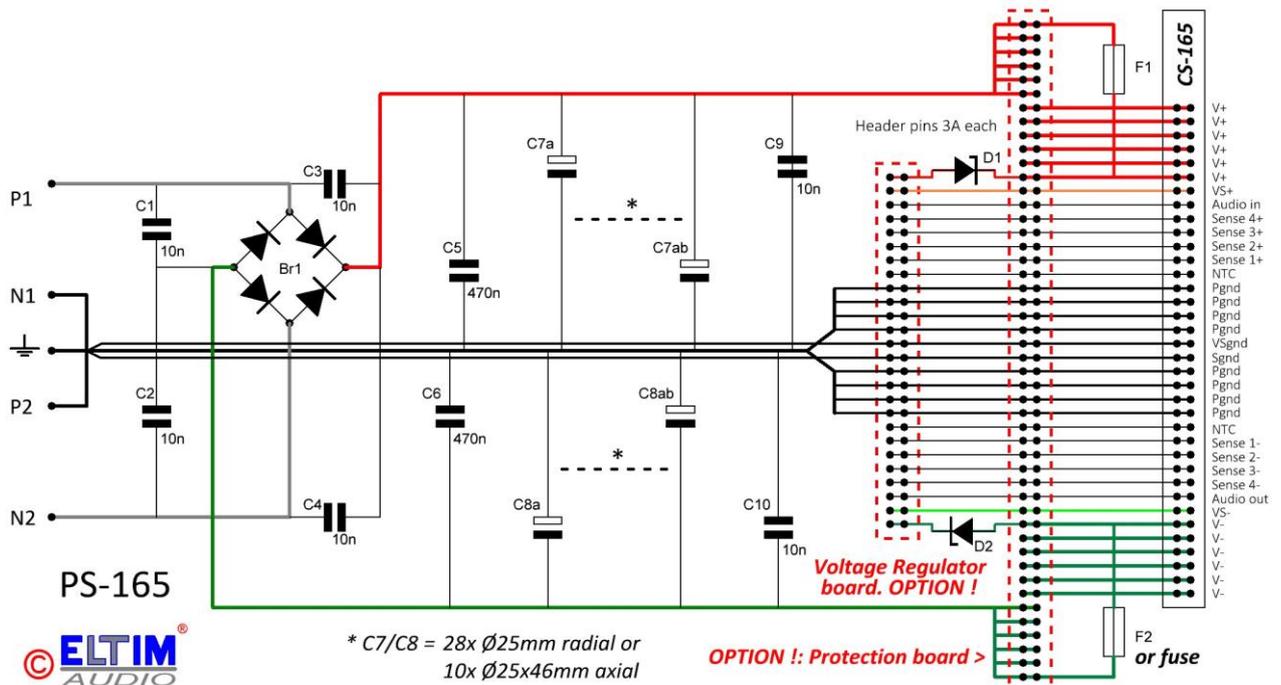
This module is sandwich mounted on top of the amplifier module and connected by a 2x36 pin, 38mm long gold plated connector. There is NO further wiring required!

Internet: [www.eltim.eu](http://www.eltim.eu)  
 E-mail: [info@eltim.eu](mailto:info@eltim.eu)

There are header connectors available for mounting of a Voltage Regulator board AND a Protection Module.

This [PS-165](#) Power Supply PCB highlights:

- Effective, stacked sandwich construction with CS-165 Current Stage module.
- 35mm VS-module sits in between PS- and CS-module, surrounded by current less copper, ground connected.
- 2x14 Mundorf MLGO 1500uF/100V, Low ESR, 105°C power capacitors in High-Power version or
- 2x14 Mundorf MLGO 2200uF/63V, Low ESR, 105°C power capacitors in High-End version or
- 2x5 3300uF/63V axial types in Economic version, strapped with tie wraps.
- Extra connector for VS-modules regulated Power Supply AND
- Extra connector for connecting a Protection module.
- RF-interference blocking capacitors in strategic positions.
- Input- and VS-ground are connected in shortest way to EARTH tap.
- Back plane is RF-ground only, without leading current. It also shields the VS-stage.
- Gold plated, 38mm connector bridge with multiple pin connections, for direct contact with CS-board.
- Mounting holes and dimensions match exactly to CS-165 and MODU 3PD04200 heat sink.
- No wiring needed, except for transformer connections.
- Dimensions: 200x165x40mm.
- Dimensions total package based on VS-20/CS-165/PS-165: 200x165x85mm



## CONNECTOR FUNCTIONS

The bottom connector of our CS-modules are meant to connect a symmetrical power supply to it. This PS-165 Power Supply module fits to this connector. With the supplied 2x36 pin, 38mm long connector, all connections are set, so you only need to connect a double windings transformer to it.

At the second connector a Protection module could be connected, fast discharging the power supply if something goes wrong. We do it this way instead of using a relay in the speaker line for two reasons:

- A power relay contact in the speaker line is causing distortion in small signals.
- In case of activation, the amp has some fault, so you NEED to bring the power down.....

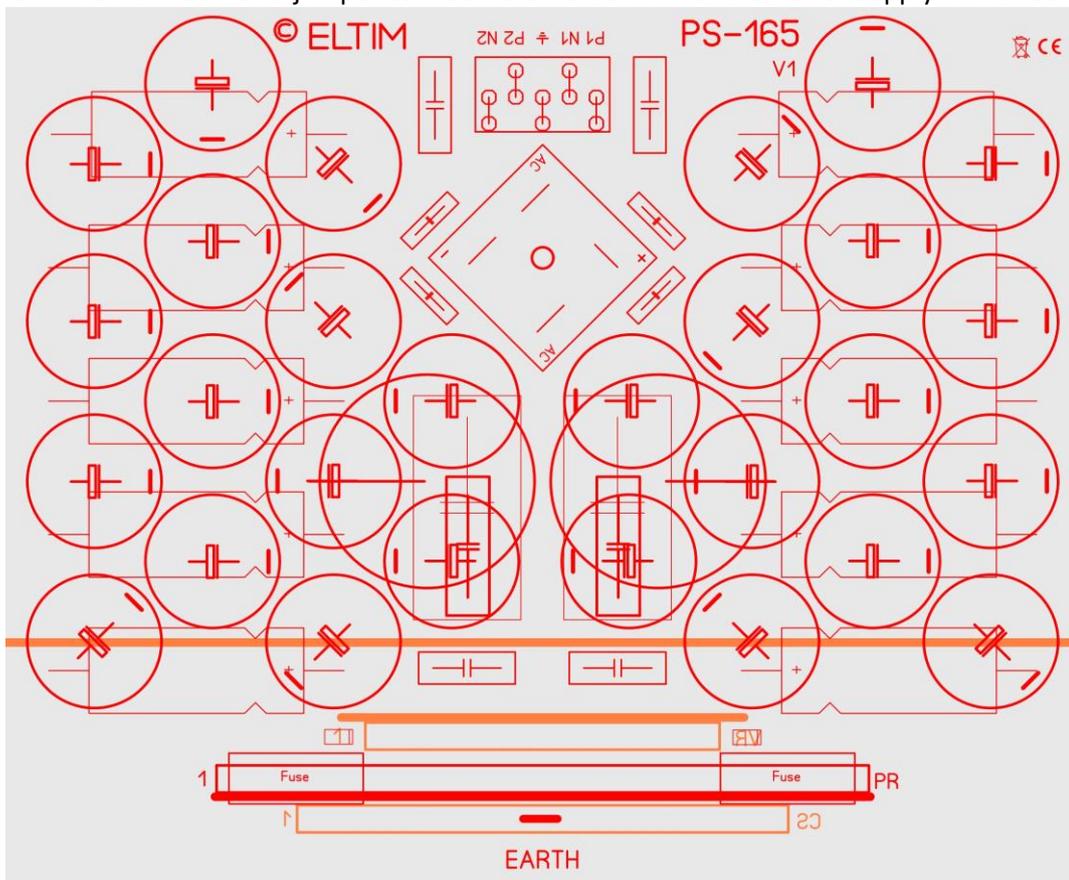
Since the relays of this board need some more space, the inner two capacitors need to be sacrificed.

The third connector above it fits a Voltage Regulator board, providing regulated voltages to a VS-board.

Since the transistor array of f.e. the VS-20 Voltage Stage module can handle up to +/- 35V only, there is a regulated supply board available. This stack on module fits on this PS-165 module. Without this module the total Power Supply voltage limits are +/- 35Vdc (transformer 2x 25V) while using a VS-20.

Using this add-on module will also increase stability and sound quality.

If there is no VR-board mounted a jumper connects the VS-board with the Power Supply rails directly.



## CAPACITOR options

On this huge board one can mount 2x14 Ø25mm power supply capacitors, pitch 10mm for highest demands. The two inner pairs can be sacrificed for positioning a pair of high quality MKP caps, improving high frequency response. If you sacrifice 3 pairs, even MUNDORF EVO caps (Ø40mm) can be paced radially glued.

For economic versions we could mount 2x5 3300uF/50V axial types.

## GROUND PLAN

As with our amplifier designs we spent a lot of time and effort in grounding the system correctly.

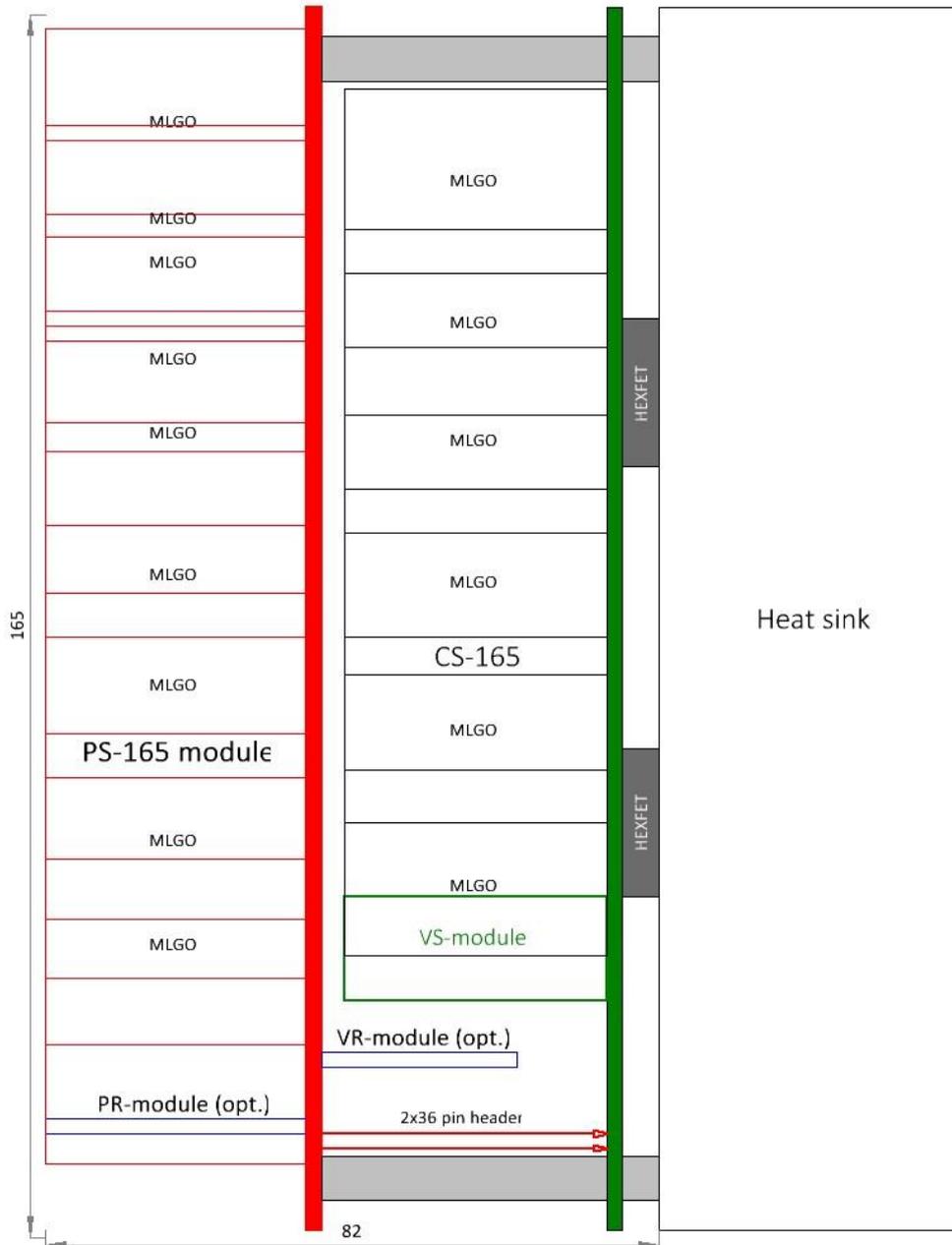
F.e. notice the location of the EARTH tab in the centre of the CS-connector. On the CS-board the centre pins just and only lead to the two centre tabs of the VS-connector. On a VS-board one leads to the input connectors of the VS-module only. So, from the VS-input ground on up to the EARTH tap, there are NO components connected other than input components. As it should be.

The other centre pin leads to the VS-board ground only and in a shortest possible way.  
 The front plane is Power ground and leading to all capacitors and the transformer centre taps.  
 The back plane is RF-ground only and also shielding the VS-module, without carrying any current at all.  
 This tree shaped ground plan strongly prevents hum and noise as you will notice while listening: no hum nor noise, not even with your ear at the speakers front.....

**MODELS**

The PCB layout is developed in a way that it can contain two types/qualities of power capacitors.

- PS-165 EC module is fitted with 2x5 3300uF/50V (transformer max. 2x30Vac), 105° axial caps.
- PS-165 HE module is fitted with 2x14 2200uF/63V (transformer max. 2x40Vac) MUNDORF MLGO.
- PS-165 HP module is fitted with 2x14 1500uF/100V (transformer max. 2x65Vac) MUNDORF MLGO.



True 1:1 scale impression

[Check our website for ordering](#)

*These designs are copyrighted by ELTIM audio BV, Louis Timmers 2017 ©*

[www.eltim.eu](http://www.eltim.eu)