

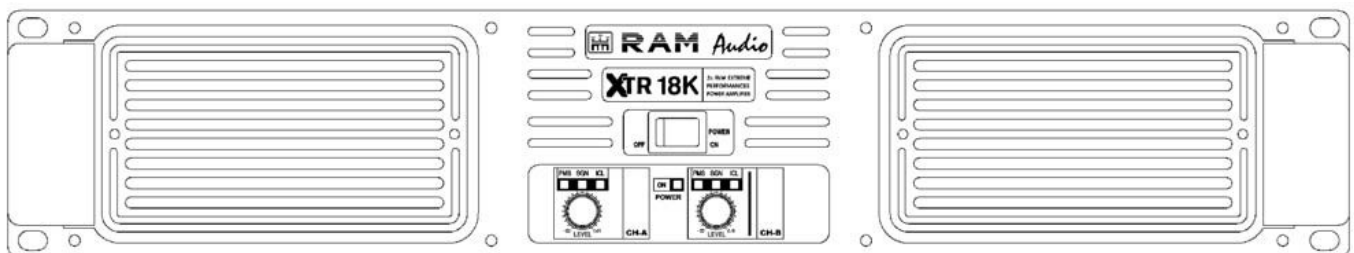


RAM Audio XTR Series Professional Power Amplifiers User Manual

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Professional Power Amplifiers 12K-18K-12K4 XTR Series OPERATION MANUAL



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SAFETY PRECAUTIONS

WARNING:

CAUTION

RISK OF ELECTRIC SHOCK DO NOT OPEN

To avoid fire or electrocution risk do not expose the unit to rain or moisture.

To avoid electric shock, do not open the unit. No user-serviceable parts inside. In the case of disfunction, have the unit checked by qualified agents?

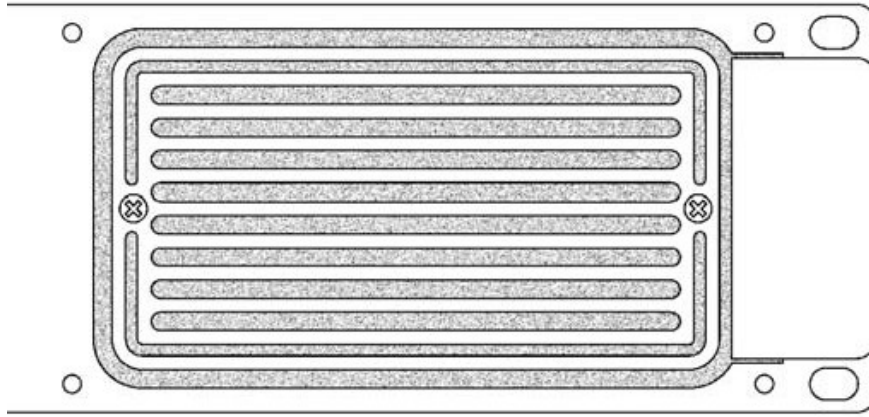
Class I devise.

IMPORTANT:

Clean the front panel filters regularly.

Extract the filters remove the front panel grid unscrewing the screens placed at the sides of the grid. Clean the filters using water and detergent. Place the grid filter introducing first the internal side and screwing the screws.

Grid Filter Detail



General Information

Introduction

The XTR Series devices feature two or four-channel models, ready for rough handling in the touring world. For this purpose, XTR Series amps implement oversized high efficiency regulated power supply with the PFC front end to deliver their full performances independently of mains status. This together with an oversized high-efficiency audio power stage, forced front to back cooling through a component-free path with removable front panel dust filters, improved rugged mechanical design with even weight distribution... resulting in just power, reliability, and robustness for your touring gigs!

Main Characteristics

- Dual PFC QuantaPulse™ Regulated SMPS.
- Max. Output: 270V / 70A peak.
- Dedicated design for powerful subwoofers.
- 32/38/44 dB selectable Gain.
- RAM Audio Power Management System.
- Hi-Efficiency, Heavy Duty Audio Power section for extreme use.
- Removable front panel dust filters.
- Efficient front-to-back cooling.
- Industry-standard Neutrik® XLR and Speakon® connectors.

Controls: Where and What?

Front Panel

See Figure 1

1. Signal attenuation level control

knobs: Permit independent control of each channel's attenuation.

2. PMS: LED indicating PMS in operation (see page 13)

SIGNAL: This LED indicates the presence of a signal at the inputs.

ICL: LED indicating Intelligent Clip

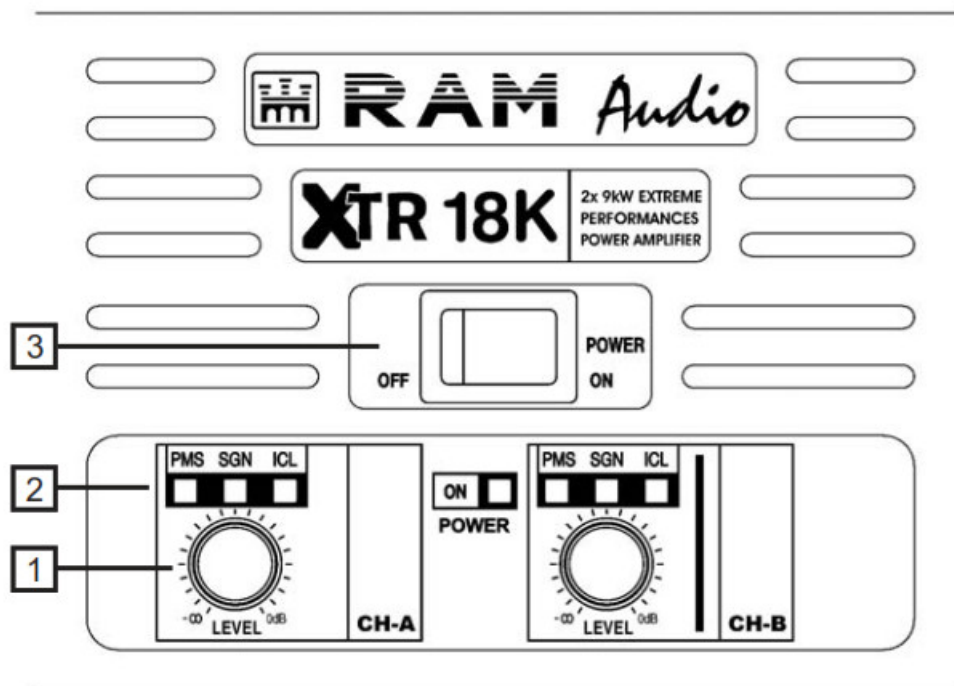
Limiter in operation (see page 13).

3. Main Power Switch:

The position I: Connects the amplifier's current feed.

Position O disconnects the Power.

Front Panel

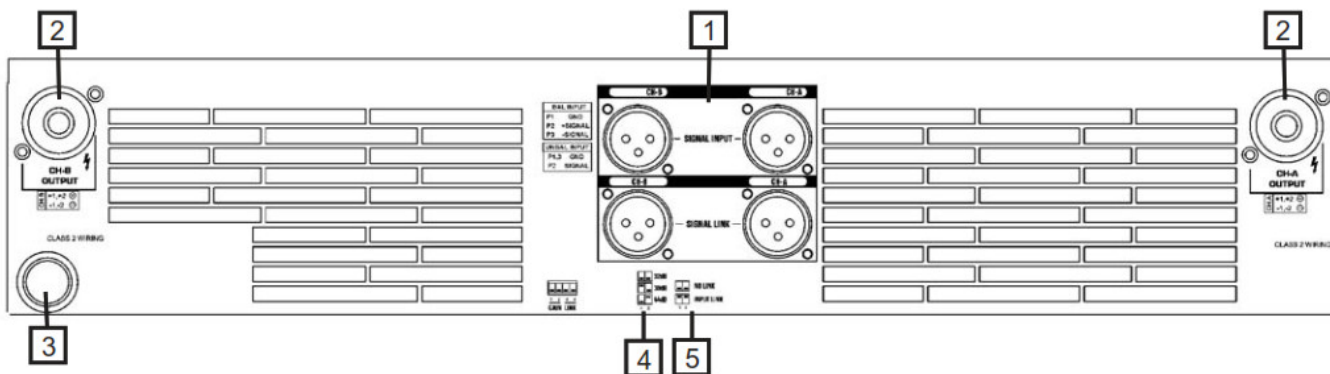


Rear Panel

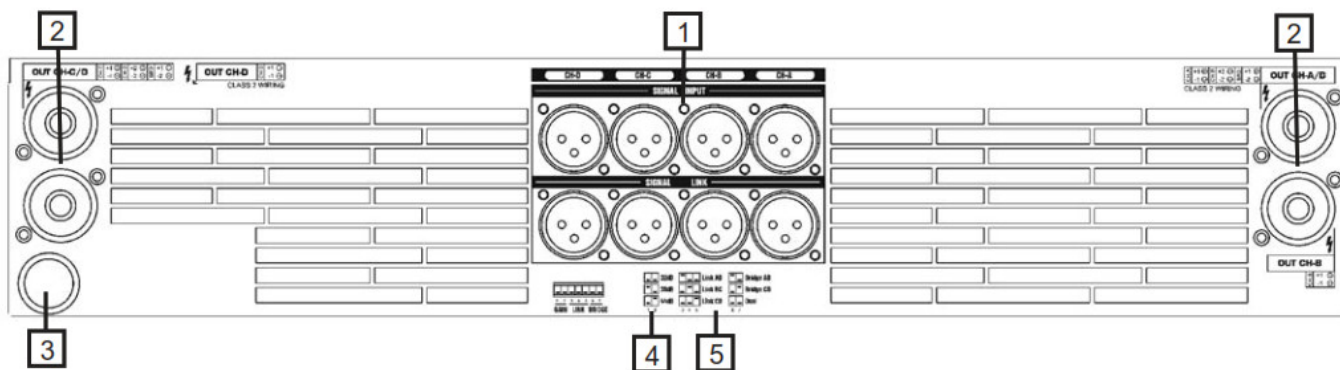
See Figure 2

1. **Signal Input:** Female Neutrik® XLR Connectors for the amplifier's signal input.
Signal Link: Male Neutrik® XLR Connectors for the daisy-chaining input signal to other amplifiers (parallel connected to female input connectors).
2. **Speaker connectors:** Neutrik® Speakon to connect the speakers.
3. **Mains Power Cord:** to connect the amplifier to the mains network. The color code is:
Blue: Neutral
Brown: Live, single phase
Yellow-green: Protective Earth
4. **Gain Selection Minidips:** Gain Selection mini dips 1 and 2: Three positions for 32, 38 or 44dB Gain, (Default setting 32dB).
5. **Mode selection mini dips:** with mini dips 3, 4, 5, 6 y 7 you chose operation mode: Link or Bridge (just for 4 channel model).

Rear Panel 2 Channels models



4 Channels models



Installation and Operation

Connections

The Power switch must always be on the “Off” position before plugging the amp to a properly earthed mains socket.

The color code is:

Blue: Neutral

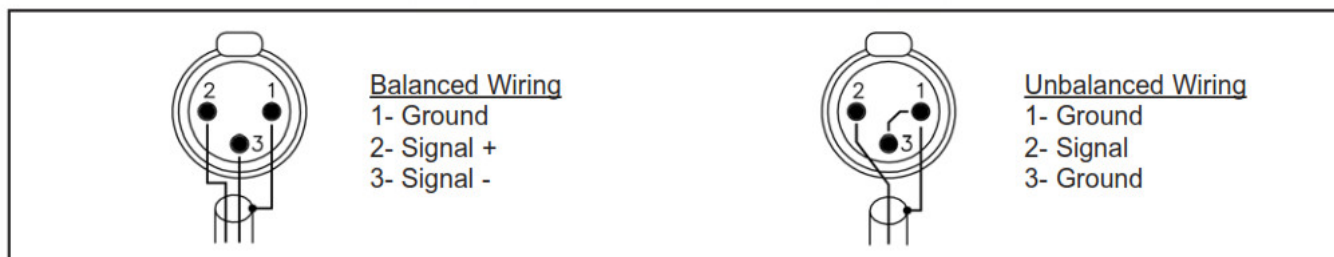
Brown: Live, single phase

Yellow-green: Protective Earth

The input signal fed to the amplifier can be either balanced or unbalanced. The drawing below describes both ways to wire an XLR connector for the purpose.

Balanced Signal: Connect pin 1 to Ground, pin 2 to Signal + (hot), and pin 3 to Signal – (cold).

Unbalanced Signal: Connect Pin 1 to Ground, pin 2 to Signal and pin 3 to Ground.



Important! If a connection is done with an unbalanced line and pin 3 on the XLR is not connected to the ground, a 6 dB loss occurs in the line, and only a quarter of the amplifier power is produced.

The amplifiers provide, for each channel, a female XLR Connector (Signal Input) paralleled to a male XLR to daisy chain several amplifiers with the same signal line (LINK).

There are three different configurations:

Link, Bridge, and Dual are the two last ones just for 4 channels models. The connections for the three modes are different.

DUAL Channel Mode

See Figures and 2 and 3

- Set the rear mini dips in the position corresponding to the Dual configuration.
- Select the chosen Gain (Default setting 32dB).
- Connect the signal lines to the female XLR connectors on all channels.
- Connect the speakers' lines to the corresponding Speakon on the amp respecting the polarity.
- Use the level control knob on the front panel to adjust each channel independently.
- Each signaling LED group will show its corresponding channel status.

LINK Channel Mode

See Figures 2 and 4

- To link 2 adjacent channels, set rear mini dips 3, 4 (for 2 channels models) and 3, 4, and 5 (for 4 channels models) as indicated on rear label.

Link CD: 3 and 4 down and 5 up.

- Operate as Dual Channel Mode with the signal input linked to another adjacent channel.

BRIDGE Channel Mode

Just for 4 channels models.

See Figure 2 5

- To put two channels in Bridge set rear mini dips 6 and 7 as follows:

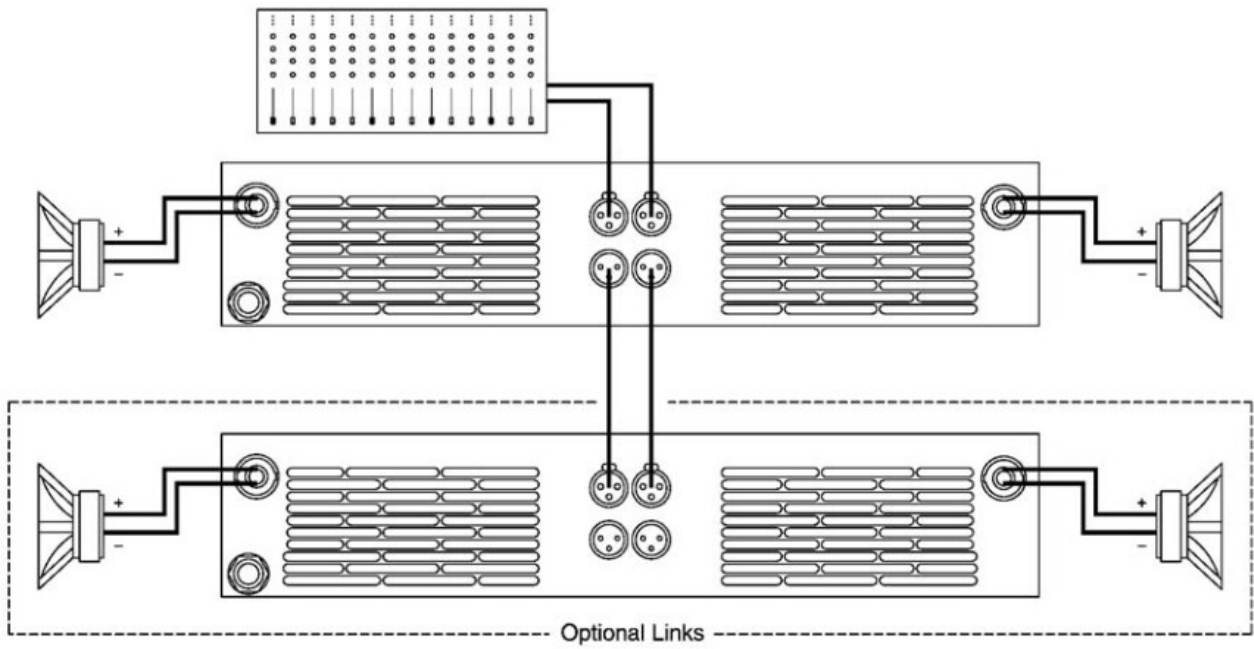
Bridge AB: 6 up and 7 down.

Bridge CD: 6 down and 7 up.

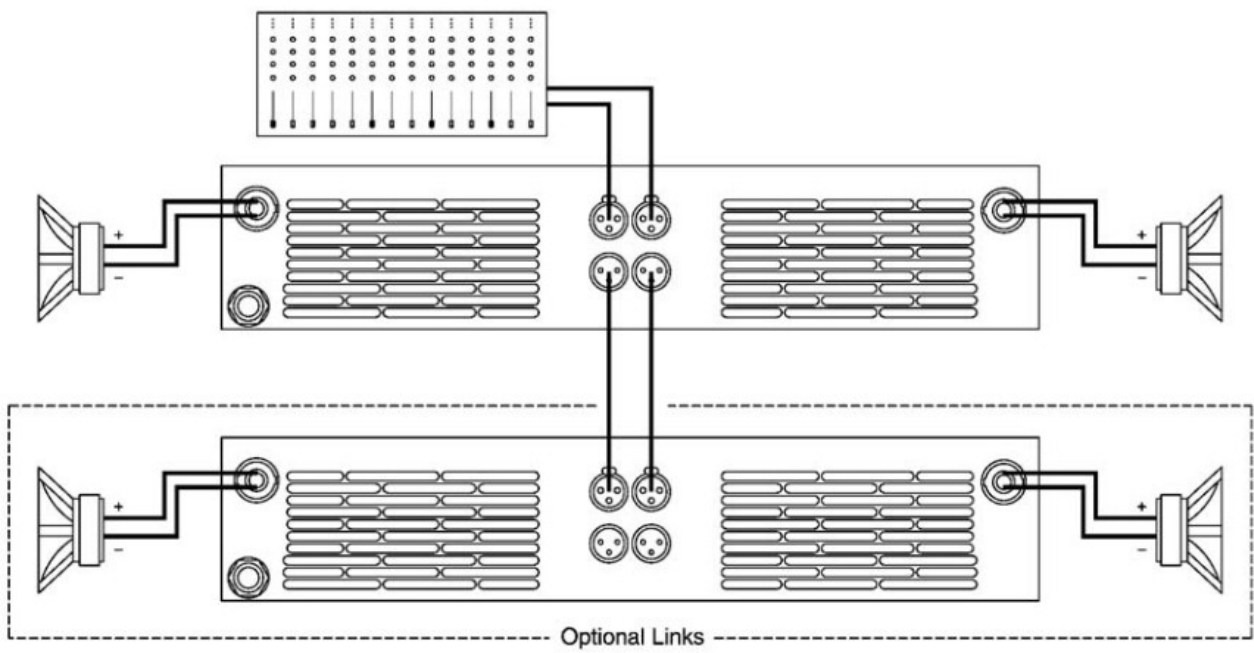
- Select the chosen Gain, remember that, in Bridge mode, the real gain will be 6dB higher. (Default setting 32dB).
- Connect a signal line to input female XLR Channel A or C.
- Connect the speaker line to the Channel A or C Speakon wired to +1 and -2. In this way pin, +1 is positive.
- Use Channel A or C control knob to adjust the amp's output.
- The signaling LED groups will show the single-channel status.

WARNING! The “-“ pins, do not have to be Ground!

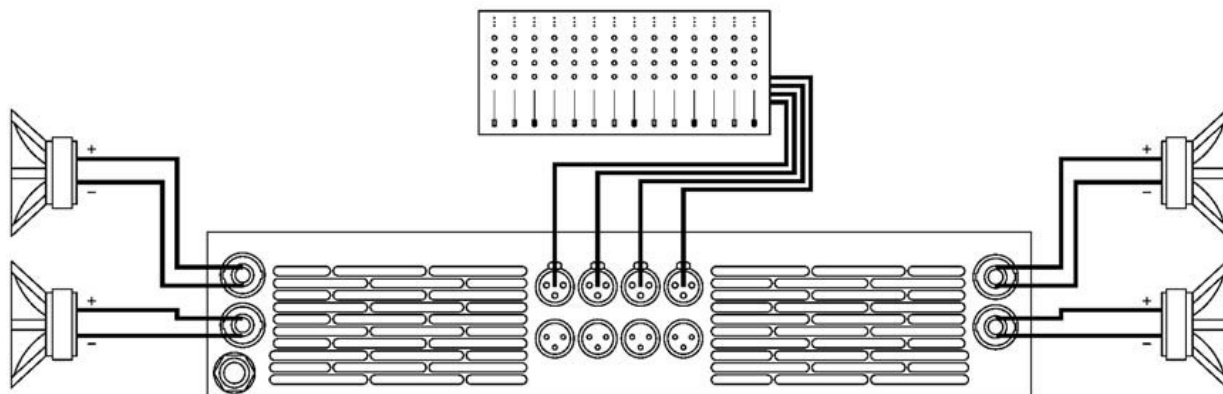
Dual-Channel 2 Ch models



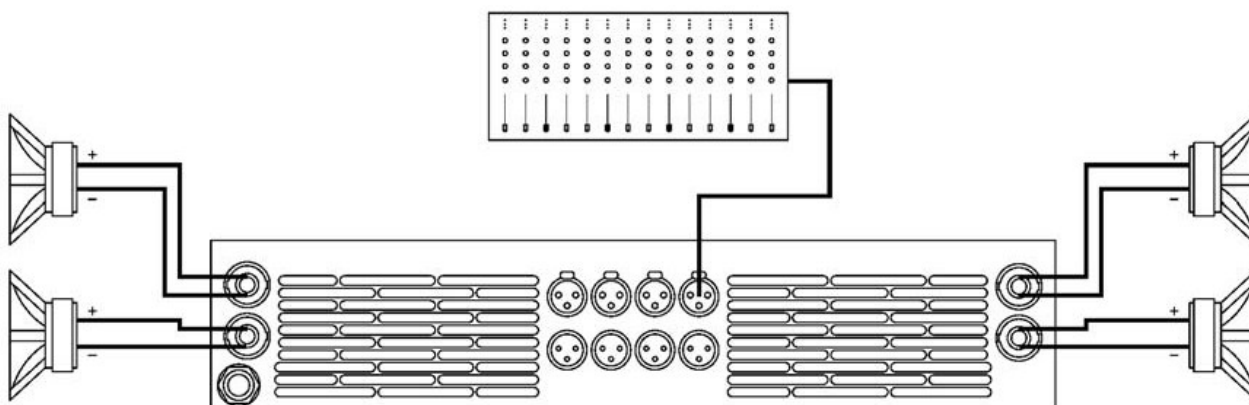
**4 Link Inputs
2 Ch models**



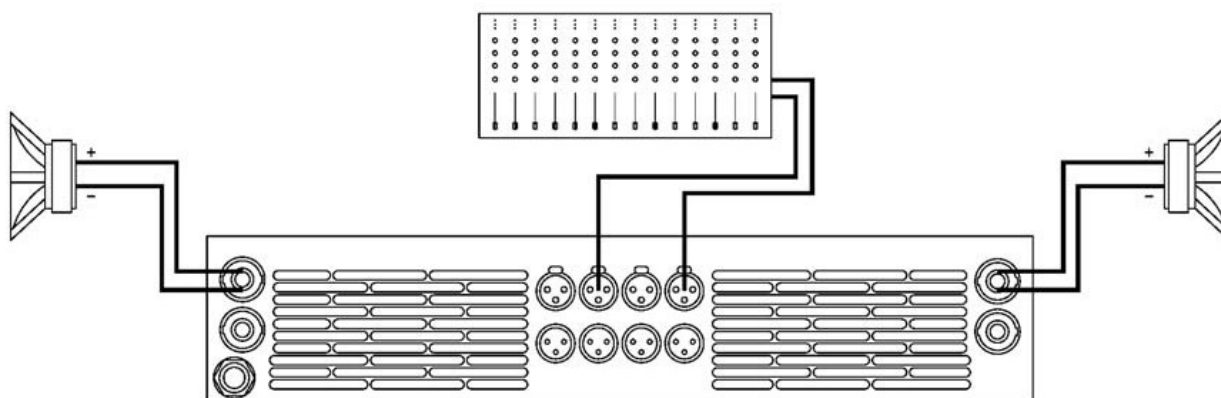
**3 Dual Channel
4 Channel models**



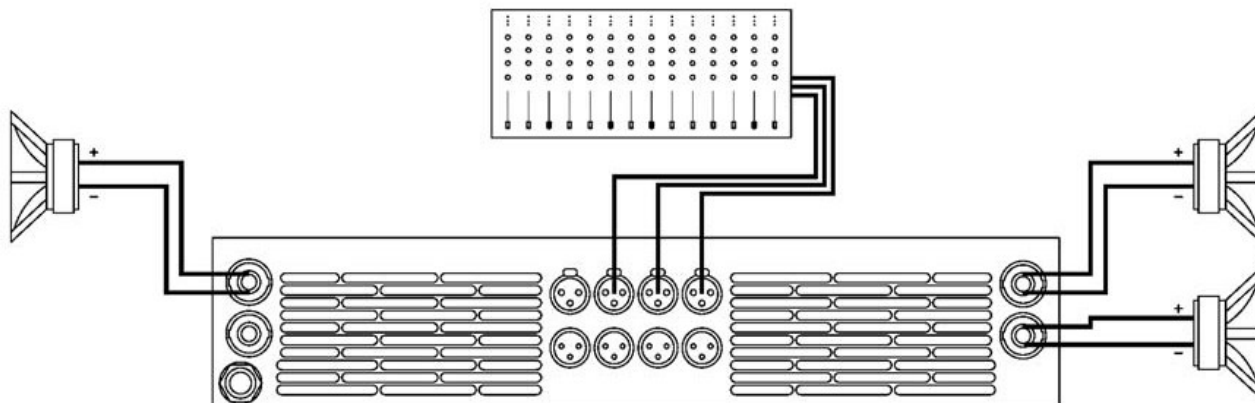
**4 Link Inputs
4 Channel models**



**5 Bridge Mode
4 Channel models**



**Bridge + Dual Mode
4 Channel models**



Troubleshooting

In the event of an incorrect connection or malfunctioning, the amp will activate one or more of its LEDs to warn about the problem.



Correct function: SGNL lights to indicate signal presence.



ICL: The Intelligent Clip Limiter is operating (see page 10).



No Signal: No Input Signal is reaching the amp.



PMS: Several causes can trigger this LED, the most common are:

- The amplifier is in power-on sequence, where output is inhibited until the amp circuits are ready to operate.
- The internal temperatures rise to near thermal shutdown point due to unfavorable operating conditions.
- Excessive mains current consumption.

Protection Systems PMS™

Power Management System

This is a complete set of protections that monitors the main amp parameters (load status, signal input, temperature, current, etc.) in order to draw from the power supply only the precise amount of current required to maintain safe operation during hazardous or extreme working conditions.

This system controls the amount of power that the amp delivers under three basic circumstances:

1. The power-on sequence, where output is inhibited until the amp circuits are ready to operate. This routine is repeated at every restart, not just when the power switch is activated.
2. When internal temperatures rise to near thermal shutdown point due to unfavorable operating conditions. Here the system takes control, restricting current so as to maintain operational continuity at the precise power level which the amp is capable of withstanding at that particular moment.
3. Excessive mains current consumption. This event only occurs either under laboratory conditions (long-term sinusoidal signal testing with dummy loads) or, for example, in field applications in conditions of prolonged acoustic howl-round. Here PMS takes control to avoid any damage to the speakers and to prevent the mains breaker from tripping or the fuses blowing.

ICL2™ – Intelligent Clip Limiter

The RAM Audio ICL2 is an anti clip system to avoid speaker failure and provide a more acceptable sound quality even when clipping occurs. With the ICL2 system, you don't lose the music "punch" but the speakers are kept under control.

SSP™ – SOA Sentry Protection

SOA Sentry protection effectively limits the power that the amp could deliver into an incorrect load or to a direct short-circuit. This avoids power transistor failure.

FCM™ – Faulty Channel Management

Faulty Channel Management system to avoid entire device shutdown.

Technical Specifications

Data

	XTR-12K	XTR-18K	XTR-12K4
Output Power (1kHz, 1.0% THD+N)			
@ 4 Ohm	2x 6000 W	2x 9000 W	4x 2950 W
@ 8 Ohm	2x 3000 W	2x 4500 W	4x 1550 W

Bridge @ 8Ω	—	—	2x 5900 W
Frequency Response Power Bandwidth ±0.25dB			
Frequency Response Power Bandwidth ±0.25dB	20Hz-20kHz		
Total Harmonic Distortion 20Hz-20kHz	<0.05%		
Intermodulation Distortion SMPTE	<0.05%		
Damping Factor 20-500Hz @ 8 Ohm	>500		
Crosstalk 20Hz-20kHz (typical)	>70dB		
Voltage Gain	32/38/44 dB		
Sensitivity Rated Power (32/38/44dB Gain)	3.9/1.9/1 V	4.7/2.4/1.2 V	2.8/1.4/0.7 V
Signal-to-Noise Ratio 20Hz-20kHz	116dB	118dB	116dB

Required AC Mains Operating Voltage (50Hz-60Hz) Power On Idling (@ 230V) 1/8 Rated Power @ 4 Ohm (@ 230V) (*limited by PMS for fuse saver protection)	90V-265V AC 0.5 A 14 A	170V-265V AC 0.5 A 16 A*	90V-265V AC 0.5 A 13 A
Dimensions W x H x D (mm) W x H x D (inches)	483x89x460 19x3.5x18.1		
Weight Net (Kg-Lbs)	12-26.5	12-26.5	12-26.5

Protections

Soft-start, Turn-on Turn-off transients, Muting at turn-on, Over-heating, DC, RF, Short-circuit, Open or mismatched loads, Overloaded power supply, Mains Overvoltage, ICL™, PMS™, SSP™ and FCM™



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Documents / Resources

 Professional Power Amplifiers 12K-18K-12K4 XTR Series  OPERATION MANUAL BEDIENUNGSANLEITUNG MANUAL DE EMPLEO   	RAM Audio XTR Series Professional Power Amplifiers [pdf] User Manual XTR Series, Professional Power Amplifiers, XTR Series Professional Power Amplifiers, 12K, 18k, 12K4
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