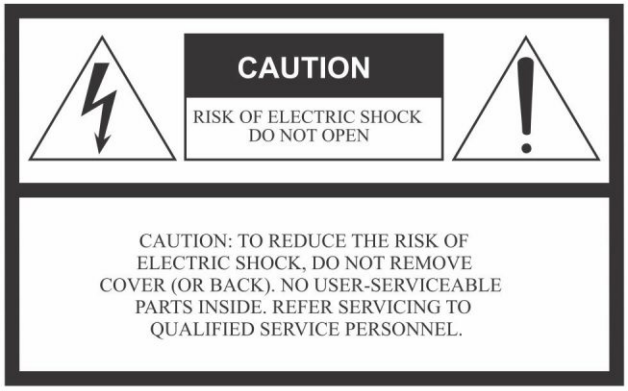
Studiomaster®
PROFESSIONAL

STEREO POWER AMPLIFIER

ARENA 15
ARENA 20
ARENA 30

Owner's Manual



The above warning is located on the top of the unit

Explanation of Graphical Symbols

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 may be 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 product.

IMPORTANT SAFETY INSTRUCTIONS

1 Read these instructions.
2 Keep these instructions.
3 Heed all warnings.
4 Follow all instructions.
5 Do not use this apparatus near water.
6 Clean only with dry cloth.
7 Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8 Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9 Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
10 Only use attachments/accessories specified by the manufacturer.

11 Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over.
12 Unplug this apparatus during lightning storms or when unused for long periods of time.
13 Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or 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.

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK,
DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

Tips for Safe Operation

The amplifier must be connected to an AC earthed mains outlet that can delivered the maximum power required. The use of extension cables or adaptors should be avoided as this can jeoparadize correct delivery to the amplifier.

All connections must only be carried out or changed with the amplifier switched OFF. Ensure proper impedance matching while in use for BRIDGE mode applications. For continuous safe operation, resultant impedance of the speakers 8 ohm/4 ohm is recommended.

For 2 ohm/4 ohm applications, it is recommended to use speakon connectors only. Use of cable 40/36 or thicker is recommended to prevent power losses.

The level of input signal should not exceed the specified input sensitivities. Excessive input signal levels result in over driving of input circuit which leads to saturated / distorted output at speaker terminals.

Do not operate the amplifier with continuously blinking CLIP LED. The respective volume control of the channels must be adjusted so that the output level does not clip and distort. Do not obstruct the front or back of the amplifier for necessary intake of air.

Precautions

— For safe operation —

⚠ WARNING

Installation

- Connect this unit's power cord only to an AC outlet of the type stated in this Owner's Manual or as marked on the unit. Failure to do so is a fire and electrical shock hazard.
- Do not allow water to enter this unit or allow the unit to become wet. This may result in a Fire or electrical shock.
- Do not place a container with liquid or small metal objects on top of this unit. Liquid or metal objects inside this unit are a fire and electrical shock hazard.
- Do not place heavy objects, including this unit, on top of the power cord. A damaged power cord is a fire and electrical shock hazard. In particular, be careful not to place heavy objects on a power cord covered by a carpet.

Operation

- Do not scratch, bend, twist, pull, or heat the power cord. A damaged power cord is a fire and electrical shock hazard.
- Do not remove the unit's cover. You could receive an electrical shock. If you think internal inspection, maintenance, or repair is necessary, contact your dealer.
- Do not modify the unit. Doing so is a fire and electrical shock hazard.
- If lightning begins to occur, turn off the power switch of the unit as soon as possible, and unplug the power cable plug from the electrical outlet.
- If there is a possibility of lightning, do not touch the power cable plug if it is still connected. Doing so may be an electrical shock hazard.

In case an abnormality occurs during operation

- If the power cord is damaged (i.e., cut or a bare wire is exposed), replace the same. Using the unit with a damaged power cord is a fire and electrical shock hazard.
- Should this unit be dropped or the cabinet be damaged, turn the power switch off, remove the power plug from the AC outlet, and contact your dealer. If you continue using the unit without heeding this instruction, fire or electrical shock may result.
- If you notice any abnormality, such as smoke, odor, or noise, or if a foreign object or liquid gets inside the unit, turn it off immediately. Remove the power cord from the AC outlet. Consult your dealer for repair. Using the unit in this condition is a fire and electrical shock hazard.

⚠ CAUTION

Installation

- Keep this unit away from the following locations:
  - Locations exposed to oil splashes or steam, such as near cooking stoves, humidifiers, etc.
  - Unstable surfaces, such as a wobbly table or slope.
  - Locations exposed to excessive heat, such as inside a car with all the windows closed, or places that receive direct sunlight.
  - Locations subject to excessive humidity or dust accumulation.
- Do not place the power cord close to a heater. It may melt, causing fire or electrical shock.
- Hold the power cord plug when disconnecting it from an AC outlet. Never pull the cord. A damaged power cord is a potential fire and electrical shock hazard.
- Do not touch the power plug with wet hands. Doing so is a potential electrical shock hazard.
- This unit has ventilation holes at the front, rear & top to prevent the internal temperature rising too high. Do not block them. Blocked ventilation holes are a fire hazard.
  In particular, do not
  - place the unit on its side or upside down,
  - place the unit in any poorly-ventilated location such as a bookcase or closet (other than on the dedicated rack),
  - cover the unit with a table cloth or place it on a carpet or bed.
- Allow enough free space around the unit for normal ventilation. This should be: 5 cm at the sides, 10 cm behind, and 10 cm above.
- If the airflow is not adequate, the unit will heat up inside and may cause a fire.
- To relocate the unit, turn the power switch off, remove the power plug from the AC outlet, and remove all connecting cables. Damaged cables may cause fire or electrical shock.

Operation

- Use only thick speaker cables when connecting speakers to amplifier outputs. Use of cables type 40/36 or thicker is recommended for connecting low impedance speakers to avoid power loss in the cables, as heavy current flows through the cables. Using other types of cables is a fire hazard.
- Turn off all musical instruments, audio equipment, and speakers when connecting to this unit. Use the correct connecting cables and connect as specified.
- Always lower the volume control to minimum before turning on the power to this unit. A sudden blast of sound may damage your hearing.
- Do not use this amplifier for any purpose other than driving loudspeakers.
- If you know you will not use this unit for a long period of time, such as when going on vacation, remove the power plug from the
- AC outlet. Leaving it connected is a potential fire hazard.
  When operating amplifier on a generator, make sure it is switched "OFF" till generator voltages has stabilized & then only switch "ON" amplifier.
- Be sure of proper impedance of 2/4/8 ohm when used for STEREO/PARALLEL configuration & 4/8 ohm recommended when used in BRIDGE mode.

Contents Page No.

Thank you for your purchase of the STUDIOMASTER Professional Arena Series power amplifiers. These amplifiers fully incorporate STUDIOMASTER Professional's renowned technology and offers high reliability, rock solid stability and superb acoustic characteristics.

Features / General Description of Product

- Rugged 19" rack mountable design of chassis.
- High current torroidal transformer which provides excellent regulation and minimized hum & noise.
- Designed & built to Studiomaster Professional's legendary standards of reliability.
- Affordable high power amplification with high performance.
- Balanced XLR Input & Link Out.
- Speak-on output connector with high current capability.
- Sensitivity, Low cut, Limiter, Ground/Lift selection switches.
- Overdrive, DC, Short circuit, High temperature protections.
- Switchable modes (Stereo, Parallel & Bridge with indication).
- Each channel LED indication for Power, Signal, Clip & Protect.
- Temperature controlled fans with front to back airflow.
- Mains voltage operation from 150V to 240V.

This owners Manual covers 3 models, Arena 15, 20 & 30 power amplifiers. Please read through this manual carefully before beginning use, so that you will be able to take full advantage of amplifier's superlative features and enjoy trouble free operation for years to come. After reading through the manual, please store it in a safe place.

Front Panel Controls & Features

1 Mains on/off switch

Switches the unit on and off.

2 Power ON indicator

When lit, this Blue LED indicates operation of the channel.

3 Volume control

Used for adjusting the volume of the channel.

4 Signal indicator

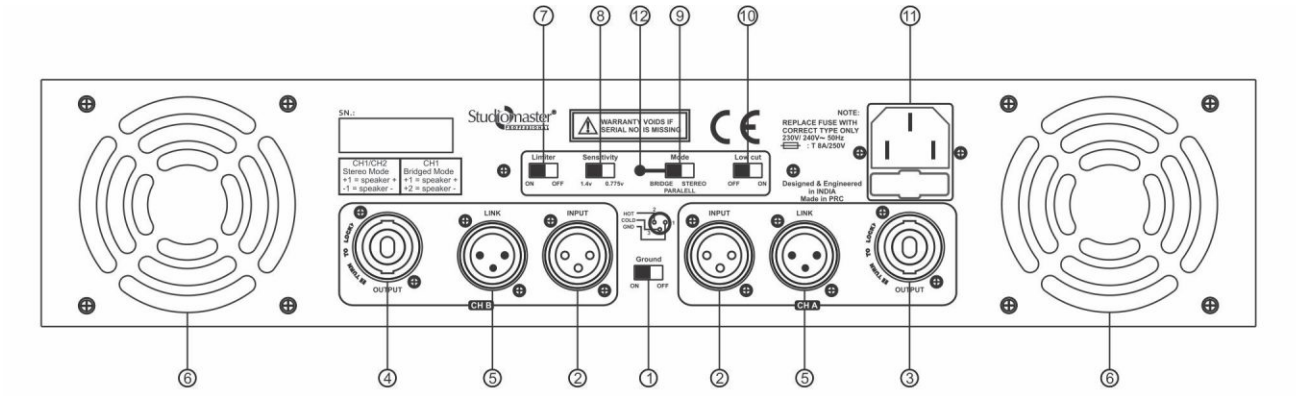
Green LED that indicates the presence of the signal in the final stage. It lights up with signals higher than 370mW.

5 Clip indicator

This yellow LED lights up to indicate that the output signal is clipping. Please avoid constant glowing of clip led, reduce level control to bring down the level.

6 Protect indicator

Red LED that indicates the mute status of the channel and is lit for the following reasons:
Power switch on delay, presence of DC voltage on the channel output, short circuit, thermal protection of the transformer.



Rear Panel Controls & Features

1 Ground

On = Pin 1 of input connector is connected to chassis
Off = Pin 1 is isolated for chassis

2 Balanced XLR input

This XLR connector takes the signal (balanced/unbalanced) for driving the channel. If the signal is unbalanced, pin 2 can be used for the signal and pin 3 connected to the ground (pin 1 of connector).

3 CH A output speakon connector

Use this connector for amplified signal of CH A and signal for bridge configuration.

4 CH B output speakon connector

Use this connector for amplified signal of CH B.

5 Link out

This male XLR connector is used to cascade 2 amplifiers.

6 Air outlet grill

The hot air inside the amplifier is thrown out from this grill. Do not obstruct the grill.

7 Limiter

This switch activates limiter when in ON position. The limiter prevents distortion of the output level when its gets overloaded. When the output level exceeds its maximum, an internal adjustment will be made to prevent overloading. The limiter is specially designed to safeguard connected full-range speakers. The high tone piezo drivers of these speakers are now protected against distortion and harmonic signals which are the result of over steering the amplifier. **When the amplifier is used as a subwoofer amplifier then the limiter has to be switched off to set the extra "punch".**

8 Sensitivity

This switch is used to select sensitivity to either 0.775V or 1.4V depending on the source.

9 Mode switch

This three way switch configures the amplifier for the three working modes: parallel, stereo and bridge.
Parallel = Input to CH A, output controlled by individual level.
Stereo = Input to individual channel and controlled by respective level control.
Bridge = Input to CH A and controlled by CH A level control.

10 Low-cut

This switch filters the low frequencies from the input signal. Cut off frequency is 30 Hz when it is selected. The filter protects the cone of the speakers against unwanted and inaudible low frequencies.

11 AC inlet

This socket is used to supply power to the unit. It is with in-built Fuse. Replace fuse with correct type and rating only.

12 Bridge mode indication

Glows yellow when bridge mode is selected.

Input-Output Connections

FIG. 1 **BALANCED INPUT CONNECTIONS**

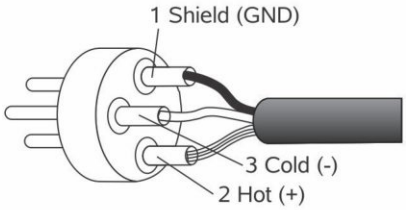


FIG. 2 **UNBALANCED INPUT CONNECTIONS**

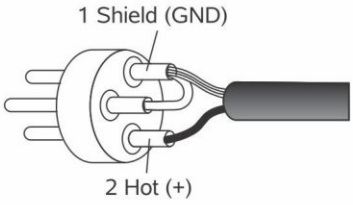


FIG. 3 **PARALLEL / STEREO OUTPUT CONNECTIONS**

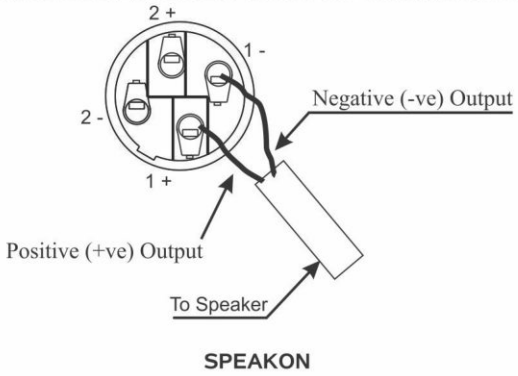
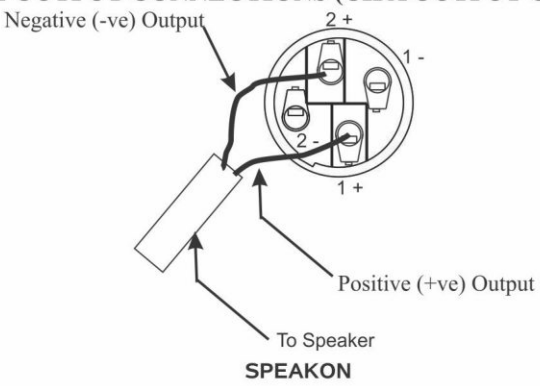
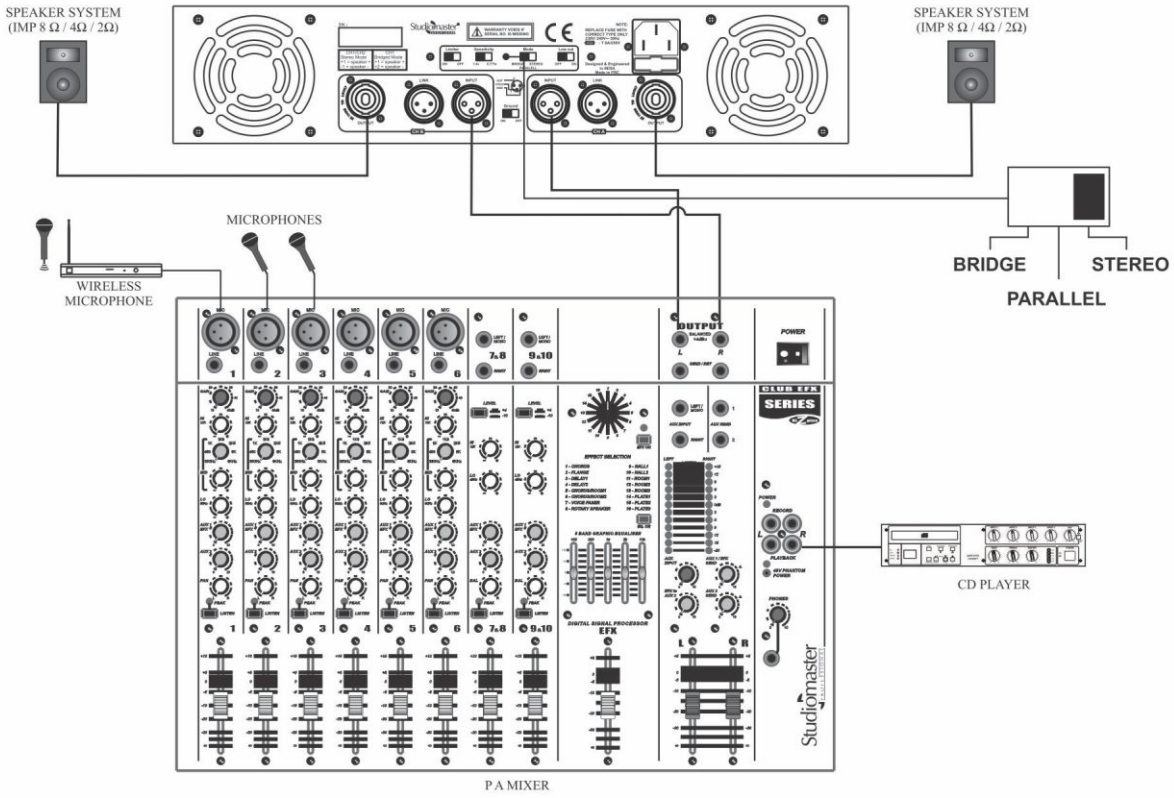


FIG. 4 **BRIDGE OUTPUT CONNECTIONS (CH A OUTPUT CONNECTOR)**



Setup & Operation

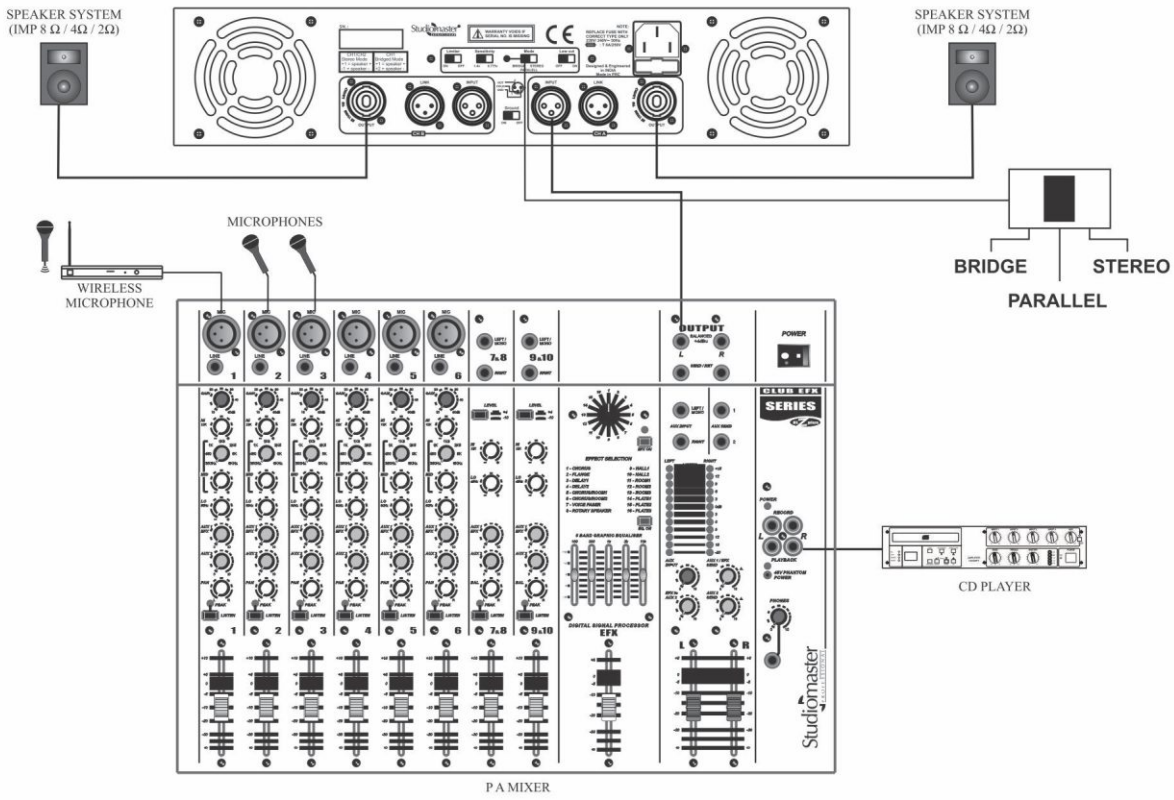
Stereo Mode Configuration



- In STEREO mode, both channel A & B are fully independent of each other. The balanced / unbalanced inputs can be connected either to a stereo source or two independent Parallel signal sources. Each channel can separately drive loudspeaker loads of 8 ohm or 4 ohm or 2 ohm.
- Connect the Left and Right outputs Of a mixer to channel A and B inputs of the amplifier respectively. Inputs can be wired as per fig. 1 & 2 on page No. 9 (Input Connections for Balanced and Unbalanced mode)
- Connect a speaker system (8 ohm / 4 ohm / 2 ohm) on the output terminal of each channel. It is recommended to use the speakon connectors and wire these as per fig. 3 on page No. 9 (Output Connections for Stereo / Parallel Mode)
- To select STEREO mode, keep the slide switch, provided at rear panel, in STEREO position.
- Adjust the individual volume controls of each channel on the front panel to obtain the desired output level.
- The signal indicator LEDs glow to indicate the presence of signal at the output terminals.

Setup & Operation

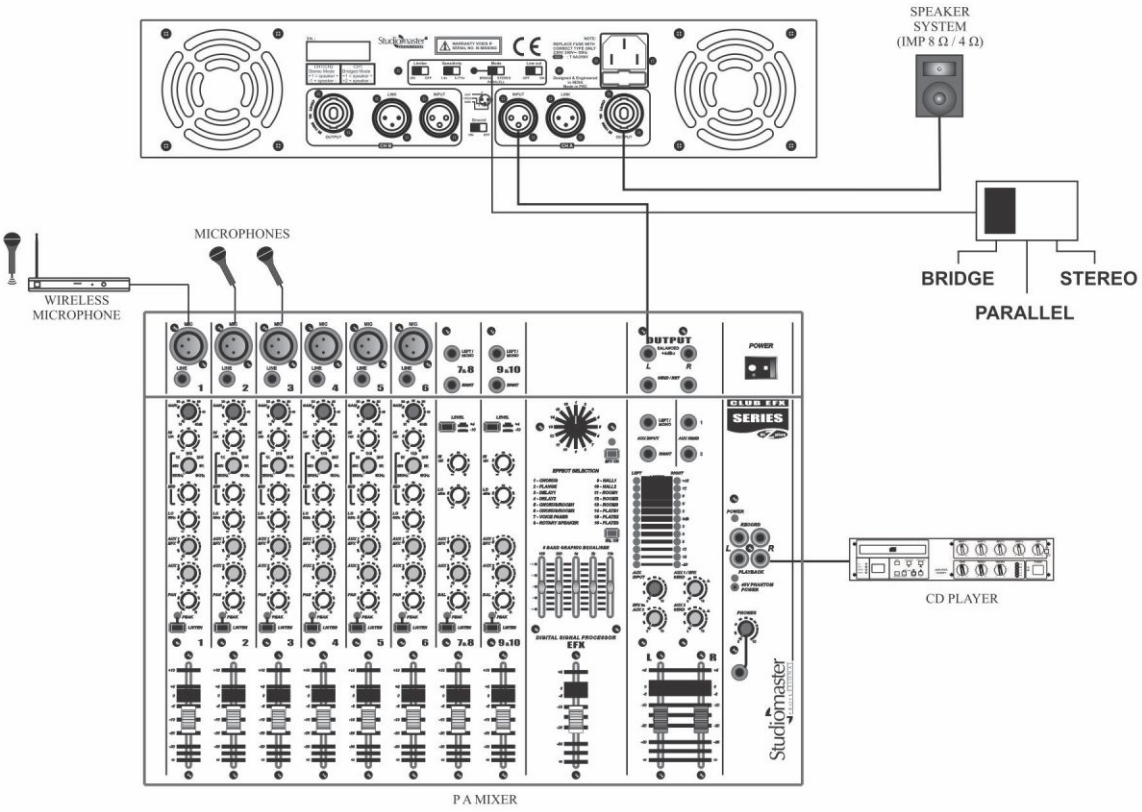
Parallel Mode Configuration



- When operating in PARALLEL mode, the signal source should be connected to the balanced / unbalanced inputs of channel A only. Both channels provide similar outputs to their respective loudspeakers. Each channel can separately drive loudspeaker loads of 8 ohm or 4 ohm or 2 ohm.
- Connect the line output of a mixer to channel A input of the amplifier. Inputs can be wired as per fig. 1 & 2 on page No. 9 (Input Connections for Balanced and Unbalanced mode)
- Connect a speaker system (8 ohm / 4 ohm / 2 ohm) on the output terminal of each channel. It is recommended to use the speakon connectors and wire these as per fig. 3 on page No. 9 (Output Connections for Stereo / Parallel Mode)
- To select PARALLEL mode, keep the slide switch, provided at rear panel, in Parallel position.
- The desired output levels of both the channels are adjustable by volume control of individual channel.
- The signal indicator LEDs glow to indicate the presence of signal at the output terminals.

Setup & Operation

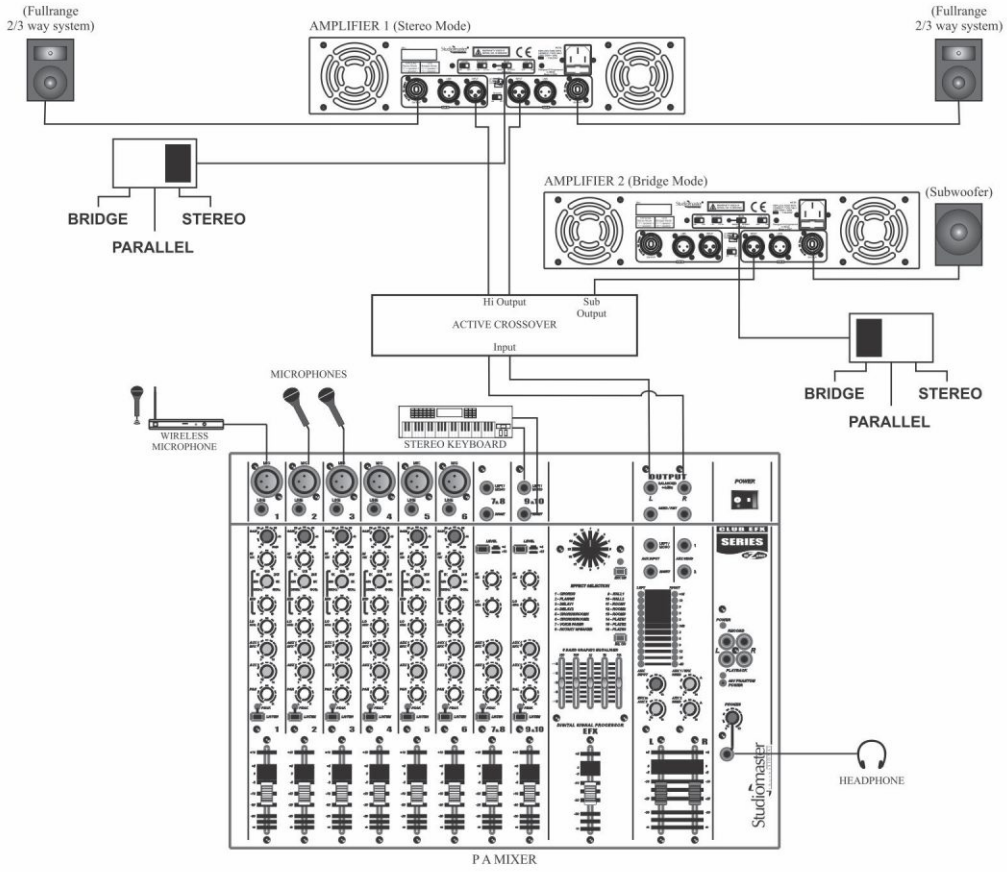
Bridge Mode Configuration



- For BRIDGE mode operation, the signal source should be connected to the balanced / unbalanced inputs of channel A only. In this mode the combined power output of both channels for connecting a single loudspeaker load. The combined loudspeaker load should not go below 4 ohm.
- Connect the line output of a mixer to channel A input of the amplifier. Inputs can be wired as per fig. 1 & 2 on page No. 9 (Input connections for Balanced and Unbalanced mode)
- Connect a speaker system (8 ohm / 4 ohm) on the speakon output of channel A only. It is recommended to use the speakon connectors and wire these as per fig. 4 on page No. 9 (Output connections for Bridge Mode)
- To select BRIDGE mode, keep the slide switch, provided at rear panel, in Bridge position and ensure that the Bridge LED located on the back panel glows.
- The desired output levels of both the channels are adjustable by volume control of individual channel.
- The signal indicator LEDs glow to indicate the presence of signal at the output terminals.

Typical Aplications

Stereo Mix Plus Subwoofers



- Connect the Left & Right output of the Audio mixing console to the respective inputs of the Active Crossover. Connect the Left & Right high frequency output of the active crossover to the respective input channels A & B of amplifier 1. Inputs can be wired as per fig. 1 & 2 on page No. 9 (Input connections for Balanced & Unbalanced Mode) One no. of full range loudspeaker system can be connected to each of the channels of amplifier 1. The output speakon connectors should be wired as per fig. 3 on page No. 9 (Output connections for Stereo / Parallel Mode)

- Feed the sub output of the crossover to channel A input of amplifier 2. Inputs can be wired as per fig. 1 & 2 on page No. 9 (Input connections for Balanced and Unbalanced Mode)

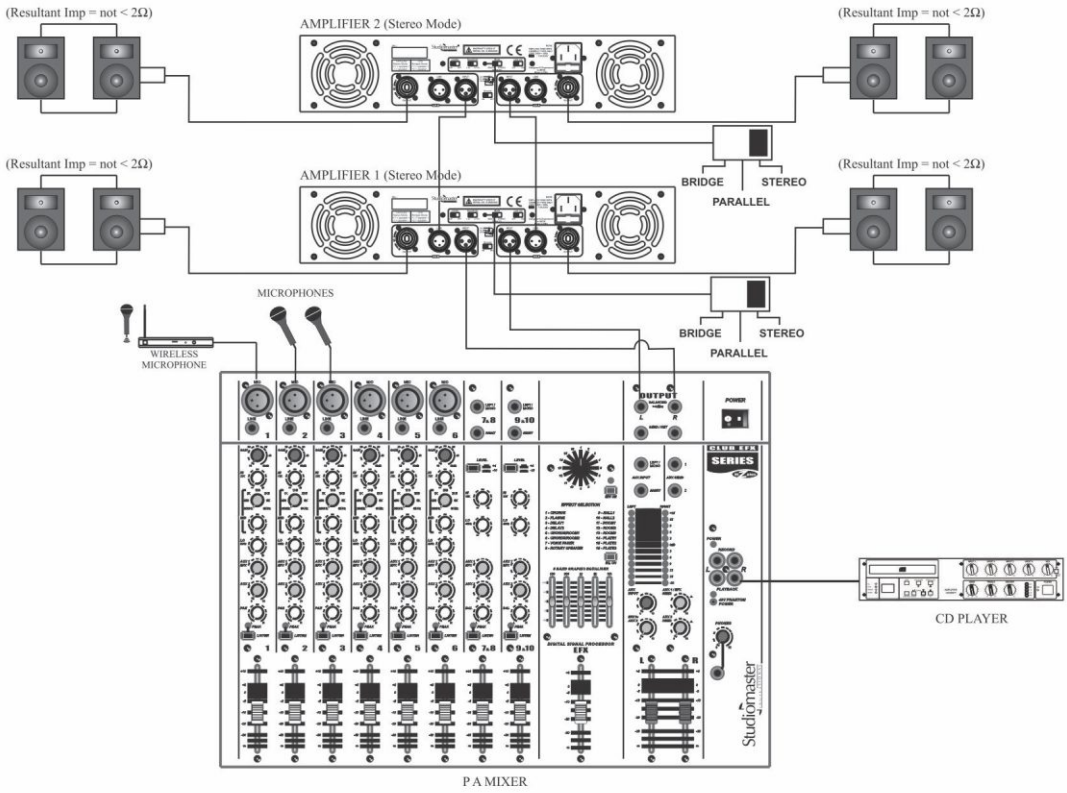
- The high powered subwoofer system can be connected to the channel A outputs of amplifiers 2. Output speakon connectors can be wired as per fig. 4 on page No. 9 (Output connections for Bridge Mode).

- Amplifier 2 will be used in Bridge Mode. Keep the slide switch of amplifier 2 to BRIDGE position to activate Bridge Mode.

- Finally adjust the volume control of channel A & B in amplifier 1 to control the level of their respective position to get desired power. Also, adjust the volume control of channel A in amplifier B to control the level of its respective position to get desired power.

Typical Aplications

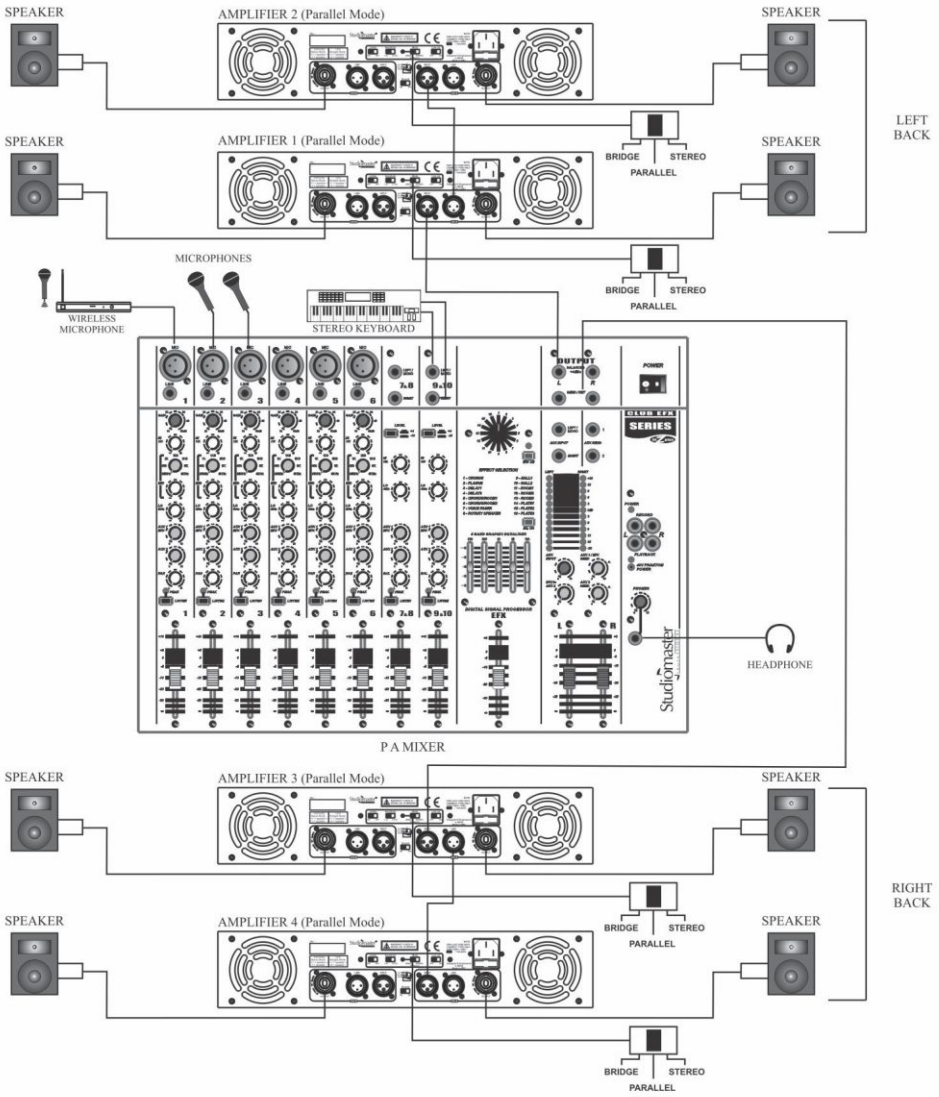
Stereo Mode - Cascade Configuration



- Connect the Left & Right output of the Audio mixing console to the channel A & B (XLR/jack) of amplifier 1. Connect channel A link output of amplifier 1 to channel B. Speakers can be connected to respective output but ensure that resultant impedance is not less than 2 ohms. The input can be wired as per fig. 1 & 2 on page No. 9 (Input connections for Balanced and Unbalanced Mode)
- The speaker connections of amplifier 2 are done in similar way as for amplifier 1.
- Amplifier 1 and 2 will be used in Stereo Mode. Keep the slide switch of amplifier 1 and 2 in Stereo position.
- Adjust the volume controls of channel A & B of both the amplifiers to control the levels of their respective speakers.
- Finally any adjustments in the total quantity of the sound, if required, can be made from the audio mixing console.

Typical Aplications

Parallel Mode - High Power Dual Channel Configuration



- Connect the Left line output of the Audio mixing console to the channel A of amplifier 1.
- Connect the Link out of channel A of amplifier 1 to channel A input of amplifier 2. The inputs can be wired as per fig.1 & 2 on page No. 9 (Input connections for Balanced and Unbalanced Mode)
- The Left speaker stack compromises of four nos. speaker systems. Each speaker is individually connected to the our speaker outputs available from amplifier 1 & 2 (channel A & B).
- Output speakon connectors to be wired as per fig. 3 on page No. 9 (Output connections for Stereo / Parallel Mode).
- Amlifier 1 & 2 will be used in Parallel mode.
- Keep the slide switch of amplifier 1and 2 in Parallel position.
- Finally any adjustments in the total quantity of the sound, if required, can be made from the audio mixing console.

Specifications

	ARENA 15	ARENA 20	ARENA 30
Output power **Stereo @ THD 1%** **Bridged @ THD 1%** **Single channel driven @ THD 1%**	2Ω 2 x 800W RMS 4Ω 2 x 650W RMS 8Ω 2 x 350W RMS 4Ω 1600W RMS 8Ω 1300W RMS 2Ω 900W RMS 4Ω 750W RMS 8Ω 400W RMS	2Ω 2 x 1000W RMS 4Ω 2 x 800W RMS 8Ω 2 x 500W RMS 4Ω 2000W RMS 8Ω 1600W RMS 2Ω 1200W RMS 4Ω 1050W RMS 8Ω 600W RMS	2Ω 2 x 1500W RMS 4Ω 2 x 1100W RMS 8Ω 2 x 750W RMS 4Ω 3000W RMS 8Ω 2200W RMS 2Ω 2200W RMS 4Ω 1450W RMS 8Ω 750W RMS
Frequency Response	20Hz-20kHz (-3dB)		
THD + N @ rated power single channel in 4 Ω load	< 0.02% @ 1kHz < 1%@ 20kHz		
SMPTE IMD	< 0.3% max power (4Ω)		
Damping Factor	> 200 : 1 (8Ω)	> 200 : 1 (8Ω)	> 400 : 1 (8Ω)
Slew Rate	50V/uS		
Signal to Noise Ratio	>100 dB		
Crosstalk	> 70dB @ 1kHz		
Input Sensitivity	0 dBμ (0.775 Vrms) +5 dBμ (1.4 Vrms) For rated power (4Ω)		
Input Impedance	20kΩ balanced 10kΩ unbalanced		
Protection devices	Temperature, DC, short circuit, Soft-Start, Thermal Power Transformer		
Input Connector (per channel)	XLR		
Output Connector (per channel)	4 WAY SPEAKON Connector		
Cooling	2 variable-speed fans		
Front panel controls	2 no. Level Attenuators & Mains Switch		
Indicators (per channel)	On, Signal, Clip & Protect		
Power Consumption Full Power (4Ω)	240V 50Hz (8A)	240V 50Hz (12A)	240V 50Hz (16A)
Dimensions (H x W x D)	482 x 432 x 88.8mm	482 x 432 x 88.8mm	482 x 432 x 88.8mm
Net Weight	20Kg	21Kg	22Kg
Shipping Carton Size (H x W x D)	580 x 570 x 140mm	580 x 570 x 140mm	580 x 570 x 140mm

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