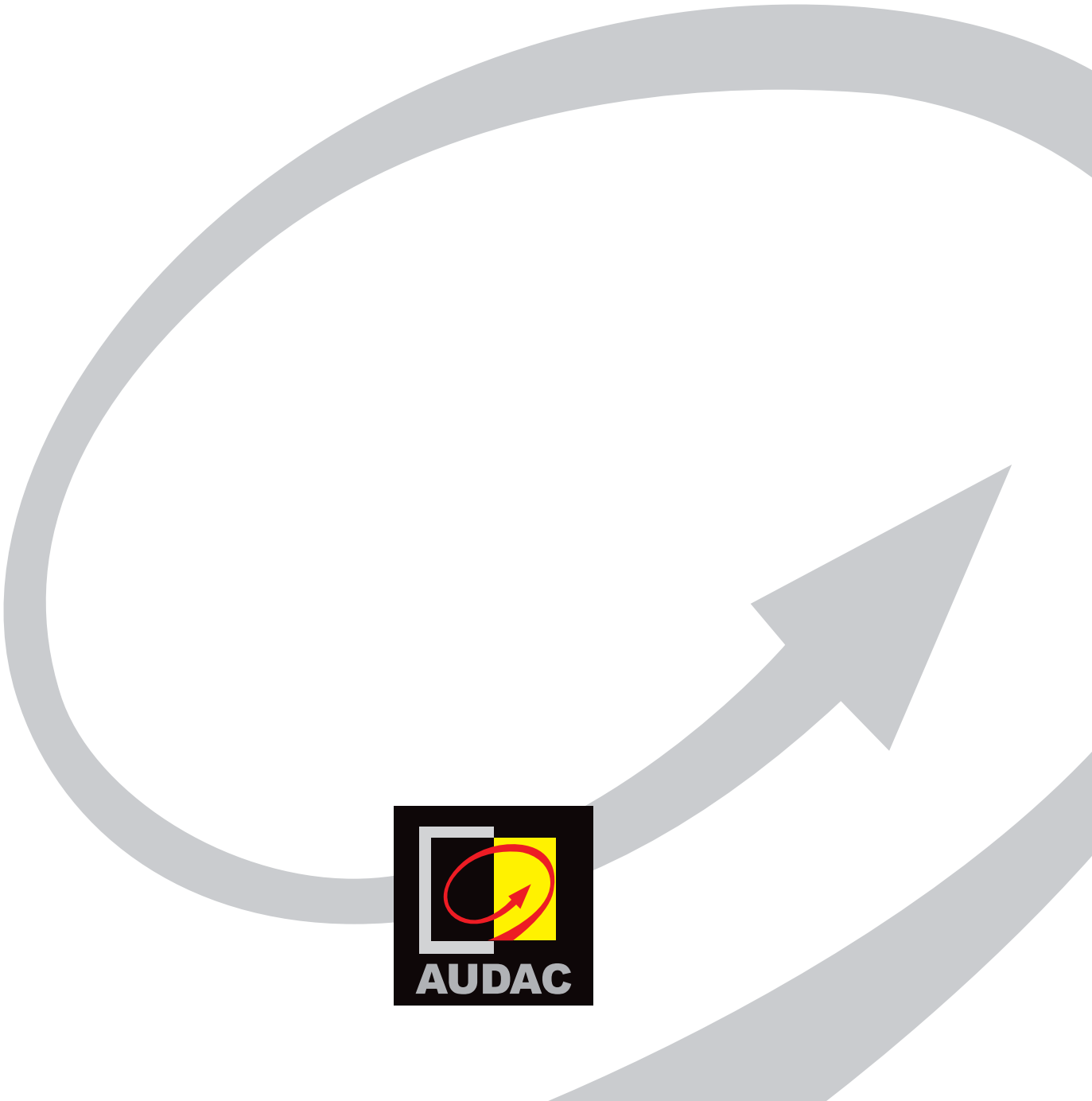
CAP Series

User Manual



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Introduction
Multi Channel 100V Power Amplifiers

The CAP Series are professional 100V Multi–Channel Power Amplifiers, containing various models with different channels and different output power configuration. Different output configurations with two and four channels and power ratings for 240 Watt and 480 Watt for each channel are available.

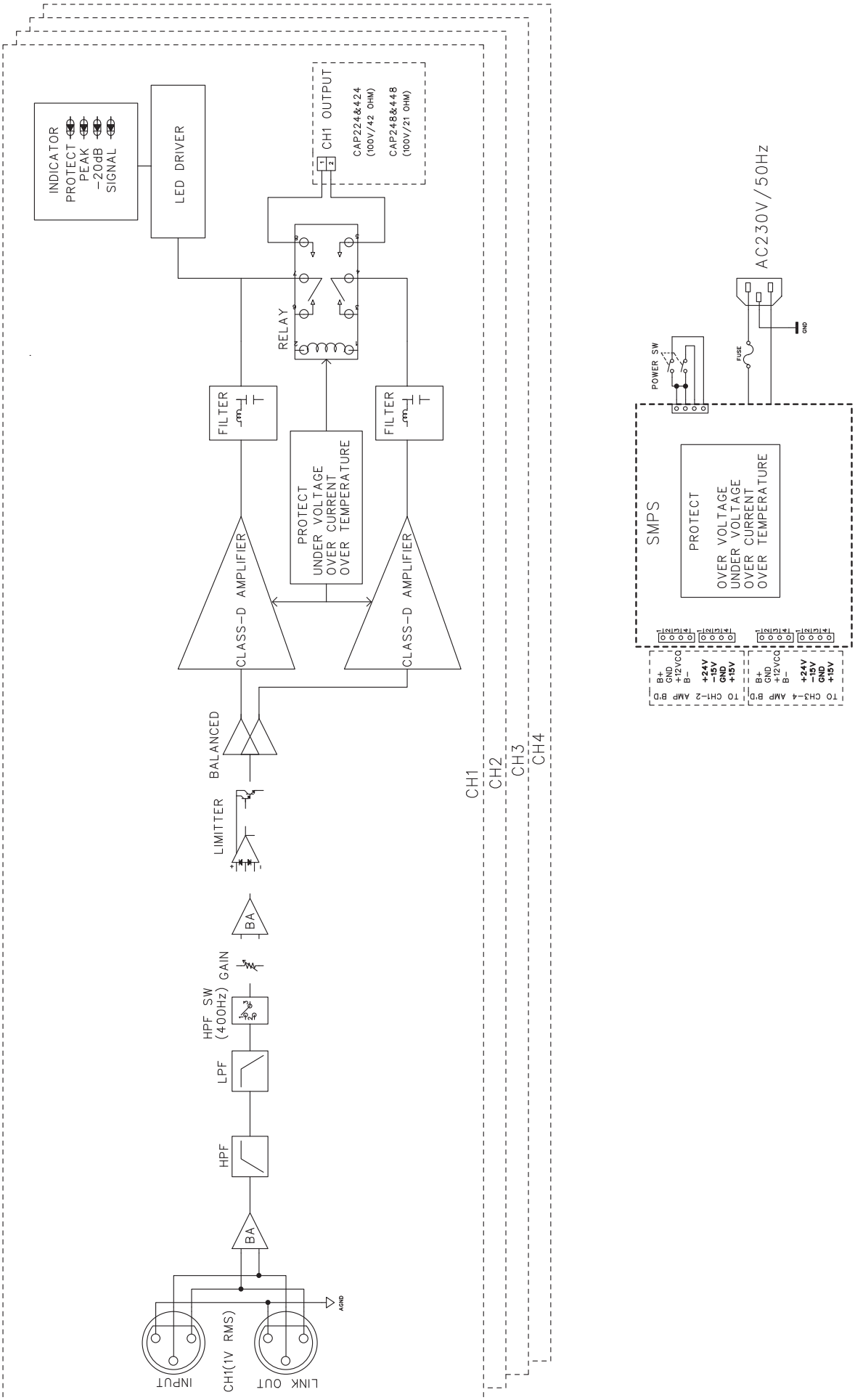
This way, a flexible solution is created for Multi–Zone audio distribution systems with two or more independent zones.

They are designed as no–nonsense amplifiers with only the necessary controls and connections, which creates great simplicity in use and installation. A high efficiency and reliability of the devices is achieved by using switching power supplies in combination with Class–D Amplifier technology. A temperature controlled fan constantly keeps all parts within the right operation range, while avoiding excessive buzz. A built–in multipurpose protection circuit protects against DC malfunction, Short circuit, overheating, overload and limits the signal when necessary.

The input connections are performed using balanced XLR connectors and Link output connectors are provided for link through to other amplifiers. Besides, a high–pass filter switch (400 Hz) and a Gain adjustment potentiometer are provided for each channel.

The output connections are performed using reliable terminal block connectors and this all is housed into a solid constructed, double rack space (2 HE) 19” rack mounting housing.

CAP Series Block Diagram



Precautions

READ FOLLOWING INSTRUCTIONS FOR YOUR OWN SAFETY

ALWAYS KEEP THESE INSTRUCTIONS. NEVER THROW THEM AWAY

ALWAYS HANDLE THIS UNIT WITH CARE

HEED ALL WARNINGS

FOLLOW ALL INSTRUCTIONS

NEVER EXPOSE THIS EQUIPMENT TO RAIN, MOISTURE, ANY DRIPPING OR SPLASHING LIQUID. AND NEVER PLACE AN OBJECT FILLED WITH LIQUID ON TOP OF THIS DEVICE.

DO NOT PLACE THIS UNIT IN AN ENCLOSED ENVIRONMENT SUCH AS A BOOKSHELF OR CLOSET. ENSURE THERE IS ADEQUATE VENTILATION TO COOL THE UNIT. DO NOT BLOCK THE VENTILATION OPENINGS.

DO NOT STICK ANY OBJECTS THROUGH THE VENTILATION OPENINGS.

DO NOT INSTALL THIS UNIT NEAR ANY HEAT SOURCES SUCH AS RADIATORS OR OTHER APPARATUS THAT PRODUCE HEAT

DO NOT PLACE THIS UNIT IN ENVIRONMENTS WHICH CONTAIN HIGH LEVELS OF DUST, HEAT, MOISTURE OR VIBRATION

THIS UNIT IS DEVELOPED FOR INDOOR USE ONLY. DO NOT USE IT OUTDOORS

PLACE THE UNIT ON A STABLE BASE OR MOUNT IT IN A STABLE RACK

ONLY USE ATTACHMENTS & ACCESSORIES SPECIFIED BY THE MANUFACTURER

UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME

ONLY CONNECT THIS UNIT TO A MAINS SOCKET OUTLET WITH PROTECTIVE EARTHING CONNECTION

CAUTION – SERVICING

This product contains no user serviceable parts. Refer all servicing to qualified service personnel. Do not perform any servicing (unless you are qualified to)

EC DECLARATION OF CONFORMITY

This product conforms to all the essential requirements and further relevant specifications described in following directives: 2004/108/EC (EMC) and 2006/95/EC (LVD)

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

The WEEE marking indicates that this product should not be disposed with regular houshold waste at the end of its working life. This regulation is created to prevent any possible harm to the environment or human health.

This product is developed and manufactured with high quality materials and components which can be recycled and/or reused. Please dispose this product to your local collection point or recycling centre for electrical and electronic waste. This will make to sure that it will be recycled on an environmentally friendly manner, and will help to protect the environment in which we all live.

CAUTION

The symbols shown are internationally recognized symbols that warn about potentional hazards of electrical products. The lightning flash with arrowpoint in an equilateral triangle means that the unit contains dangerous voltages. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the users manual.

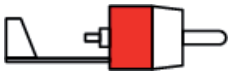
These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the unit during storms to prevent damage.

Chapter 1
Pin connections and connectors

CONNECTION STANDARDS

The in– and output connections for AUDAC audio equipment are performed corresponding to international wiring standards for professional audio equipment.

Cinch (RCA):
For unbalanced line input connections

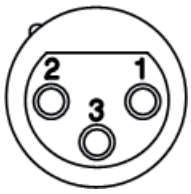


Tip:	Signal	**Sleeve:**	Ground
White:	Left	**Red:**	Right

XLR:
For balanced signal input connections

Pin 1: Ground
Pin 2: Signal +
Pin 3: Signal –

For balanced signal link–through connections



Pin 1: Ground
Pin 2: Signal +
Pin 3: Signal –

Wire up the system

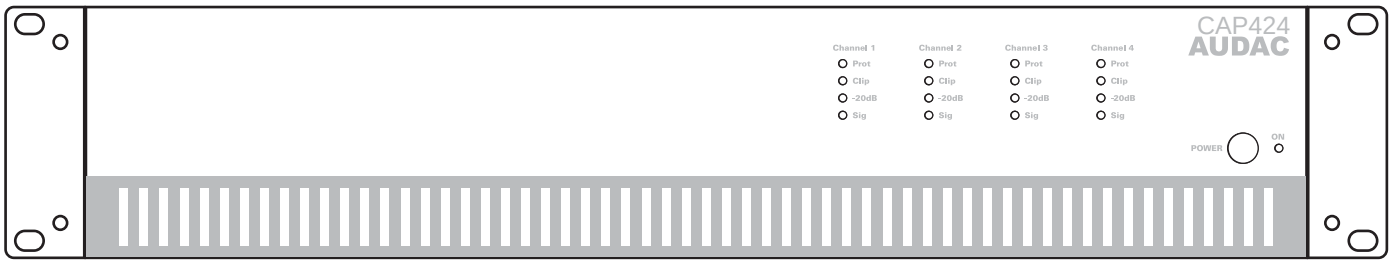
The wiring of the system must be done according to the following rules, to guarantee a proper functioning of the system in all circumstances.

1. Speaker cable for amplified outputs:
   Minimum 2 x 1.5 mm²
   If distance > 15m: 2 x 2.5 mm²)

2. Music sources and zone outputs:
   Must be connected with high–quality audio cable and high–quality connectors

Chapter 2
Front & rear panel

Front Panel overview



Front panel description

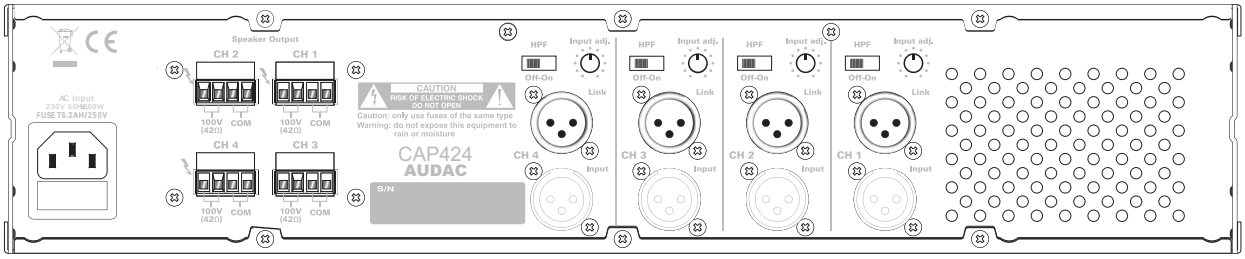
The front panel of the CAP series slighly varies depending of the output configuration and power rating, but basically the panel layout for all CAP amplifiers is similar.

Power switch
A power switch allows to switch the amplifier on and off, while the blue indicator LED located next to the button illuminates when the power is switched on.

Indicator Led's
Four LED's for every channel indicate the operation of the amplifier. The green Signal LED illuminates whenever a signal is present, while the –20dB LED illuminates when the input signal exceeds the – 20 dBu level. The Clip LED illuminates when the corresponding channel is working at maximum level. To ensure the best signal–to–noise ratio, the Clip LED may only illuminate at peak levels.

When the Clip LED illuminates frequently, the amplifier will be overloaded, a distorted "Clipping" sound will be available on the output. The Protection LED will illuminate when overheating occurs, or any other fault is detected. When the protection LED is illuminated, no signal will be available on the outputs. The protection LED's will also illuminate for a few seconds when powering up the amplifier, and when the amplifier is switched off they will slowly fade out.

Rear Panel overview



Rear panel description

The rear panel of the CAP series slightly varies depending of the output configuration and power rating, but basically the panel layout for all CAP amplifiers is similar. An XLR input connector with XLR link–through output connector, a high pass filter switch, a gain control potentiometer and an terminal block output connector are provided for every channel.

AC Power inlet with fuse
The mains power supply (230~240 V AC / 50 Hz) has to be applied to this AC power inlet. The connection is made by an IEC power connector and is fitted with a fuse. When replacing the fuse, make sure that the value of the replacement fuse matches the value of the original fuse. (CAP224: T4AL/250V – CAP248: T6.3AH/250V – CAP424: T6.3AH/250V – CAP448: T12AH/250V)

High pass filter switch
By means of this switch, the integrated High Pass Filter (HPF) can be switched ON and OFF. When the filter is switched ON, frequencies below 400Hz will be suppressed.

This can be useful for eliminating low–frequency hum and noise caused by external equipment and protects speakers from damage caused by excessive low frequency transients.

Gain control potentiometer
Each channel is fitted with a gain control knob whereby the level for each individual channel can be adjusted.

Loudspeaker connections
The loudspeaker output connections are performed using 4–pin terminal block connectors, making it possible to connect high impedance (100V) loudspeakers to the amplifier outputs.

Input connections
The input connections of the amplifier are performed using balanced XLR connectors. Every channel has a XLR input connector and a XLR link output connector. The input signal from the signal source, pre–amplifier or mixer should be connected to the XLR input connections. And by means of the XLR link output connectors, the signal can be linked through to multiple amplifiers.

Chapter 3
Connecting the Amplifier

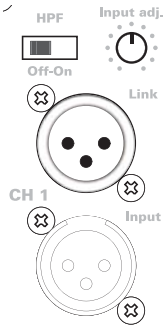
NOTE

Make sure the power is swiched OFF when any change is made to the connections of the amplifier.

Input connections

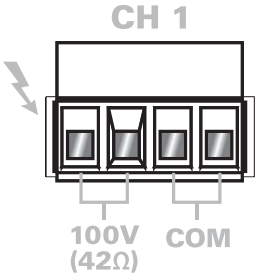
The input connections of the amplifier are performed using balanced XLR connectors. Every channel has a XLR input connector and a XLR link output connector.

The input signal from the signal source, pre–amplifier or mixer should be connected to the XLR input connections. And by means of the XLR link output connectors, the signal can be linked through to multiple amplifiers.



Output connections

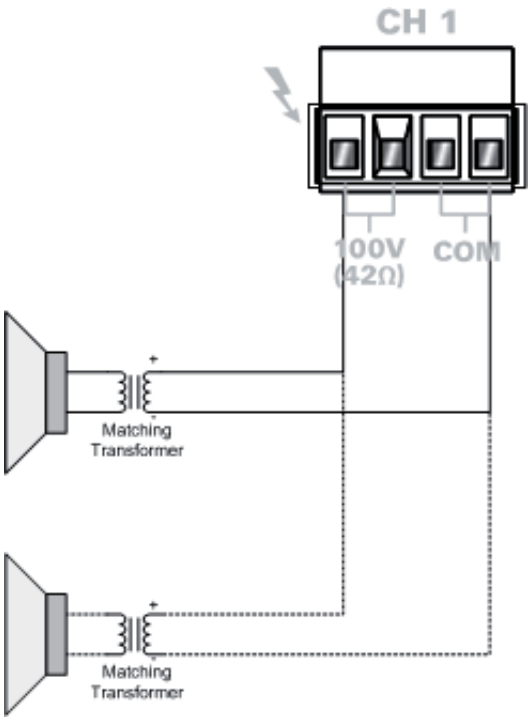
The loudspeaker output connections are performed using 4–pin terminal block connectors, making it possible to connect high impedance (100V) loudspeakers to the amplifier outputs.



The table below shows the output voltage, impedance and maximum power load for each corresponding amplifier.

	Output Voltage	Impedance	Power
CAP224	100 Volt	42 Ohm	240 Watt
CAP248	100 Volt	21 Ohm	480 Watt
CAP424	100 Volt	42 Ohm	240 Watt
CAP448	100 Volt	21 Ohm	480 Watt

The 100 Volt speakers may be connected in parallel on the outputs of the amplifier unless the maximum load / impedance has been reached. The number of allowable loadspeakers depends of the power / impedance of each connected loudspeaker.



Chapter 4
Additional information

Technical specifications

Output Power (1 kHz, THD 1%)		CAP224 CAP248 CAP424 CAP448	2 x 240 Watt 2 x 480 Watt 4 x 240 Watt 4 x 480 Watt
Frequency response			50 Hz – 22 kHz
Signal to Noise Ratio			> 100 dB
Total Harmonic Distortion + Noise			< 0.3%
Common Mode Rejection			70 dB
Crosstalk			> 80 dB
Inputs	Type		**Balanced Line**
	Connectors		Female XLR Input Male XLR Link Output
	Impedance		10 k Ohm
	Sensitivity		1 V RMS
Output	Type		**100 V Loudspeaker Output**
	Connectors		4–pin Euro Terminal Block ~ 5.08 mm
	Impedance	CAP224/424 CAP248/448	42 Ohm 21 Ohm
Controls			Gain High–Pass filter switch (400 Hz)
Indicators			Power Protect Peak –20 dB Signal
Protection			DC–Short Circuit Over Heating Over Load Limiter
Cooling system			Temperature controlled fan
Amplifier technology			Class–D
Power supply	Type		Switching mode
	Range		230~240 V AC / 50 Hz

Power consumption	Idle	CAP224/248	50 Watt
		CAP424/448	89 Watt
	1/8 Rated Power	CAP224	115 Watt
		CAP248	187 Watt
		CAP424	218 Watt
		CAP448	440 Watt
	1/3 Rated Power	CAP224	221 Watt
		CAP248	400 Watt
		CAP424	435 Watt
		CAP448	870 Watt
Weight		CAP224	7.2 Kg
		CAP248	7.5 Kg
		CAP424	8.35 Kg
		CAP448	8.85 Kg

Notes