

Instruction manual

PA-4300DX DIGITAL POWER AMPLIFIER

Transformers, with 4 x 300 watts or 2 x 600 watts/100V output power - power sharing



ENGLISH



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IMPORTANT SAFETY INSTRUCTIONS & KEY SYMBOLS

1. Read this manual carefully.
2. Keep this manual in a safe place.
3. Observe all warnings.
4. Follow all instructions.
5. **WARNING:** To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture. Do not use this device near water.
6. Clean only with a dry cloth.
7. Do not cover any ventilation openings.
8. Do not install near heat sources such as radiators, air vents, stoves or other equipment (including amplifiers) that radiate heat.
9. Do not override the safety function of the polarity reversal protection or earthing contact plug. A connector with polarity reversal protection has two pins, one wider than the other (USA / Canada only). A safety plug has two pins and a ground terminal. If the supplied plug does not fit into your outlet, it will be outdated and must be replaced by an electrician.
10. Route the power cord so that nobody can step on it or get caught. This particularly applies to plugs, sockets and the point where the cable exits the device.
11. Use only Phoenix Professional Audio GmbH products and specified accessories.
12. Have maintenance performed by qualified service personnel only. The device must always be serviced if it has been damaged in any way, for example, if the power cord or plug is damaged, liquids have been spilled on the product, or objects have fallen into the product, the product has been exposed to rain or moisture, is not working normally, or has been dropped.

EXPLANATION OF GRAPHIC SYMBOLS



**AVIS: RISQUE DE CHOC ELECTRIQUE !
NE PAS OUVRIR !**



The exclamation mark in a triangle is intended to alert the user to the presence of important operating and maintenance instructions in this manual.



The symbol consisting of a lightning bolt with an arrowhead in a triangle is intended to alert the user to the presence of non-isolated, dangerous voltages within the housing that may be strong enough to give off an electric shock.



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER. USE QUALIFIED PERSONNEL FOR ALL MAINTENANCE WORK.

GENERAL INFORMATION

The digital power amplifier PA-4300DX is a transformerless 4-channel power amplifier with 4 x 300 watts or 2 x 600 watts sine power through power sharing according to IEC 268-3 and a power supply of 230VAC and backup power supply 24VDC in a 1U housing.

Each power amplifier module has a separate audio input. Each of these inputs can be assigned its own LF signal.

In addition, each amplifier module has its own switching power supply. If, for example, a power amplifier block or a switching power supply fails, the remaining amplifier channels are not affected by the failure (*stand-alone setup*).

The PA-4300DX power amplifier has floating and transformerless 4 x 100V direct outputs without the need for an output transformer.

Error indicators and control contacts are located on the rear side of the system: REMOTE, STAND. BY, FAUL-GND, FAUL-OUT and 2 x ground.


The power amplifier has various protective circuits such as short-circuit protection, DC voltage protection, overload protection and protection against HF interference, fan monitoring with automatic switching off of the system in the event of impairment.

In full operation, the power amplifier has an efficiency of over 90% and is therefore particularly energy efficient. An active standby circuit ensures low power consumption.

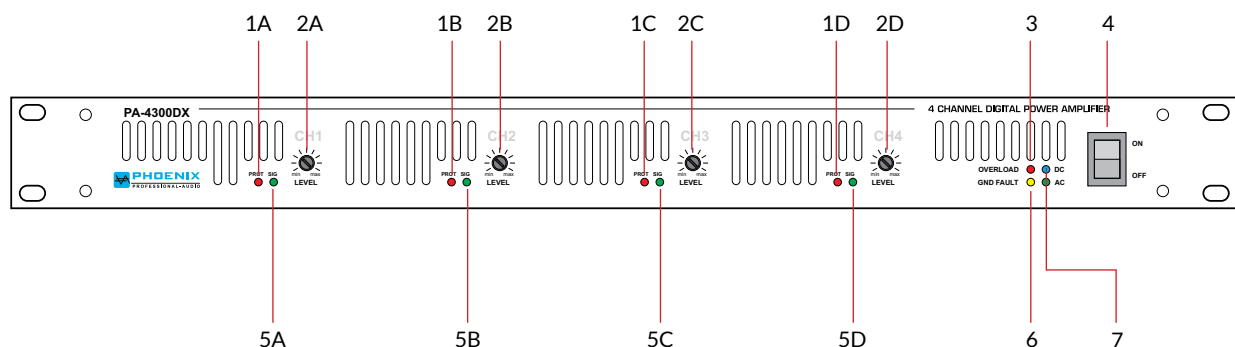
LED displays provide information about signal and operating states, such as Signal-In and Protect.

Four thermo-controlled fans ensure effective cooling of the amplifier with unrestricted continuous operation and full performance.

The amplifier was developed for use in the public address area, such as for sound reinforcement in office buildings, shopping centers, supermarkets, bars and public facilities, for operation with a 100V speaker line.

IMPORTANT:  The low weight of the device enables a “**1-MAN SERVICE**” for 19” cabinet construction and subsequent system maintenance. In addition: time savings thanks to easier transport with fully equipped 19” cabinets; no reconstruction necessary on site.

FRONT



1.- PROTECT 1A-1D / CONTROL LED's, LIMITER, SYSTEM OK

Selective protection circuit, activation in the event of overload or defect in the output stage.

Possible causes are:

- A.- A short circuit on the speaker line.
- B.- Power amplifier defective.



If the PROTECT control indicator lights up without an input signal, there may be system oscillations or other disturbances. Disconnect the load and reduce the gain to zero.

If the LED remains lit, the amplifier may require service.

2.- LEVEL 2A-2D VOLUME CONTROL

These controls determine the volume of inputs 1 to 4.

3.- OVERLOAD LED

The protective circuit is activated in the event of a system malfunction, the red LED lights up.

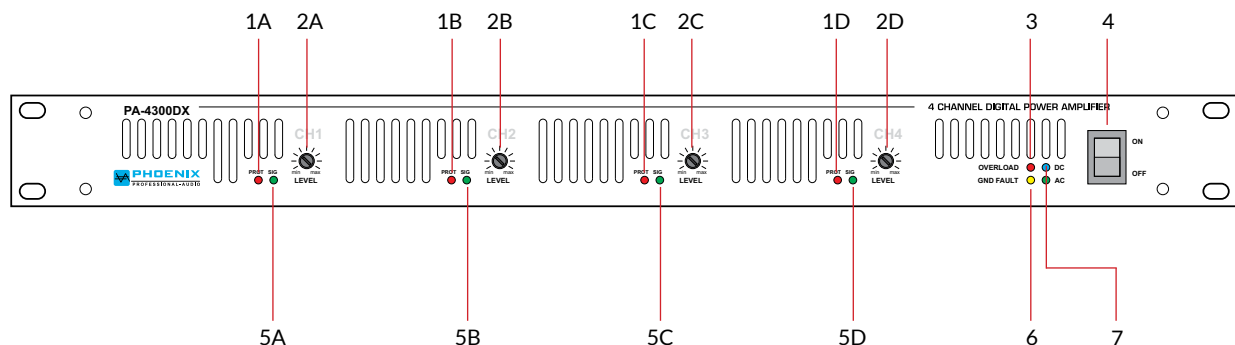
Possible causes are:

- A.- DC voltage protection active.
- B.- Too low impedance on several speaker lines.
- C.- Protection against subfrequency signals and/or HF protection is active.
- D.- System overheating.

4.- ON/OFF POWER SWITCH WITH OPERATION INDICATOR

After pressing this switch (ON position), the device is ready for operation.

FRONT



5.- SIGNAL CONTROL LED's 5A-5D (Inputs 1-4)

The green LED indicator lights up when the audio signal is present at the input socket. If the input is not addressed, the control LED remains dark.

6.- GND FAULT LED

Ground fault monitoring of the speaker lines is used to prevent audio function failures due to damaged speaker cables in public address and EVAC voice alarm systems.

When detected, the yellow LED lights up permanently and the unaffected amplifier channels can still be used.



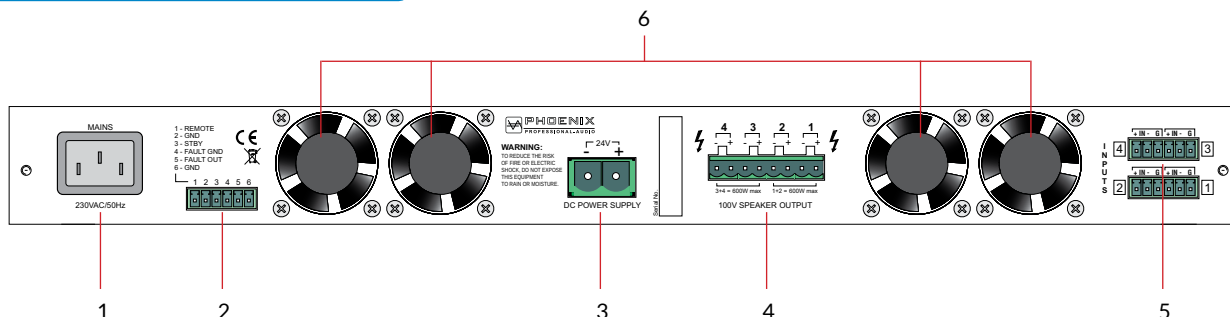
IMPORTANT: If the LS line has a ground fault, further service measures such as line troubleshooting and ground fault elimination are necessary for the continued operation of the entire sound system.

7.- SIGNAL CONTROL LED's (overall system)

1.- The yellow **DC** LED indicator lights up when the amplifier system has switched to the backup power supply (24 VDC input active). The blue **AC** control LED remains dark.

2.- The blue LED indicator **AC** lights up when the amplifier system is powered by 230VAC mains voltage. The yellow LED display **DC** control LED remains dark.

AMPLIFIER CONNECTIONS



1. 230VAC INPUT SOCKET

IEC socket for connection to the 230VAC mains supply.

2.- Control and fault signaling contacts ⚠

2.1.- REMOTE

Remote control of the amplifier ON/OFF mode. Bridge between pin 1 and pin 2 closed, the system is switched off even in AC or DC operation. All PROT LEDs light up briefly.

2.2.- GROUND

2.3.- STANDBY

Remote control of the amplifier STANDBY mode. Bridge between pin 2 and pin 3 closed; the system is in STANDBY mode. Function also valid for AC or DC operation. All PROT LEDs light up permanently.

IMPORTANT: ⚠ In STANDBY mode, the amplifier consumes very little energy compared to normal operation, but is immediately ready for operation when switched to normal operation. Ideally suited to conserve battery capacity in emergency power supply with measuring intervals according to EN 54-16.

2.4.- FAULT GND

Ground fault detection active (+5VDC)

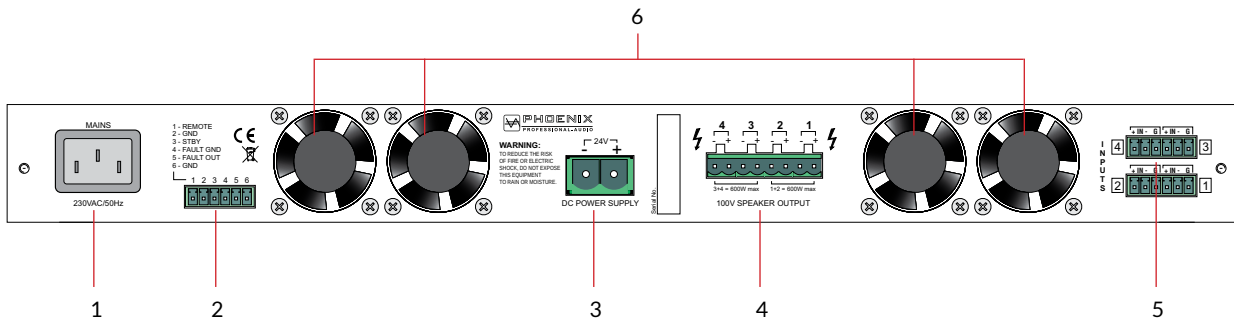
2.5.- FAULT OUT

System malfunction or no output signal present, detection active (+5VDC)

IMPORTANT: Please note chapter **PROTECT LED active (Selective L1 to 4)**

2.6.- GROUND

AMPLIFIER CONNECTIONS



3.- DC POWER SUPPLY TERMINAL 24 V DC FOR CHANNEL 1 TO 4

Connection socket for a 24VDC emergency power supply voltage with DC fuse.

IMPORTANT: ⚠ Please check for correct polarity.

4.- SPEAKER OUTPUTS, 100 V FOR CHANNELS 1 TO 4

Speaker outputs for connecting the speaker lines.



ATTENTION: Output terminal safety notice!

Do not touch the output terminals when the amplifier is switched on. Make all connections with the amplifier switched off. Risk of dangerous voltage.

Please refer to the block diagram shown on the following page for the corresponding output power.

5.- SIGNAL INPUTS

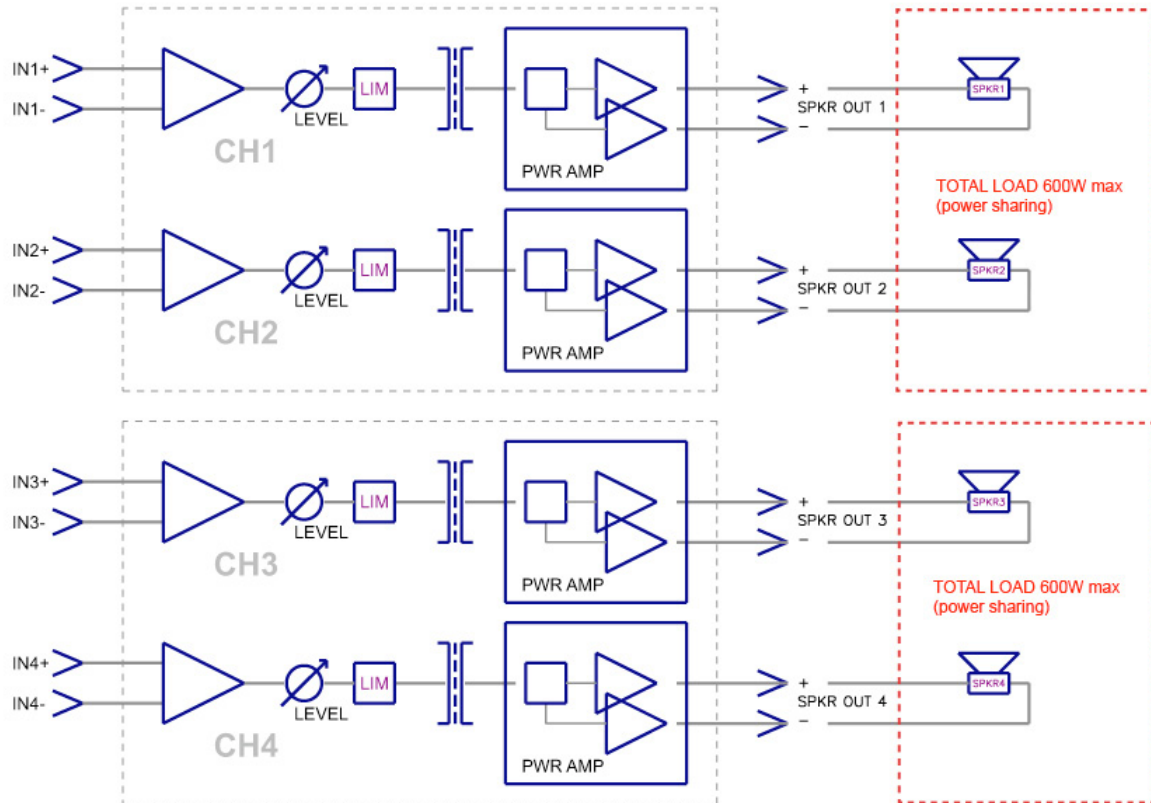
4 separate, balanced audio inputs

Input sensitivity: 760mV @ 16k ohm impedance

6.- FAN

The fans are controlled by the system, i.e. the speed is adjusted to the system performance.

BLOCK DIAGRAM



FURTHER TECHNICAL DATA

Output power:	4 x 300 watts or 2 x 600 watts sine (power sharing according to IEC 268-3) Max. total 1200 watts.
Signal-to-noise ratio:	90dB @ RMS A-weighted THD/N 0.1% @ 1kHz, 1/3 power
Input sensitivity:	760.0 mV @ 16kHz
Outputs:	4 x 100 V speaker lines (floating)
Frequency range:	60 Hz - 24 KHz (-3 dB)
THD:	better than 0.1% @ 1/3 power and 1 kHz
Efficiency:	>90% at full load
Power supply:	230VAC/50Hz (190VAC - 265VAC)
Emergency power supply:	24 VDC (21.5VDC - 28.5 VDC)
Rated power @ 230VAC/50Hz:	2.2 A
Power @ 24VDC:	53 A (1 kHz sine/60 sec)
Standby mode @ 24VDC:	0.6 A
Ambient temperature:	-5°C - 45°C
Dimensions:	484 x 330 x 44 mm (1U)
Weight:	6.5kg
Power consumption with emergency power supply 24 VDC:	IDLE: 2.85 A REMOTE: 0.35A STBY: 1.28A
Power consumption with emergency power supply 230 VAC:	IDLE: 0.75 A REMOTE: 0.24A STBY: 0.35A

Disclaimer

The author points out that the representations, explanations, calculations and the same contained in the directive are merely exemplary in nature. They reflect the current state of knowledge and the current legal situation, but make no claim to completeness. In view of the complexity of construction projects, the development of individual solutions relevant to the respective project is indispensable. Any liability for the descriptions, applications, indications and transmissions of the guideline or individual details or parts of it shall be hereby expressly excluded.

Important notes

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