RS SERIES

Rackmount 100V slave amplifiers

Item ref: 953.201UK: RS121
953.202UK: RS241
953.203UK: RS360
953.204UK: RS480

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 RS-series rackmount 100V slave 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.

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.
No user-serviceable parts inside. Do not open. 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
- Do not use 8Ω and 100V terminals at the same time
- 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
- For rack-mounting, ensure adequate support for the weight of the amplifier
- Ensure adequate air-flow and access to controls and connections

Cleaning

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

Front panel

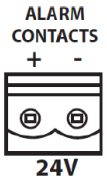
1. MASTER volume control
2. POWER, SIGNAL, PEAK LED indicators
3. Power switch

Rear panel

4. IEC mains power inlet & fuse holder
5. COM speaker terminal
6. 2Ω (min.) speaker terminal
7. 100V speaker terminal
8. 2Ω/100V selector switch (RS121/RS241 only)
9. Audio line output screw terminals
10. Audio line output RCA connectors
11. Audio line input RCA connectors
12. Audio line input screw terminals
13. 100V signal input screw terminals
14. 24V mute trigger screw terminals

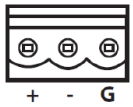
Connection and setup

Set the power switch (3) to the "off" position and connect the rear IEC inlet (4) to the mains using the supplied mains lead (or an equivalent approved type). Check that the supply voltage is 170-264Vac 50Hz.



A pair of screw terminals is provided on the right side of the rear panel for connection to an alarm system if required (14). This connection will mute the SLAVE IN input but not 100V IN (for alerts) when 24V is present across the terminals. (24V is a standard trigger voltage from most fire and security panels)
Note: Screw terminal blocks can be unplugged from the panel for convenience during connection.

The RS series slave amplifiers are designed to accept a single line level audio input, such as the line output of a mixer or another amplifier, as a means of expanding an existing sound system. The line input can also be from a CD, mp3, DAB/FM tuner or other line level source if that is the only audio source that is required.



Input connection is via Left + Right RCA sockets (11), which are summed to mono for the output, or via a screw terminal input (12), which is labelled "+ / - / G".

For Unbalanced connection, connect the signal (core) wire to "+" and connect the Ground (braid) to "- and G".
For Balanced connection, there will be 2 core wires. Connect the hot (usually red) wire to "+" and the cold (white, black or blue) wire to "-". Then connect the Ground (braid) separately to "G".

Another input method is provided via the 100V input terminals (13). This is a pair of screw terminals (+/-) for connecting to the speaker line in a 100V line system. Connect "+" to 100V and "-" to 0V or GND as you would any 100V speaker. (there is internal protection to ensure that the high voltage cannot cause damage to this input)
Caution: Do not connect 100V speaker output from this amplifier to its own 100V input!

This type of input means that an existing 100V sound system can be extended from any point along its output wiring without the need for running additional signal cables and can also avoid problems associated with signal degradation along low voltage audio cables.
Caution: Do not connect 100V speaker level to any other input - this could damage the amplifier.
A twin RCA line output (10) or screw terminals (9) are provided for connecting the line level audio onto further amplifiers.

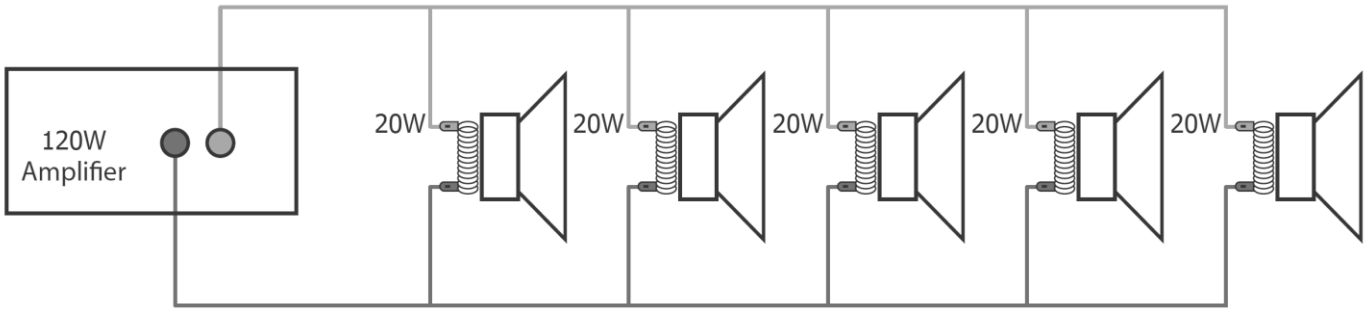
Speaker outputs

The RS series slave amplifiers can be used either as 100V line amplifiers or standard low impedance power amplifiers. These 2 configurations cannot be used together, so it is important to decide which method will be used at the start.

100V line systems

For 100V 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" (7) output terminal to the positive (+) connection of the speaker and "COM" output (5) to the negative (-) connection of the speaker. Connect further speakers in parallel to the first speaker with all positive terminals and connected together and all negative terminals connected together as shown below.



A 100V line speaker system can comprise of many speakers connected together. The determining factor for how many speakers can be used on 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.

Low impedance systems

The RS series slave amplifiers can provide an output for low impedance speakers by connecting the "2Ω" output (6) to the positive (+) speaker connection and "COM" output (5) to the negative (-) speaker connection. It is important to ensure that the speaker load is no less than 2Ω and that the combined power handling of the speakers is equal to or greater than the output power of the amplifier.

e.g. 4 x 8Ω speakers wired in parallel = 2Ω 2 x 4Ω speakers wired in parallel = 2Ω
3 x 8Ω speakers wired in parallel = 2.66Ω
2 x 8Ω speakers wired in parallel = 4Ω

Operation

When all connections to the amplifier are made, turn the MASTER volume control (1) fully down and switch on the power (3) and the power LED will illuminate. Ensuring that the signal is active on the SLAVE IN inputs, turn up the MASTER control gradually to the maximum required volume level.

The output of the amplifier is represented on the SIGNAL LED and when the amplifier is running at its peak output, a PEAK LED will illuminate. Care should be taken that the Red PEAK LED is only lit momentarily during use. Anything longer than a short flash of this LED may be indicating distortion or clipping of the output signal and the MASTER volume should be turned down.

Specifications

Model	RS120	RS240	RS360	RS480
Power supply	170-264Vac (normally 230Vac), 50/60Hz (IEC)			
Output power: RMS	120Wrms	240Wrms	360Wrms	480Wrms
Output: Line	RCA or screw terminal SLAVE OUT			
Input	RCA or screw terminal SLAVE IN			
Controls	Master volume			
THD	<1.0%			
Dimensions	433 x 267 x 44mm	433 x 267 x 44mm	433 x 355 x 89mm	433 x 355 x 89mm
Weight	4.8kg	5.8kg	9.9kg	10.4kg

Troubleshooting

No power LED on control panel	Ensure IEC lead is in good condition and connected properly
	Ensure POWER switch is on and check mains inlet fuse
Power LED is on but no other LEDs and no output	Check input signals and condition of input connection leads
	Check MASTER volume control is turned up
POWER and SIGNAL LEDs lighting but no output	Check speaker output terminals are connected correctly
	Check speakers are working (test on another amp if available)
Output is very loud or distorted	Check SLAVE IN signal level is not too high
	Reduce MASTER volume level
Output is working but at very low level	Check SLAVE IN signal level is not too low
	Increase MASTER volume level
Amplifier overheating	Ensure cooling vents are clear from debris and dust
	Check that 4Ω or 8Ω speakers are not connected to the 100V terminal
	Ensure total 100V speaker wattage is lower than amplifier rating
	Ensure that 100V and 4Ω or 8Ω speakers are not both connected
	Ensure that total load connected to 2Ω output is not less than 2Ω combined

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.