



## Operating Manual

**A 4230A** 30W Public Address Amplifier

**A 4240A** 60W Public Address Amplifier

**A 4250A** 100W Public Address Amplifier

### OVERVIEW

These compact 1RU rack mount amplifiers are suitable for both stand alone PA system use, or as zone amplifiers in larger systems requiring local inputs. All models operate on 240V ac or 24V dc for battery backup operation. The input consists of a 3-pin XLR which can be set for either balanced mic level (3mV) or balanced line level (2V), adjusted via a rear mounted trimpot. A dual RCA input is also provided with adjustable sensitivity of either 300mV or 1V. Phantom power is also provided on the input XLR. The circuit includes protection features in case of output over voltage, over current and over temperature. All are self re-setting once the fault condition is removed. Visual indication via front panel LEDs display amplifier status at all times.

### FEATURES

- Compact 1RU 19" rack mount design
- Balanced mic or line input
- Phantom power
- Overload limiting
- Over voltage limiting
- On demand fan cooling (60W and 100W versions only)
- Over temperature shut down protection
- Dual input connectors
- Variable input sensitivities
- 240V ac / 24V dc operation
- Australian designed & manufactured

## REAR PANEL

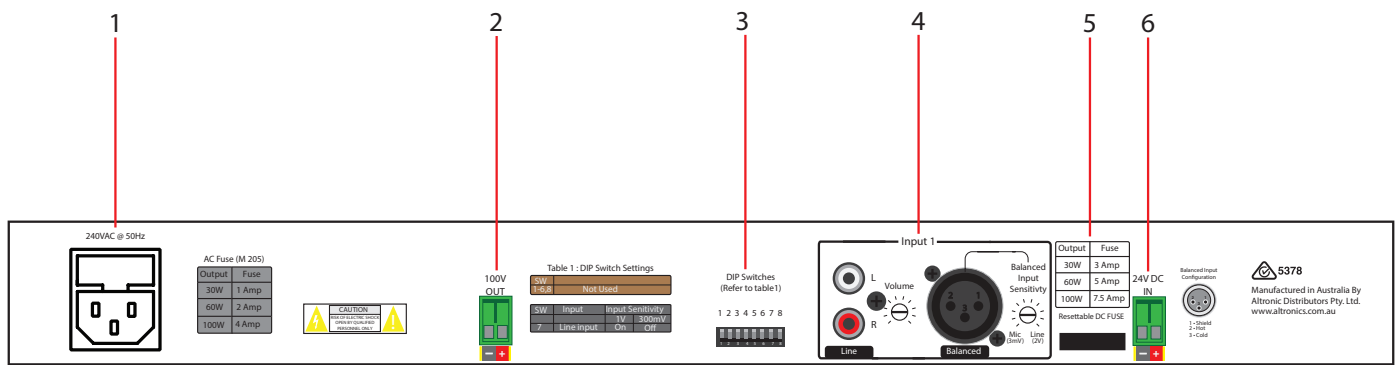


Fig 1

### 1 240V AC Input

Connect to a 220-240V AC @ 50Hz power source.

### 2 100V Output

Speakers fitted with a 100V line transformer may be connected. Always ensure that the total load of the speakers does not exceed the rated output of the amplifier ie 333Ω minimum at 100V for the A 4230A (30W), 166Ω minimum at 100V for the A 4240A (60W) and 100Ω minimum at 100V for the A 4250A (100W). Otherwise either the DC or mains fuse could blow or the fault led activate and the amp will shut down. Always be careful to avoid short circuits and connection to the wrong terminals. Refer to Fig 2 and Fig 3 for more details about the impedance of speakers and how to check the impedance.

### 3 DIP Switch Settings

The A 4230A range of amplifiers have a set of options which are enabled via the DIP switches 1-8.

**Switch 1-6 & 8** Not used

**Switch 7** sets the input sensitivity for the Dual RCA line input to either 1V or 300mV. Note: this only affects the line input.

### 4 Audio Input

Input 1 can be used for mic or line input operation. The dual RCA line input has adjustable line input sensitivity of either 300mV or 1V (Set by DIP switch 7). The balanced XLR input has an adjustable input sensitivity from 3mV up to 2V. Phantom power is available on the balanced XLR input. Volume is adjusted via the volume pot on the rear of the unit.

### 5 Resettable DC Fuse

Used to protect the unit when powered from 24V DC. This fuse is resettable by pressing the red button.

### 6 24V DC Input

**Battery Backup:** Provision has been provided to run the amplifier from a suitably rated 24V battery system in the event of a mains failure. Using appropriately rated cable, connect the battery to the "24V DC In" terminals. Observe correct polarity when connecting.

## SPEAKER CONNECTIONS

Speakers fitted with 100V line transformers may be connected to the output terminals on the rear of the amplifier. Always ensure the total load of the fitted speakers does not exceed the rated output of the amplifier (ie 30 watts for the A 4230A, 60 watts for the A 4240A and 100 watts for the A 4250A amplifier) otherwise damage may result. When fitting speakers with line transformers the impedance of the load cannot be measured using a standard multimeter. An impedance meter is required. Fig 2 lists the impedance at certain loads of speakers fitted with 70V and 100V line transformers. So for a total load of 60 watts using 100V line transformer fitted speakers, the impedance of the speaker load should be 166Ω.



### About 70V & 100V Line Speaker Systems

**Wiring speakers in parallel for 70/100V line:** Where several speakers are to be used at one time, on one circuit, it becomes necessary to use speakers fitted with line-matching transformers. This is to overcome the effects of connecting speakers in parallel and cable losses. The amplifier generally has an output voltage of 100 volts (70 volts is typically used in North America, however operation is similar). In this configuration the total wattage load on the amplifier is derived from adding all the line transformer primary tap ratings together. For example, 70 one watt speakers will have a total speaker load of 70 watts. Or alternatively, it is conceivable to connect 100 one watt speakers to a 100 watt, 100 volt line amplifier.

**Measuring 70/100V Line Speaker Impedance:** To measure amplifier system load, you must use an impedance meter in order to measure the ac resistance of the connected speaker network. Impedance cannot be measured with a standard multimeter, as this measures the dc resistance.

Load	70V	100V
0.5W	9.4kΩ	20kΩ
0.66W	7.12kΩ	15kΩ
1W	4.7kΩ	10kΩ
1.25W	3.76kΩ	8kΩ
2W	2.35kΩ	5kΩ
2.5W	1.88kΩ	4kΩ
3W	1.56kΩ	3.3kΩ
5W	940Ω	2kΩ
7.5W	626Ω	1.3kΩ
10W	470Ω	1kΩ
15W	313Ω	666Ω
20W	235Ω	500Ω
30W	156Ω	333Ω
40W	117Ω	250Ω
60W	78Ω	166Ω
100W	47Ω	100Ω
125W	37Ω	80Ω
250W	19Ω	40Ω
500W	9.4Ω	20Ω

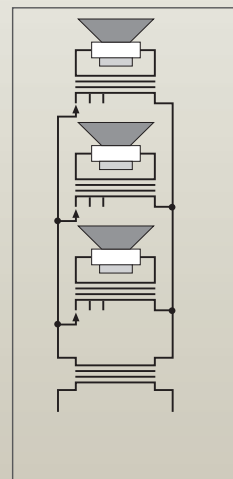


Fig 2. 100V Speaker Line Impedances



Fig 3. Redback Q 2007 Impedance Meter

## TROUBLE SHOOTING

If the REDBACK® amplifier fails to deliver the rated performance, check the following:

### No Power, No Lights

Make sure amplifier power switch is on. Make sure mains power switch is on at the wall. Check the mains and DC fuse. Replace with only the correct type and rating. Over rated fuses will invalidate warranty.

### Distorted Output

Check that the speaker type is correct for the output that you are using (ie. 100V line). Check for any short circuits on the speaker line and check the speaker line impedance. Note you must use an impedance meter for this such as Redback Q 2004 Impedance Meter.

### Very Low Output Volume

Make sure that the input is the correct level (check for shorted connectors). Check for any short circuits on the speaker line.

Check input DIP switches are set correctly.

# Redback® A 4230A/40A/50A PA Amplifiers

## Continually Blows Fuses

Make sure that the speaker line is not shorted. Check speaker types, ratings and if on correct output.

## Amplifier Keeps Cutting In & Out

Make sure that there is adequate ventilation around the amplifier. Check the vent slots on the top and sides are not covered or blocked and the fan is functioning correctly. Check also speaker types, ratings and for any short circuits on the speaker line.

## SPECIFICATIONS

### POWER OUTPUTS

A 4230A: .....30 watts RMS  
A 4240A: .....60 watts RMS  
A 4250A: .....100 watts RMS  
Distortion:.....< 0.5%, @ 1kHz

### FREQUENCY RESPONSE

Mic input:.....50Hz - 12kHz, -3dB  
Line input: .....50Hz - 15kHz, -3dB

### SENSITIVITY

Mic input: .....3mV-2V balanced  
Line input:.....300mV-1V

### SIGNAL TO NOISE RATIO

Mic input: .....> 75dB below rated output  
Line input:.....> 81dB below rated output

### OUTPUT CONNECTORS

Speakers: .....Screw terminals

### INPUT CONNECTORS

Inputs: .....3 pin XLR balanced or 2 x RCA  
24V DC power: .....Screw terminals  
240V AC power: .....IEC power connector

### WEIGHT

A 4230A: ..... ≈4.6kg  
A 4240A: ..... ≈5.4kg  
A 4250A: ..... ≈6.2kg

**DIMENSIONS:** ..... ≈ 483W x 210D x 44H

### CURRENT DRAW:

A 4230A	.....	Min ≈ 140 mA
	.....	Max ≈ 2.4A
A 4240A	.....	Min ≈ 170 mA
	.....	Max ≈ 4.5A
A 4250A	.....	Min ≈ 190 mA
	.....	Max ≈ 6.8A

**\*Specifications subject to change without notice**

## Other 1RU Amplifiers in this range

**A 4235A** 30W Mixer Public Address Amplifier

**A 4245A** 60W Mixer Public Address Amplifier

**A 4255A** 100W Mixer Public Address Amplifier



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