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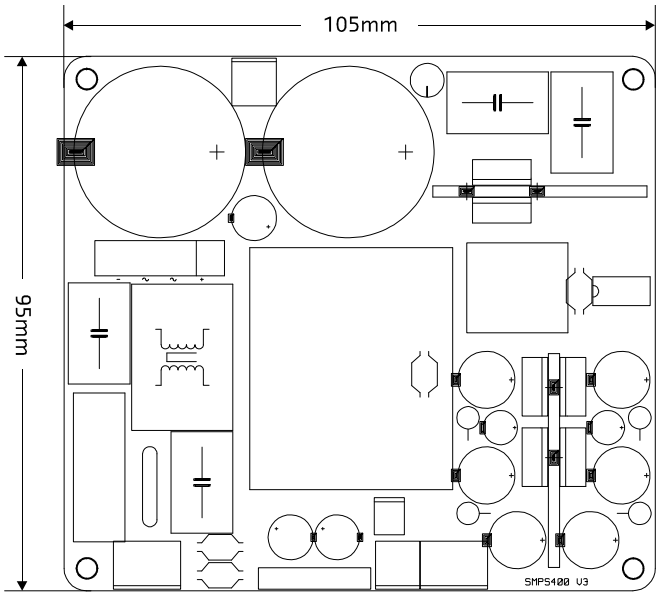
SMPS400A180
SMPS400A400
Manual

High Efficiency Audio SMPS

! Caution: Please read the datasheet for more detailed information



Highlights

- High efficiency
- Selectable input voltage range
- Extremely small form factor
- Low EMI

Features

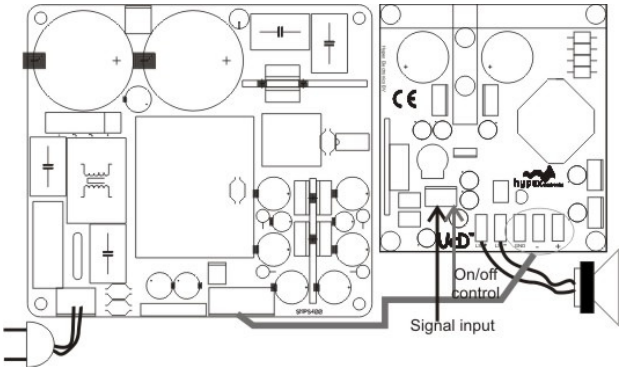
- Advanced over current protection
- Remote controlled operation
- Fits in 1HE (with an extra shielding)
- Fixed output voltage (2 versions available)
- Dimensions:105 x 100 x 42(37)mm
- Low Weight: 300gms

Applications

- Supply for single or multiple amplifiers of the UcD® range
- Active loudspeakers

Description

The SMPS400 is a high efficiency Safety Class 2 switch mode power supply specifically designed for use with our range of UcD®amplifier modules. The SMPS400 includes an auxiliary isolated supply and a control circuit directly interfacing with our range of (OEM and standard) UcD®amplifier modules. The SMPS400 is optimized from the first phase of design to final implementation to realize the low EMI signature required of the most demanding audio applications.



Absolute maximum ratings

Correct operation at these limits is not guaranteed. Operation beyond these limits may result in irreversible damage.

Item	Symbol	Rating	Unit
Input voltage	Vline	270	Vac
Air Temperature	TAMB	50	ºC
Heat-sink temperature	TSINK	95[1)]	ºC

Recommended Operating Conditions

Item	Symbol	Min	Typ	Max	Unit
High Line Input Voltage	VB	180	230	264	Vac
Low Line	$V_{B,FP}$	90	115	132	Vac

Cooling

The SMPS400 is designed for music reproduction and is therefore not able to deliver its maximum output power long-term. The RMS value of any common music signal generally doesn't exceed 1/8th of the maximum peak power. The SMPS400 is therefore perfectly capable of driving the connected amplifier in clipping continuously with a music signal without the need of additional external cooling.

WARNING: These voltages can be potentially hazardous.

[1)] Unit will shut down when T_{SINK} exceeds 95º due to thermal protection

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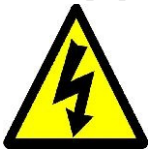
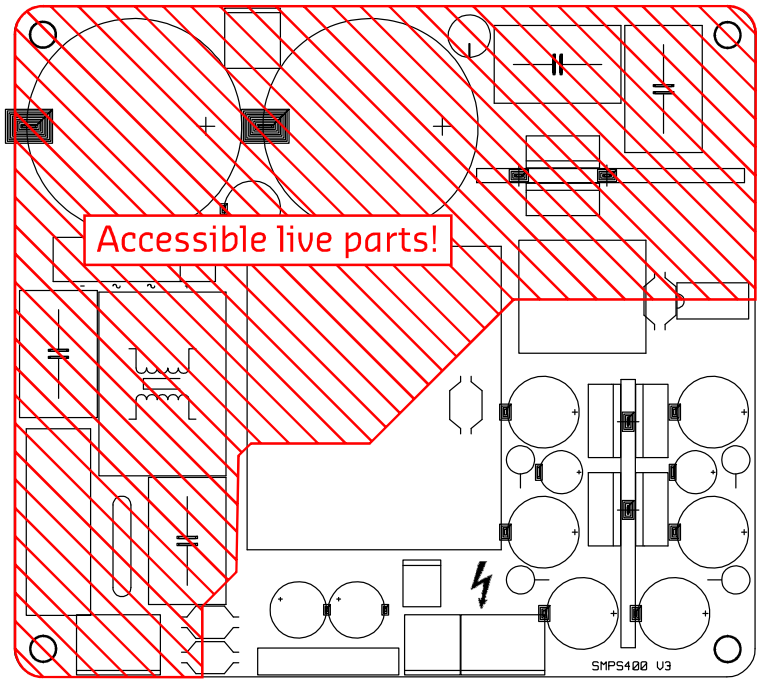
Safety precautions



The SMPS400 operates at mains voltage and carries hazardous voltages at accessible parts. These parts may never be exposed to inadvertent touch. Observe extreme care during installation and never touch any part of the unit while it is connected to the mains. Disconnect the unit from the mains and allow all capacitors to discharge for 10 minutes before handling it.

This product has no serviceable parts other than the on-board fuse. Replace the fuse only with the same type and rating (250V T5AL).

This is a Safety Class 2 device. It is very important to maintain a 6mm clearance with all possible conducting parts (housing etc.) and cables. All parts enclosed by the dotted line below carry hazardous voltages. This includes parts on the top and the bottom of the board. When the SMPS400 is mounted in a tight space there needs to be at least 6mm clearance or a layer of insulation with a minimum thickness of 0.5mm between the top of the transformer and the housing. Only use insulated spacers in the dotted area. The fourth hole should a conductive spacer to improve EMI preformance.



10mm Spacers are available in the Hypex webshop to mount the SMPS onto the chassis. This creates the mandatory 6mm clearance from the bottom side of the PCB to the chassis without the need for additional insulating material. However, If the enclosure is limited in height, for instance a 1HE 19" enclosure, one shall need to use smaller spacers and provide a layer of insulation both above and below the SMPS with a minimum thickness of 0.5mm in order to comply with the Class 2 Safety Directive. If these measures are taken into account, the maximum overall height can be reduced to 37mm.

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Instructions For Installation

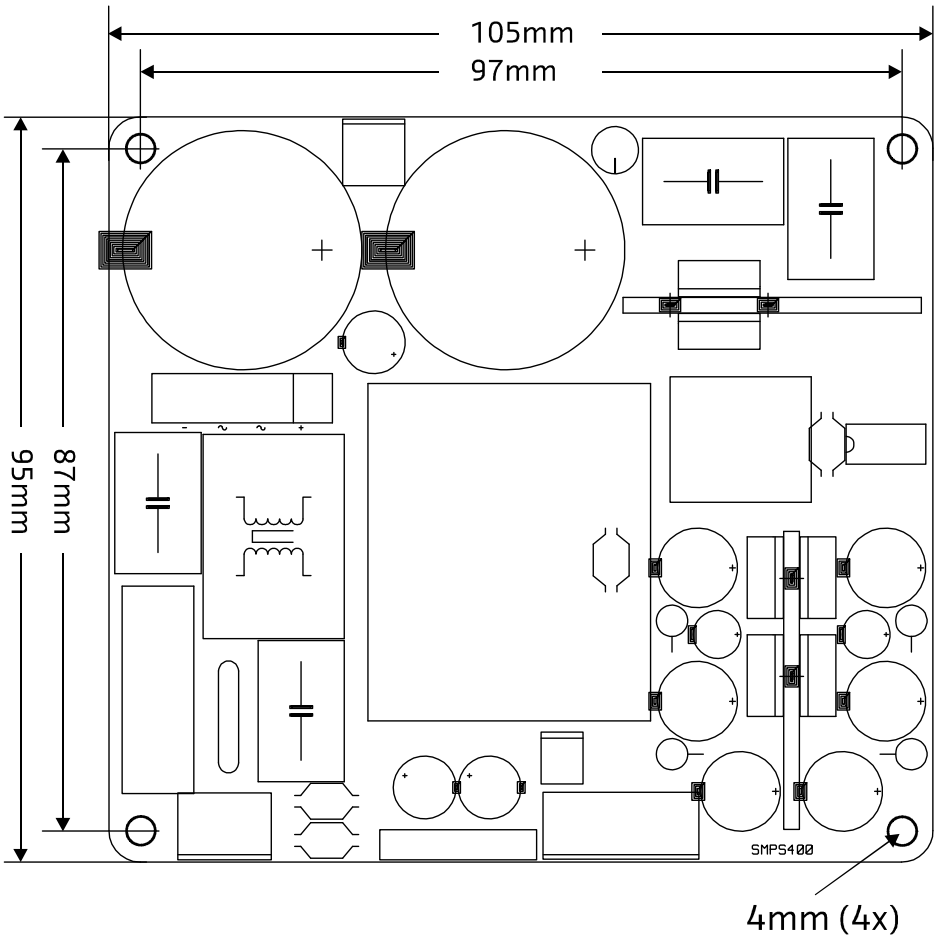
Warning: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
Warning: Disconnect the unit from the mains and allow all capacitors to discharge for 10 minutes before handling it.

This symbol indicates the presence of hazardous voltages at accessible conductive terminals on the board. Parts that are not highlighted in red (picture above) may carry voltages in excess of 140VDC!

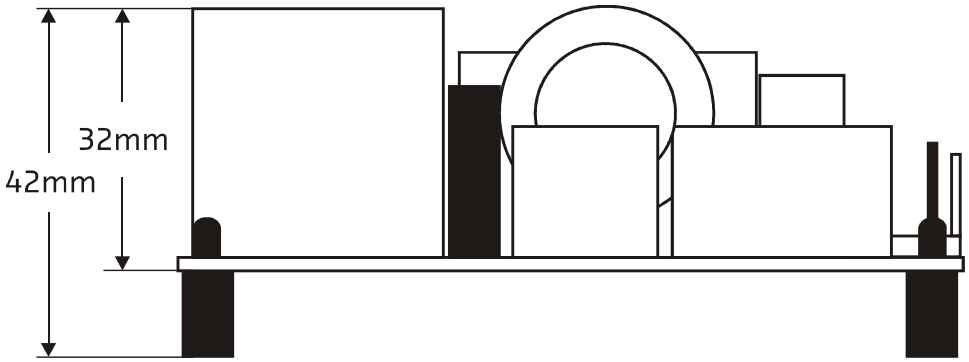
1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the application.
7. Only use attachments/accessories specified or approved by the manufacturer.
8. Unplug this apparatus during lightning storms or when unused for long periods of time.
9. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.
10. This product is to be used with Hypex amplifier modules only.
11. Only the ready-made cable sets provided by Hypex may be used for external wiring of the SMPS400.
12. Don't run any cables across the top or the bottom of the SMPS400. Apply fixtures to cables to ensure that this is not compromised.
13. Observe a minimum distance of 6mm maintain clearance with all possible conducting parts (housing etc.). All parts enclosed by the dotted line below carry hazardous voltages. This includes parts on the top and the bottom of the board. When the SMPS400 is mounted in a tight space there needs to be at least 6mm clearance or a layer of insulation with a minimum thickness of 0.5mm between the top of the transformer and the housing.
14. Natural convection should not be impeded by covering the SMPS400 (apart from the end applications housing).

Dimensions.

Top view.



Side view.



Document Revision	Description	Date
R1	Initial draft.	15.04.2011
R2	Text updated	07.12.2012