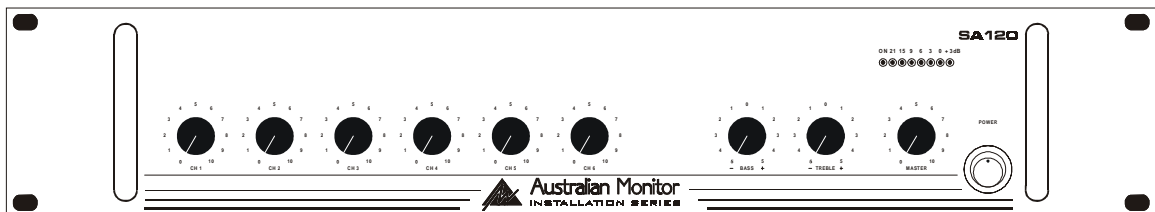




# SA60, 60w Mixer Amplifier SA120, 120w Mixer Amplifier



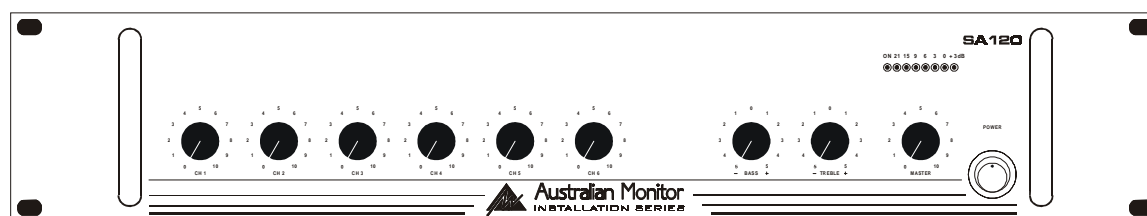
## Operating Manual

# SA60, 60w Mixer Amplifier

# SA120, 120w Mixer Amplifier

## Product Description

The SA60 is a 60 watt, 6 channel mixer amplifier and similarly the SA120 is a 120 watt, 6 channel mixer amplifier. Both models operate from 230/240 VAC @ 50 Hz (or 115 VAC @ 60 Hz with factory modification) or 24 VDC via an external battery supply. Both models can either be desk or rack mounted and are 2 standard rack units high. Rubber feet are provided for table mounting but these should be removed if rack mounting is intended. Both amplifiers will deliver their specified wattage into loads of 8 ohms (and 4 ohms on the SA120), 70 or 100 volt line. Both models feature six dual purpose inputs, XLR balanced mic input and dual RCA aux/line level inputs. Channel 6 has a less sensitive aux/line level input to enable it to accept a CD player or similar high level inputs. The SA series amplifiers feature output overload protection, generous internal heat sinking and a strong steel chassis. A TRS (tip, ring, sleeve) insert point between the mixer and amplifier stages is also provided for easy insertion of a graphic EQ, compressor or FBX Feedback Exterminator.



## Front Panel Features

### Dual Microphone/Line Level Controls

The 6 dual mic/line input controls are labelled Ch 1 through Ch 6 and should be adjusted to provide the required mix level for each individual channel. Start with the controls set to level 0 and turn the controls slowly clockwise until the desired mix for each channel is obtained.

### Bass Control

Setting this control in the centre “zero” position will give an overall flat bass response to the output of the amplifier. Adjusting the bass control in a clockwise direction will provide up to +12 dB of bass boost @ 100 Hz. Adjusting the bass control in a counter-clockwise direction will provide up to -12 dB of bass cut @ 100 Hz.

### Treble Control

Setting this control in the centre “zero” position will give an overall flat treble response to the output of the amplifier. Adjusting the treble control in a clockwise direction will provide up to +9 dB of treble boost @ 10 kHz. Adjusting the treble control in a counter-clockwise direction will provide up to -9 dB of treble cut at 10 kHz.

### Master Output Control

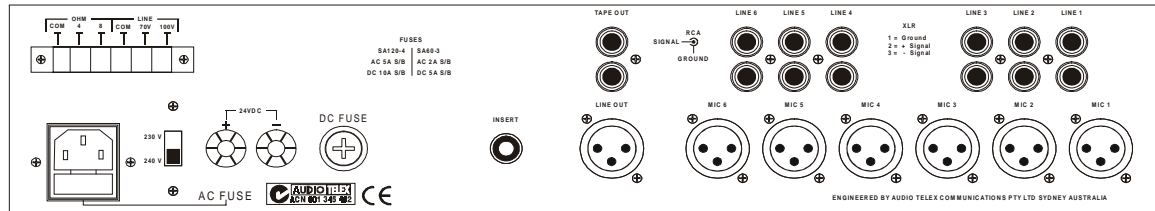
This control adjusts the overall output level of the amplifier depending on the levels set for the individual input mix channels as detailed above. Start with the control level set to level 0 and slowly turn the control clockwise until the desired output level of the amplifier is reached.

### Power Switch

This switch controls the switching of the AC power to the amplifier. Rocking this switch upwards turns on AC power to the amplifier while rocking the switch downwards turns power off to the amplifier. When in the upward “On” position, the blue LED within the LED VU Display Meter will glow.

## LED Display VU Meter

An 8 segment LED VU meter is provided for the master output. The VU meters indicate output signal level from -21 to +3 dB. For normal operation the LED's should rarely oscillate in the red zone. If the LED's in the red zone are lit continually, then the output level controls should be turned counter-clockwise to reduce the output level. Too much output level can cause signal distortion. The far left blue LED on the VU meter is for indication that AC power is switched ON to the unit.



## Rear Panel Connections

### AC Power Inlet

The 3 pin IEC power inlet is located on the bottom left of the rear panel and accepts a standard mains power lead fitted with an IEC connector. Before plugging in a power lead, please check the rear panel of the amplifier to ensure that the voltage label shows the correct AC operating voltage for your part of the world.

The inlet is equipped with an in-built AC fuse holder fitted with a slow blow fuse plus a spare fuse. **Please ensure that the mains power cord is disconnected before attempting to check or replace this fuse.**

### Speaker Output Terminal Strip

Located on the top left of the rear panel is the speaker output terminal strip. Reading from left to right, the connections are:

- COM** Common or “-” for low impedance speaker loads (4 or 8 ohms).
- 4** The “+” for 4 ohm speaker loads (use with common) 4 ohm not available on SA60
- 8** The “+” for 8 ohm speaker loads (use with common)
  
- COM** Common or “-” for 70v or 100v loads (maximum 100v load of 80 ohms for SA120, 170 ohms for SA60)
- 70** The “+” for 70v line speaker loads (use with common)
- 100** The “+” for 100v line speaker loads (use with common)

Please ensure that the correct “Common” is used. Low impedance and 70/100v loads can be used simultaneously but please pay careful attention to the overall speaker load. When used individually, the low impedance load should be 4 ohms or higher on the SA120 (8 ohms or higher on the SA60) while the 100v line load should not fall below 80 ohms for the SA120 or 170 ohms for the SA60. When both outputs are used simultaneously, ensure that neither output is loaded to maximum.

### 24 Volt DC Power Source Connection

Two post style terminals allow for the connection of an external 24 VDC battery for applications where PA system operation is critical. The red terminal post is for connection to the positive (+) terminal. The black terminal post is for connection to the negative (-) terminal. A trickle charge circuit provides a maximum 300mV automatically to a stand-by battery connected to the 24 VDC input (trickle charge on SA120 only).

### DC Fuse Holder

Remove with a screwdriver if access is required. The DC fuse rating is 10 Amps Slow Blow for the SA120 and 5 Amps Slow Blow for the SA60.

## Insert Point

A TRS jack socket insert point (6.35mm) is provided which enables a graphic equaliser, FBX Feedback Exterminator or similar product to be connected between the mixer and power amp stages. Tip = Return. Ring = Send. Sleeve = Ground.

## Tape Output

Two RCA style output connectors are provided for a line level tape output. A maximum level of 350mV into 10K ohms is provided which is ideal for a connection to most standard tape recorders. This output is sourced before the master gain control and as such, the tape output level is not influenced by the operation of the master gain control.

## Line Output

A male XLR, balanced transformer isolated output is provided to connect to additional power amplifiers. A maximum output level of 700mV makes it suitable for driving most power amplifiers or similar devices. Pin connections are Pin 1 = Earth. Pin 2 = Active Positive (+). Pin 3 = Active Negative (-).

## Line Inputs

Six pairs of RCA input connectors accept unbalanced line or auxiliary inputs for channels 1 through 6. The pairs are provided per channel to allow simple connection of stereo program sources which are summed to mono once connected. Channel 6 accepts higher level inputs such as a CD player or DVD player. For best gain structure, always connect high level program sources to input 6.

## Microphone Inputs

Six female XLR accept 200 ohm balanced or unbalanced microphone inputs. Pin connections are Pin 1 = Earth. Pin 2 = Active Positive (+). Pin 3 = Active Negative (-). If using unbalanced microphones, ensure that phantom power (see below) is switched off, otherwise damage to the microphones is possible.

## Phantom Power

18 Volts DC phantom power is provided for all microphone inputs. An internal on/off switch can be found on the circuit board PCB6177. The factory setting is for phantom power to be switched on so this switch can be used to disconnect phantom power (from all six inputs) if required. ⚠ **It is necessary to disconnect the power cord and remove the lid from the amplifier before operating this switch.**

## Tone Generator

Four separate tones are available on the optional ATC5488 tone generator board. This internally mounted PCB is easily fitted and plugs directly into a socket provided on the internal circuit board PCB6178. Please follow the instructions supplied with the tone generator. When any tone from the ATC5488 is activated, all inputs, except for input 1, will automatically mute.

Tones available on the ATC5488 tone generator board are:

**Evacuation Tone** (to Australian Standard AS2220.1.2)

**Alert Tone** (to Australian Standard AS2220.1.2)

**Bell Tone**

**Pre Announce Chime**

## Muting Modules

Two separate VOX muting modules are available for the SA series amplifiers. They can be easily fitted by a qualified installer or technician. The modules plug directly into a socket provided on the internal circuit board PCB6178. The two muting modules are:

**TX3014** - Provides two levels of muting with the main priority for input one, which mutes all other inputs and secondary priority for channel two, which mutes all inputs except for input one.

**TX3010** - Provides single muting from channel one only. When activated from signal on input one, all other channels are muted.

# Important Safety Information

1. **Save the carton and packing material even if the equipment has arrived in good condition.** Should you ever need to ship the unit, use only the original factory packing.
  2. **Read all documentation before operating your equipment.** Retain all documentation for future reference.
  3. **Follow all instructions** printed on unit chassis for proper operation.
  4. **Do not spill water or other liquids into or on the unit,** or operate the unit while standing in liquid.
  5. **Make sure power outlets conform to the power requirements** listed on the back of the unit.
  6. **Do not use the unit if the electrical power cord is frayed or broken.** The power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.
  7. **Always operate the unit with the AC ground wire connected** to the electrical system ground. Precautions should be taken so that the means of grounding of a piece of equipment is not defeated.
  8. **Mains voltage must be correct and the same as that printed on the rear of the unit.** Damage caused by connection to improper AC voltage is not covered by any warranty.
  9. **Have gain controls on amplifiers turned down during power-up** to prevent speaker damage if there are high signal levels at the inputs.
  10. **Power down & disconnect units from mains voltage before making connections.**
  11. **Never hold a power switch in the “ON” position if it won’t stay there itself!**
  12. **Do not use the unit near stoves, heat registers, radiators, or other heat producing devices.**
  13. **Do not block fan intake or exhaust ports.** Do not operate equipment on a surface or in an environment which may impede the normal flow of air around the unit, such as a bed, rug, weathersheet, carpet, or completely enclosed rack. If the unit is used in an extremely dusty or smoky environment, the unit should be periodically “blown free” of foreign matter.
  14. **Do not remove the cover.** Removing the cover will expose you to potentially dangerous voltages. There are no user serviceable parts inside.
  15. **Do not drive the inputs with a signal level greater than that required to drive equipment to full output.**
  16. **Do not connect the inputs / outputs of amplifiers or consoles to any other voltage source,** such as a battery, mains source, or power supply, regardless of whether the amplifier or console is turned on or off.
  17. **Do not run the output of any amplifier channel back into another channel’s input. Do not parallel- or series-connect an amplifier output with any other amplifier output.**
- Audio Telex Communications Pty Ltd is not responsible for damage to loudspeakers for any reason.*
18. **Do not ground any red (“hot”) terminal. Never connect a “hot” (red) output to ground or to another “hot” (red) output!**
  19. **Non-use periods.** The power cord of equipment should be unplugged from the outlet when left unused for a long period of time.
  20. **Service Information** Equipment should be serviced by qualified service personnel when:
    - A. The power supply cord or the plug has been damaged.
    - B. Objects have fallen, or liquid has been spilled into the equipment
    - C. The equipment has been exposed to rain
    - D. The equipment does not appear to operate normally, or exhibits a marked change in performance
    - E. The equipment has been dropped, or the enclosure damaged.



Engineered by Audio Telex Communications Pty Ltd, Sydney, Australia  
A.B.N. 78 001 345 482 Inc in NSW

**[www.audiotelx.com.au](http://www.audiotelx.com.au)**

**Export Sales & Corporate Head Office**

Private Bag 149, Silverwater NSW 1811  
149 Beaconsfield Street, Silverwater NSW 2128  
Australia  
Ph: 61-2- 9647 1411  
Fax: 61-2-9748 2537  
E-mail: [ho@audiotelx.com.au](mailto:ho@audiotelx.com.au)

**Sydney (NSW & ACT Sales)**

Private Bag 149, Silverwater NSW 1811  
149 Beaconsfield Street, Silverwater NSW 2128  
Ph: (02) 9647 1411  
Fax: (02) 9648 3698  
E-mail: [nsw@audiotelx.com.au](mailto:nsw@audiotelx.com.au)

**Melbourne (Vic & Tas Sales)**

P.O. Box 131, Blackburn South VIC 3130  
22/277 Middleborough Road, Box Hill VIC 3128  
Ph: (03) 9890 7477  
Fax: (03) 9890 7977  
E-mail: [vic@audiotelx.com.au](mailto:vic@audiotelx.com.au)

**Brisbane (Qld Sales)**

P.O. Box 871, Fortitude Valley QLD 4006  
42 Commerical Road, Fortitude Valley QLD 4006  
Ph: (07) 3852 1312  
Fax: (07) 3252 1237  
E-mail: [qld@audiotelx.com.au](mailto:qld@audiotelx.com.au)

**Adelaide (SA & NT Sales)**

P.O. Box 157, Hindmarsh SA 5001  
31 Walsh Street, Thebarton SA 5031  
Ph: (08) 8352 4444  
Fax: (08) 8352 4488  
E-mail: [sa@audiotelx.com.au](mailto:sa@audiotelx.com.au)

**Perth (WA Sales)**

P.O. Box 404, North Perth WA 6906  
299 Fitzgerald Street, West Perth WA 6005  
Ph: (08) 9228 4222  
Fax: (08) 9228 4233  
E-mail: [wa@audiotelx.com.au](mailto:wa@audiotelx.com.au)

**Auckland (NZ Sales)**

P.O. Box 512, Albany 1331  
Unit B, 11 Piermark Drive, Albany 1331  
Ph: (09) 415 9426  
Fax: (09) 415 9894  
E-mail: [audiotlx@nznet.gen.nz](mailto:audiotlx@nznet.gen.nz)