AUDIO POWER®
Digital Audio Equipments

DPS-500/UR_EN_1.3_2014 (Preliminary Datasheet) Update 07/2015 1.3/B

# DPS-500/UR High Performances Power Supply *For Audio*

***Powered by new technology (Regulated dual feedback fast smps without PWM).***


## Features:

- High efficiency (>87%)
- Low profile (32mm)(*)
- Ultra low noise/EMI
- 150nS response time
- Full protections
- Power-Unit shield
- Weight 460g.(*)

## Applications:

- Professional amplifiers
- DXA-xx Amps
- 600VA 2x100.000uF/100V Trafo replacement

## Introduction

The **DPS-500/UR-**series**,** is an Innovative, ultra fast ,regulated switching power supply for **Audio Uses.**
It was specifically developed for AB/D Class amplifier and solve the RFI & EMI induction/Conduction .

To achieve this result, **MDI** laboratories has created a ultra-fast error amplifier power module (hybrid) for driving direct high voltage stage, in full analog mode with Two differential feedback (one per side). thanks to a new shielded power-unit and a special wave signal to driving the inductor , the DPS-500/UR produce a very low RFI irradiation And EMI conductions/Inductions. Moreover, this version has updated with the use of new proprietary inductor (Ferrite composite, high density) designed by **MDI** for the "UR/S" series.

The **DPS-500/UR** can emulate up to 2x100.000uF (in therms of current peaks) on DC output, without noise and ripple on AB MosPower audio amplifiers, up to 400W rms (4R).
The default configuration, provides +/- 60V 16A on DC output. a simple way for other uses, is the "**CustomizationForU**", we can provide with a wide DC VOut range (+/- 16V ~ +/-63V), in Single/Dual output voltage mode. (Contact us for more info support@audiopower.it).
On-board protections, ensures a fast supply switch-off for: **short circuit, overload, UVLO, over temperature,** and a special protection in case of power regulator fault.
**Developed and assembled in Italy with high quality materials and manufacturing.**

Approvals
RoHS compliant 2002/95/EC CE EMC

# DPS-500/UR

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**"UR"** is a new concept of differential regulation.
By studying the behavior of a medium power amplifier with speakers (passive filter), we can see how important it is that the voltage does not fall right in the range of **0 to 30%** of the available power. This provides stability to the amplifier and provides an excellent reproduction of the timbre, ensuring a steeper attack natural, rather than soft with various intermodulation by the frequencies contained in the envelope of sound. especially on classical music and Jazz with high dynamics.
The system **"UR"**, check that the current demand does not exceed 30% to provide a complete regulation, with transient response around 130nS. in agreement with audio transients, the "UR" switch linearly, in realtime vs. unregulated.

This new concept, added to the absence of HF noise, is able to totally change the response, in the case of Class D amplifiers, particularly on Self-Oscillating, where the continuous change of the frequency in accordance with the modulation, would be mixed with the harmonics of the smps, generating many harmonics, distorting the original content. **A simple FFT at 65% modulation, demonstrates this in a simple way.**

## Specifications

| | |
|---|---|
| **INPUT-VOLTAGE**<br>**AC LINE REGULATION** | 100 ~ 130/200 ~ 260VAC<br>DC Output locked (200 to 260VAC,drift=10mV) |
| **FREQUENCY RANGE** | 50 ~ 60Hz |
| **STANDBY AC CURRENT** | 1mA(230VAC)-**Energy save (CE)** |
| **EFFICIENCY** | >87% (25°, 230VAC,2x5A Load) |
| **DC VOLTAGE (1)** | +/- 59V to 61V 12A (16A repetitive,t=250mS ) (See Power Table) |
| **DC VOLTAGE (2)** | +/- 22V 2x250mA (LC-Filtered, unregulated) |
| **DC VOLTAGE (3)** | 13 ~ 15V 400mA (LC-Filtered, regulated LM317) GND or VN-REF |
| **FAN CN** | +12V 200mA filtered fan output (proportional drive) **OPTIONAL** |

| | |
|---|---|
| **RIPPLE & NOISE** | **DC:** 1mV rms(100Hz-100mA @61V): 30mV rms(100Hz-5Amp @60V) Both polarity.<br>**HF**:-79.2dB ( Fo: 151 Khz,2x300mA @60V ) |
| **SETUP TIME** | 1000ms (@230VAC) |
| **OVERLOAD** | >16A (1s delay – shut down with auto-recovery) (2 Sec.) |
| **SHORT CIRCUIT** | Shut down with auto-recovery (2 Sec.) |
| **OVER TEMPERATURE** | 80°C ± 5°C (shut down with auto-recovery) |
| **WORKING TEMP/HUMIDITY** | 0 ~ 40°C<br>20 ~ 90% RH non-condensing (see note 2) |
| **DIMENSION-WEIGHT** | 220x90x(32*)mm Weight=460g. (Heatsink incluse) |
| **STANDARD MODEL** | **DPS-500/UR-61V,PCB (Black-Blue), Heatsink included** |

**NOTES**
1. All parameters measured at 230VAC input, rated load and 25°C ambient temperature. **(+/-60V Version)**.

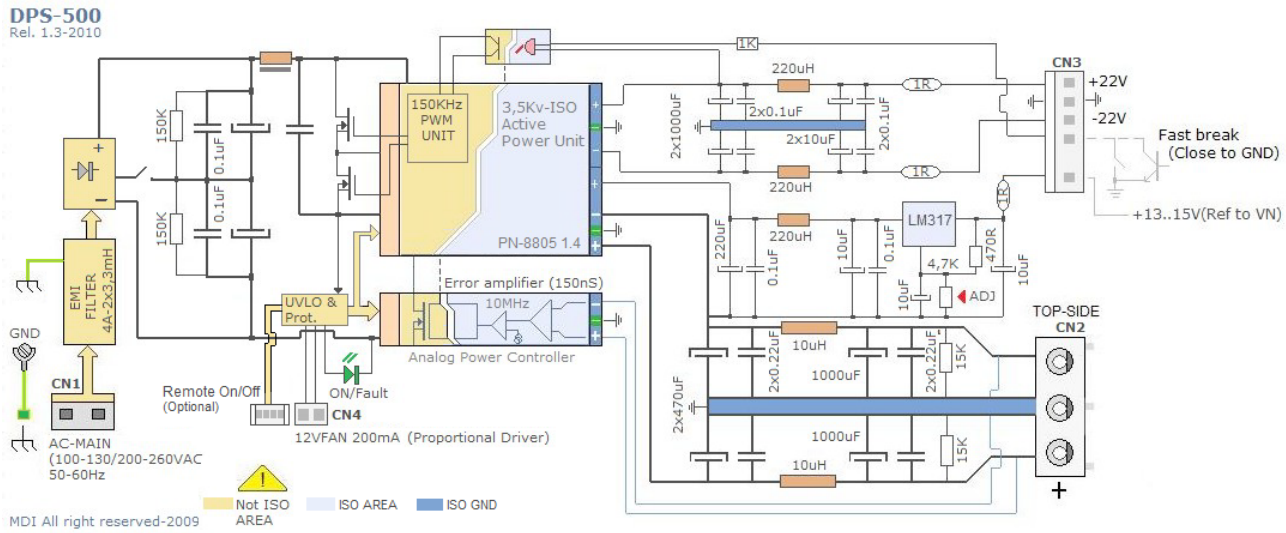
2. (CN1-FAN) Support up to 200mA12V Fan (In proportional mode) **(OPTIONAL)**

3. Adding capacitors to the output voltage, **not** incease the performances. The "UR" accept well up to **2200uF100V per side.** (Please,Contact us if You have >2200uF on Amps pcb).

## Caution and warning

REPLACE FUSES WITH SAME TYPE AND RATING
12V FAN connector (CN1), is located in the **NOT ISO AREA.**
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

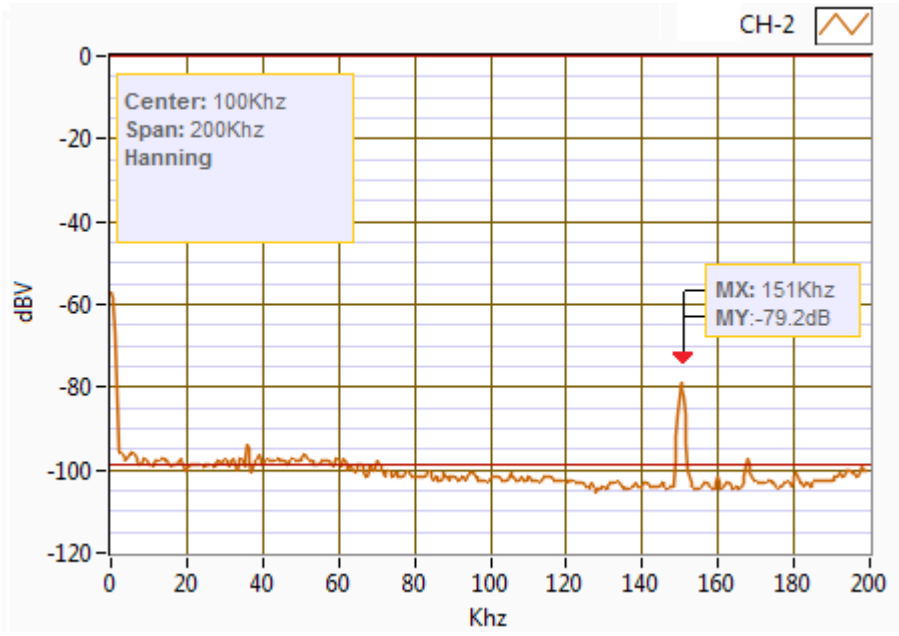
## Electric diagram




## Measures

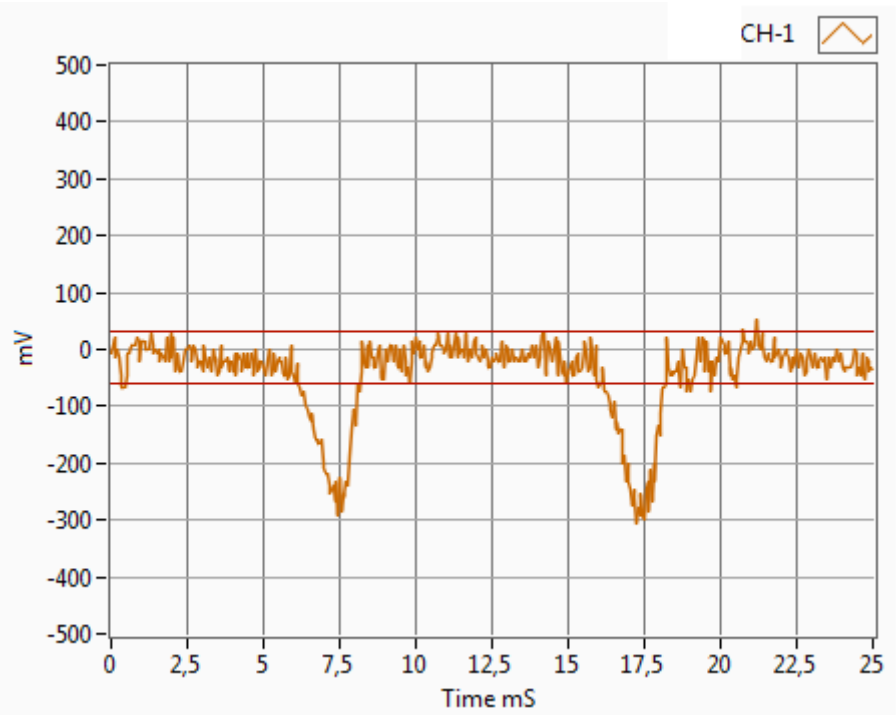
### HF Noise Spectrum (Probe @ DC Output)

**Conditions:** 230VAC ,25° ,50Hz,2x300mA@60V (Resistive load).



## Measures

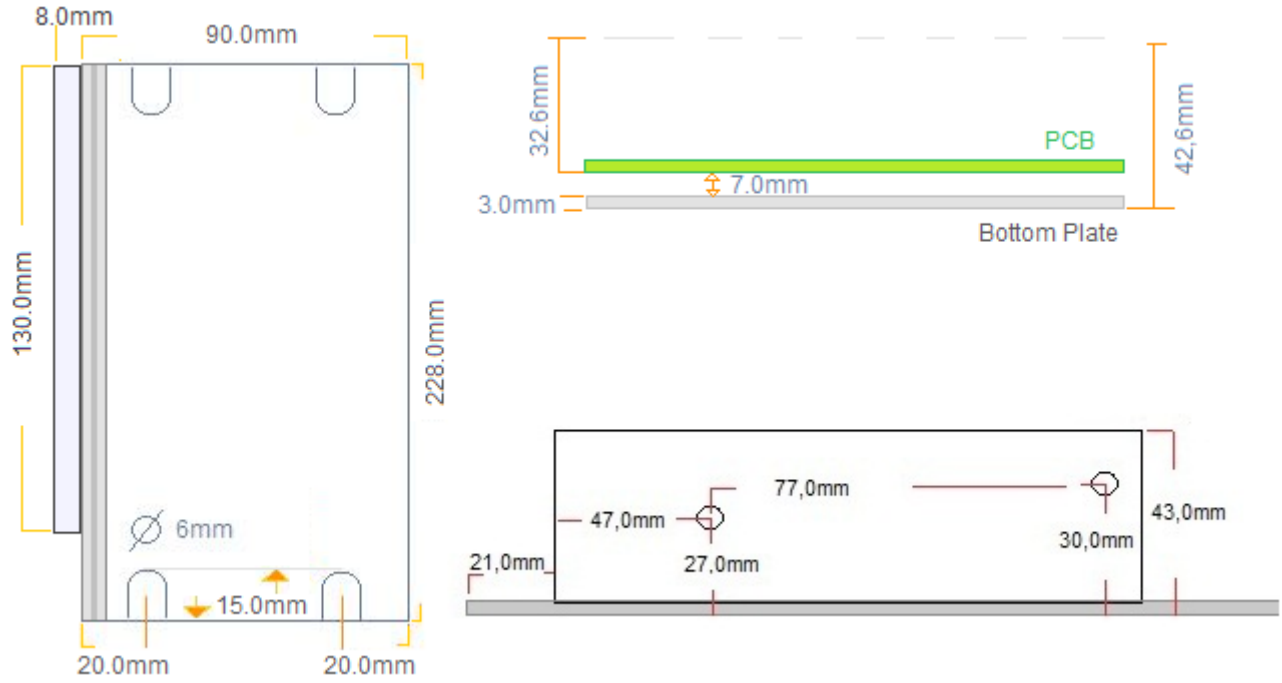
**LF + HF Noise (Probe @ DC Output)**
**Conditions:** 230VAC ,25° ,50Hz, 1x12A@60V Positive Rail (Resistive Load).




**Note:**
We can see, as there are no other signals, or peaks derived from driving the transformer, as a smps standard. This is applied on all our smps ***For Audio.***

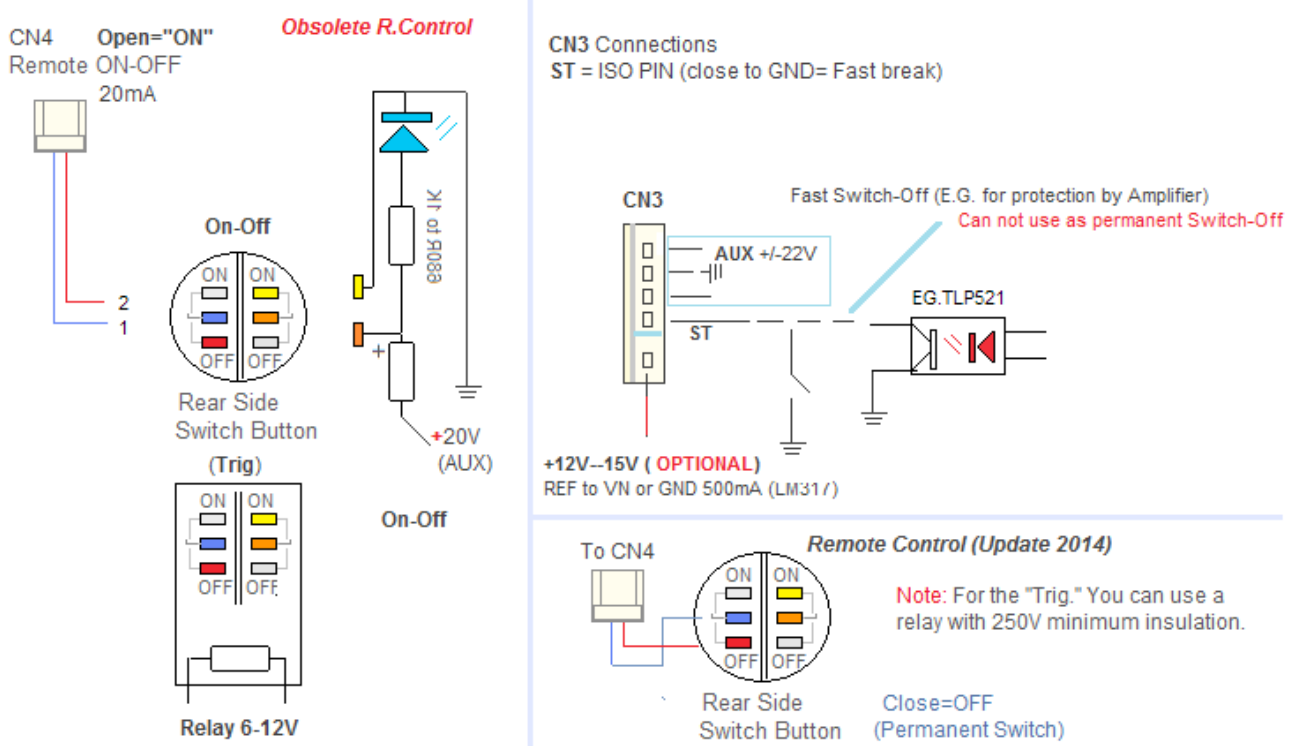
*Coming new measures.*

## Mechanical

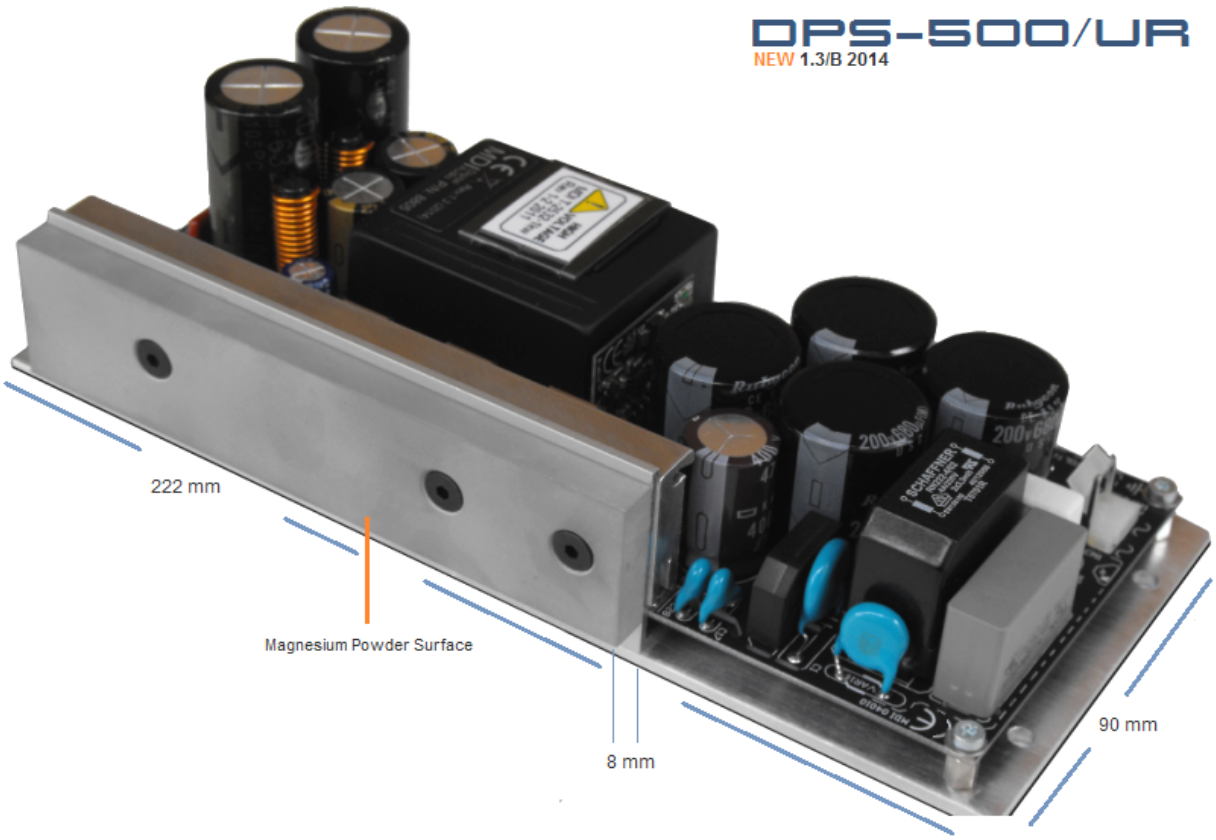


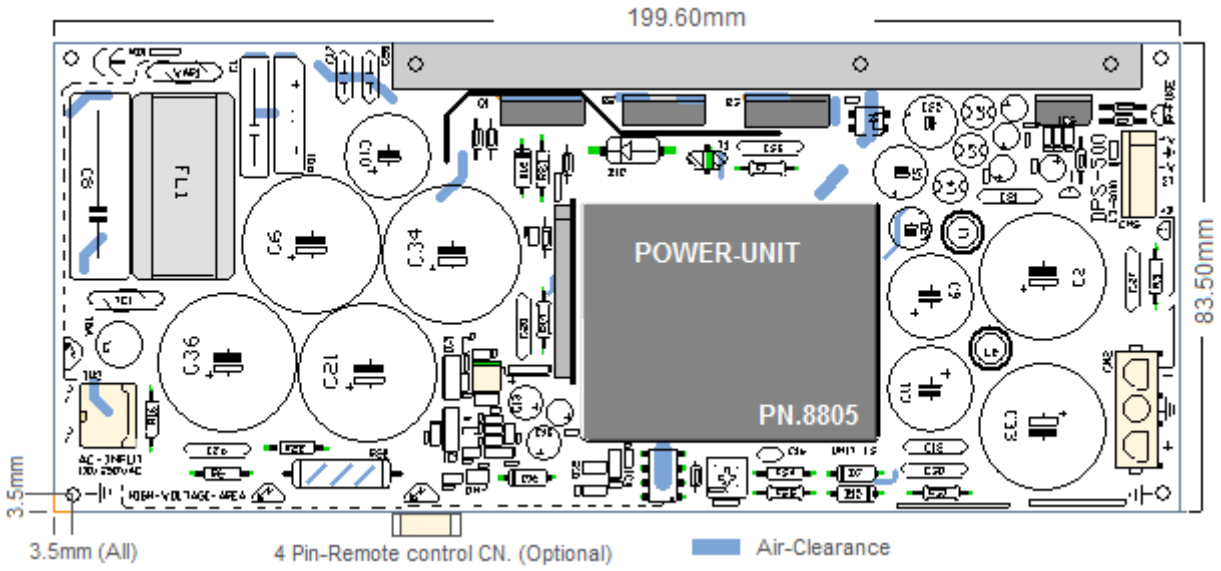

**NOTE**
To reduce noise and ensure at high output current, it is recommended to fix the **DPS-500/UR** on a metal base using all the screws.

### Remote control Connections (Optional)




**Warning! CN4** are located in **NOT ISO AREA**




It is recommended the usage of properly wire section (2mm) for the connections to AC-Line

**DPS-500/UR Components Info:**
Smd/discrete parts...126
Active Power-Unit (1Kw 3,5Kv)...1
Hybrid module...2
Dual Layers PCB (FR4 1,6mm,Copper 70u) Black/Blue color
Dielectric used: Air/Ceramic 1mm

# DPS-500/UR

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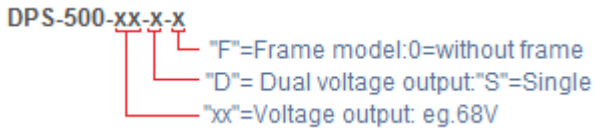
## Package contents:

All connectors (CN1,CN2,CN3,CN4)
1x datasheet.
**(Without alluminum frame model,includes:)**
5x steel spacers 3MAx6mm
10x steel screws  3MAx5mm
2x steel screws 4MAx10mm.

### Order Info for DPS-500/UR-Standard:




**Example. "DPS-500/UR-61-D-F"=** (+/-61V,alluminum frame incluse)

**Note**

In case of  version with **Single Voltage output**, can be used two positive outputs (these include independent L-C filtering) for better decoupling the amplifiers .

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**Info**



**Web**

www.audiopower.it
www.shop-audiopower.com

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