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PARK AUDIO II

V-series

V4-900 MkIII V4-1200 MkIII V4-1800 MkIII
V4-2400 MkIII V2-2400 MkIII

PROFESSIONAL POWER AMPLIFIERS

OWNER'S MANUAL

ACCESSORIES

1. Power Cord	1 ea.
2. Owner's Manual	1 ea.
3. Warranty	1 ea.

Printed in Ukraine

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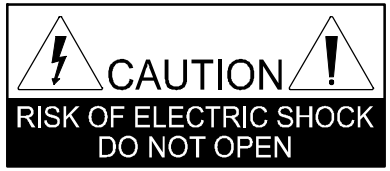


AVIS

RISQUE DE CHOC ELECTRIQUE
NE PAS OUVRIR

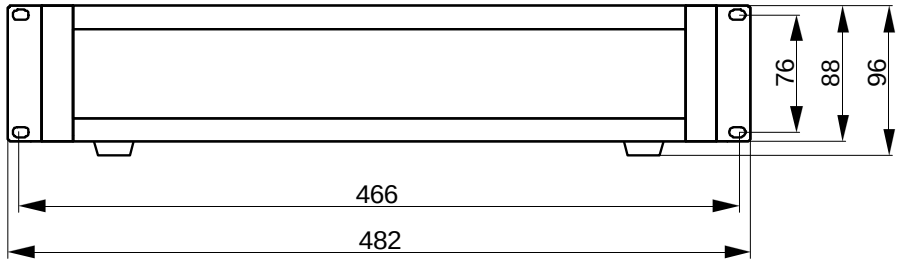
CAUTION! The amplifier runs on 230V AC voltage. Removing the cover will expose you to a potentially dangerous voltage! Do not use the unit if the electrical power cord is frayed or broken.
Power is supplied from 230V AC single-phase grounded 50/60 Hz source.

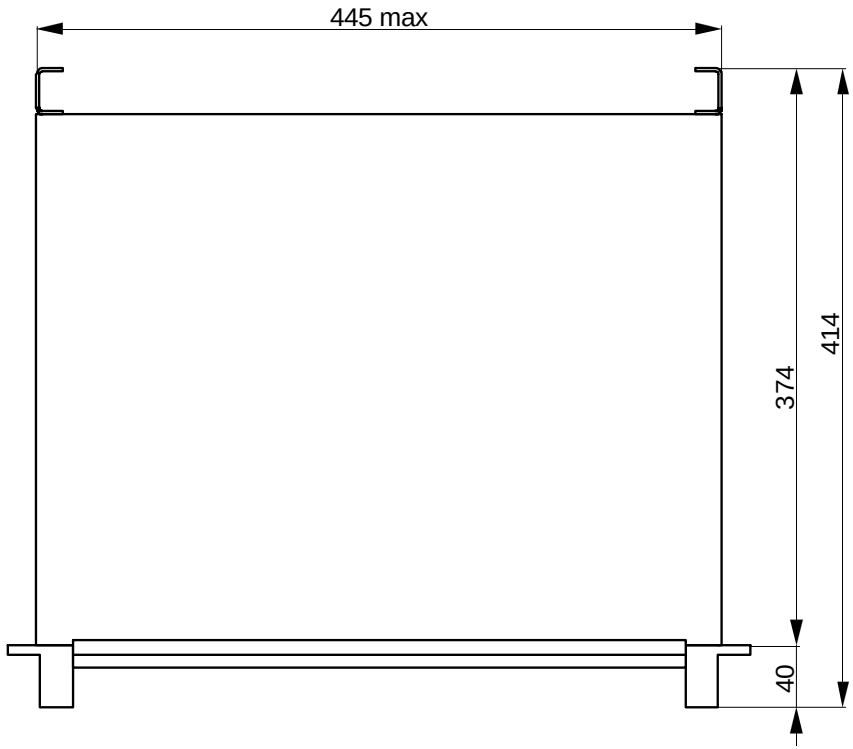
CAUTION! The amplifier can yield dangerous output voltage! Do not touch the non-insulated cable parts connected to outputs of the unit in operation!

CAUTION! The amplifier yields high output power. The manufacturer shall not be held responsible for any damage to the speakers caused by excessive power from the unit.

CAUTION! The high sound pressure caused by the high output signal applied to speaker systems, may endanger your hearing. Please, take care to observe the required safety precautions.

DIMENSIONS





OPERATING CONDITIONS

Air temperature:	**5 ... 35°C**
Atmospheric pressure:	**86.6 ... 106.7kPa (650 – 800 MMHG)**
Relative humidity:	**less than 80%**

GENERAL

The **V4-900** MkIII, **V4-1200** MkIII, **V4-1800** MkIII, **V2-2400** MkIII, **V4-2400** MkIII power amplifiers (**V** - Series) are designed for sound signal high-fidelity amplification within professional sound reproduction systems.

To ensure faultless operation of the unit, please, take time to read this manual before use.

ATTENTION!

*The **V4-900** MkIII, **V4-1200** MkIII, **V4-1800** MkIII, **V2-2400** MkIII, **V4-2400** MkIII amplifiers have the same design and functional features and differ only in the schematics elements, output power and weight. Unless specified otherwise, the word "amplifier" hereinafter applies to any of the above models.*

UNPACKING

The manufacturer's quality control system provides for careful examination of each product before it leaves the factory to ensure its flawless appearance. After unpacking, please, check the unit for any physical damage. In case of damage, please, contact your local dealer. Keep the shipping carton and all packing material, as you may require them for re-shipment of the unit.

DESIGN FEATURES

Physical Design

The amplifier is enclosed in a metal (steel) case of 2U height. The amplifier is designed to be installed into a standard 19" rack.

The amplifier incorporates:
– power supply source;
– two similar amplifying monoblock units;
– input module;
– indication and input level control unit.

The input module is replaceable.

Power Supply Source

Common for both channels. The power supply source consists of a soft-start unit, a toroidal transformer, ac/dc converters and a filter capacitor PCB.

Cooling System

Fans are used to cool the output stage. The cooling system is independent for each channel. The air flows backwards. The cooling intensity changes progressively in the process of operation. On power-on and when the output power is fairly low, the fan runs at a low speed thus minimizing the acoustic noise. As the output power goes up and so rises the temperature of the output stage heat sinks, the fan starts blowing harder, thus intensifying the cooling process.

Output Stage

The output stage is designed with the use of complementary pairs of TOSHIBA bipolar transistors. The output stage is based on Class H technology with double-level power supply.

FUNCTIONAL FEATURES

Output Short-Circuit Protection

The amplifier is provided with individual protection for each channel and global protection in the bridge mode. The protective system does not switch the amplifier off, so it resumes its unattended operation after the short-circuiting conditions are gone.

Overload Protection

The double-stage overload protection system provides both reliable output stage protection and perfect sonic quality even under overload.

In case of a short-time overload lasting up to 3 msec., (e.g. overload caused by a sudden drop of total load impedance), only the output stage current protection goes active limiting the current running through the output transistors at the safe level. In this case the protection system does not preclude the amplifier from delivering, for a short while, a full output power (without any output voltage reduction) even to loads of very low impedance.

In case of a more continuous overload, the protection system activates the built-in Clip-limiter, which reduces the level of the input signal and eliminates the distortion, caused by hard clipping.

DC Output Protection

The amplifier schematics precludes any clicks or noise occurring during the power-on/off transition processes without utilizing any relay commonly used for connecting the

Frequency Response:	**20 Hz ... 20 kHz** (±0.2 dB, Pnom.) **10 Hz ... 60 kHz** (1dB, 1W)
Total Harmonic Distortion:	**0.003 %** (1 kHz) **0.02 %** (20 Hz ... 20 kHz)
Slew Rate:	**40 V/µs** (channel), **80 V/µs** (bridge)
Damping Factor:	
– V4-900 MkIII, **V4-1200** MkIII	**400** (1 kHz, 8 Ohm)
– V4-1800 MkIII	**400** (1 kHz, 8 Ohm)
– V2-2400 MkIII, **V4-2400** MkIII	**600** (1 kHz, 8 Ohm)
Channel Separation:	**60 dB** (1 kHz)
Signal-to-Noise Ratio:	**100 dB** (unweighted)
Input Impedance:	**10 kOhm** (balanced)
Sensitivity:	**0.775V** (standart model) **0.775V, 1.4V, 32dB** (*)
High-pass Filter Cutoff Frequency:**	**35 Hz**
High-Pass Filter Slope Rate:**	**24 dB/octave**
Crossover Frequency*:**	**125 Hz**
Power Requirements:	**~230 V AC, 50/60 Hz**
Weight:	
– V4-900 MkIII	**14 kg**
– V4-1200 MkIII	**15 kg**
– V4-1800 MkIII	**16 kg**
– V2-2400 MkIII	**18.5 kg**
– V4-2400 MkIII	**18.5 kg**
Dimensions:	
– width	**482 mm**
– height	**96 mm**
– height in rack	**2U**
– depth	**414 mm**
– depth in rack	**374 mm**

* Only when an input module with a sensitivity switch is installed.
** Only when an input module with a sensitivity switch or with a crossover is installed.
*** Only when an input module with a crossover is installed.

SPECIFICATIONS

Output Power:

– V4-900 MkIII	**450 W** (channel, 4Ohm, 230V) **280 W** (channel, 8Ohm, 230V) **900 W** (bridge, 8Ohm, 230V)
– V4-1200 MkIII	**600 W** (channel, 4Ohm, 230V) **330 W** (channel, 8Ohm, 230V) **1200 W** (bridge, 8Ohm, 230V)
– V4-1800 MkIII	**900 W** (channel, 4Ohm, 230V) **500 W** (channel, 8Ohm, 230V) **1450 W** (bridge, 8Ohm, 230V)
– V2-2400 MkIII	**1200 W** (channel, 2Ohm, 230V) **700 W** (channel, 4Ohm, 230V) **380 W** (channel, 8Ohm, 230V) **2000 W** (bridge, 4Ohm, 230V) **1400 W** (bridge, 8Ohm, 230V)
– V4-2400 MkIII	**1200 W** (channel, 4Ohm, 230V) **700 W** (channel, 8Ohm, 230V) **2000W** (bridge, 8Ohm, 230V)

Peak Output Power:

– V4-900 MkIII	**700 W** (channel, 4Ohm, 10ms, 230V) **350 W** (channel, 8Ohm, 10ms, 230V) **1400 W** (bridge, 8Ohm, 10ms, 230V)
– V4-1200 MkIII	**900 W** (channel, 4Ohm, 10ms, 230V) **450 W** (channel, 8Ohm, 10ms, 230V) **1800 W** (bridge, 8Ohm, 10ms, 230V)
– V4-1800 MkIII	**1250 W** (channel, 4Ohm, 10ms, 230V) **625 W** (channel, 8Ohm, 10ms, 230V) **2500 W** (bridge, 8Ohm, 10ms, 230V)
– V2-2400 MkIII	**1800 W** (channel, 2Ohm, 10ms, 230V) **900 W** (channel, 4Ohm, 10ms, 230V) **450 W** (channel, 8Ohm, 10ms, 230V) **3600 W** (bridge, 4Ohm, 10ms, 230V) **1800 W** (bridge, 8Ohm, 10ms, 230V)
– V4-2400 MkIII	**1700 W** (channel, 4Ohm, 10ms, 230V) **850 W** (channel, 8Ohm, 10ms, 230V) **3400 W** (bridge, 8Ohm, 10ms, 230V)

output signal to a speaker system. To prevent any DC damage to speaker systems, the amplifier incorporates the triak protection system for each channel, which short-circuits the amplifier output in case of DC voltage or powerful LF fluctuations.

High Frequency Energy Protection

In case of any powerful high frequency fluctuations caused by bad contact in the input cable connectors or those transmitted to the amplifier input from any other device (e.g. crossover, mixing console, etc.), the protection system enables the built-in clip-limiter, which reduces the level of the input signal. This protection system serves to prevent any damage to tweeters as might be caused by non-musical signals of powerful high frequency spectrum.

Thermal Protection

The thermal protection is to preclude any overheating of the output stage.

The amplifier incorporates a double-step thermal protection system which precludes overheating of the output stage of the amplifier without suspending its operation and disabling the input signal (and output signal, accordingly).

The thermal protection system is coordinated with the cooling system and in the following way.

When the output power is fairly low, the fan runs at a low speed. As the output power goes up and so rises the temperature of the output transistors, the fans gradually gain speed.

Whenever the output stage temperature reaches 85°C, the thermal protection system disables the upper voltage of the output stage, thus significantly reducing the output power of the respective channel. This status is indicated by a slightly (half-) lit ALARM LED. The adequate sound quality in this case is provided by the built-in optoelectronic Clip-limiter which reduces the input signal level, should any distortion occur.

If overheating of the output stage persists and its temperature rises to 95°C (as a rule, this is the case only when the cooling fan has broken down), the thermal protection system inhibits the input signal as well as the output stage of the respective channel. This status is indicated by a brightly (full-) lit ALARM LED. The amplifier automatically resumes its operation, in the reverse order, after the output stage transistors have cooled down.

Soft Start

The soft start system is provided to reduce inrush current to the amplifier and to minimize the noise contributed by the amplifier to the power mains during the power-on process.

Soft Signal Start

During the power-on process, this feature ensures smooth gain from zero to the maximum level to provide for a smooth rise of the sound level emitted from the loudspeakers.

Balanced Inputs

The use of balanced inputs provides for an essential reduction of the environment-induced hum and noise interference with long input connecting cables.

Input Level Attenuators

Located on the front panel, these allow setting the amplifier to the required sensitivity (each channel individually) which is very helpful when several amplifiers run in parallel, especially when they drive different types of speaker systems or are used within multi-speaker sound reinforcement systems.

Built-in Two-Way Crossover

(only for input modules with a crossover)

This feature allows to pick up the respective frequency range both for this amplifier and for any other equipment connected to it (such as another amplifier or an active speaker system). The amplified frequency range can be set individually for each channel. The crossover allows to switch between two preset crossover frequency settings. The desired frequency setting is selected with a slide switch. The crossover allows individual setting of both the signal frequency range (high, low, full-range signal) being sent to the line output, and the signal frequency range to be amplified by the amplifier itself. Such switching features allow to create two-way sound reinforcement systems driven by two amplifiers, a V-series amplifier being one of them.

In addition, it is possible to change the input stage crossover frequency by replacing standard crossover filters with custom ones. For more information about installation and purchasing the crossover filters, please, consult our local dealer or the manufacturer's support service by e-mail: support@parkaudio2.com

Line Outputs

The amplifier line outputs are parallel to the inputs (each along the respective channel) and provide for parallel connection of several amplifiers with standard signal cables using XLR connectors.

Switch-Selectable Active Line Output

(only for input modules with a crossover)

This feature allows to send the line signal to another amplifier. If this is the case, the output can be set to deliver either the whole (full-range) signal (for two parallel amplifiers fed from a common signal source) or its required frequency component (high or low) processed up by the built-in crossover (when two-way systems are in operation). The connection to the line output is done with XLR connectors. The output frequency range can be set with a slide switch located on the rear panel. The amplifier's line outputs are parallel to the inputs (each along the respective channel). They make it possible to link up with several parallel amplifiers interconnected with XLR-wired signal cables.

Sensitivity Switch

(only for input modules with a sensitivity switch)

This switch allows to select the required sensitivity of the amplifier, viz. 0.775 V, 1.4 V or to set the fixed gain rate of 32 dB.

Sensitivity is selected with a slide switch (individual for each channel) located on the amplifier's input module.

Input Filter

(only for input modules with a sensitivity switch or with a crossover)

To improve the performance of speaker systems, the amplifier incorporates a switch-selectable high-pass 4-th order filter with a 24 dB per octave slope rate. This is the filter recommended by all major speaker systems manufacturers.

This filter cuts off any signals below 35 Hz, which generally cannot be reproduced by most of the professional speaker systems.

The filter significantly reduces the travel of the LF loudspeaker cone below the loudspeaker frequency cut-off point. Especially, this is the case when phase inversion systems are used. Therefore, the filter makes it possible to increase the power applied to

TROUBLESHOOTING

No Sound Signal on the Amplifier`s Output

POWER LED is OFF:
– *power cable is damaged;*
– *no power.*

But for POWER LED all other LEDs are OFF:
– *no input signal;*
– *input level attenuators are set to minimum position.*

CLIP LED goes ON while output level LEDs are OFF:
– *output cable is short-circuited;*
– *load impedance is too low.*

ALARM LED goes ON:
– *the unit is in the DC-protection mode;*
– *the unit is in the HF protection mode.*
The problem may be with the signal source. Try disconnecting the signal source from the amplifier.

Sound Distortion

SIGNAL LED is ON while CLIP LED is OFF:
– *applied input signal is distorted before it gets to the amplifier;*
– *speakers are damaged.*
If input attenuators are set close to their minimum position, distortion may occur as a result of input stage overload with high input signal.

Both SIGNAL and CLIP LEDs are ON:
– *overload caused by low impedance or high input signal.*

Low frequency is missing in the response

(only when an input module with a crossover is installed)

Wrong crossover settings (CROSSOVER switch is set to HI).
Speaker systems may be damaged, or low frequency is missing in the input signal.

High frequency is missing in the response

(only when an input module with a crossover is installed)

Wrong crossover settings (CROSSOVER switch is set to LO).
Speaker systems may be damaged, or high frequency is missing in the input signal.

Hum and Interference

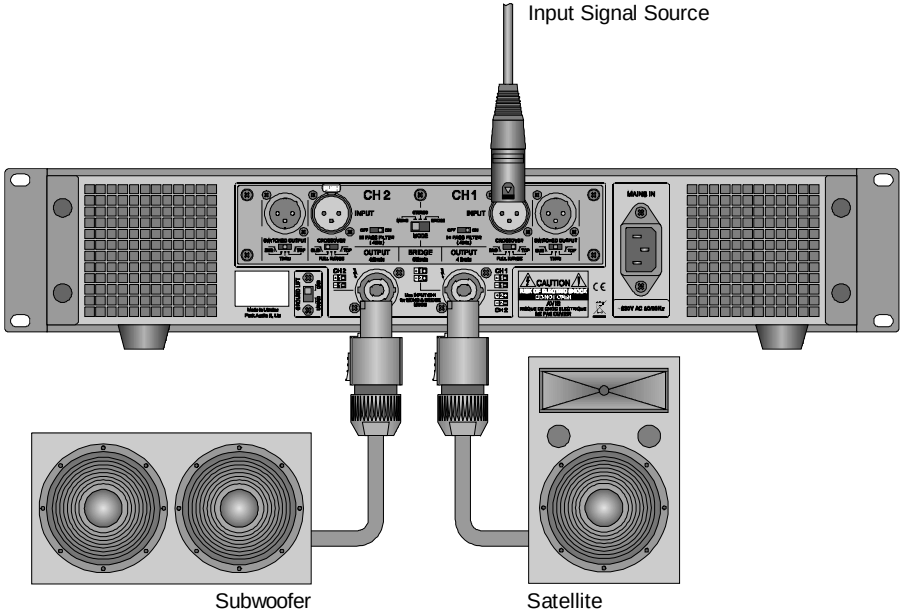
Be sure to have the power cable 3-wire plug properly connected to the grounded outlet. Disconnecting the ground contact usually does not eliminate hum and interference, but may pose a risk of electric shock.

To reduce hum and noises, use balanced connections.

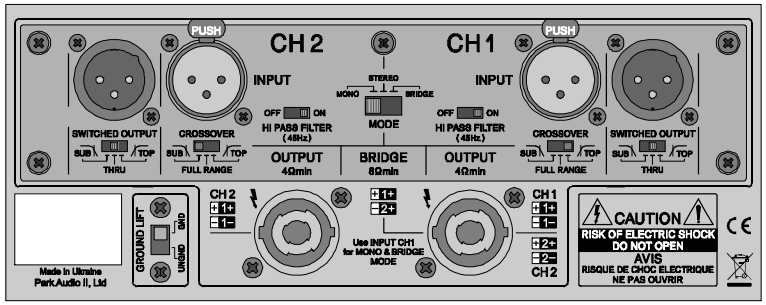
It is recommended to have the GROUND LIFT switch set to GROUNDED to preclude potential electric shock hazard. However, sometimes hum may be caused by current flow through ground loops. In this case, setting GROUND LIFT to UNGROUNDED may resolve the problem.

Linking up Signal and Speaker Systems in Case of Single Amplifier Operation within a Two-Way Mono Set

(only when an input module with a crossover is installed)



Crossover Settings in Case of Operation of a Single Amplifier within a Two-Way Mono Set



CHANNEL 2

SWITCHED OUTPUT – any position
CROSSOVER – LO position

CHANNEL 1

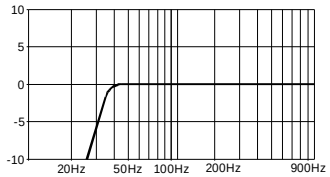
SWITCHED OUTPUT – any position
CROSSOVER – HI position

the LF loudspeaker (the power being not wasted for the cone “flapping”) and thus to raise the sound pressure created by the speaker system without any danger of overheating the LF drivers.

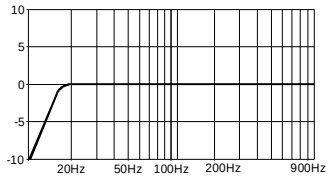
When it is necessary to achieve a linear frequency response to drive full-range speaker systems generally used in studios or in cinema theatres, the input filter can be disabled (bypassed for each channel individually) with the slide switches located on the amplifier rear panel.

See below the enabled and disabled filter low frequency response diagrams.

Low Frequency Response for Different Settings of the Input Filter Switch



«ON»



«OFF»

Replaceable Input Module (Option)

This feature allows the owner to replace the standard input module with an input module having an input sensitivity switch or with the one containing a crossover. For any details as to purchasing and installation of the replaceable modules, please, contact our local dealers, or send your e-mail messages to: support@parkaudio2.com.

Operating Modes

STEREO – two channels drive two separate loads from two separate signal sources.
MONO – two channels drive two separate loads from a single input signal source.
BRIDGE – two channels drive the same load from a single signal source.
The operating modes can be selected with the slide switch located on the rear panel.

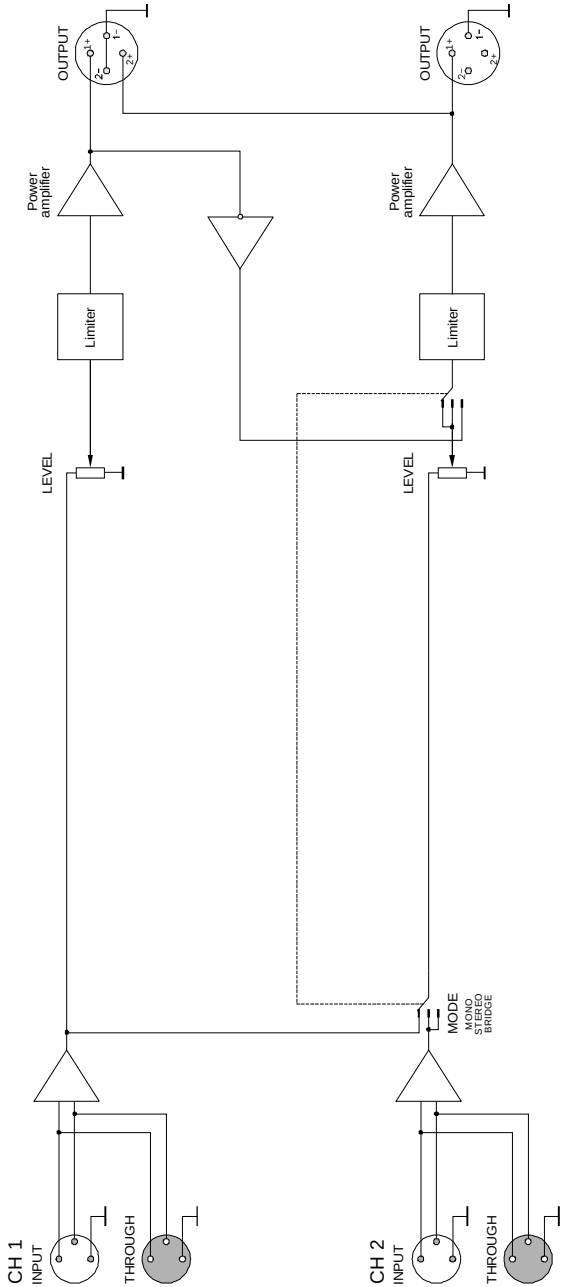
Ground Lift

This slide switch is used to decouple the signal ground and the chassis ground in order to reduce AC noise when several amplifiers are connected together.

Removable Power Cord

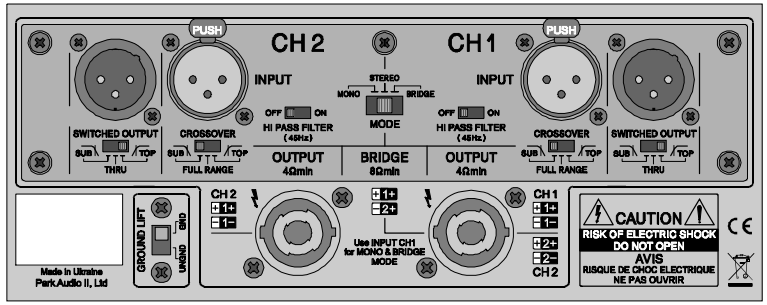
This feature is provided for convenience of transportation and rack mounting.

AMPLIFIER BLOCK DIAGRAM



Crossover Settings in Case of Operation of Two Amplifiers within a Two-Way Stereo Set (Option 2)

Amplifier 1



CHANNEL 2

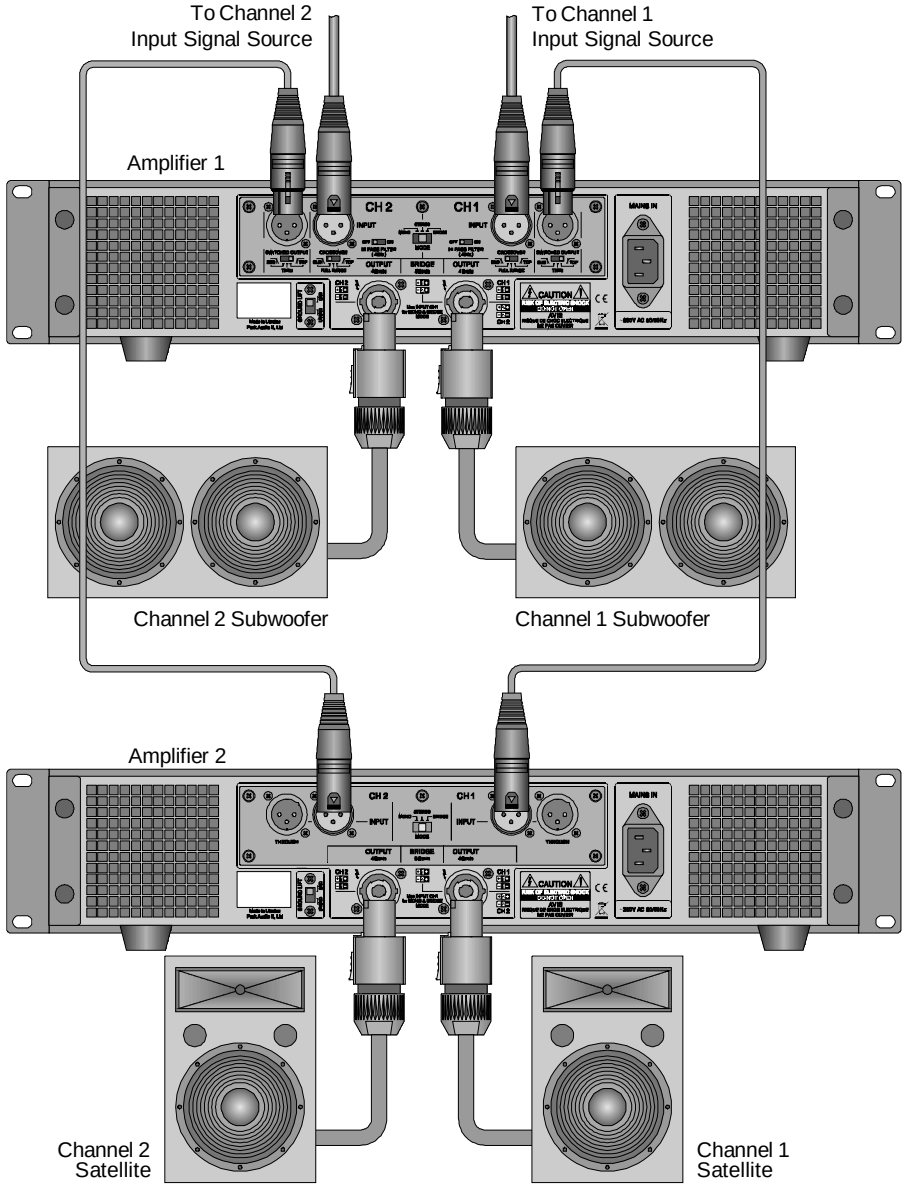
SWITCHED OUTPUT – HI position
CROSSOVER – LO position

CHANNEL 1

SWITCHED OUTPUT – HI position
CROSSOVER – LO position

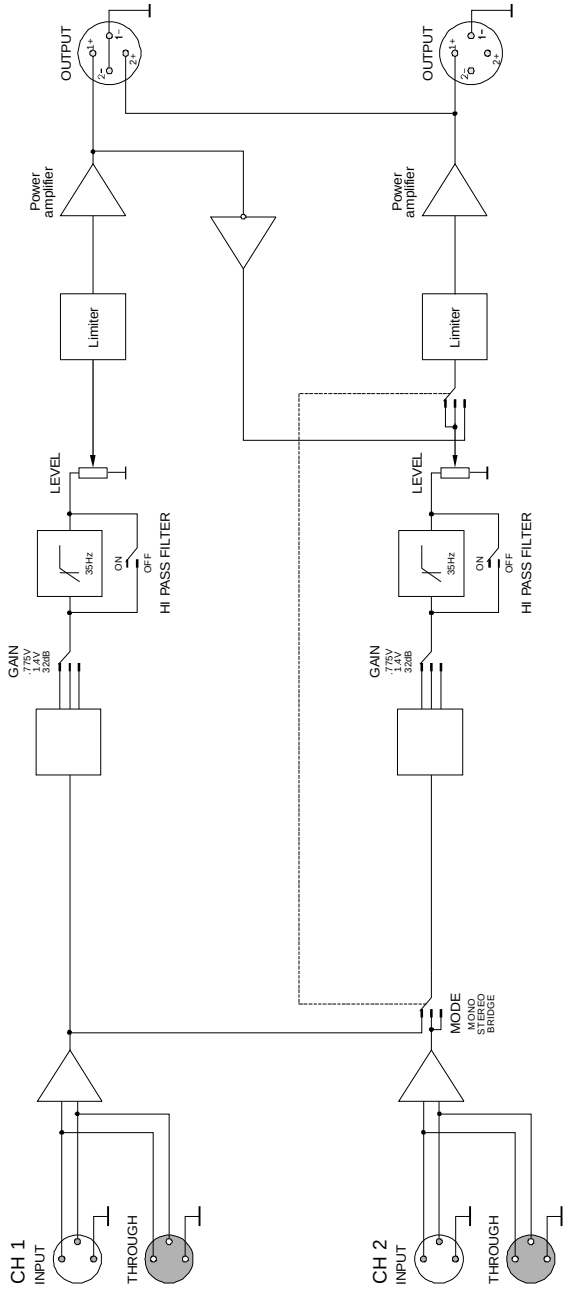
Linking up Signal and Speaker Systems in Case of Operation of Two Amplifiers within a Two-Way Stereo Set (Option 2)

(only when an input module with a crossover is installed)

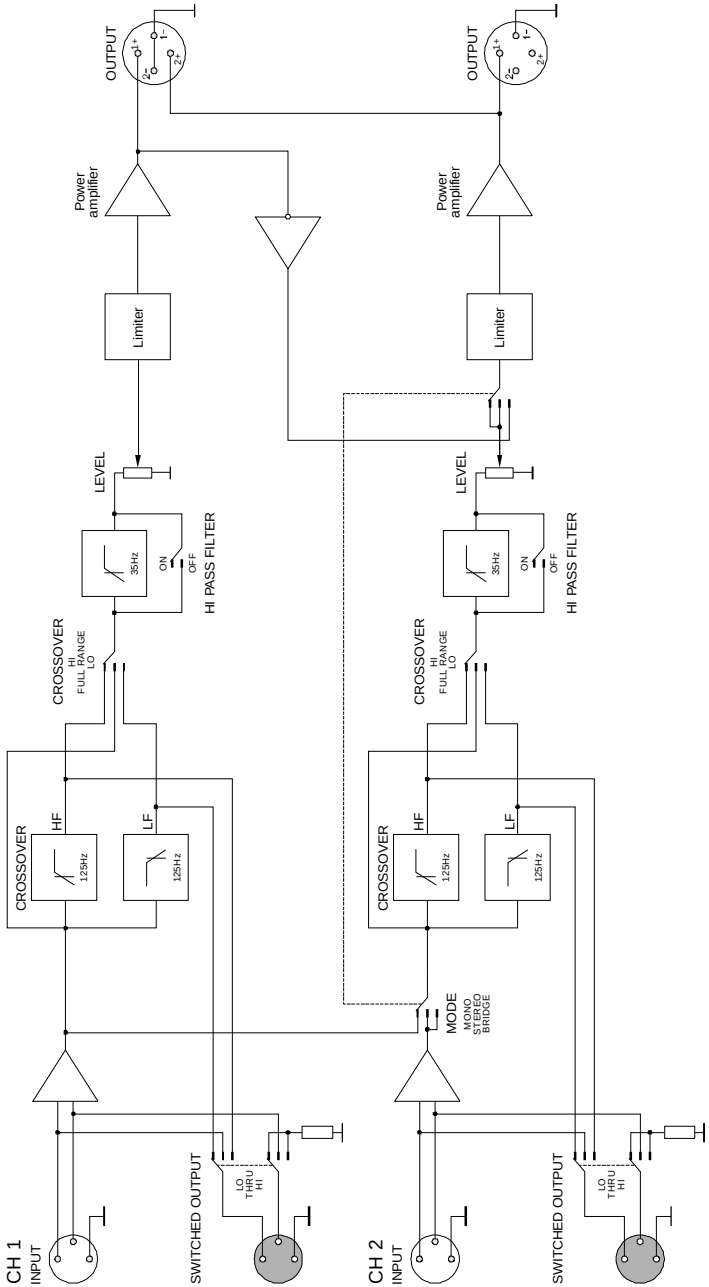


AMPLIFIER BLOCK DIAGRAM

(for input modules with a sensitivity switch)

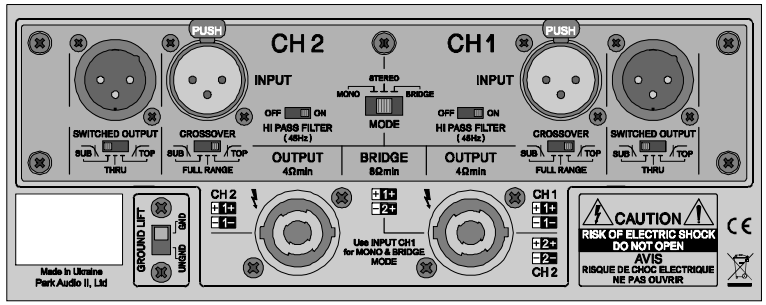


AMPLIFIER BLOCK DIAGRAM
(for input modules with crossover)



Crossover Settings in Case of Operation of Two Amplifiers within a Two-Way Stereo Set (Option 1)

Amplifier 1



CHANNEL 2

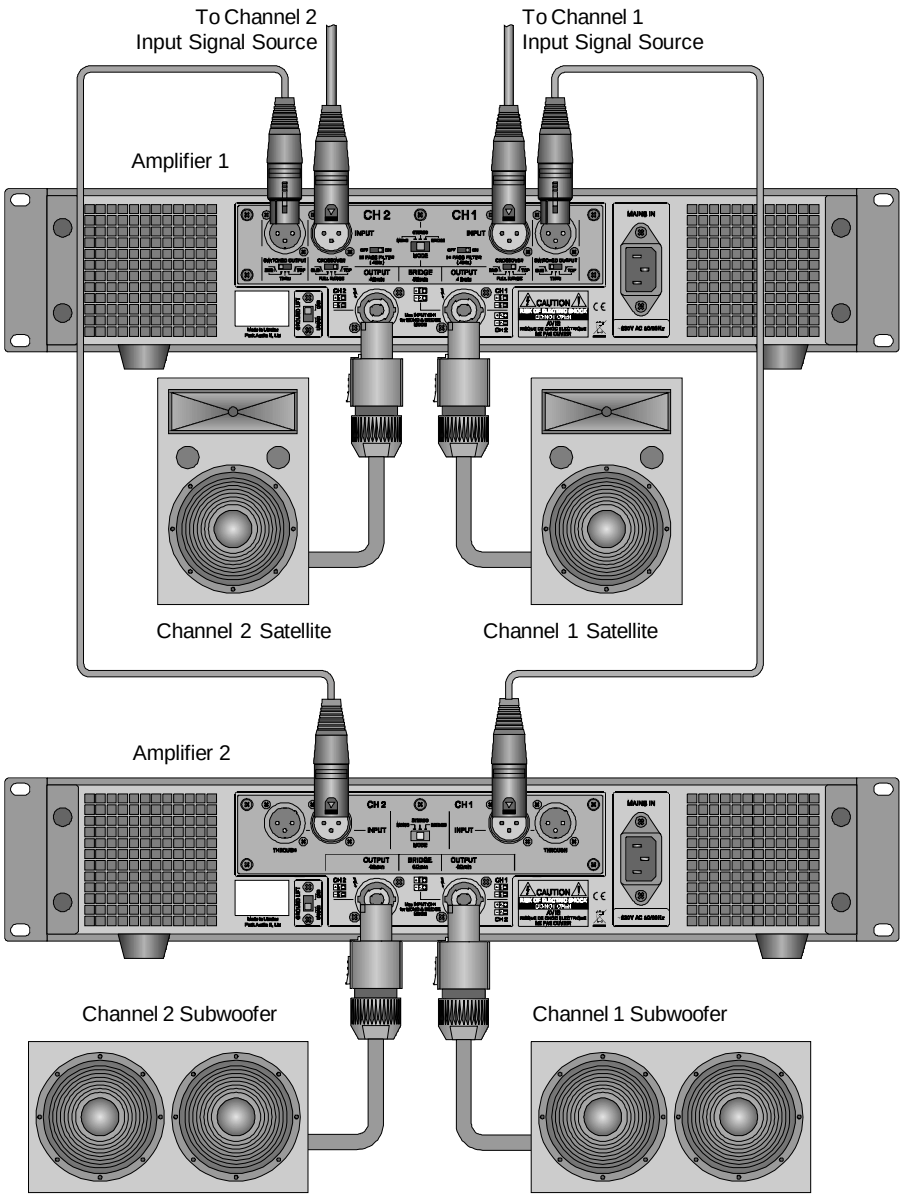
SWITCHED OUTPUT – LO position
CROSSOVER – HI position

CHANNEL 1

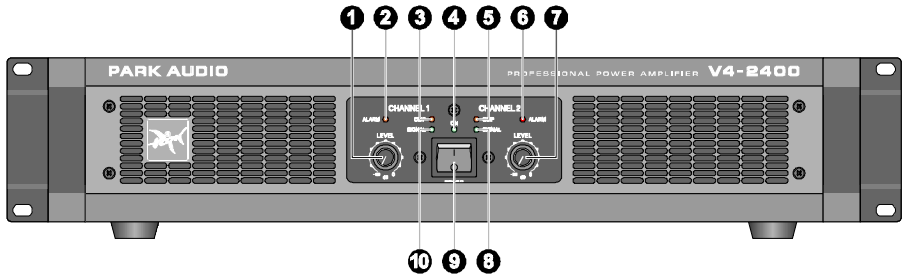
SWITCHED OUTPUT – LO position
CROSSOVER – HI position

Linking up Signal and Speaker Systems in Case of Operation of Two Amplifiers within a Two-Way Stereo Set (Option 1)

(only when an input module with a crossover is installed)



FRONT PANEL



❶ Power switch.

❷❺ LEVEL – input signal attenuators for channel 1 & 2, respectively.

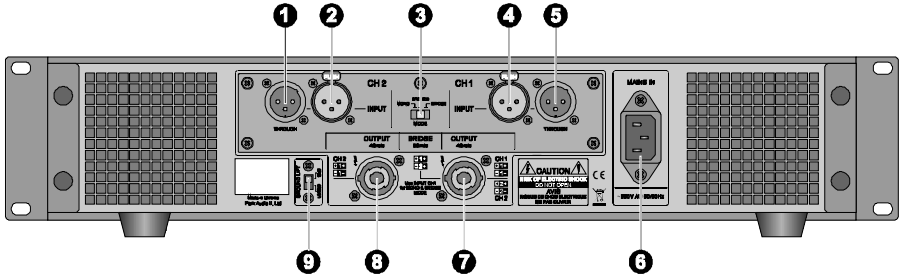
❸❹ ALARM LEDs.
Indicate alarm status and protection of the respective channel in case of:
– DC output condition or powerful LF fluctuations;
– output stage overheating*
Note:
* See: page 5, Thermal Protection.

❻❿ CLIP (overload) LEDs.
Indicate overloading (sound distortion) and limiter activation for the respective channel.

❼❾ SIGNAL LEDs.
Indicate signal output from channel 2 & 1, respectively.

❽ POWER LED

REAR PANEL



❶ ❺ **THROUGH** – line outputs for Channel 2 & 1, respectively (XLR male).
Are used to deliver input signal along the respective channel to the input of another amplifier.
THROUGH connectors are parallel to INPUT connectors of respective channels.

❷ **INPUT** – Channel 2 balanced input (XLR female).
Is used to supply input signal to channel 2.

❸ **MODE** switch.
– MONO – two channels drive two separate loads from a single input signal source;
– STEREO – two channels drive two separate loads from two separate input signal sources;
– BRIDGE – two channels drive a common load from a single input signal source.

❹ **INPUT** – balanced input (XLR female) for Channel 1 in STEREO; Channels1 and 2 in MONO; BRIDGE mode.

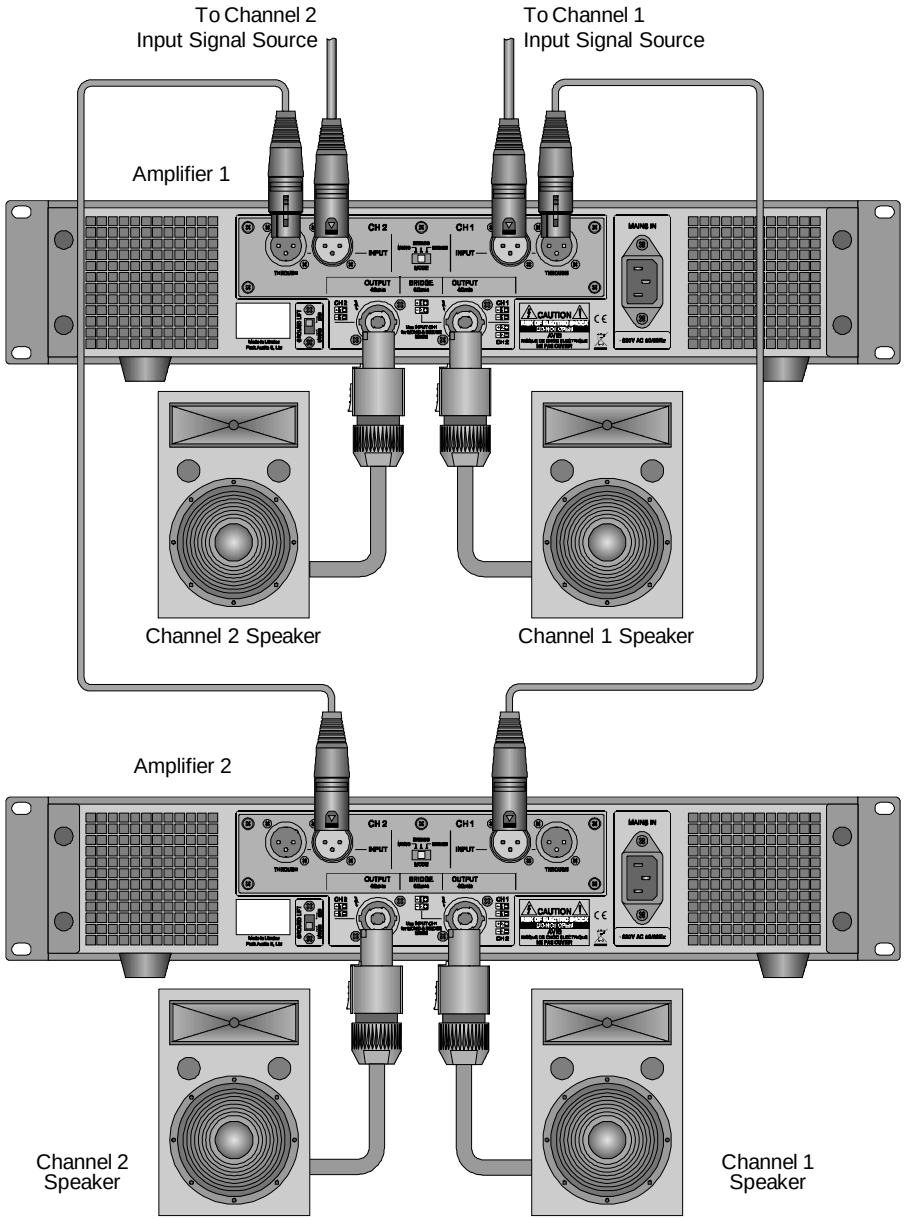
❻ **MAINS IN** – power cord socket for 230V AC 50/60Hz grounded mains.

❼ **OUTPUT** – Channel 1 output.
Is used to connect a load (speaker system) to Channel 1 with a SPEAKON® connector, as well as to connect a load (speaker system) to the amplifier in BRIDGE Mode. In addition, Channel 2 output is linked to Channel 1 output socket thus making it possible to connect the speaker systems of both channels to this output socket with a single NL4FC connector (wired accordingly).

❽ **OUTPUT** – Channel 2 output.
Is used to connect a load (speaker system) to Channel 2 with a SPEAKON® connector.

❾ **GROUND LIFT** switch.

Linking up Signal and Speaker Systems in Case of Parallel Operation of Two Amplifiers within a Full-Range Stereo Set



BRIDGE Mode

Input signal is linked up to Channel 1 input connector.

Speaker is linked up to Channel 1 output of with NL4FC SPEAKON.

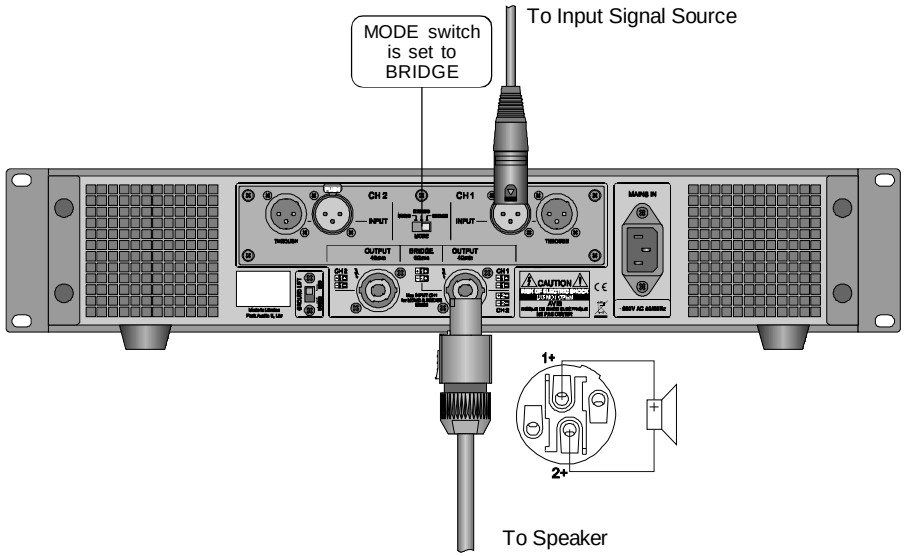
MODE switch is set to BRIDGE.

Use channel 1 LEVEL control to adjust the level of the input signal (located on the front panel).

(Only for input modules with a sensitivity switch or crossover)

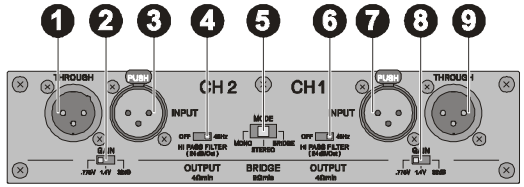
For most applications, it is recommended to set the input HI PASS FILTER switches to ON. In this mode, only the Channel 1 switch is enabled. However, when it is necessary to obtain a liner frequency response to drive full-range speaker systems, as in studios or cinema houses, set this input filter switch to OFF. See the Input Filter Section.

Linking up the Signal and Speakers in BRIDGE Mode



CAUTION! Never attempt to jumper or otherwise link up any pins of output connectors.

INPUT MODULE WITH SENSITIVITY SWITCH (Option)



❶❾ **THROUGH** – line outputs for Channel 2 & 1, respectively (XLR male).
Are used to deliver input signal along the respective channel to the input of another amplifier.
THROUGH connectors are parallel to INPUT connectors of respective channels.

❷❽ **GAIN** – input sensitivity switches for Channel 2 & 1, respectively.
Are used to select the input sensitivity (0.775V, 1.4V) or fixed gain (32 dB) for respective channel.

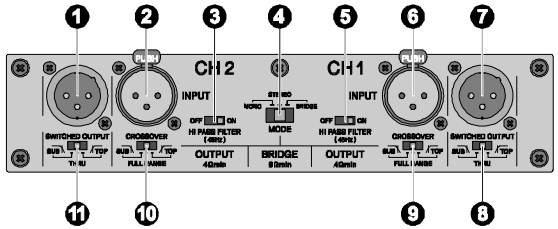
❸ **INPUT** – Channel 2 balanced input (XLR female).
Is used to supply input signal to channel 2.

❹❻ **HI PASS FILTER** – cutoff filter switches for Channel 2 & 1, respectively.
Are used to enable/disable input high-pass filter of the respective channel (See: Input Filter).

❺ **MODE** switch:
– MONO – two channels drive two separate loads from a single input signal source;
– STEREO – two channels drive two separate loads from two separate input signal sources;
– BRIDGE – two channels drive a common load from a single input signal source.

❼ **INPUT** – Channel 1 balanced input (XLR female).
Is used to supply input signal to channel 1, channel 1 and 2 (in MONO mode), and a common input signal (in BRIDGE mode).

INPUT MODULE WITH CROSSOVER (Option)



❶ ❼ **SWITCHED OUTPUT** (switch-selectable output) – line output for channels 2 & 1, respectively. Used to deliver signal to the input of another amplifier (when several amplifiers are fed from a common input signal source).

❷ **INPUT** – Channel 2 balanced input (XLR female).
It is used to supply input signal to channel 2.

❸ ❺ **HI PASS FILTER** enable/disable switches for Channel 2 & 1, respectively (See: Input Filter).

❹ **MODE** switch.
– MONO – two channels drive two separate loads from a single input signal source;
– STEREO – two channels drive two separate loads from two separate input signal sources;
– BRIDGE – two channels drive a common load from a single input signal source.

❻ **INPUT** – balanced input (XLR female) for Channel 1 in STEREO; Channels1 and 2 in MONO; BRIDGE mode.

❽ ⓫ Line output switches for channel 1 & 2, respectively
Select required frequency range of the signal delivered to the output of the respective channel:
– HI;
– LO;
– THRU – full-range signal.
The switches affect only the signal delivered to the output of the respective channel.

❾ ❿ **CROSSOVER** switch for channel 1 & 2, respectively.
Selects the desired frequency range to be amplified:
– HI;
– LO;
– FULL RANGE.
The BRIDGE mode, the frequency range is set by Channel 1 CROSSOVER switch.

MONO Mode

Input signal is linked up to Channel 1 input connector.

Speakers are linked up to the output of respective channels with either NL4FC or NL2FC SPEAKON.

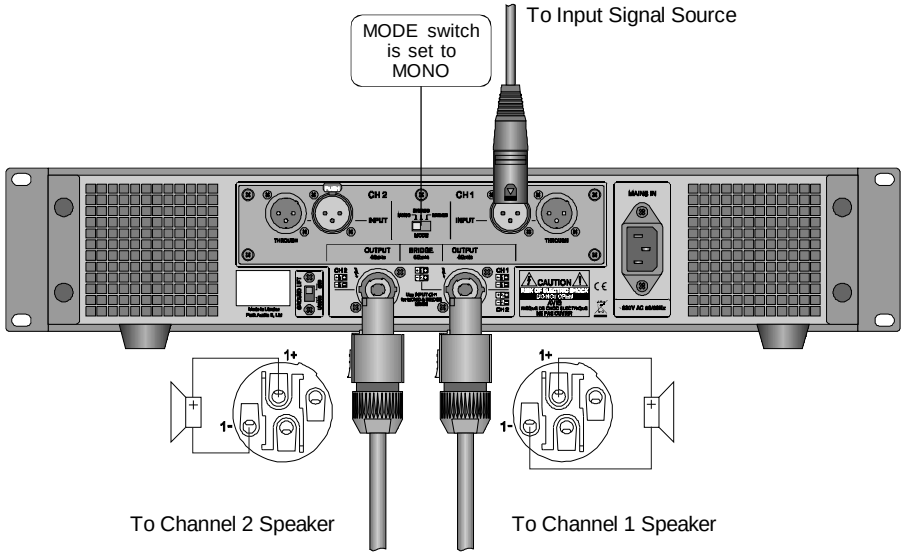
MODE switch is set to MONO.

To adjust the level of input signal, use a LEVEL control of each channel (located on the front panel).

(Only for input modules with a sensitivity switch or crossover)

For most applications, it is recommended to set the input HI PASS FILTER switches to ON. However, when it is necessary to obtain a liner frequency response to drive full-range speaker systems, as in studios or cinema houses, set this input filter switch to OFF. See the Input Filter Section.

Linking up the Signal and Speakers in MONO Mode



CAUTION! Never attempt to jumper or otherwise link up any pins of output connectors.

OPERATING MODES

STEREO Mode

Two input signals are linked up to the input connectors of respective channels.

Speakers are linked up to the output of respective channels with either NL4FC or NL2FC SPEAKON.

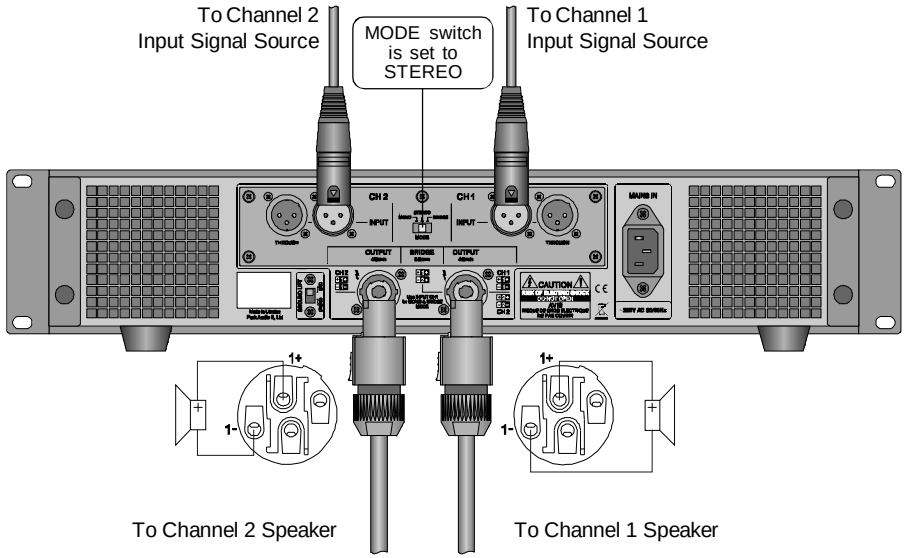
MODE switch is set to STEREO.

To adjust the level of input signal, use a LEVEL control of each channel (located on the front panel).

(Only for input modules with a sensitivity switch or crossover)

For most applications, it is recommended to set the input HI PASS FILTER switches to ON. However, when it is necessary to obtain a liner frequency response to drive full-range speaker systems, as in studios or cinema houses, set this input filter switch to OFF. See the Input Filter Section.

Linking up the Signal and Speakers in STEREO Mode



CAUTION! Never attempt to jumper or otherwise link up any pins of output connectors.

CABLE REQUIREMENTS

Input Cables

Make sure to use only shielded cables whether balanced or unbalanced. Shielding when properly grounded protects a signal against external electrical interference.

As a rule, unbalanced lines of over 3 meters long are not acceptable. Greater distances require a balanced cable. Avoid placing input cables close to power cords or power transformers.

Output Cables

The amplifier is capable of delivering high level output current; therefore, the wire gauge used for speaker cables is particularly important. Inadequate wire gauge adds significant resistance to the speaker's own impedance, reducing the power which is actually delivered to the speaker. It will also result in a decreased damping factor and possible fire hazard.

Since the power applied to the loudspeaker is of primary concern in system design, we have included the table below to allow you determine the appropriate wire gauge for your application.

The table shows the percentage of the power loss in a 10-meter copper multiple-core cable. This table reflects the power loss as a percentage of the output power of the amplifier applied to the load. Use this table to determine the power loss to the load at other cable lengths. For example, if you plan to deliver 500 Watts to 8-Ohm load through 20 m of 1,5-mm² cable, the power loss in the cable would be 2,9 % x 2=5,8 % of 500 W or 29 W lost in the cable.

Power Loss in a 10-meter Cable

Wire Gauge	Cable Resistance	Cable power loss		
		2 Ohm load	4 Ohm load	8 Ohm load
1,5 mm²	0,24 Ohm	10,7 %	5,7 %	2,9 %
2,0 mm²	0,18 Ohm	8,3 %	4,3 %	2,2 %
2,5 mm²	0,15 Ohm	7 %	3,6 %	1,8 %
4,0 mm²	0,09 Ohm	4,3 %	2,3 %	1,1 %

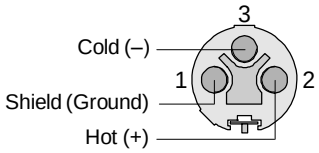
INPUT AND OUTPUT CONNECTORS

Input Connectors

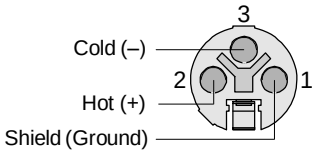
Use XLR (male) connectors to connect to the amplifier inputs and XLR (female) connectors to line outputs.

See the wiring on the figures below.

Balanced Input Cable Wiring
(XLR male)



Balanced Line Ouput Connection Cable Wiring (XLR female)

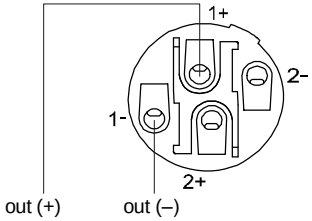


Output Connectors

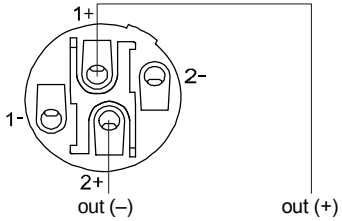
To connect speaker systems to the outputs of the amplifier, use the SPEAKON NL2FC or NL4FC connectors in the channel modes. Use SPEAKON NL4FC connectors for bridged connection or connection of two channels with a single connector

CAUTION! Never attempt to jumper or otherwise link up any pins of output connectors.

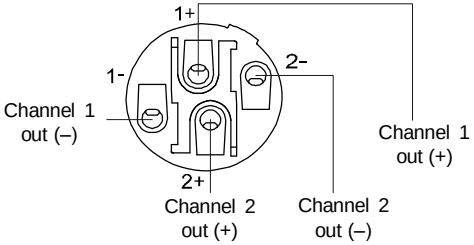
Speaker System Connector Wiring



a) for STEREO and MONO MODE
(Channel 1 and Channel 2 Connectors)



b) for BRIDGE MODE



c) for connecting two channels with a single connector

RACK-MOUNTING REQUIREMENTS

The amplifier is designed to fit a standard 19” rack. While mounting, make sure to provide unhindered air access to the front and rear sides of the rack. Fan direction is from front to back. It is not necessary to leave empty space above or below the amplifier.

For stationary use, it will be enough to fix securely only the front panel of the amplifier to the rack. However, never attempt to transport the unit unless its rear end is properly supported and/or securely fixed, as it may be fraught with danger of damage.

AC POWER REQUIREMENTS

1. The **V4-900** MkIII, **V4-1200** MkII, **V4-1800** MkII, **V4-2400** MkIII, **V2-2400** MkIII amplifiers are supplied with a three-conductor grounded AC power cord, and should be plugged into a standard 3-wire grounded electrical outlet which supplies 230 V AC 50/60 Hz. Make sure to connect the amplifier only to sufficiently powerful power supply mains (closer to a switch-board). If connected to weak power supply mains, the output power of the amplifier may be reduced producing the so-called «feeble bass» effect, or the power supply line may be damaged.

Never try to connect the amplifier to a household power supply mains.

Use the power cord supplied to plug the amplifier into the mains. Prior to plugging, please, make sure that there are no other devices consuming much AC current, as the normal operation of such several devices may be impossible. In the event of line voltage sag, the unit will continue to operate normally, albeit with less power.

2. The actual AC current consumption by the amplifier depends on the type of the music program and the load impedance. While installing the audio systems, to optimize the power wiring, please, note that for reproduction of typical audio material at the full output level, the average current consumption rate is as follows:

– 3 A for **V4-900** MkIII into 8 Ohm;
– 6 A for **V4-900** MkIII into 4 Ohm;
– 4 A for **V4-1200** MkIII into 8 Ohm;
– 8 A for **V4-1200** MkIII into 4 Ohm;
– 5 A for **V4-1800** MkIII into 8 Ohm;
– 10 A for **V4-1800** MkIII into 4 Ohm;
– 4 A for **V2-2400** MkIII into 8 Ohm;
– 8 A for **V2-2400** MkIII into 4 Ohm;
– 16 A for **V2-2400** MkIII into 2 Ohm;
– 8 A for **V4-2400** MkIII into 8 Ohm;
– 16 A for **V4-2400** MkIII into 4 Ohm.

3. In order to minimize the AC current hum and noise, make sure to plug all audio devices interconnected with signal cables, into the same mains outlet.