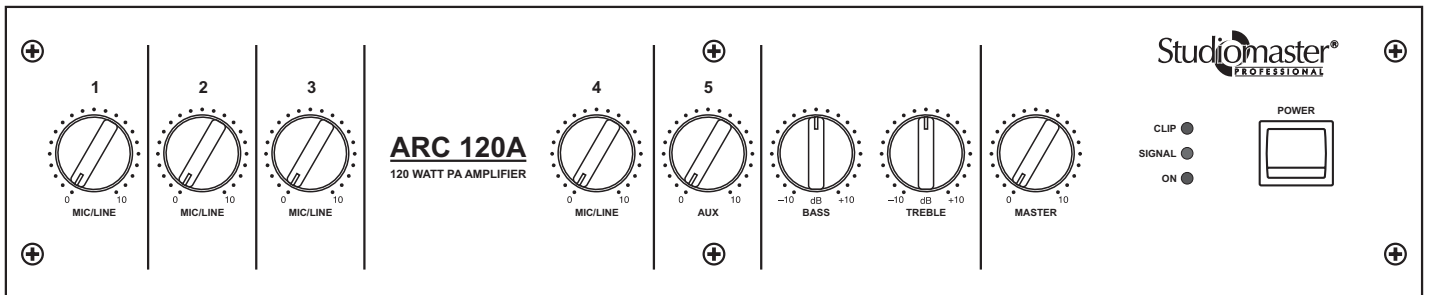




ARC 120A



PA AMPLIFIER USER MANUAL

Thank you for your purchase of the STUDIOMASTER ARC 120A Power Amplifier. This amplifier fully incorporates STUDIOMASTER's renowned technology and offers high reliability, rock solid stability and superb acoustic characteristics.

Features of the Product

- Five inputs : 4 balanced microphone/line inputs, One auxiliary (stereo summing) line input.
- **Switchable phantom power for CH 1 mic input.**
- Speaker outputs consist of 70 V, 100 V, 4 ohm, 8 ohm & 16 ohm.
- An auxiliary line output can be used for recording or connection to an external power amplifier.
- Pre-amp & Amp-in RCA connectors to use external devices such as Equalizer
- An Auto-Talk function provides voice-activated priority (VOX) for the Input 1 which overrides the remaining inputs.
- Other features include channel level, master volume controls and bass/treble controls, low cut, Level indicators, Power-On Indicator & On/off switch .
- 24V DC Operation – Instant transfer to DC Power (car battery) if AC power fails.

2 Safety Notes



The unit is supplied with hazardous mains voltage (240V~). Leave servicing to skilled personnel only. Inexpert handling may cause an electric shock hazard. Furthermore, any guarantee claim will expire if the unit has been opened.

Always switch off the unit before making or changing any connections.

Please observe the following terms in any case:

- The unit is suitable for indoor use only. Protect it against dripping water and splash water, high air humidity, and heat (admissible ambient temperature range 0-40°C).
- Do not place any vessel filled with liquid on the unit, e.g. a drinking glass.
- Do not operate the unit or immediately disconnect the plug from the mains socket.
 1. If there is visible damage to the unit or to the mains cable.
 2. If a defect might have occurred after the unit was dropped or suffered a similar accident.
 3. If malfunctions occur. In any case the unit must be repaired by skilled personnel.
- A damaged mains cable must be replaced by the manufacturer or authorized, skilled personnel only.
- Never pull the mains cable when disconnecting the mains plug from the socket, always seize the plug.
- For cleaning only use a dry, soft cloth; never use chemicals or water.
- No guarantee claims for the unit or liability for any resulting personal damage or material damage will be accepted if the unit is used for other purposes.
- If the unit is to be put out of operation definitively, take it to a local recycling plant for a disposal which is not harmful to the environment.
- The wires in the mains lead of the power supply unit are coloured in accordance with the following code:
 - green/yellow or green = earth**
 - blue or black = neutral**
 - brown or red = live**

As per the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug.

1. The wire which is coloured **green/yellow or green** must be connected to the terminal in the plug which is marked with the letter **E** or by the earth symbol \perp .
2. The wire which is coloured **blue/black** must be connected to the terminal which is marked with the letter **N** or coloured **black**.
3. The wire which is coloured **brown/red** must be connected to the terminal which is marked with the letter **L** or coloured **red**.

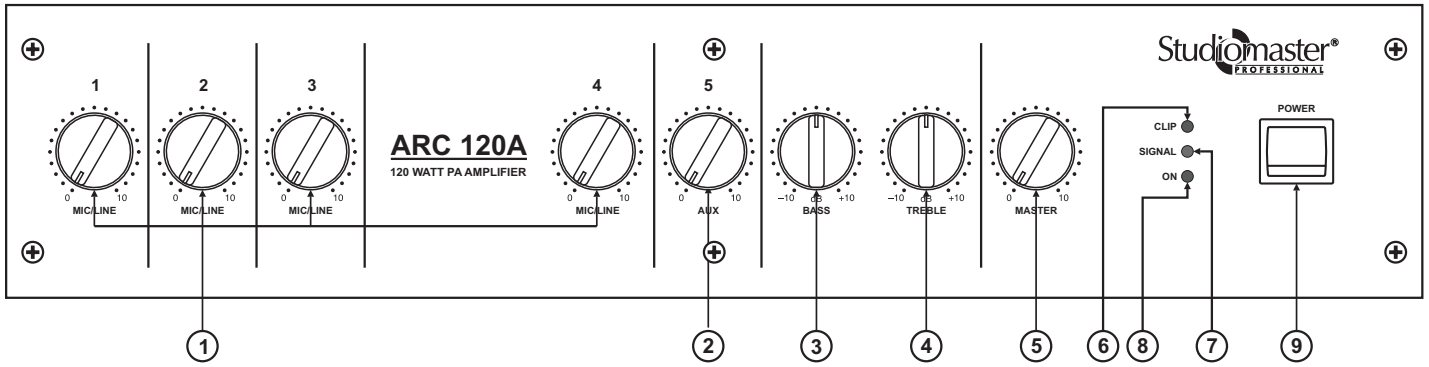
Warning - This appliance must be earthed.

3 Protective Circuit

The protective circuit is provided to prevent damage to the amplifier.

1. In case of a short circuit at a speaker output.
2. In case of a overheating of the amplifier.
3. In case there is DC at the output terminal.

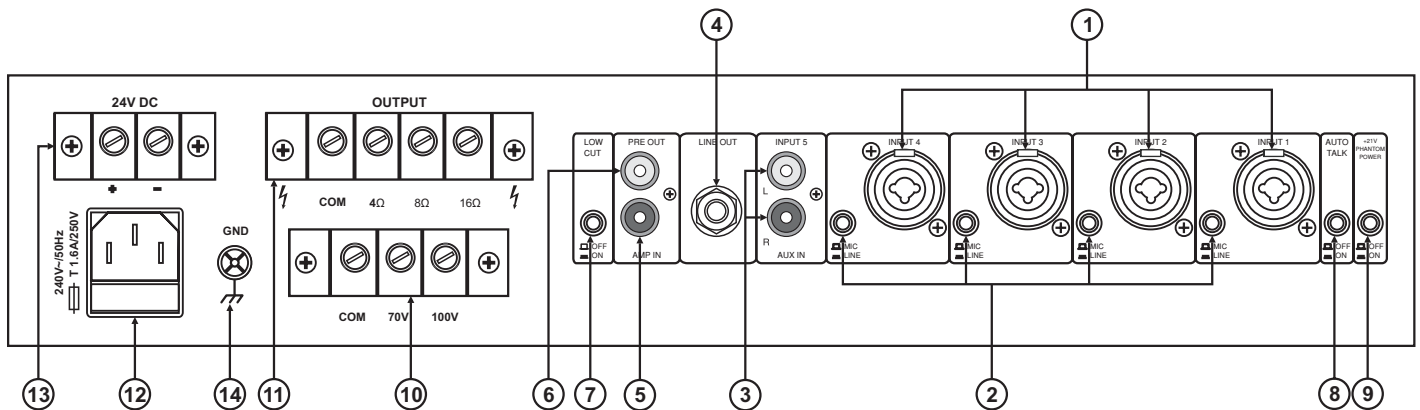
Front Panel



FRONT PANEL CONTROLS AND FEATURES

- 1) Controls for adjusting the pre-amplification for the first 4 channel INPUT 1 to INPUT 4 in Mic or Line mode.
- 2) Control for adjusting the pre-amplification for the AUX channel.
- 3) Bass - Low frequency can be cut or boosted by this control @100Hz.
- 4) Treble - High frequency can be cut or boosted by this control @10KHz.
- 5) Control MASTER VOLUME for all the Input channel.
- 6) CLIP LED, light up in case of overload.
- 7) Signal LED shows the presence of signal.
- 8) Power on LED.
- 9) POWER SWITCH:- Used for switching the unit on and off.

Rear Panel



REAR PANEL CONTROLS AND FEATURES

- 1) Combi jack inputs for connecting microphones or line input (CH 1 to 4) with line output.
- 2) MIC/LINE selectable switches (CH 1-4).
- 3) RCA jack connectors for Auxiliary input.
- 4) Line Output for connecting further amplifiers. The output level is independent of Master volume control.
- 5) & 6) Feed-through connection PRE OUT and AMP IN for inserting a unit (e.g. equalizer); the output level of jack PRE OUT is independent of control MASTER VOLUME.
- 7) Low cut switch cuts the low frequency @ 50Hz.
- 8) Auto talk when pressed gives vox priority to channel 1.
- 9) **Phantom power switch when pressed gives 21V supply at the input of CH 1 Mic only.**
- 10) Screw terminal for constant voltage line connection to the speaker.
- 11) Terminals for the connection to the speakers directly (Low impedance speakers).
- 12) Mains socket for connection to a mains (240 V~/50 Hz) via the supplied mains cable, replace a blown fuse only by same type and rating.
- 13) Terminals for an external 24V DC, in case if Mains power fails.
- 14) External earth terminal: For a possible ground connection (e.g. in case of hum problems).

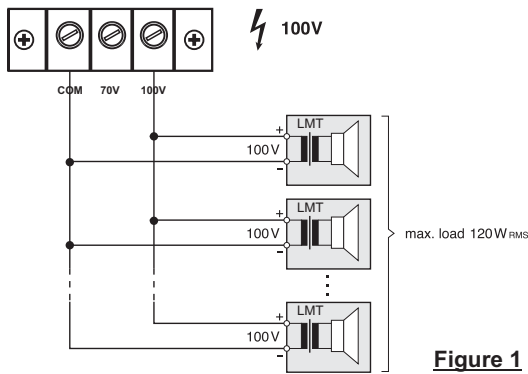


Figure 1

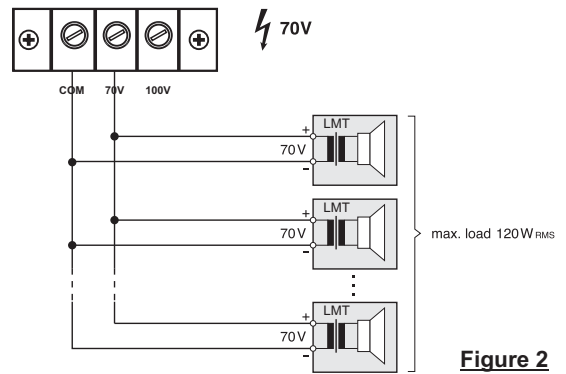


Figure 2

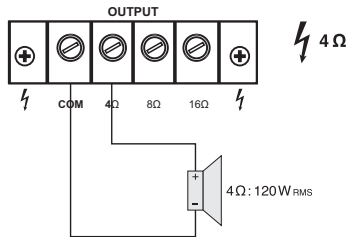


Figure 3

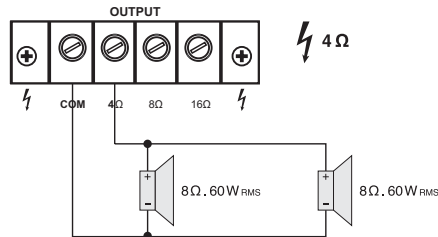


Figure 4

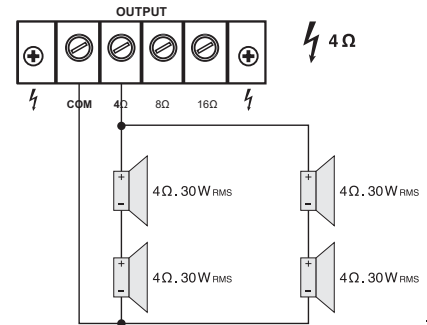


Figure 5

⚠ CAUTION

- When 70/100V line is being used, no speakers / driver units should be connected to 4Ω or 8Ω or 16Ω (Low Impedance) Tap.
- Loudspeaker / driver unit should be connected to either COM-100V or COM-70V terminals, but never to more than one set of terminals.

1 Applications

The amplifier has especially been designed for use in PA systems. It can deliver 120W_{RMS} to 100V and 70V speakers or to a speaker group with a total impedance of 4Ω, 8Ω or 16Ω. To the five input channels which can be mixed with one another, microphones (CH 1 – 4) or units with line level (CH 1-3 & AUX) can be connected. Channel 1 is equipped with a talkover function which attenuates the volume of the other channels by about 40 dB in case of an announcement.

2 Setting up the Amplifier

The amplifier has been designed for installation into a rack (482mm/19"), however, it can also be used as a table top unit. In any case, air must be allowed to pass through all air vents without obstruction to ensure sufficient cooling of the power amplifier.

2.1 Rack installation

For rack installation screw on the 2 supplied mounting brackets to the sides of the unit. In the rack 2 rack spaces are required for the amplifier. To prevent top-heaviness of the rack, the amplifier must be inserted into the lower part of the rack. The front panel alone will not be able to secure the unit. Side rails or a base plate must additionally be provided.

3 Connecting the PA Amplifier

All connections should only be made by qualified, specialized personnel and with the amplifier switched off in any case!

3.1 Speakers

It is possible to connect PA speakers or speakers/speaker groups with a total impedance of at least 4 Ω. The possibilities of connection for the speakers are shown in figures 1 – 5. Depending on the speaker type, use the corresponding contacts of the terminal strip SPEAKER OUTPUT. When connecting,

observe the correct individual or total impedance of the speakers and their correct polarity (positive & negative connections as shown in figs. 1 – 5). The positive connection of the speakers is always especially coded.

3.2 Microphones

Up to four microphones may be connected to the inputs INPUT 1 to INPUT 4.

- 1) When connecting a microphone, unlock the corresponding switch MIC/LINE.
- 2) Phantom-powered microphones can be used with CH 1 by switching on the 21 V phantom power button.

3.3 Units with line output

Up to four units with a line output (e. g. CD player, cassette recorder) can be connected to the inputs INPUT 1 to INPUT 4 & to the input AUX IN. When connecting to the inputs INPUT 1 to INPUT 4, lock the corresponding switch MIC/LINE.

3.4 Inserting an equalizer or another unit

For external effects on the sound, an equalizer can e. g. be inserted via the jacks PRE OUT & AMP IN.

- 1) Remove the jumper between the connections PRE OUT and AMP IN. Thus, the preamplifier & the power amplifier are separated.
- 2) Connect the input of the unit to the jack PRE OUT.
- 3) Connect the output of the unit to the jack AMP IN.

Note: the amplifier does not emit a signal if the unit inserted is not switched on, if it is defective or not correctly connected.

Notes

- 1) With a voltage of 24V applied, the amplifier will be in operation immediately & the LED ON will light up. It will not be possible to switch off the amplifier with the

POWER switch.

- 2) With emergency power supply, the amplifier will deliver less power than with mains supply.

4 Operation

- 1) Prior to switching on the amplifier for the first time, set the controls INPUT 1 to 4 & the controls AUX and MASTER VOLUME to position "0" for the time being.
- 2) Switch on the amplifier with the POWER switch. After switching-on, the LED ON lights up. With an emergency power supply connected, the indication LED ON lights permanently and the amplifier is always in operation. With the POWER switch it is only possible to switch between mains supply & emergency power supply in this case. For normal operation set the POWER switch to position "On". In case of mains failure the amplifier automatically switches to emergency power supply if external battery is connected to +24V terminal.
- 3) Turn up the control MASTER VOLUME) so that the next adjustments are audible.
- 4) Adjust the input controls INPUT 1 to 4 and the control AUX to the desired value.
- 5) Adjust the tone controls BASS & TREBLE to optimum sound.
- 6) Adjust the total volume with the main control MASTER VOLUME. The 5-step LED row shows the output level. For an optimum level adjust the control so that the red LED +3 does not yet light up.

4.1 Talkover function of channel 1

Via channel INPUT 1 announcements can be made during a musical programme. Then the volume of the other channels is automatically attenuated by about 40 dB. To switch on this function, lock the button AUTOTALK.

Specifications

Outputs

Output power	120WRMS, 160WMAX
Outputs Speakers	min 4 Ω , 8 Ω , 16 Ω , 70V, 100V
Line Out	1V/600 Ω
Pre Out	1V/600 Ω

Inputs

Input 1-4	Mic 1.5 mV/1.1k Ω switchable to Line 300mV/14k Ω ; XLR, balanced
Aux	300mV/50k Ω ; RCA, unbalanced
Amp In	1V/14k Ω ; RCA, unbalanced
Frequency range	50 –15000Hz, \pm 3dB
THD	1% at 120WRMS
S/N ratio	> 92dB
Low Cut	50Hz

Tone control

Bass	\pm 10dB/100Hz
Treble	\pm 10dB/10kHz
Operating temperature	0 – 40 $^{\circ}$ C

Power Supply

Mains voltage	240V~/50Hz
Emergency Power Supply	24V-/9A
Power consumption	265 Watts
Dimensions (W x H x D)	482 x 88 x 275 mm, 2 rack spaces
Weight	10.6kg

Notes

Do not attempt to make any repairs yourself. This would void your warranty.

Do not make any changes to the unit. This would also void your warranty.

The warranty is not applicable in case of accidents or damages caused by inappropriate use or disrespect of the warnings contained in this manual. ***StuDiomaster Professional*** can not be held responsible for personal injuries caused by a disrespect of the safety recommendations and warnings. This is also applicable to all damages in whatever form.

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