A 4215/E5 - A 4216/E5 – A 5518/N5

5 Channels Power Amplifier

User Manual

PLEASE READ BEFORE OPERATING THE UNIT

Thank you

Thank you for having chosen a power amplifier designed and built by boXem in Luxembourg, in the heart of Europe.

At boXem, our mission is to bring to your ears the music as the artists wanted it to be. Nothing is added, nothing is removed. This is achieved thanks to a careful selection of technologies, rigorous processes during development and manufacturing, and tireless attention to detail.

I wish you a lifetime of musical enjoyment with Arthur.

Fred Jacquot

Managing Partner at boXem sàrl

History

Version	Date	Content	Autor
R1	11-Mar-25	First version	FJ

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Important Safety Instructions

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boXem suppose que le lecteur comprend parfaitement le texte en Anglais ci-dessous. En cas de doute veuillez contacter boXem. Une traduction vous sera envoyée sur demande.

boXem geht davon aus, dass der Leser den untenstehenden englischen Text vollständig versteht. Im Zweifelsfall wenden Sie sich bitte an boXem. Auf Anfrage wird Ihnen eine Übersetzung zugesandt.

boXem pressupõe que o leitor compreende plenamente o texto inglês abaixo. Em caso de dúvida, por favor contacte boXem. Uma tradução ser-lhe-á enviada a pedido.

boXem asume que el lector entiende perfectamente el texto en inglés que aparece a continuación. En caso de duda, póngase en contacto con boXem. Si lo solicita, se le enviará una traducción.

Throughout this document, some aspects of operation that have a potential impact on safety or reliability are noted with the words “Warning” and “Caution”. Take particular care reading and understanding these items. Paragraphs marked with “Warning” explain safety measures required to maintain your personal safety. Paragraphs marked with “Caution” pertain to danger to the equipment itself or to connected equipment. Please follow these precautions when using this product:

1. Read these instructions.
2. Keep these instructions.
3. Follow all instructions.
4. Heed all warnings.
5. Install in accordance with the manufacturer’s instructions.
6. Use only attachments or accessories specified by the manufacturer.
7. WARNING: Dangerous voltage is inside this apparatus. Opening is only allowed by qualified service personnel.
8. WARNING: Do not defeat the safety purpose of the safety earth connection. Use a three-prong power cord to ensure the product is connected to safety earth. If your outlet doesn’t allow safety earth connection, consult an electrician for replacement of the obsolete outlet.
9. WARNING: Connect only to an outlet whose voltage fits within the range indicated at the back of the power amplifier.
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. Unplug this apparatus during lightning storms or when unused for long periods of time.
12. WARNING: Do not use this apparatus near water. Do not expose the apparatus to dripping or splashing. Do not place objects filled with liquids (flower vases, drink cans, coffee cups, etc) on the apparatus. Do not use this apparatus out of doors.
13. WARNING: Clean only with a dry, soft, lint-free cloth. Do not spray any liquid cleaner onto the cabinet, as this may lead to dangerous shocks or malfunction.
14. CAUTION: This unit runs slightly warm when operated normally. Operate in a normally ventilated area.

15. CAUTION: Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Avoid exposure to direct sunlight.
16. Use only with a cart, stand, bracket, or table designed for use with electronic equipment. In any installation, make sure that injury or damage will not result from cables pulling on the apparatus and its mounting.
17. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply 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.
18. WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

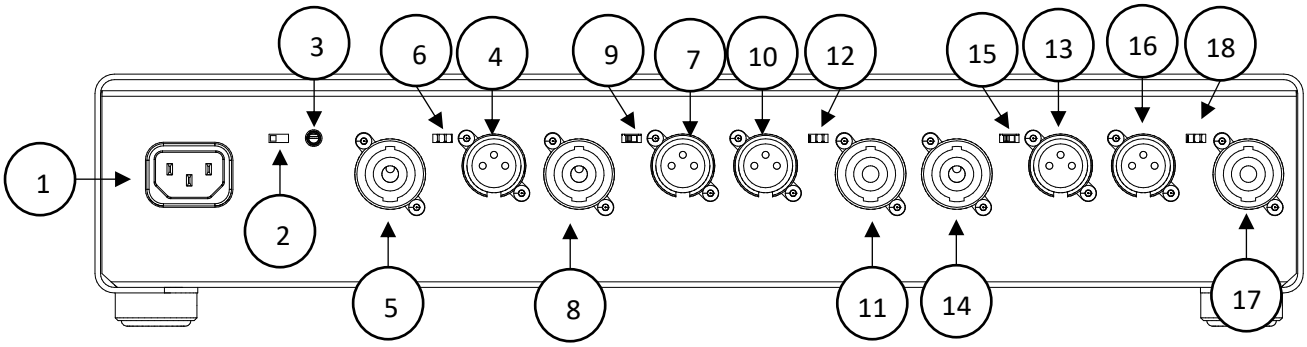
THE LIGHTNING FLASH WITH ARROWHEAD SYMBOL, WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE USER TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" WITHIN THE PRODUCT'S ENCLOSURE THAT MAYBE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK TO PERSONS.

THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE (SERVICING) INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE APPLIANCE.

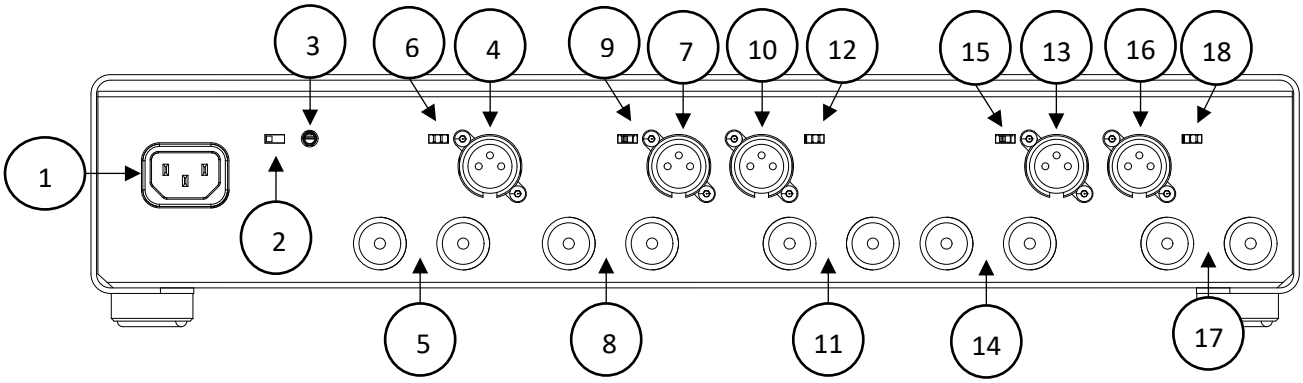
WARNING : SHOCK HAZARD - DO NOT OPEN
ATTENTION : RISQUE DE CHOC ELECTRIQUE-NE PAS OUVRIR

Connections & Controls

Speakon variant



Binding posts variant



#	Function	Comment
1	Mains power input	IEC C14 socket – Matching IEC C13 plug
2	Power mode selection switch	
3	12 V trigger	
4	Input A – Audiosense	XLR female
5	Output A	3 ways binding post or 4 poles Speakon pending variant
6	Gain setting switch A	H = high gain – L = low gain
7	Input B	XLR female
8	Output B	3 ways binding post or 4 poles Speakon pending variant
9	Gain setting switch B	H = high gain – L = low gain
10	Input C	XLR female
11	Output C	3 ways binding post or 4 poles Speakon pending variant
12	Gain setting switch C	H = high gain – L = low gain
13	Input D	XLR female
14	Output D	3 ways binding post or 4 poles Speakon pending variant
15	Gain setting switch D	H = high gain – L = low gain
16	Input E	XLR female
17	Output E	3 ways binding post or 4 poles Speakon pending variant
18	Gain setting switch E	H = high gain – L = low gain

Set-up

Installation

This product relies on free convection of air along the sides and top for cooling. Avoid placing magazines, books or other objects on top of the product as this acts as thermal insulation. Installation inside a cupboard is permissible provided at least 30cm (12”) of free space above the product and 10cm (4”) around the sides is respected. Operation in closer quarters requires some provision of forced convection (fan) to be installed inside the cupboard.

Connections

CAUTION: Whenever you are plugging or unplugging cables, make sure that the power amp is off. Failure to take this precaution may result in pops or bangs in the loudspeaker. Use properly shielded interconnects with reliable connectors.

AC power input

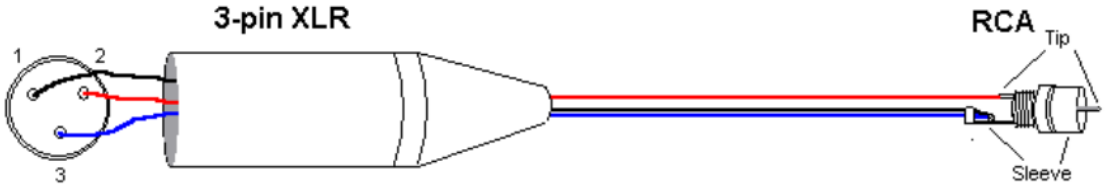
Connect a power cord (not lighter than light PVC sheathed flexible cord according to IEC 60227-1 (designation 60227 IEC 52), 3G1mm2) with IEC C13 plug on amplifier side to the AC input socket (1) on the rear panel. Do not connect the power cord until all the audio input and output connections have been made.

It is usually best to plug the product directly into a wall outlet. Avoid the use of extension cords. A heavy-duty multi-tap power outlet strip may be used if it and the wall outlet are rated to handle the total current demanded by the components connected to it.

If you are going to be away from home for an extended period of time such as a month-long vacation, it is a sensible precaution to unplug electronic equipment. Do the same as a precautionary measure during thunderstorms. No amount of surge protection or mains filtering will save your equipment from a lightning strike in the backyard.

Inputs connections

The inputs are of XLR type. In the case when your preamp/DAC would be equipped with RCA connectors only, please use interconnects wired as following:



When connecting only one channel of the amplifier without 12V trigger, the channel A (4) shall be chosen since it has the Audiosense functionality allowing to automatically power on and off the amplifier.

Outputs connections

Binding posts

Connect the speaker negative input to the amplifier black and white binding.

Connect the speaker positive input to the amplifier black and red binding.

Speakon

Although 4 poles connectors are used for higher compatibility, only poles 1 and 2 are wired inside the amplifier.

Channel mapping

Instead of the usual L (left) and R (right) channels, your amplifier references the channels with letters A and B. Ouput A (5) is the amplified signal from Input A (4). Ouput B (8) is the amplified signal from Input B (7).

You can connect any output (left or right) from your preamp or DAC to Input A (4) as long as the corresponding speaker is connected to Output A (5). The same reasoning applies for channel B.

12V Trigger (optional)

Connect a 3.5mm jack cable between the trigger OUT of your preamp or DAC to the trigger IN (3) of the amplifier. Any standard 3.5mm jack/jack cable will do (mono or stereo).

Load balancing

The power supply used in these amplifiers does not have the ability to absorb energy. As a consequence, some channels are internally running out of phase to the others in order to balance the energy usage across channels.

The following table shows the internal mapping of the channels. This mapping has no effect on the signal phase at the outputs of the amplifier nor needs special cabling.

Channel A	Channel B	Channel C	Channel D	Channel E
Normal	Normal	Inverted	Normal	Inverted

To optimize the behavior of the system under heavy loads, it is recommended to wire pairs of identical speakers reproducing similar frequency ranges to channels running in opposition of phase. As an illustration, the following table shows two configuration examples.

Channel A	Channel B	Channel C	Channel D	Channel E	Comment
Center	Front left	Front right	Rear left	Rear right	Optimal
Center	Front left	Rear left	Front right	Rear right	Not optimal

Operation

Powering on and off

The power mode selection switch (2) shall be used for powering the amplifier and setting it in standby. Using the power mode selection switch to switch off the amplifier after listening to music is not mandatory since the audiosense function will take care of it even when no 12V trigger is used.

The audiosense function powers the main supply and the amplification stages as soon as a signal in the audio range frequencies is detected on input A (5). When no such signal is detected during 10 minutes, the main supply and amplification stages are disconnected, allowing the amplifier to go in standby with ultra-low power consumption.

When the 12V trigger is used, it allows to force the powering on of the amplifier even when no music plays. Once the amplifier is on, the audiosense takes priority and 10 minutes with both trigger off and no music are needed to put the amplifier in standby.

Gain setting

The purpose of the gain setting is to adapt the sensitivity of the amplifier to the preamp or DAC connected.

Each channel has its own gain setting switch.

The theoretical way of setting the gain of the amplifier is to choose the highest sensitivity below the maximum output of the preamp or DAC.

We propose another method, more pragmatic and providing good results:

1. Set the gain switch to low
2. Play not too compressed music
3. Raise the volume of the preamp/DAC until you reach -3 dB or the volume is too loud for your taste
4. If the loudness made you stop increasing the volume, you are done
5. Otherwise, lower the volume and set the gain switch to high

Another advantage of this method is that the gain of the amplifier will be the lowest possible, ensuring a better protection for your speakers in case of false manipulation.

Troubleshooting

Most difficulties in audio systems are the result of incorrect connections, or improper control settings. If you encounter problems, isolate the area of the difficulty, check the control settings, determine the cause of the fault and make the necessary changes. If you are unable to get sound from your amplifier or its behavior is not as expected, refer to the suggestions for the following conditions:

No response to the power mode selection switch: Verify the mains connection. Unplug the power cable from the amplifier and try to power another device with it. If this works, please contact us. The unit may need repair.

The unit responds (as witnessed by lights and clicking relays) but no sound: Verify correct speaker wiring.

Quiet, distorted sound with interruptions: You probably have a short across the speaker or amplifier terminals, for instance two uninsulated spade terminals touching. Reinstall your speaker cable.

Audio performance data

A 4215/E5

Item	Typical value	Unit	Comment
Maximum power	210	W	In 8 Ω - measured with 230V mains
THD+N	< 0.001	%	1 – 100W 20 – 20000Hz
SNR	TBD	dB	Low – high gain
Residual noise	TBD	µV	Low – high gain
Frequency response	0 – 60	kHz	0 – -3 dB
Gain	20.3 – 26.3	dB	Low – high gain
Minimal load	< 2	Ω	
Input sensitivity	4 – 2	V RMS	In 8 Ω - measured with 230V mains

A 4216/E5

Item	Typical value	Unit	Comment
Maximum power	210	W	In 8 Ω - measured with 230V mains
THD+N	< 0.001	%	1 – 100W 20 – 20000Hz
SNR	TBD	dB	Low – high gain
Residual noise	TBD	µV	Low – high gain
Frequency response	0 – 80	kHz	0 – -3 dB
Gain	20.5 – 26.7	dB	Low – high gain
Minimal load	< 2	Ω	
Input sensitivity	3.9 – 1.9	V RMS	In 8 Ω - measured with 230V mains

A 5518/N5

Item	Typical value	Unit	Comment
Maximum power	380	W	In 8 Ω - measured with 230V mains
THD+N	< 0.001	%	1 – 100W 20 – 20000Hz
SNR	128	dB	Hypex buffer
Residual noise	20	µV	Hypex buffer
SNR	TBD	dB	Low – high gain – boXem buffer
Residual noise	TBD	µV	Low – high gain – boXem buffer
Frequency response	0 – 70	kHz	0 – -3 dB
Gain	26.5	dB	Hypex buffer
Gain	22.8 – 29.2	dB	Low – high gain – boXem buffer
Minimal load	< 2	Ω	
Input sensitivity	2.6	V RMS	Hypex buffer – In 8 Ω - measured with 230V mains
Input sensitivity	4 – 1.9	V RMS	boXem buffer – In 8 Ω - measured with 230V mains

Technical data

Item	Value	Comment
Supply voltage 1	180 – 264 VAC 47 – 60 Hz	Pending market
Supply voltage 2	90 – 132 VAC 47 – 60 Hz	Pending market
Operating ambient temperature	0 – 35 °C	
Power consumption	1350 – 12.5 – <0.5 W	Maximum – idling - standby
Dimensions	233 x 87 x 299 mm	W x H x D – Speakon
Dimensions	233 x 87 x 319 mm	W x H x D – Binding posts
Weight	5 kg	

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