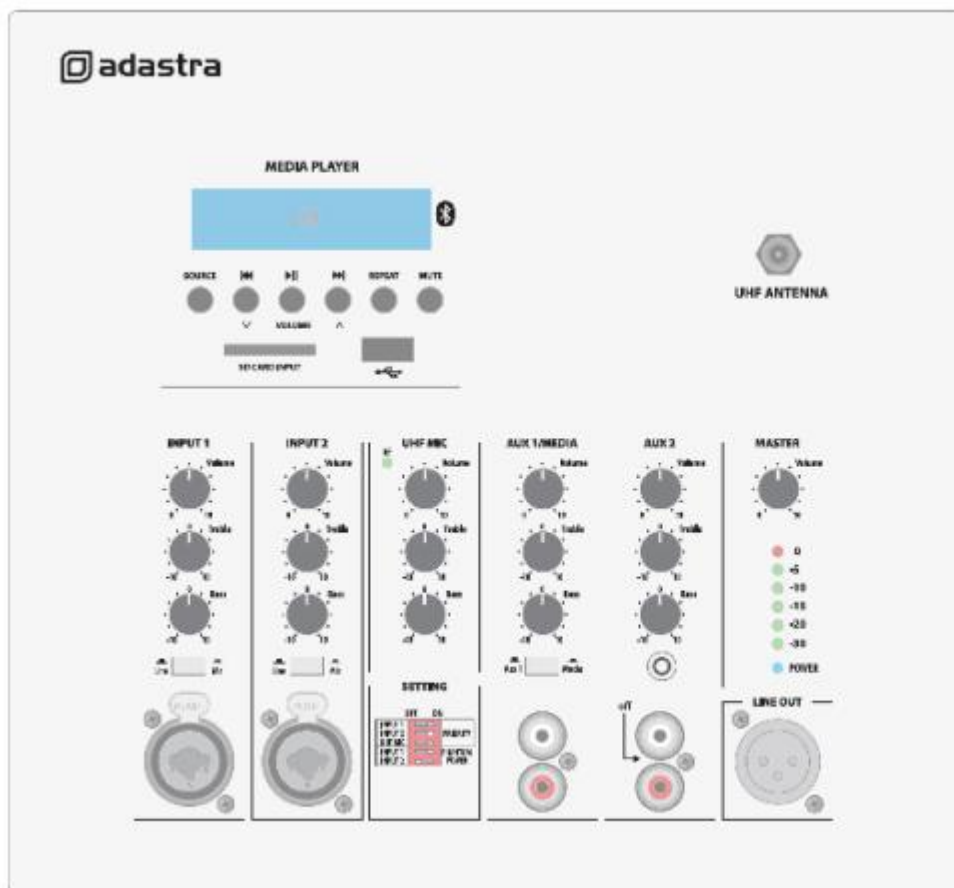# SA-SERIES

Secure Wall Amplifier with UHF Microphone

Item ref: SA240 - 953.150UK
SA120 - 953.149UK
SA60 - 953.147UK

User Manual

Version 1.1
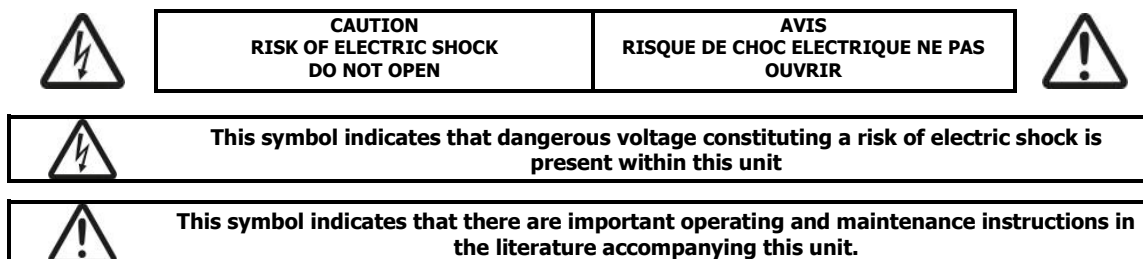
⚠	Caution: Please read this manual carefully before operating Damage caused by misuse is not covered by the warranty

Introduction

Thank you for choosing the Adastra SA-series secure wall amplifier as part of your public address system. This amplifier is designed to offer high quality, dependable service for mobile and installed systems. Please read this manual fully and follow the instructions to achieve the best results with your new purchase and to avoid damage through misuse.

SAFETY SYMBOL AND MESSAGE CONVENTIONS

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	AVIS RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR	

	This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit

	This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

⚠ SAFETY NOTICE

1. Prior to use, read through this manual
2. Keep the manual in good condition
3. Pay attention to safety warnings
4. Observe all operating requirements
5. Do not use the device near water or wet areas
6. For cleaning, only use a lint-free, dry cloth
7. Install according to the specifications
8. Place away from heat sources or heating appliances
9. Use mains lead provided and avoid damage to cable or connectors
10. Unplug power from mains during stormy weather or if unused for long periods
11. In case of malfunction, water ingress or other damage, consult qualified service personnel
12. Do not place in damp areas or near liquids or moisture. Do not spill liquids on the housing
13. Please pay attention to warning symbols during transit and placement
14. Terminals marked with the ⚡ symbol are HAZARDOUS LIVE and should only be connected by qualified personnel
15. Ensure that the apparatus is connected to a mains socket with a protective EARTH connection
16. Ensure correct operation of the mains switch

Warning

To prevent the risk of fire or electric shock, do not expose any components to rain or moisture.
If liquids are spilled on the casing, stop using immediately, allow unit to dry out and have checked by qualified personnel before further use. Avoid impact, extreme pressure or heavy vibration to the case
Do not allow foreign objects into the USB/SD inputs.
No user serviceable parts inside – Do not open the case – refer all servicing to qualified service personnel.

Safety

- Check for correct mains voltage and condition of IEC lead before connecting to power outlet
- Use double insulated speaker wire with adequate current rating for 100V speaker connections
- Only use one type of output – i.e. 8Ω or 100V – do not mix or combine these outputs on a single zone or output
- Do not connect 8Ω or 4Ω speakers to the 100V terminal or 100V speakers to the 8Ω terminal
- Do not allow any foreign objects to enter the case or through the ventilation grilles

Placement

- Keep out of direct sunlight and away from heat sources
- Keep away from damp or dusty environments
- Ensure adequate support and strength of fixings to the wall for the weight of the amplifier
- Ensure adequate air-flow and do not cover cooling vents around the amplifier
- Ensure adequate access to controls and connections for authorised users
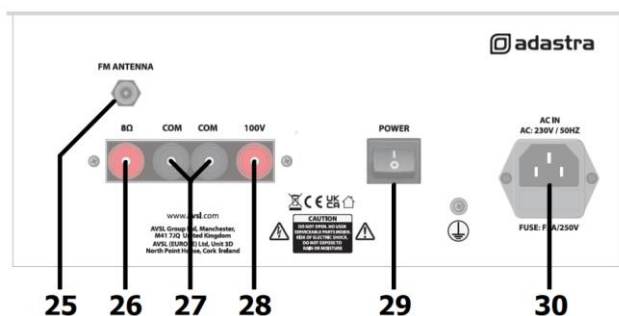
Cleaning

- Use a soft cloth with a neutral detergent to clean the casing as required
- Use a vacuum cleaner to clear ventilation grilles of any dust or debris build-ups
- Do not use strong solvents for cleaning the unit

Front panel
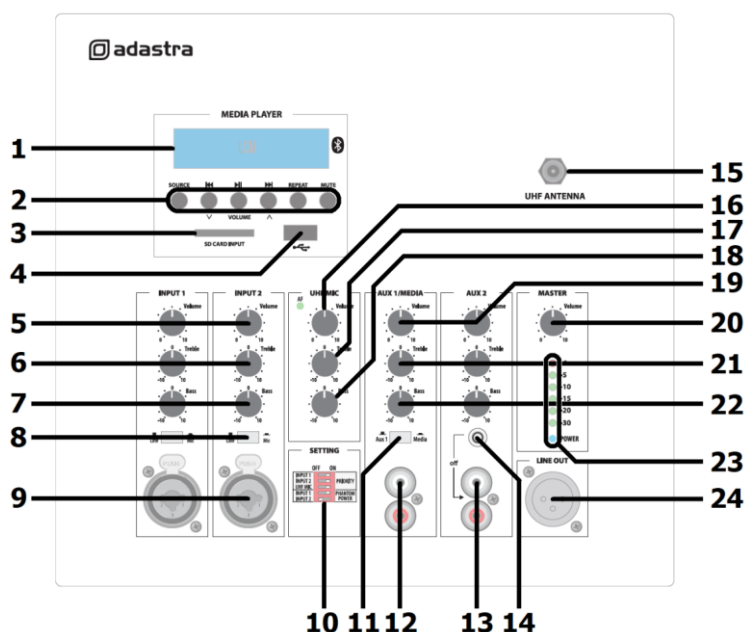
1. Media player display
2. Media player controls
3. SD card slot
4. USB pen drive port
5. Input 1 + 2 Volume control
6. Input 1 + 2 Treble control
7. Input 1 + 2 Bass control
8. Input 1 + 2 Mic/Line level selector
9. Input 1 + 2 XLR/jack input
10. Priority & Phantom Power DIP switches
11. Aux 1 / Media source selector
12. Aux 1 RCA L+R input
13. Aux 2 RCA L+R input
14. Aux 2 stereo 3.5mm input (defeats RCA)
15. UHF microphone antenna BNC connector
16. UHF microphone Volume control
17. UHF microphone Treble control
18. UHF microphone Bass control
19. Aux 1/ Media & Aux 2 Volume control
20. Master Volume control
21. Aux 1/ Media & Aux 2 Treble control
22. Aux 1/ Media & Aux 2 Bass control
23. Power and VU indicator LEDs
24. Line output XLR
25. FM radio antenna F-type connector
26. 8Ω speaker terminal
27. COM speaker terminals
28. 100V speaker terminal
29. Power on/off switch
30. IEC mains inlet & fuse holder

Bottom panel

Connections

Connect the bottom panel IEC inlet (30) to the mains using the supplied mains lead (or an equivalent approved type). Ensure that the mains voltage is correct (230Vac) and the mains outlet is switched on.

Mains and speaker output connections are fed through the bottom of the cabinet and the wires can be bundled together and fed through a security plate (supplied) to deter tampering with the connections. (see the following page for speaker connection)
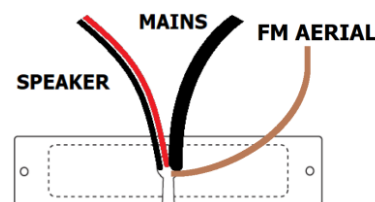
If an FM aerial is to be connected (25), this can also be fed through the security plate.

Each SA-series amplifier has a total of 5 input channels. INPUT 1 and INPUT 2 are connected by either XLR or 6.3mm jack to the combo connectors on the front panel (9). It is important to determine which type of input source is connected and make the appropriate selection on the input type selector switch (8). If the input is a low impedance microphone, switch to "MIC". The central input channel is for the supplied UHF wireless mic.

Aux 1 input can accept a line level signal, connected via L+R RCA connectors (12), or can alternatively be switched over to the internal media player via the "AUX 1/Media" button (11).

Aux 2 input can also accept a line level signal, connected via L+R RCA connectors or a 3.5mm stereo jack (which defeats the RCA connectors when connected)

Line output

Further amplifiers or even a recording device can be connected from the LINE OUT XLR connector (24). This output carries the full mix of all channels, including the media player, as fed to the speakers.
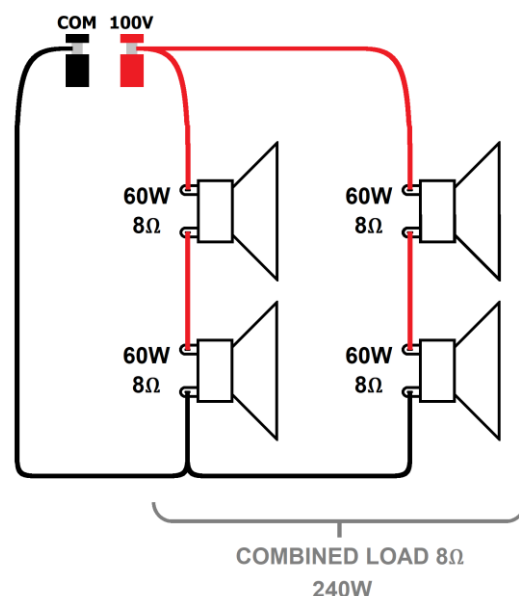
Speaker outputs

Each SA-series amplifier can be used with standard low impedance speakers (8Ω load) or 100V line speakers. Only one type of speaker may be used, so it is important to decide which method will be used at the start.

Standard low impedance speakers

For standard low impedance speakers, connect the "8Ω" terminal (26) to the positive (+) speaker connection and "COM" terminal (27) to the negative (-) speaker connection.

It is important to ensure that the total combined speaker load is no less than 8Ω and that the combined power handling of the speakers is equal to or greater than the output power of the amp. (e.g. Four 8Ω speakers connected in series-parallel formation, as shown opposite for a 240W amplifier, will combine to make an overall 8Ω load)

COMBINED LOAD 8Ω
240W

100V line systems

For 100V or 70V line systems, connect the amplifier to the first speaker in the system using double-insulated speaker wire which has adequate current rating to handle the total output of the amplifier.

Connect the "100V" (28) output terminal to the positive (+) connection of the speaker and "COM" output (27) to the negative (-) connection of the speaker. Connect further speakers in parallel to the first speaker with all positive terminals connected together and all negative terminals connected together as shown below. This example would be for a 240W model, but the same principle applies for 60W or 120W accordingly.
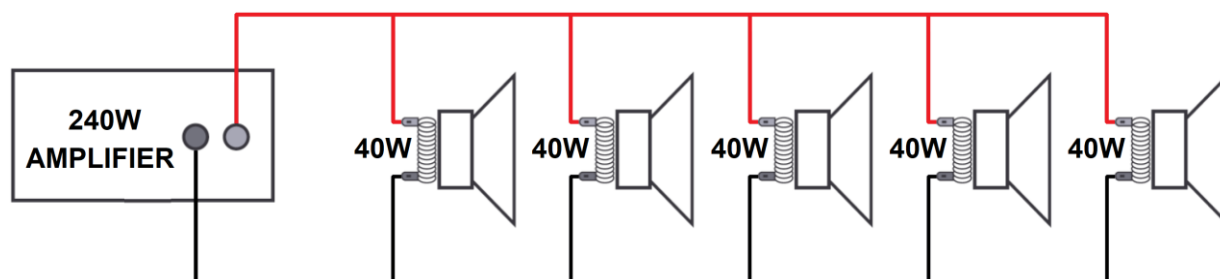
A 100V line speaker system can comprise of many speakers connected together. The determining factor for how many speakers can be powered from a single amplifier is the power rating. For most purposes, it is advised to connect as many speakers as needed with a combined wattage of no more than 90% of the amplifier's output power rating.

The terminals of a 100V speaker are connected to a transformer and in some cases, this transformer may be "tapped" for different power ratings. These tappings can be used to adjust the wattage (and output volume) of each speaker in the system to help achieve the ideal total power of the system for the amplifier.

!! Do not use 8Ω and 100V at the same time and only connect to the correct terminals for the speaker type !!

Operation

When all connections to the amplifier are made, turn Master (20) and all Volume controls down and switch on the power (29) and a "POWER" LED will illuminate (23). Turn up the Master control part way for testing.

The supplied UHF wireless microphone is powered by 2 x AA batteries (supplied), which should be installed into the handheld microphone by unscrewing the base to reveal the battery compartment. Insert the batteries, taking care to observe the correct polarity, and replace the bottom cover. Press and hold the front button until the handheld microphone display is lit, which will cause the "RF" LED to light at the top of the UHF microphone control section to confirm that the wireless signal is present. If not, check batteries and try again.

Note: the internal UHF wireless microphone (or any connected wired microphones) should not be able to "hear" the speakers, which can cause feedback (squealing or howling). Ensure that microphones are pointed away from speakers and reduce the volume of any which are causing feedback.

The output of the amplifier is represented on the VU meter LEDs (23) and this indication is to help the user to avoid overloading the amplifier. If red LEDs are lighting continuously, the Volume levels need to be reduced.

Gradually rotate the UHF Microphone Volume control (16) to the right whilst speaking into the handheld microphone until it can be heard through the connected speakers. Increase the Master control to a suitable setting for the environment and then adjust the UHF Microphone Volume until the required level is reached. Turn Treble and Bass controls (17, 18) to the 12 o'clock position (pointing straight up) and adjust the tone by rotating left to cut the treble/bass or right to boost the treble/bass.
Adjust Treble and Bass controls to suit the type of audio signal or compensate for the room acoustics.
Pressing and holding the button on the front of the handheld microphone will switch it off.
Remove the batteries if not in use for long periods of time.

Input 1 and Input 2 can accept either a microphone or line level signal (e.g. CD Player, mp3 player, laptop). Before turning up the Volume, ensure that the Mic/Line level selector (8) is set to the appropriate input type. For a wired microphone connected to Input 1 or 2 jack (9), gradually increase the Volume control (5) for that input channel whilst speaking into the microphone until the voice is heard through the speakers. In a similar way, if a line input is connected to either of these, play the audio source into the input to adjust the Volume. Turn Treble and Bass controls (6, 7) to the 12 o'clock position (pointing straight up) and adjust the tone by rotating left to cut the treble/bass or right to boost the treble/bass.

For a line level audio source (or the internal media player), connected to Aux 1 or 2 input (12, 13, 14), play the audio source whilst gradually increasing the Volume control (19)
Turn Treble and Bass controls (21, 22) to the 12 o'clock position (pointing straight up) and adjust the tone by rotating left to cut the treble/bass or right to boost the treble/bass.

Media player

To use the internal media player, ensure that the Aux 1/Media source select button (11) is pressed in.
Turn up AUX 1/MEDIA volume control to hear the output from the speakers and increase to the required level.
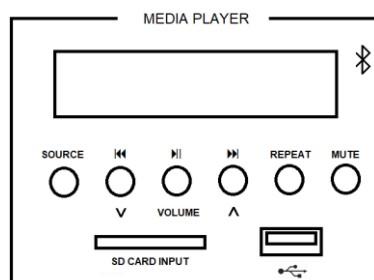
SOURCE	USB/SD – Bluetooth – FM Tuner input select
PREVIOUS ⏮	Navigate to previous track – hold for volume down
PLAY/PAUSE ▶ ❚❚	Play or pause current track
NEXT ⏭	Navigate to next track – hold for volume up
REPEAT	Select to repeat one track or all tracks
MUTE	Mute/un-mute media player output

Pressing the SOURCE button will step through USB, SD card, Bluetooth or FM Tuner playback sources.

Bluetooth

The Bluetooth function allows connection of a smart phone or tablet to the media player section for playback of stored files or streamed digital audio.
In order to enable this function, it will be necessary to pair the sending device to the receiver as follows.

1. Open the Bluetooth settings menu on the smart phone or tablet (or other sending device)
2. Scan for Bluetooth devices and look for "adastra 0000" in the list of available devices
   (ensure that the RM amp is powered on and within reception range)
3. Select "adastra 0000" and the sending device should confirm that it is connected as an audio device.
   (note that "0000" may be a different number if it has been edited – see below)
4. Play audio from the sending device, ensuring that volume controls are not turned down/muted
5. Turn up the LN5/USB volume control on the amplifier to the required level.

The Previous (◄◄), Next (►►) and Play/Pause (► ‖) buttons will operate in Bluetooth as remote playback controls. Holding the Previous track or Next track buttons will adjust the output volume of the player.

The Bluetooth name can be customized to enable identification of individual nearby amplifiers.
To customize the Bluetooth number press and hold the Play/Pause (► ‖) button until adastra 0000 is displayed with one of the characters flashing. The Previous (◄◄) or Next (►►) buttons to edit the number and Play/Pause (► ‖) to select another character. Hold Play/Pause to store the ID and exit.

Note: Android devices have the facility to re-name devices within the Bluetooth settings menu.
If a the Bluetooth ID has been re-named on the Android device, editing the Bluetooth ID on the media player will not affect the name displayed on that Android device.

FM Tuner

The FM tuner function operates in the same way as a standard FM radio and benefits from the connection of an FM antenna to the bottom panel 'F' type connector.
If no channels are tuned in, press Play/Pause (► ‖) to begin auto tuning, which scans available stations and stores them as channels within the FM tuner. Pressing Play/Pause again will abort the auto-tuning.
To step through pre-set stations, press the Previous (◄◄) or Next (►►) buttons.
Holding the Previous or Next track buttons will adjust the output volume of the player.

USB/SD player

When a USB memory stick is inserted into the USB port or SD card into the SD slot, any compressed audio files on the media will start to play automatically. The last connected media will take priority.
If playback does not start automatically, press the SOURCE select button and Play/Pause (► ‖) button to check if the player is set to the correct mode. Try Previous (◄◄) and Next (►►) track buttons if the selected track is unable to play. Check that the audio files are mp3 type.

There are 3 Repeat modes: RTA (Repeat all tracks), RT1 (Repeat current track) and RND (Random).
Pressing the REPEAT button will cycle through these modes as shown in the top right of the display.

Pressing the Previous (◄◄) button briefly steps backwards through tracks on the memory device. Press and hold this button to decrease the playback volume.
Pressing the Next (►►) button briefly steps forwards through tracks on the memory device.
Press and hold this button to increase the playback volume.

To pause the current track, press the Play/Pause (► ‖) button and press it again to resume playback.
The display shows the track number when a track is selected and then elapsed time during playback

To avoid loud pops through the speakers, turn down the MASTER (20) control before powering down.

Specifications

Model	SA60	SA120	SA240
Power supply	170-264Vac, 50Hz (IEC)		
Output power: rms	60W	120W	240W
Fuse	F1AL (20x5mm)	F1AL (20x5mm)	F2AL (20x5mm)
Amplifier: construction	Class-D with output transformer		
Phantom power	+20V switchable to each XLR input		
Input impedance	Mic: 600 Ohms / Line: 10k Ohms		
Input sensitivity	Mic: -42dB / Line: -10dB		
Frequency response: mic	85Hz-22kHz		
Frequency response: line	Line 1+2: 80Hz-24kHz, Line 3+4: 85Hz-24kHz		
SNR	Mic: 66dB / Line: 76dB		
THD	<0.4% @ 1kHz		
Speaker outputs	8 Ohm / Com / Com / 100V		
Music source	USB/SD player, FM tuner, Bluetooth		
Mic/line inputs	2 x combo XLR/jack		
Line inputs	RCA (Aux 1), RCA or 3.5mm jack (Aux 2)		
Line output	XLR male connector		
Equalization	Bass + Treble each channel		
Bluetooth version	v2.0		
Carrier frequency	864.5MHz		
Batteries: handheld transmitter	2 x AA (alkaline)		
Wireless range	50m (max)		
Dimensions	375 x 345 x 160mm		
Weight	8.15kg	8.70kg	9.25kg

CE UKCA ⌧ **Disposal:** The "Crossed Wheelie Bin" symbol on the product means that the product is classed as Electrical or Electronic equipment and should not be disposed with other household or commercial waste at the end of its useful life. The goods must be disposed of according to your local council guidelines.

Hereby, AVSL Group Ltd. declares that the radio equipment type 953.147UK, 953.149UK and 953.150UK is in compliance with Directive 2014/53/EU

The full text of the EU declarations of conformity are available at the following internet addresses:
http://www.avsl.com/assets/exportdoc/9/5/953147UK%20CE.pdf
http://www.avsl.com/assets/exportdoc/9/5/953149UK%20CE.pdf
http://www.avsl.com/assets/exportdoc/9/5/953150UK%20CE.pdf