

PS-UN80S

Universal, symmetrical output Power Supply modules

In our universal Power Supply range this one is a high power, symmetrical voltage version. It can develop up to $\pm 80V/25A$, and so very suitable for High-End, high power amplifiers. Besides all the regular standard components of a linear power supply, we added several parts about nobody else does, but required as well in order to make a difference.

You can add one of our DC/DC converter/regulator modules, providing up to three (single, symmetrical and symmetrical + digital) regulated voltages for extra electronics. 3,3V; 5V; 12V; 15V.

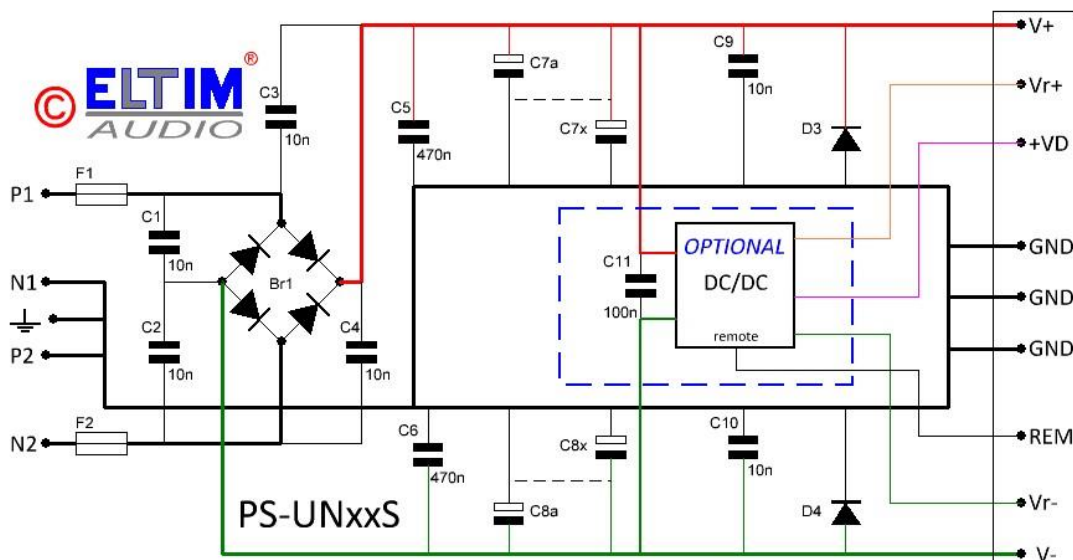
With this Power Supply module we provide the proven design philosophy of a linear Power Supply, which is in dynamics performance way superior to the more and more used Switched Mode power supplies. High frequency (40-100kHz) ripple voltages of over 100mV is common, hardly useful in high quality audio, since this signal interferes with your precious audio gear.

Compared to all the (very) cheap linear supplies you'll find all over the internet, there is hardly any difference noticed indeed, but building it the way as it should be done with quality components and wide copper tracks on a solid FR4 board as we do, its different cake!

With us no "stressed" components, no RF, etc. Just plain, solid and pure power without fuzz.

PS-UN-80S highlights:

- European manufactured, **double sided** FR4 PCB, 35um copper, solder mask and parts printing
- 25A/600Vac rectifier with cooler
- PCB tracks are way over dimensioned (66A) for optimal dynamic performance
- Several types of power supply capacitors fit:
 - 2x15 $\varnothing 16/18mm$, pitch 7,5mm for low profile and/or cost effective solutions
 - 2x7 $\varnothing 25mm$, pitch 10mm for low profile/low ESR figures.
 - 2x4 $\varnothing 35mm$, pitch 10mm for high power/low cost solutions.
 - 2x2 $\varnothing 40mm$, pitch 22,5mm/120° 4-pin, professional capacitors
 - 2x2 $\varnothing 50mm$, pitch 10mm for high power purposes with audio grade quality
- OPTIONAL DC/DC converter/Voltage regulator with up to three low voltage supply outputs.



Introduction

With this PS-UN-80S range we provide linear power supply modules with all the parts these kind of supplies should have and all have a function. Leaving some out, as many do, would degrade its quality level. Our module is instant powerful with a high/wide dynamic range, low ESR and free of noise and RF signals.

As an ELTIM built module, this PS-UN80S module can handle up to **±80 Volts** at a current of **15-25A max.**

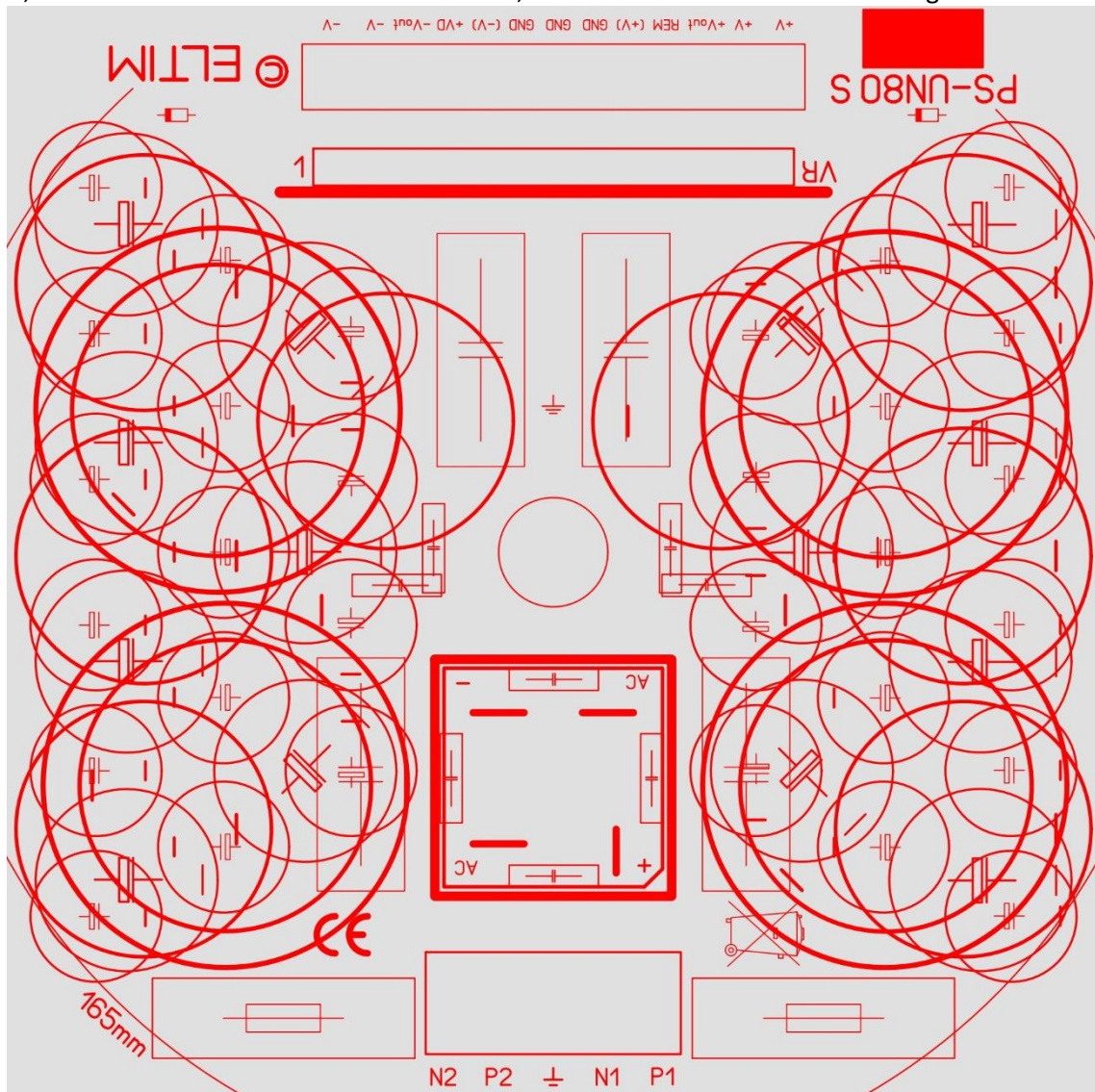
This voltage limit is based on the rated voltage of the supply capacitors we use.

Use a quality transformer of 50V / 1000VA or less.

The max. current varies with the available storage capacity on board, depending on the model.

Kit builders can use other voltages/values as well, since with our kits the supply capacitors have to be bought separately in order to give you maximum freedom of choice. We have a [lot to choose from](#).

The trafo, V+ and GND screw terminals can handle 3,3mm² wires for extraction of this significant current.



PS-UN80S layout, with multiple capacitor types fitting, 150x150mm

Schematics explanation

The secondary windings of a suitable [transformer](#) (not included) are connected to P1 – N1 and P2 – N2.

As recommended by most transformer manufacturers, both secondary windings are fused.

The 50/60Hz AC power is rectified by a cooled 25A/600Vac bridge rectifier.

As it always should be, every diode of this bridge is decoupled with a small capacitor (C1-4) in order to avoid noise and sparks. The rectifier will charge the capacitors to the Vac peak level, being **v2 (1,414) higher** as listed (=Veff) in the transformer specifications! For beginners: The required transformer can be calculated as **Uac = Udc/v2+1**. So, f.e. for 60Vdc you need 60/1,42 +1 = 43Vac. The Vac of the trafo is given as an effective voltage (giving the same power as a dc voltage of this value would give). Calculate with “free running” values!

While using f.e. a [TALEMA 1000VA/50V transformer](#), it's free running voltage is 52,8Veff. After rectifying there will be around 75V over the 80V storage capacitors. We ourselves would use a 45V trafo to play safe, especially if you use transformers with a lower power rate. Due to their higher internal resistance, their free running voltages are higher and after rectifying most probably will exceed the 80V the capacitors can handle. 45V versions are always at the safe side! While loaded there will be around 64V available. This PS-UN80S module fits over a Ø165mm (1000VA) toroidal transformer.

The power reserve comes from C6a/C6x, with different number, values and qualities depending the model. Here we have a huge difference compared to SM supplies: we already have the power reserve available in the capacitors. Also the ESR value ("internal resistance") is way lower, noticed by f.e. more solid bass response. Over these capacitor banks, we mounted a very small and some larger regular capacitor.

Models/specifications

Max. output voltage of ±80V, ±25 amps max. (transformer max. 50V). Board size: 150x150mm.

PS-UN80S RND	2x4	10mF/80V, 85°C, 1000 hours	Ø35x55
PS-UN80S UHW	2x15	NICHICON UHW , 85°C, 1500uF/80V, 10000 hours	Ø18x36
PS-UN80S LKGlP	2x7	NICHICON LKG 1500uF/80V 85°C, 1000 hours	Ø30x30
PS-UN80S LKG	2x2	NICHICON LKG , 10mF/80V, 5°C, 1000 hours	Ø50x80
PS-UN80S LKS	2x4	NICHICON LKS , 6800uF/80V, 105°C, 1000 hours	Ø35x50
PS-UN80S MLGOlP	2x7	MUNDORF MLGO , 1000uF/ 100V , 125°C, 8000 hours	Ø25x30
PS-UN80S MLGO	2x4	MUNDORF MLGO , 10mF/80V, 125°C, 8000 hours	Ø35x50
PS-UN80S KMH	2x2	ChemiCon KMH , 22mF/80V, 4-pin, 105°C, 2000 hours	Ø40x55

Regulated, single or symmetrical extra output voltage(s) **OPTIONAL**

On this PS-UN40Sxx modules our symmetrical, [linear voltage regulator modules](#) fit. With those you can make lower supply voltages, meant to supply preamplifier, DSP, etc. circuits.

In February 2018 we developed a wide range of [switching DC/DC converter/regulator modules](#).

With these, one can extract up to three independent and completely different voltages from about any available voltage. Also these fit on all our PS-UNxx modules. There are ranges in 8, 10, 12, 15, 20, 30 and 40W. Input voltage ranges from 9Vdc to 256Vdc. Available output voltages are 3,3V; 5V; 12V, 15V, ±12V and ±15V as single, symmetrical and even symmetrical + digital supply voltage (VR-JTL30T only, see picture below).

While using a version with a header connector you can mount them on about any of our Power Supplies.

So, while having one of our PS-UNxx(S) modules, you also can have supply voltages for preamplifier, DSP, etc.



Triple version with header



Triple version with screw connector

This sounds interesting to you, but you already have a power supply? Then select the screw terminal option and receive a separate module which can be mounted with 4x M3 bolts and connected with the other electronics by a screw terminal instead of a header. [Here](#) some more info about these modules.

Just connect it to about any power supply and have the low voltage supply voltage(s) you require as well.

Actually, you could even use a 12/24V battery from, f.e. a car, RV or boat.

As by now people expect from us, we use the best DC/DC converters we could find, not the cheapest ones.

These last a lifetime, have an efficiency of around 90% and use a harmless high (>300kHz) switching frequency.

Of course, as it always should be while using high frequency devices, it is metal shielded/grounded, so ours don't spread around magnetic fields at the switching frequency all around, causing oscillations, etc.

[Check our website for ordering.](#)

Dealers and OEM are [welcome](#).

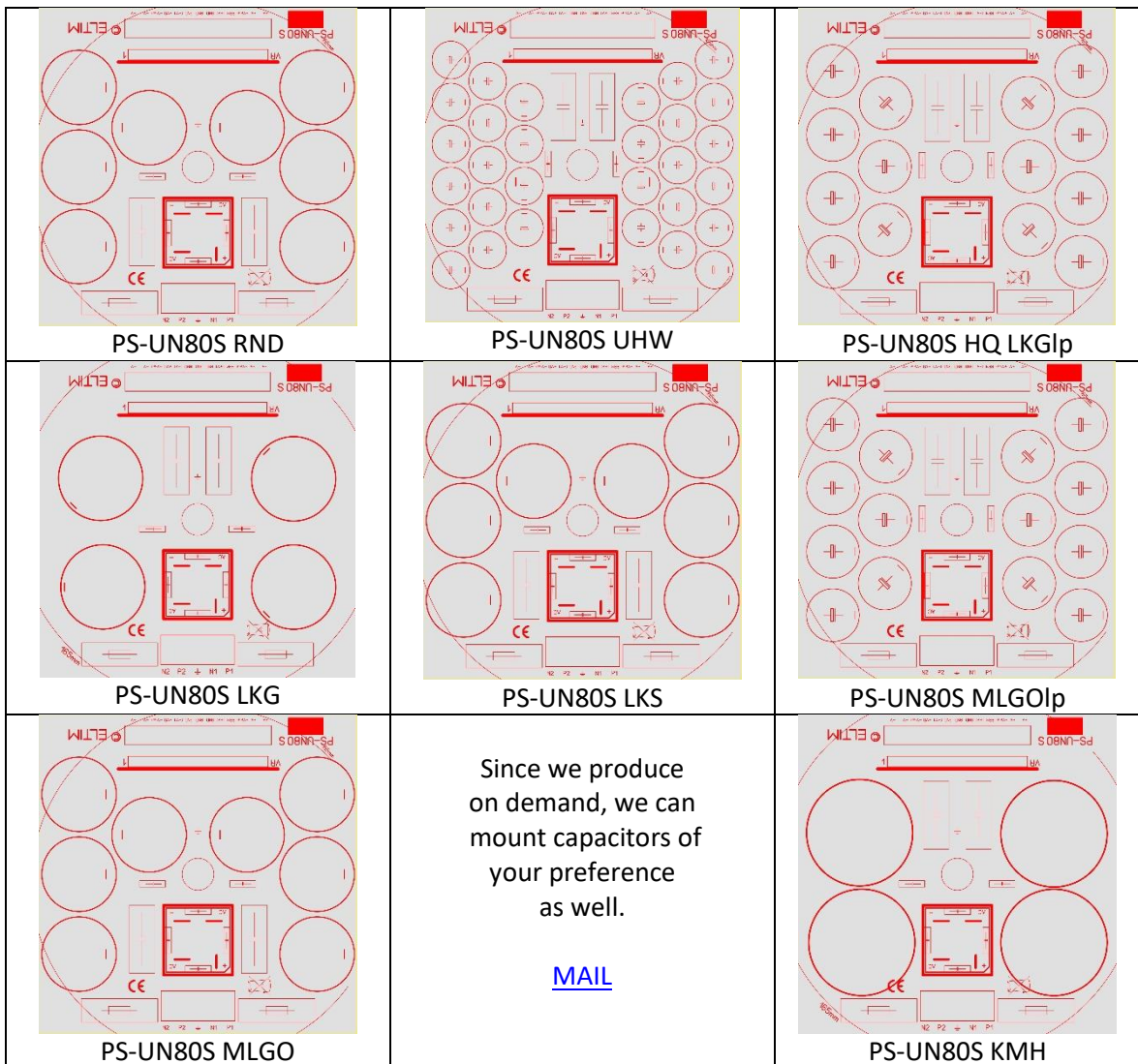
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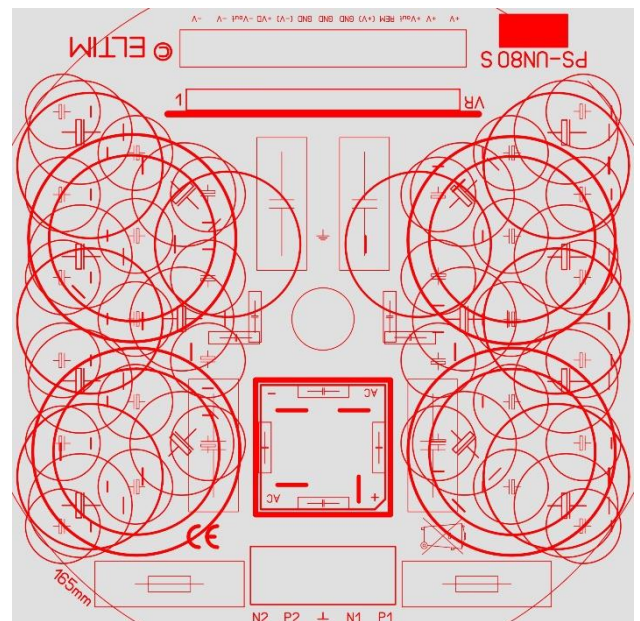
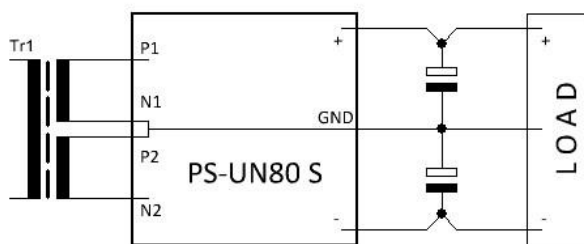
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PS-UN80S Model program

Click on a picture to go to the product in our [webshop](#)



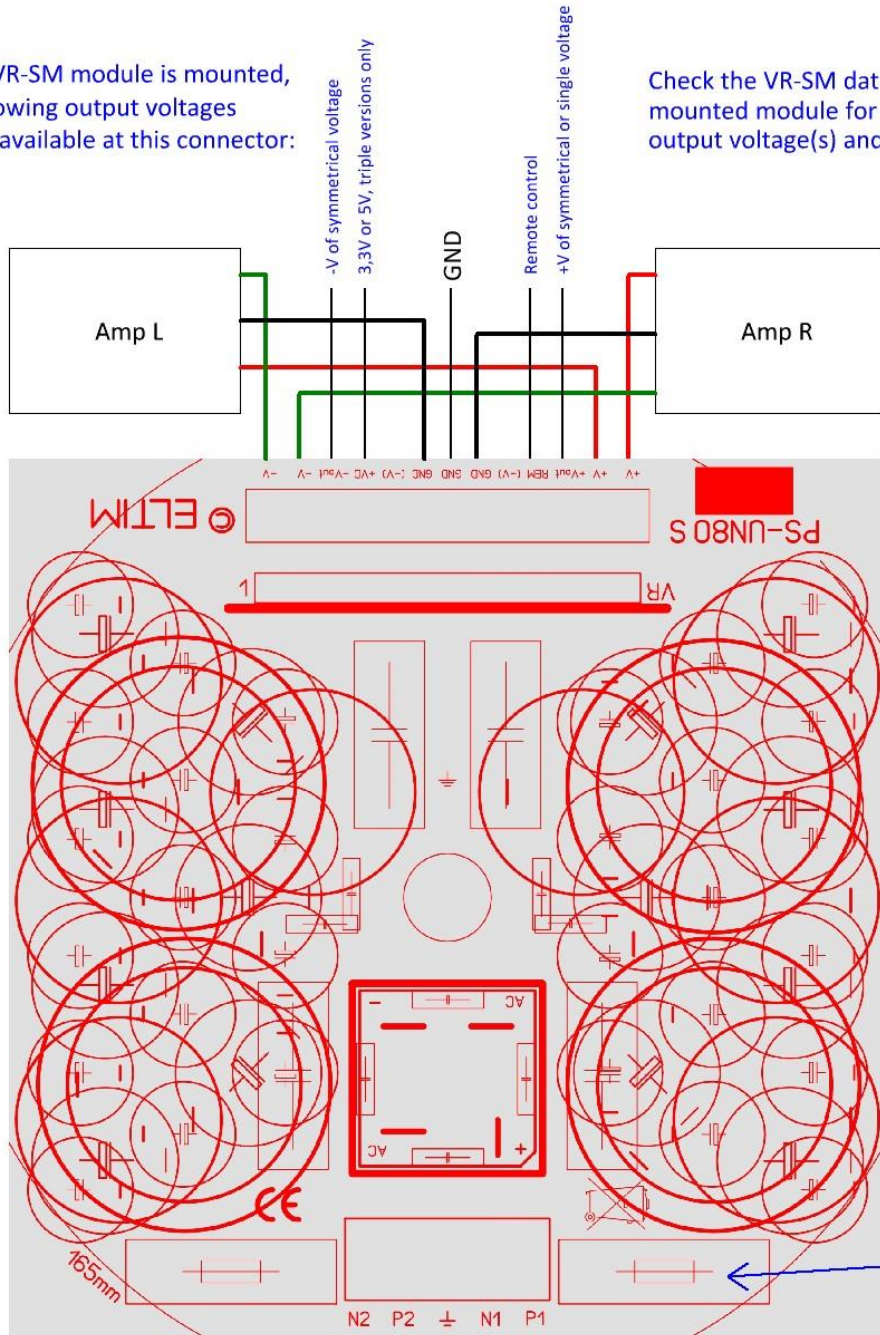
For true high and/or constant loads, you could consider to add chassis mounted capacitors as well between this Power Supply module and the load(s).
The [MUNDORF MLHC](#) are the best.



PS-UN80S wiring diagram:

If a VR-SM module is mounted, following output voltages are available at this connector:

Check the VR-SM data of the mounted module for the available output voltage(s) and currents.



NOTE: mount two secondary (5x20 or 6x25mm) fuses on the board, matching the data of the connected transformer !

ELTIM audio BV is using parts, matching common rules of VDE, UL, CE, RoHs, etc.
 The transformer and the primary side wiring of it needs to comply local rules, laws, etc.
 ELTIM audio BV cannot be held accountable for inappropriate wiring, nor any physical, mechanical, financial, etc. damage whatsoever. Be aware of shock and fire hazard !

The person and/or company mounting this device is single responsible !