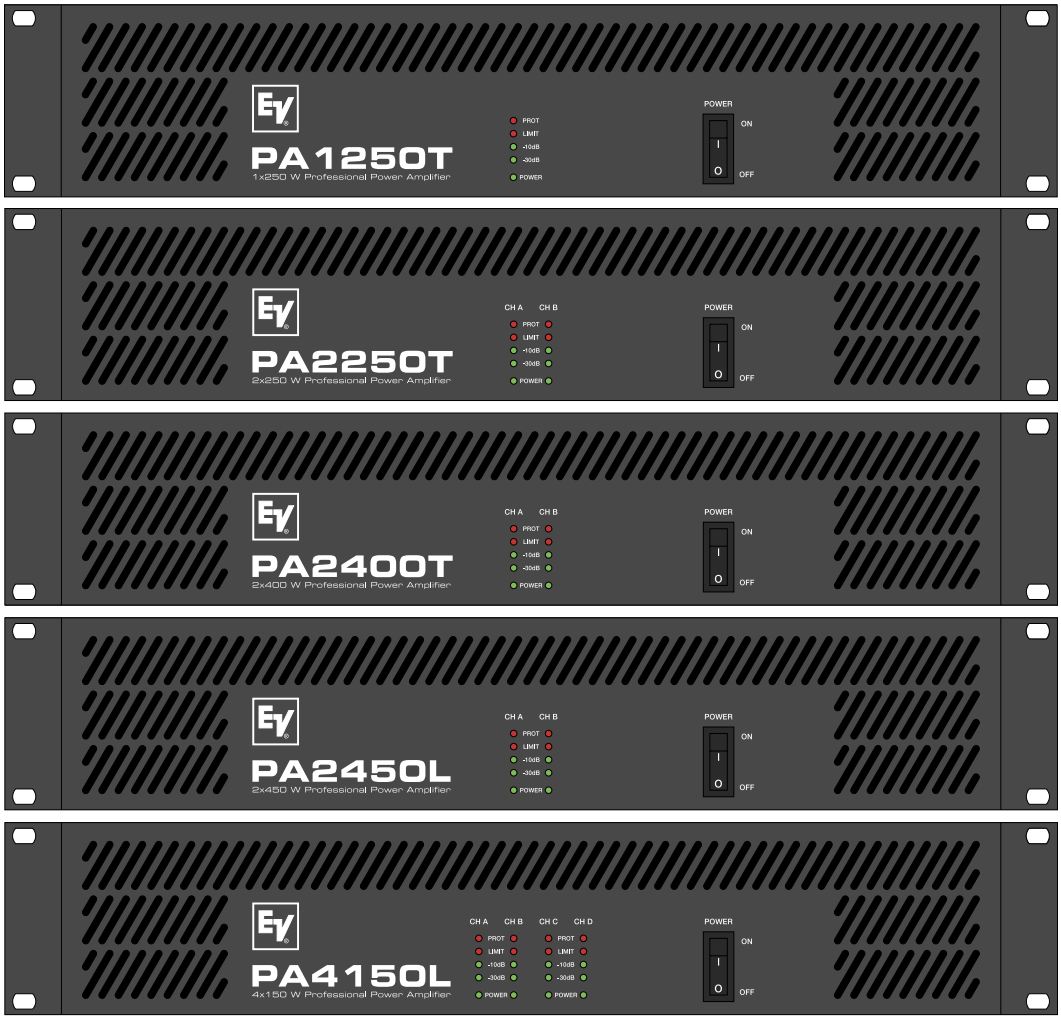
Electro-Voice®

OWNER'S MANUAL
BEDIENUNGSANLEITUNG
MODE D'EMPLOI



PA1250T
PA2250T
PA2400T
PA2450L
PA4150L

PA SERIES

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FRANCAISE

APPENDIX / ANHANG / APPENDICE

IMPORTANT SAFETY INSTRUCTIONS

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
AVIS: RISQUÉ DE CHOC ELECTRIQUE. NE PAS OUVRIR.

WARNING: CONNECT ONLY TO MAINS SOCKET WITH PROTECTIVE EARTHING CONNECTION.

The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated „dangerous voltage“ within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintance (servicing) instructions in the literature accompanying the appliance.

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. Clean only with a dry cloth.
7. Do not cover any ventilation openings. Install in accordance with the manufacture’s instructions.
8. Do not install near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or the grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrican for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for a long period of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, 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.
14. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.
15. To completely disconnect this equipment from the AC Mains, disconnect the power plug from the AC receptacle.
16. The mains plug of the power supply cord shall remain readily operable.

Management of WEEE (waste electrical and electronic equipment) (applicable in Member States of the European Union and other European countries with individual national policies on the management of WEEE) The symbol on the product or on its packaging indicates that this product may not be treated as regular household waste, but has to be disposed through returning it at a Telex dealer.

IMPORTANT SERVICE INSTRUCTIONS

CAUTION: These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the Operating Instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

1. Security regulations as stated in the EN 60065 (VDE 0860 / IEC 65) and the CSA E65 - 94 have to be obeyed when servicing the appliance.
2. Use of a mains separator transformer is mandatory during maintenance while the appliance is opened, needs to be operated and is connected to the mains.
3. Switch off the power before retrofitting any extensions, changing the mains voltage or the output voltage.
4. The minimum distance between parts carrying mains voltage and any accessible metal piece (metal enclosure), respectively between the mains poles has to be 3 mm and needs to be minded at all times. The minimum distance between parts carrying mains voltage and any switches or breakers that are not connected to the mains (secondary parts) has to be 6 mm and needs to be minded at all times.
5. Replacing special components that are marked in the circuit diagram using the security symbol (Note) is only permissible when using original parts.
6. Altering the circuitry without prior consent or advice is not legitimate.
7. Any work security regulations that are applicable at the location where the appliance is being serviced have to be strictly obeyed. This applies also to any regulations about the work place itself.
8. All instructions concerning the handling of MOS - circuits have to be observed.

NOTE:  **SAFETY COMPONENT (MUST BE REPLACED BY ORIGINAL PART)**

DESCRIPTION

Congratulations on your ElectroVoice PA series power amplifier purchase! The ElectroVoice PA-Series power amp line combines outstanding audio performance, exceptional reliability and secure operational safety in a compact 2RU chassis design.
All models in the PA Series provide several protection circuits which not only prevent the power amplifier itself but also the connected loudspeaker systems from being damaged. These protections include Dynamic Audio Limiters, Inrush Current Limiter, Short Circuit Protection and Thermal Overload Protection. All PA-Series power amps feature different hi-pass filters with switch selectable cut-off frequency to attenuate unwanted low-frequency signals.
Infinitely variable low-noise high performance fans guarantee absolute thermal stability while keeping fan noise to a minimum. Direct “flow-thru” chassis design allows for a smooth flow of air from front-to-rear, which allows trouble-free operation even in smaller amp-racks.
Compact high density power supply units with low-leakage toroidal transformers provide extensive headroom far above the listed power rating. Premium phoenix style screw-lock connectors prevent accidental disconnection resulting in a more secure connection of audio signal and speaker cables. All PA series “T” version models are equipped with high performance output transformers also provide floating outputs for 50V, 70V and 100V installations. These models also provide voltage limiters to protect the loudspeaker outputs against over-voltage.

Unpacking & Warranty

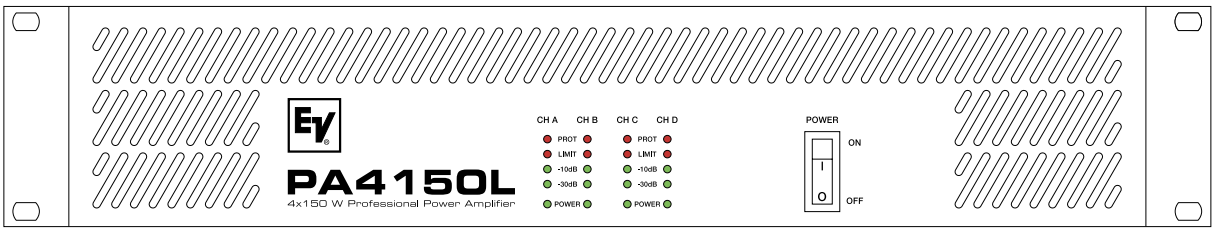
Carefully open the packaging and take out the power amplifier. Next to the power amplifier itself, the package also includes this owner’s manual, a mains cord, a warranty certificate, four attachable feet as well as screwlock connectors for all inputs and outputs. The warranty period is 36 months starting from the date when receiving the appliance from the dealer. Keep the original invoice, which states the purchase/delivery date together with the warranty certificate at a safe place.

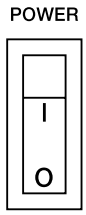
Installation Notes

First of all, please make sure to check that the voltage selector on the amp’s rear is set to the correct position matching the installation site’s local mains voltage.
Generally, installing or mounting power amps should be carried out in a way that guarantees continuously unopposed front-to-rear air circulation. When including an appliance in a closed cabinet or rack shelf system make sure to provide sufficient ventilation. Leave an air duct of at least 2.5“ x 13“ (up to the cabinet’s top ventilation louvers) for air circulation between the rear of the power amplifier and the cabinet’s/rack’s rear wall. Make sure to leave at least 4“ of space above the cabinet or rack shelf system. Since temperatures inside of a cabinet or rack shelf system can easily rise up to 105 degrees during operation, carefully considering the environmental temperature maximum values of all other appliances installed in the same rack shelf system is mandatory (also refer to “Mains Operation & Resulting Temperature”).
When installing the power amp in a cabinet or rack shelf system, make sure to make use of the rear mounting facilities to fix the appliance in place and keep the front panel from bending. If this is not possible, please use mounting-rails instead.

Caution: For problem-free operation do not exceed the environmental temperature maximum of 105 Deg. F.

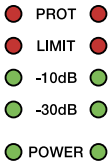
The power amplifier has to be protected against: moisture (dripping or splashing water), direct sunlight, high temperatures or the direct influence of heat sources, high humidity, extensive dust and vibrations. Condensation on internal parts may occur after transporting the power amplifier from a cold into a warmer environment. In that case operation is only permissible after the appliance has gained the new temperature (after approximately one hour). If objects or liquids have intruded the power amp’s enclosure, disconnect the appliance from the mains immediately and contact an authorised service center for inspection before continuing to operate the unit.
Do not use any sprays or solvents for cleaning the appliance, because they might severely damage the surface of the enclosure or lead to dangerous fire hazard.





Mains Switch

Use the mains switch to switch the unit's power on. A soft-start function prevents inrush current peaks on the mains, additionally preventing the mains line protection switch from activating during the amp's power-on operation. Loudspeaker outputs are activated via relay switching with a delay of approx. 2 seconds, which effectively eliminates eventual power-on noise.
During this delay period, the Protect LED lights to confirm correct operation of the protection circuitry.



Protect (PROT)

A lit Protect LED indicates that one of the integrated protections against thermal overload, short-circuit … has been activated. The audio channels' protection circuits operate independent from each other. At the occurrence of failure or overload conditions the affected power amp channel is separated from the load connected via output relay, preventing the connected loudspeaker systems and the power amplifier itself from being damaged. Whatever caused the fault – e.g. a short-circuited speaker cable – needs to be remedied. In case of thermal overload you have to wait until the power amplifier automatically returns to normal operation.

Limiter

The Limit indicator lights as soon as the integrated dynamic limiter is being activated and the power amp is driven at the clipping limit or generally at its maximum capacity. Short-term blinking is not a problem, because the internal limiter trims input levels of up to +21dBu down to a THD+N of approximately 1%. If, on the other hand, this LED lights constantly, reducing the volume is strongly recommended to prevent the connected loudspeaker systems from being damaged by probable overload.

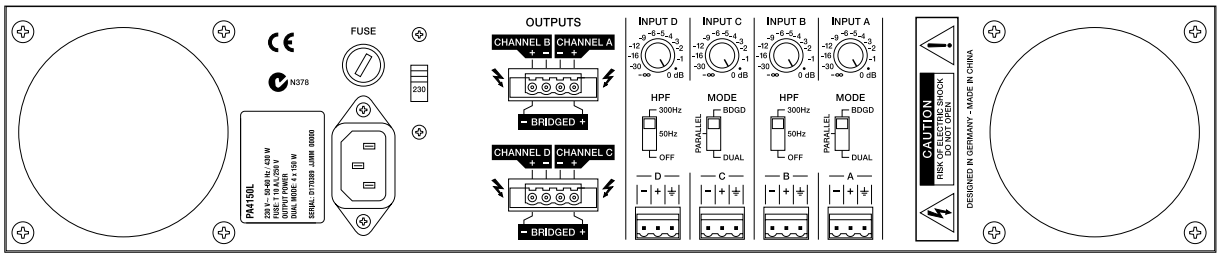
Level Indication

The level indicators signify the power amplifier's current modulation. The -30dB LED starts lighting at approx. 30dB below full modulation while the -10dB LED lights at approx. 10dB below full modulation. Shorted speaker cables or the activation of a protection circuit causes these indicators to go out.

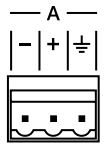
Power

The Power indicator lights when switching the power amplifier on. If the power on LED does not light please check to make sure the unit is plugged in or that the primary fuse is not blown. If the fuse is blown please contact an authorized service center.

REAR PANEL

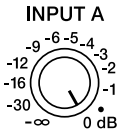


Audio Signal Inputs



The electronically balanced inputs facilitate the connection of external signal sources (e.g. mixing consoles). When screwed to the power amp, the screwlock connectors provided with the unit prevent accidental disconnection.
Choosing balanced cables (2 conductors for audio signals + separate shielding mesh) for LF-signal connection is generally recommended, even when the connected signal source does not provide balanced output signals. This is possible by jointly connecting "–" conductor and shield on the source side (also refer to "LF-Connection Cords).

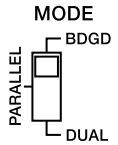
Level Controls



The Level Controls allow setting the according power amp channel's overall amplification. To prevent distortion in mixing consoles connected to the amp, setting these controls to a value between -6dB and 0dB is generally recommended. A scale provides direct indication of the varying additional control attenuation applied to the fixed internal amplification.

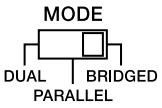
Mode Switch

The Mode Switch allows selecting the power amp's mode of operation. With the four-channel model it is possible to independently select channels A and B or C and D.
The single-channel model comes without mode switch.



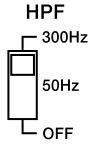
DUAL: The power amp channels work independently from each other, each reproducing the audio signals fed to the corresponding input.

PARALLEL: Both channels reproduce the audio signal fed to input A (or C). However, using the level controls allows individually setting the channel volumes.



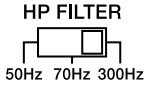
BDGD: Audio signals need to be fed to channel A (or C) when in Bridged Mode. Power amps A and B (or C and D) now work in push-pull operation delivering doubled output voltage. Please keep in mind to correctly connect the loudspeaker systems for Bridged Mode operation. (also refer to "Loudspeaker Outputs")

High Pass Filter (HPF)



The Hi-Pass filter allows effective attenuation of low bass audio signals. You can choose from three cut-off frequency settings:

Power Amps with low impedance outputs	Power Amps with output transformer
300Hz, 12dB/Oct., BW	300Hz, 12dB/Oct., BW
50Hz, 12dB/Oct., BW	70Hz, 12dB/Oct., BW



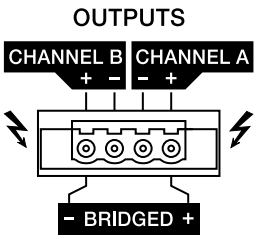
As a basic principle, all models with output transformer have a 50Hz Hi-Pass filter in the audio signal path to protect the transformer from being driven into saturation by high level low-frequency signals.

Loudspeaker Outputs

The speaker output jacks are suitable for connecting speaker cables with a maximum diameter of 2.5 mm^2. The provided screwlock connectors can be screwed to the power amp to prevent inadvertent disconnection. Power amps offer low impedance outputs and / or floating outputs (ISOLATED OUTPUTS) with nominal voltages of 50V, 70V and 100V, depending on the amp model.

Caution: The symbol of a FLASH at the loudspeaker connectors indicates that these outputs may carry high voltages which, when getting in contact with, can cause serious harm. Establishing connections at these outputs is only permissible for persons who have been instructed on how to do so. Otherwise use prefabricated cables only.

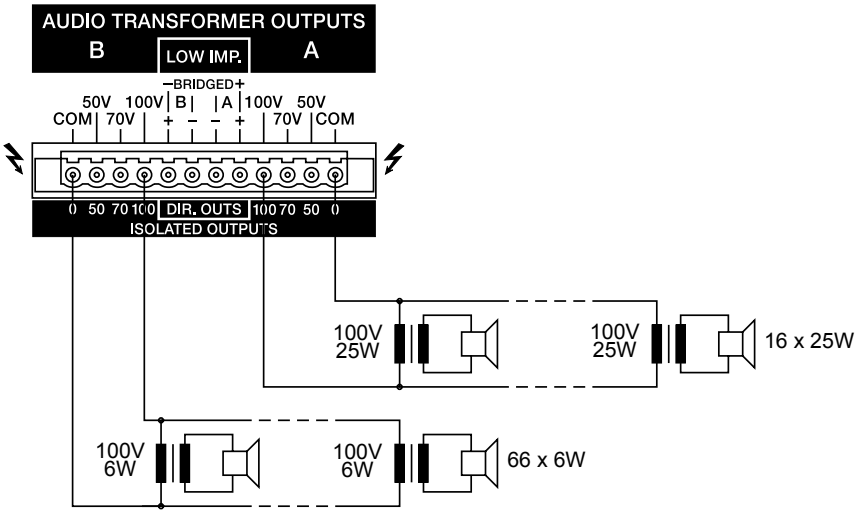
PA2450L & PA4150L



Loudspeaker systems connected to channels A and B (or C and D) have to be connected according to the polarity indicated. Please, make sure to mind the minimal impedance of 4 ohms per channel.
For bridged operation, the load has to be connected according to the BRIDGED-label and the Mode switch needs to be set to “Bridged”. Please, make sure to keep in mind that in Bridged Mode the minimal impedance is 8 ohms and that the input audio signal has to be fed to channel A (or C).

PA1250T, PA2250T & PA2400T

Integrated audio output transformers convert the power amp’s nominal output voltage to 50V, 70V and 100V. The amplifier models PA2250T and PA2400T present all voltages simultaneously at the floating outputs so that the power amp channels can be used in any combination of possible output voltages. Mixed operation of low-impedance speaker systems and floating loudspeaker lines on a single power amp channel is possible as well.
The use of loudspeaker systems with 100V or 70V matching transformers to reduce the effects of cable loss is recommended when the distance between power amp and speaker systems exceeds 165 feet. In addition, this also facilitates distributing the output power among loudspeakers.
As many loudspeaker systems as possible can be connected, as long as the speaker network’s overall power consumption does not exceed the power amp’s rated output power while at the same time not falling below the nominal load impedance of the power amp outputs. Please refer to specifications in the appendix for individual values of the rated output power and nominal load impedance of power amp outputs.



Configuration example: PA2400T with 100V speaker systems connected.
Maximum working loads with 25W/100V and 6W/100V loudspeaker systems.

REAR PANEL

Mains Fuse

Under normal circumstance, the mains fuse blows only in the event of failure. When replacing the fuse, make sure to use a fuse of the same type with identical amperage, voltage and blow characteristics. If the mains fuse blows repeatedly, please contact an authorized service centre.

Mains Socket

Please, make sure to check whether the voltage selector is set to the correct mains voltage that matches the local mains supply at the installation site. An appropriate mains cord is included in the package.

Caution: This appliance has no user serviceable parts inside. Leave servicing to a qualified professional.

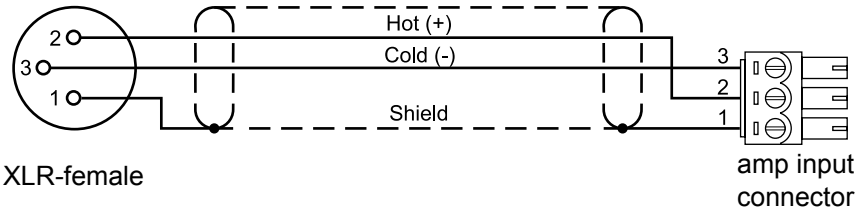
Voltage Selector

Sliding selector switch for switching between mains voltages 115V - 230V. Prior to switching the mains voltage, make sure to replace the mains fuse with an appropriate model. Please refer to the label on the rear of the enclosure indicating the correct values for different mains voltages.

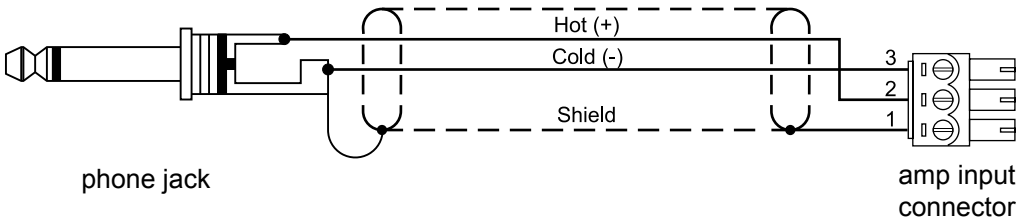
LF-connection cords

Choosing balanced cables (two conductors for audio signals plus separate shielding mesh) is recommended for LF-signal connection. Although connecting unbalanced cables to the power amplifier inputs is possible as well, using balanced cables is always preferable.
A great number of today's audio appliances provide balanced outputs carried out via XLR-type connectors. With balanced cabling, the shield interconnects all metal enclosure parts and therefore efficiently eliminates the introduction of external interference – mostly noise and hum.

Wiring examples



Cable to connect signal source with balanced XLR outputs.



Cable to connect signal source with unbalanced outputs.

Mains Operation

The following tables provide a useful aid in determining power supply and cabling requirements. Column "1/8 max. output power into 4 ohms[2]" states the values to be used for normal operation. These results were measured with the power amplifier being operated at maximum output and a Pink Noise signal according to EN60065 applied at the input, which approximately represents the strain of an audio signal driving the power amp at maximum modulation.

Temperatures inside of the power amplifier

The power drawn from the mains network is converted into acoustic output to feed the connected loudspeaker systems plus heat. The difference between drawn power and dispensed power is referred to as leakage power or dissipation (P_D). The amount of heat resulting from power dissipation might remain inside of a rack-shelf and needs to be diverted using appropriate measures. The following table is meant as auxiliary means for calculating temperatures inside of a rack-shelf system/cabinet and the ventilation efforts necessary.
The column "P_D" lists the leakage power in relation to different operational states. The column "BTU/hr" shows the dispensed heat amount per hour.

PA2450L	U_{mains} [V]	I_{mains} [A]	P_{mains} [W]	P_{out} [W]	P_D [W]	BTU/ hr[3]
idle	230	0,2	28	0	28	96
Max. output power into 8ohms[1]	230	5,4	923	2x300	323	1102
Max. output power into 4ohms[1]	230	8,8	1605	2x480	645	2201
1/3 max. output power into 4ohms[1]	230	5,6	953	2x160	633	2160
1/8 max. output power into 4ohms[1]	230	3,7	598	2x60	478	1631
1/8 max. output power into 4ohms[2]	230	3,2	530	2x60	410	1399
1/8 max. output power into 4ohms[2] [4]	253	3,6	629	2x73	484	1651
Normal Mode (-10dB) into 4ohms[1]	230	3,2	550	2x48	454	1549
Rated output power (0dB, rated) into 4ohms[1]	230	8,1	1482	2x450	582	1986
Alert-Mode (-3dB) into 4ohms[1]	230	6,1	1065	2x225	615	2098

PA4150L	U_{mains} [V]	I_{mains} [A]	P_{mains} [W]	P_{out} [W]	P_D [W]	BTU/ hr[3]
idle	230	0,4	54,7	0	55	187
Max. output power into 8ohms[1]	230	3,9	653	4x100	253	863
Max. output power into 4ohms[1]	230	6,3	1126	4x160	486	1658
1/3 max. output power into 4ohms[1]	230	4,0	665	4x53	452	1541
1/8 max. output power into 4ohms[1]	230	2,7	428	4x20	348	1187
1/8 max. output power into 4ohms[2]	230	2,4	385	4x20	305	1041
1/8 max. output power into 4ohms[2] [4]	253	2,6	450	4x24	353	1205
Normal Mode (-10dB) into 4ohms[1]	230	2,4	385	4x16	321	1095
Rated output power (0dB, rated) into 4ohms[1]	230	6,1	1080	4x150	490	1638
Alert-Mode (-3dB) into 4ohms[1]	230	4,6	790	4x75	490	1672

[1]Sine wave 1kHz
[2]Pink noise acc. to EN60065
[3]1BTU = 1055.06J = 1055.06Ws
[4]10% mains over voltage
[5]P_D = Power dissipation

The following factors allow direct proportional calculation of the mains current (I_{mains}) for different mains supply voltages: 100V = 2,3; 120V = 1,9; 220V = 1,05; 240V = 0,96

MAINS OPERATION & RESULTING TEMPERATURE

PA2400T - 100V output	U_{mains} [V]	I_{mains} [A]	P_{mains} [W]	P_{out} [W]	P_D [W]	BTU/ hr[3]
idle	230	0,3	44,3	0	44	151
Max. output power into 25ohms[1]	230	8,9	1643	2x430	783	2672
1/3 max. output power into 25ohms[1]	230	5,5	952	2x143	665	2270
1/8 max. output power into 25ohms[1]	230	3,7	602	2x54	495	1687
1/8 max. output power into 25ohms[2]	230	3,3	545	2x54	438	1493
1/8 max. output power into 25ohms[2] [4]	253	3,7	646	2x65	516	1760
Normal-Mode (-10dB) into 25ohms[1]	230	3,3	540	2x43	454	1549
Rated output power (0dB, rated) into 25ohms[1]	230	8,5	1550	2x400	750	2559
Alert-Mode (-3dB) into 25ohms[1]	230	6,3	1119	2x200	719	2453

PA2250T - 100V output	U_{mains} [V]	I_{mains} [A]	P_{mains} [W]	P_{out} [W]	P_D [W]	BTU/ hr[3]
idle	230	0,2	31,6	0	32	108
Max. output power into 40ohms[1]	230	5,5	960	2x270	420	1433
1/3 max. output power into 40ohms[1]	230	3,5	571	2x90	391	1334
1/8 max. output power into 40ohms[1]	230	2,3	365	2x34	298	1015
1/8 max. output power into 40ohms[2]	230	2,1	330	2x34	263	896
1/8 max. output power into 40ohms[2] [4]	253	2,3	385	2x41	303	1035
Normal-Mode (-10dB) into 40ohms[1]	230	2,1	328	2x27	274	935
Rated output power (0dB, rated) into 40ohms[1]	230	5,4	929	2x250	429	1464
Alert-Mode (-3dB) into 40ohms[1]	230	4,0	668	2x125	418	1426

PA1250T - 100V output	U_{mains} [V]	I_{mains} [A]	P_{mains} [W]	P_{out} [W]	P_D [W]	BTU/ hr[3]
idle	230	0,2	21,7	0	22	74
Max. output power into 40ohms[1]	230	2,8	487	1x270	217	740
1/3 max. output power into 40ohms[1]	230	1,8	289	1x90	199	679
1/8 max. output power into 40ohms[1]	230	1,2	182	1x34	148	506
1/8 max. output power into 40ohms[2]	230	1,1	170	1x34	136	465
1/8 max. output power into 40ohms[2] [4]	253	1,2	197	1x41	156	533
Normal-Mode (-10dB) into 40ohms[1]	230	1,1	164	1x27	137	467
Rated output power (0dB, rated) into 40ohms[1]	230	2,7	471	1x250	221	754
Alert-Mode (-3dB) into 40ohms[1]	230	2,0	339	1x125	214	730

[1] Sine wave 1kHz
[2] Pink noise acc. to EN60065
[3] 1BTU = 1055.06J = 1055.06Ws
[4] 10% mains over voltage
[5] P_D = Power dissipation

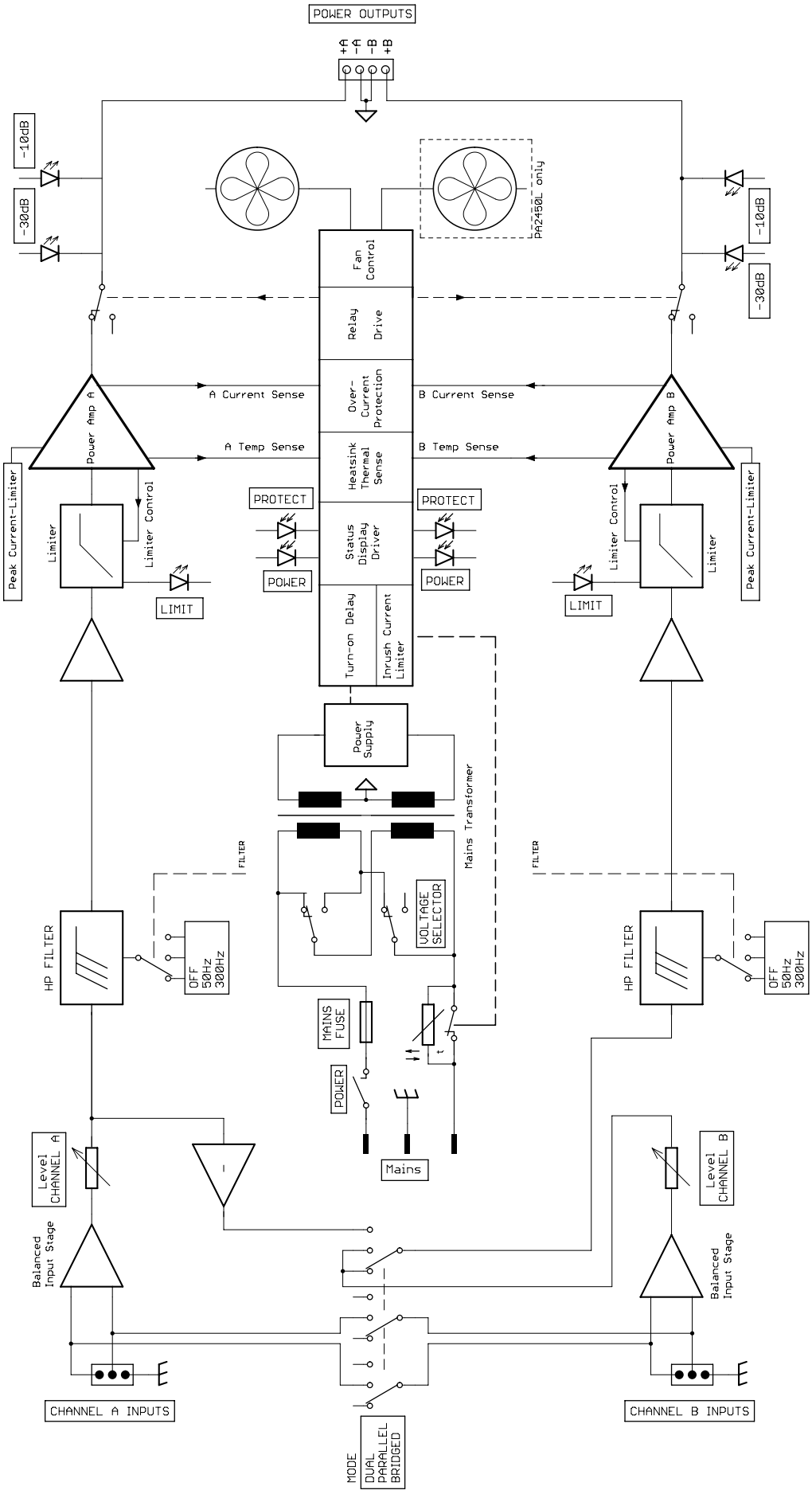
The following factors allow direct proportional calculation of the mains current (I_{mains}) for different mains supply voltages: 100V = 2,3; 120V = 1,9; 220V = 1,05; 240V = 0,96

For power amp models with integrated transformers, the listed values for the 100V outputs are equally applicable for the 70V, 50V and for the low-impedance outputs as long as the connected load is equivalent as well.

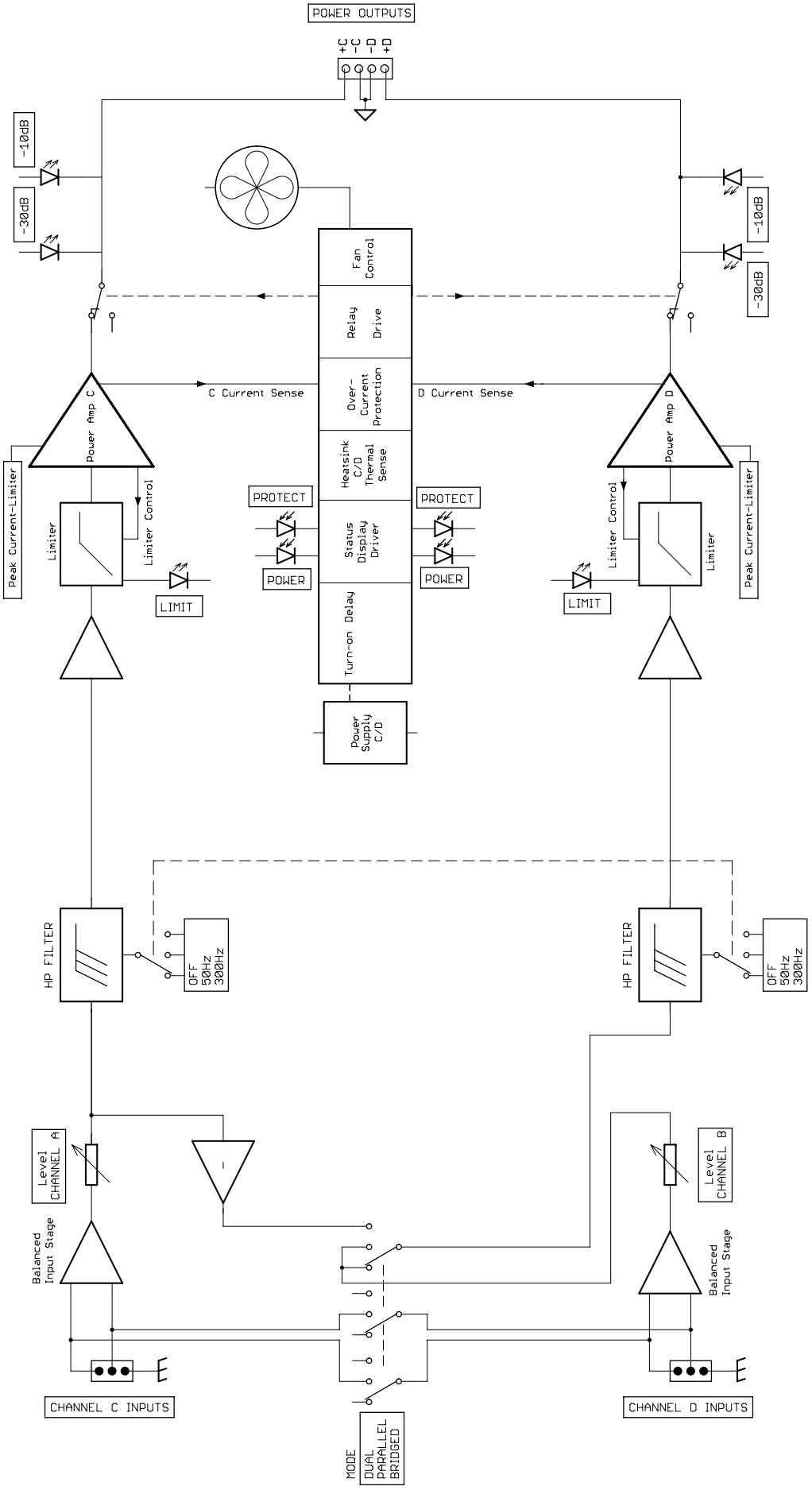
	PA2450L		PA4150L		PA2400T					PA2250T					PA1250T		
Load Impedance	8Ω	4Ω	8Ω	4Ω	8Ω	4Ω	100V	70V	50V	8Ω	4Ω	100V	70V	50V	100V	70V	50V
Maximum midband output power THD=1%, 1kHz	300W	480W	100W	160W	215W	430W	430W	430W	430W	135W	270W	270W	270W	270W	270W	270W	270W
Rated output power (*rated load) THD<0.2%, 20Hz ... 20kHz	225W	450W	75W	150W	200W	400W	400W 25Ω*	400W 12.25Ω*	400W 6.25Ω*	125W	250W	250W 40Ω*	250W 19.6Ω*	250W 10Ω*	250W 40Ω*	250W 19.6Ω*	250W 10Ω*
Max. single channel output power Dynamic-Headroom, IHF-A	280W	560W	120W	200W	260W	520W	520W	500W	480W	160W	320W	300W	290W	290W	300W	290W	290W
Maximum bridged output power THD=1%, 1kHz	900W	-	315W	-	860W	-	-			540W	-	-			-		
Maximum RMS voltage swing THD=1%, 1kHz	44.7V		32.1V		44.7V		117V	82V	59V	35.4V		117V	82V	59V	117V	82V	59V
Voltage gain at 1kHz	34.3dB		30dB		34.3dB		42.2dB	39.1dB	36.2dB	32.2dB		42.2dB	39.1dB	36.2dB	42.2dB	39.1dB	36.2dB
Slew rate at 1kHz	28V/µs		16V/µs		25V/µs		65V/µs	46V/µs	34V/µs	18V/µs		61V/µs	41V/µs	29V/µs	61V/µs	41V/µs	29V/µs
Power consumption at ⅛ maximum output power, lim. pink	-	530W	-	360W	-	-	545W	-	-	-	-	330W	-	-	170W	-	-
Input sensitivity at rated output power or voltage, 1kHz	0dBu (775mV)		0dBu (775mV)		0dBu (775mV)					0dBu (775mV)					0dBu (775mV)		
THD at rated output power MBW=80kHz, 1kHz	<0.1%		<0.1%		<0.1%		<0.1%			<0.1%		<0.1%			<0.1%		
IMD-SMPTE 60Hz, 7kHz	<0.1%		<0.1%		<0.1%		<0.1%			<0.1%		<0.1%			<0.1%		
DIM30 3.15kHz, 15kHz	<0.1%		<0.1%		<0.1%		<0.1%			<0.1%		<0.1%			<0.1%		
Crosstalk ref. 1kHz, at 10% rated output power	<-75dB		<-75dB		<-75dB					<-75dB					-		
Frequency response -1dB, ref. 1kHz	<10Hz - 40kHz		<10Hz - 40kHz		65Hz - 40kHz					65Hz – 40kHz					65Hz – 40kHz		
Power bandwidth THD=1%, ref. 1kHz, half power	<10Hz ... >50kHz		<10Hz ... >50kHz		45Hz … >20kHz					45Hz … >20kHz					45Hz … >20kHz		
Input impedance 20Hz ... 20kHz, balanced	>20kΩ		>20kΩ		>20kΩ					>20kΩ					>20kΩ		
Damping factor at 100Hz / 1kHz, 4Ω	>250		>250		>250		-			>250		-			-		
Signal to noise ratio A-weighted	104dB		101dB		103dB					103dB					103dB		
Power requirements	120V, 230 V, 50Hz - 60Hz																
Protection	Audio limiters, high temperature, peak current limiters, turn-on delay																
Cooling	Front-to-rear																
Safety class	I																
Dimensions (W x H x D), mm	483 x 88 x 405 (2Ru)																
Weight	16.5kg (36.34lbs)		18kg (39.65lbs)		26kg (57.27lbs)					23.5kg (51.76lbs)					16.5kg (36.34lbs)		

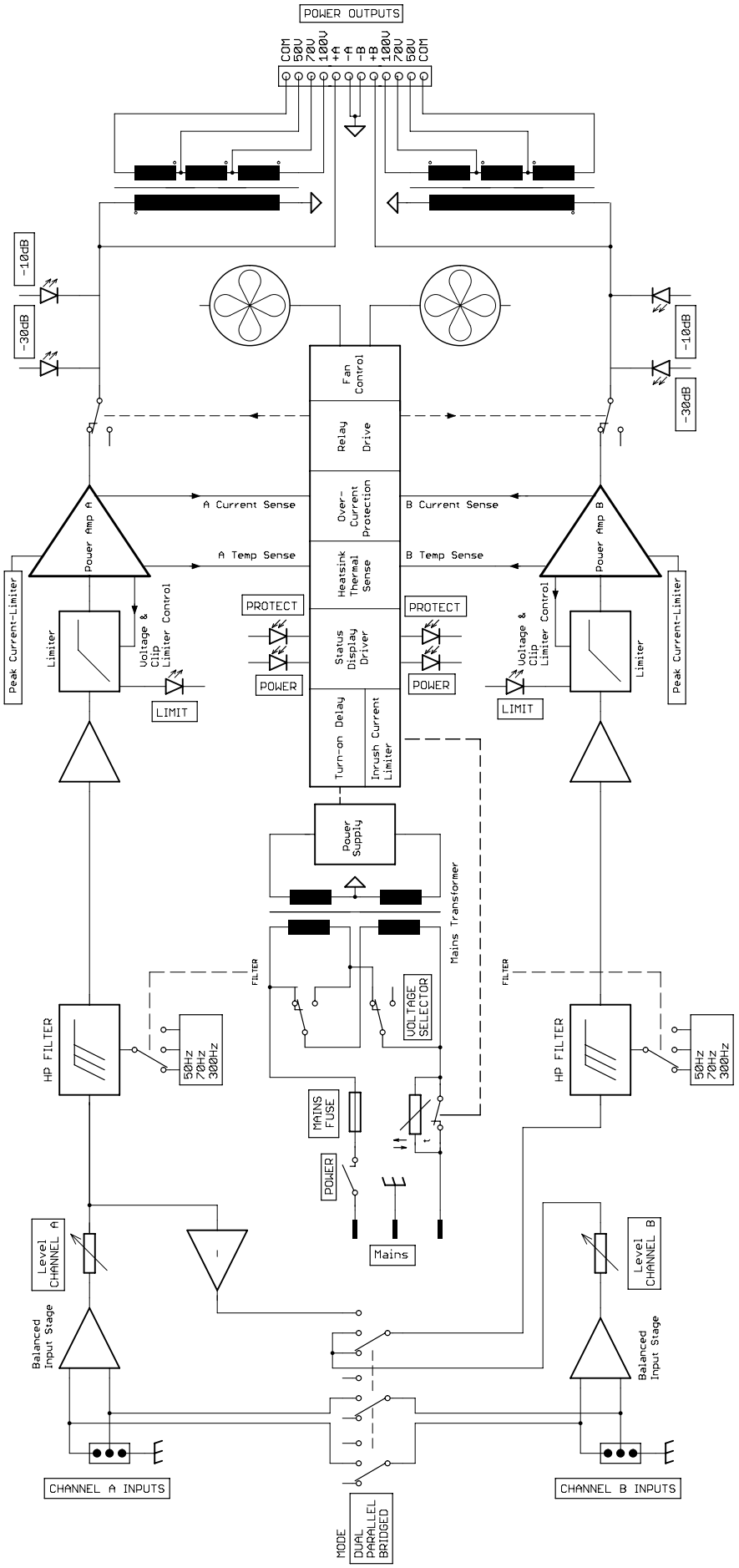
Low impedance outputs: - min. rated load for single channel operation is 4Ω. 2Ω load is not recommended.
- min. rated load for bridged operation is 8Ω. 4Ω load is not recommended.

BLOCK DIAGRAM PA2450L / PA4150L CH. A/B

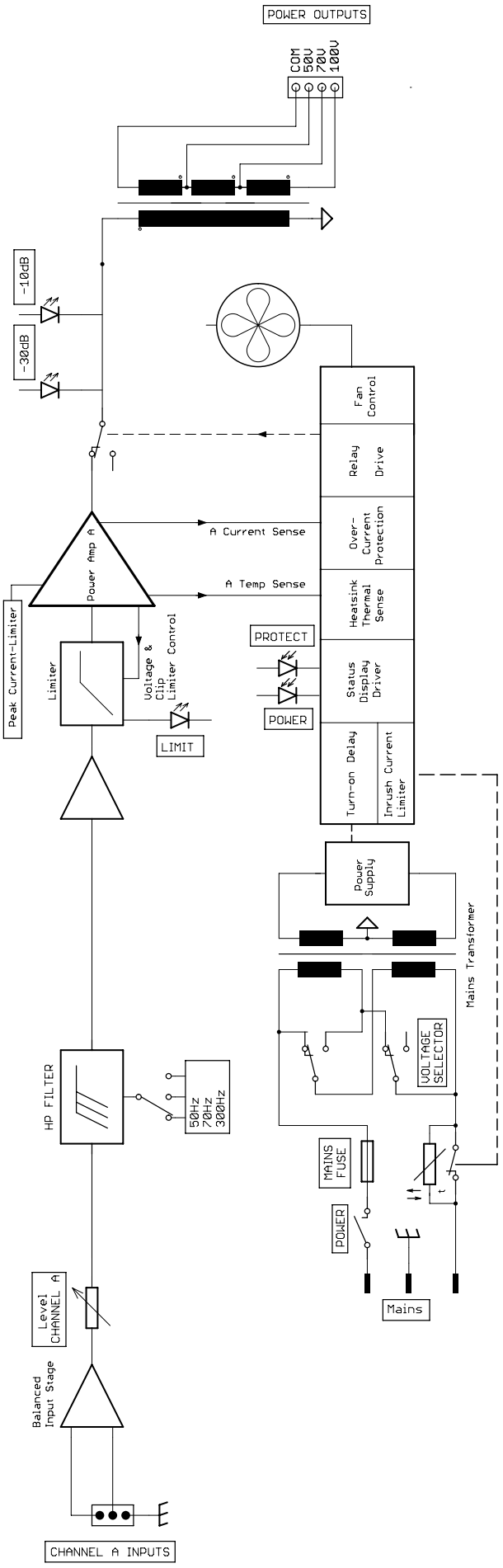


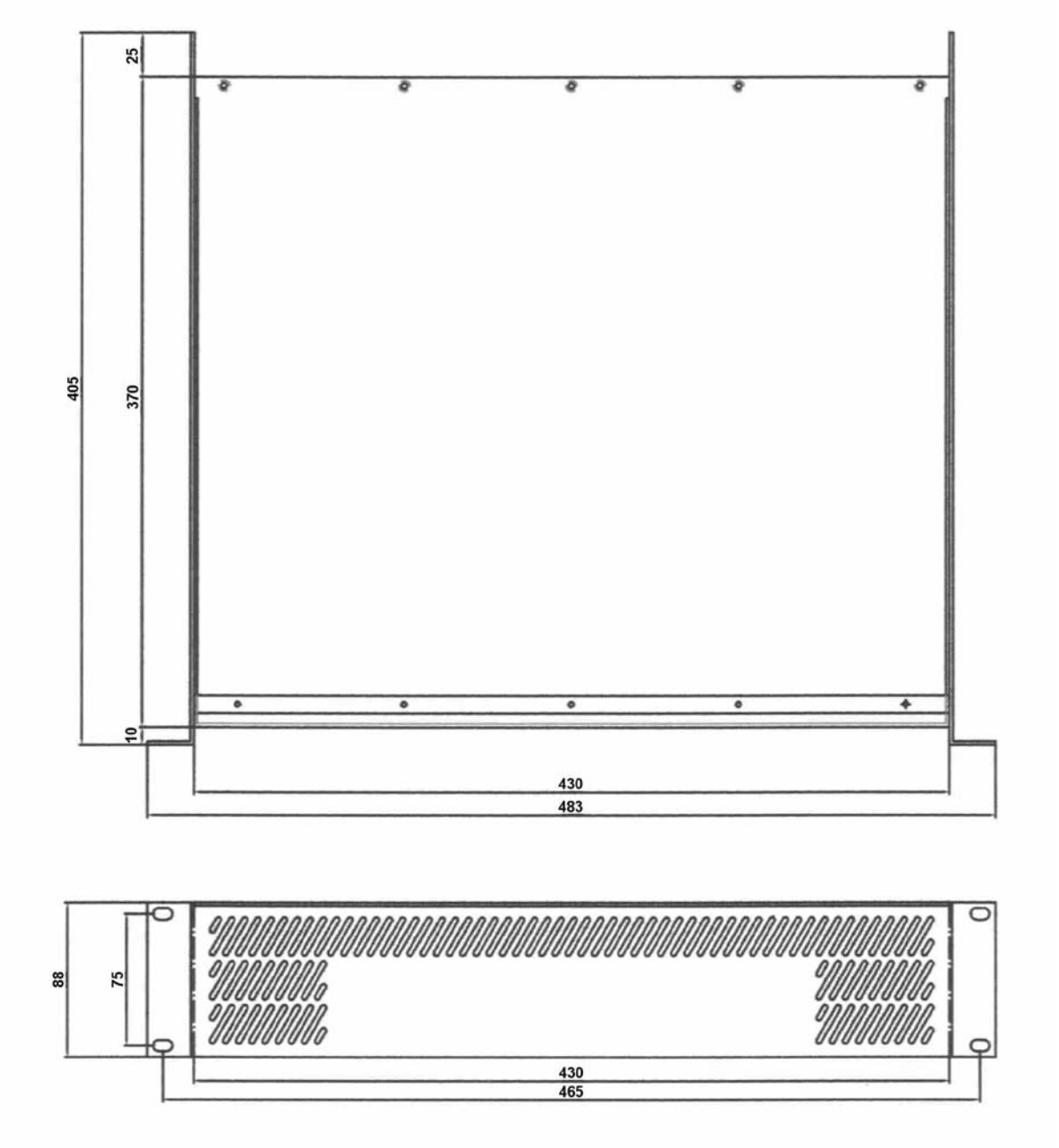
BLOCK DIAGRAM PA4150L CH. C/D




POWER OUTPUTS
COM
50V
70V
100V
+A
-A
-B
+B
100V
70V
50V
COM
-10dB
-30dB
-10dB
-30dB
Fan Control
Relay Drive
Over-Current Protection
Heatsink Thermal Sense
Status Display Driver
Turn-on Delay
Inrush Current Limiter
A Current Sense
B Current Sense
A Temp Sense
B Temp Sense
Power Amp A
Power Amp B
Peak Current-Limiter
Limiter
Voltage & Clip Limiter Control
PROTECT
POWER
LIMIT
Power Supply
Mains Transformer
FILTER
HP FILTER
50Hz
70Hz
300Hz
VOLTAGE SELECTOR
MAINS FUSE
POWER
Mains
Level CHANNEL A
Level CHANNEL B
Balanced Input Stage
CHANNEL A INPUTS
CHANNEL B INPUTS
MODE
DUAL
PARALLEL
BRIDGED

BLOCK DIAGRAM PA1250T





PA series amplifier dimensions in mm.

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