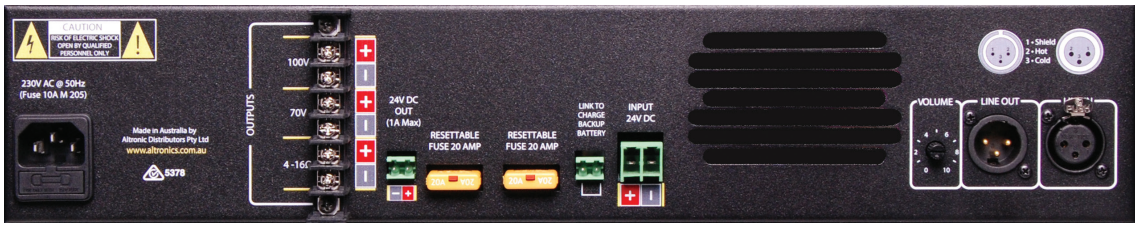

Operating Manual

A 4390A 500 Watt Power Amplifier

OVERVIEW

The Redback A 4390A is a 500 Watt power amplifier for installations requiring a high power zone amplifier. Ideally suited for use in shopping centres, pedestrian precincts, public transport facilities and convention centres.

FEATURES

- Robust design incorporating latest Mosfet technology
- Very Low noise and distortion
- 70V, 100V and 4-16Ω outputs
- 240V AC or 24V DC operation
- 24V DC @ 1 Amp output for external devices
- 300mA battery trickle charge
- Multi stage thermally cued fan cooling
- Output Peak Limited
- Thermal Overload protected
- Signal Presence Indicators
- Fault Indicators
- Power Status Indicators
- Rack Mountable (suits 19 inch racks)

POWER SUPPLY

The amplifier operates on 230V AC or 24V DC primarily for battery backup operation. Ensure power is switched OFF at the front panel before connecting either mains power to the IEC socket or 24V DC to the screw terminal input. (see Fig 2 for more details) As high currents may be drawn when operating from a 24V DC supply confirm the capacity of the DC power supply used.

AUDIO CONNECTIONS

Audio input is via a 3 pin XLR socket on the rear of the amplifier. This is a 500mV line level balanced signal which is normally fed from from a mixer panel. Pinout details are printed on the rear of the amplifier. A balanced Line Out XLR socket is also provided on the rear of the amplifer for passing the audio signal on to more slave amplifiers if required. The amplifier output level control is also rear mounted to prevent tampering or accidental adjustment (see Fig 2 for more details).

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SPEAKER CONNECTIONS

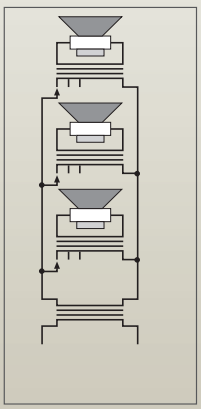
Speakers with a total impedance or 4-16Ω may be connected to the terminals marked 4-16Ω on the rear of the amplifier. Speakers fitted with line transformers (either 70V or 100V) may be connected to the corresponding terminals on the rear of the amplifer. Always ensure the total load of the fitted speakers does not exceed the rated output of the amplifier (ie 500 watts)
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 such as the Redback® Q 2004 Impedance Meter. Fig 1 lists the impedance at certain loads of speakers fitted with 70V and 100V line transformers. So for a total load of 500 watts using 100V line transformer fitted speakers the impedance of the speaker load should be 20Ω.

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



Redback Q 2004

Fig 1

24V DC OUTPUT

A constant 24V output terminal has been provided to power ancilliary 24V devices (see Fig 2 for more details). The ouput has a maximum current draw of 1 amp. If more than 1 amp is drawn from the output, internal polyswitches will disconnect the output. These will reset once the current draw is reduced.

24V BACKUP BATTERY CHARGING

The A 4390A amplifier includes a charging circuit so that a backup battery connected to the amplifiers 24V DC Input can be trickle charged. The battery charger is connected to the battery internally when the link is fitted to the charging link connector (see Fig 2 for more details). The battery will be charged at approximately 300mA.

TROUBLE SHOOTING

If the REDBACK Phase 4 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. 4-16Ω, 70V or 100V line). Check for any short circuits on the speaker line.

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 if signal LED on the front panel is lit to indicate there is signal. If it is not lit there is no signal present.

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

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

Backup Battery Not Charging
Make sure the link is fitted to the charging link connector

No Output From 24V DC
Make sure the 24V DC Out connector is wired correctly.

Fig 2 shows a typical install where the A 4390A amplifiers are used as slave amplifiers with the audio output from the mixer amplifier passed through each slave amplifier.

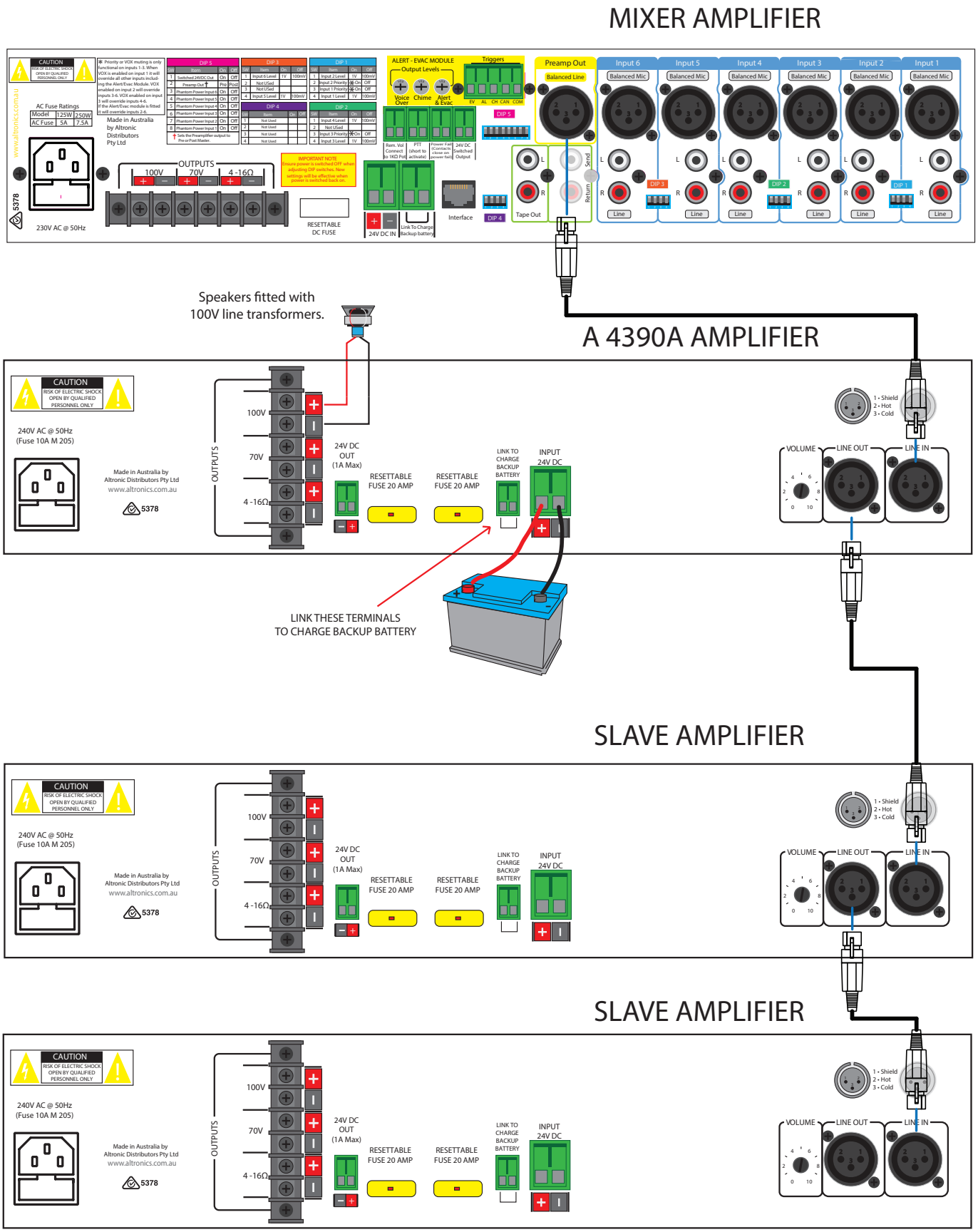


Fig 2

SPECIFICATIONS Measurements referenced to 1kHz.

Power output:	500 watts RMS
Distortion:	< 0.5%, @ 1kHz
Frequency response	50Hz - 15kHz, -3dB
Output line:	100V, 70V, or 4 - 16Ω
Signal to noise ratio	(peak limiting by-passed) > 90 dB
Line output:	600Ω balanced, 0dBV, 3 pin XLR
Speaker connection	Screw terminals
Trickle charge:	Screw terminals
24V DC output:	Screw terminals
Inputs:	3 pin XLR (500mV)
24V-30V dc power:	Screw terminals
240V ac power:	IEC power connector
Indicators:	Mains, 24V dc, Power, Signal presence,
Over temp, Over current, Shut down, Peak limiting	
Current Draw:	500mA Standby, 35A Full @ 24V dc
Power supply:	240V ac or 24V dc (nominal)
Protection:	10A ac and 2 x 20A dc
Dimensions:	≈ 483W x 380D x 88H

***Specifications subject to change without notice**

You may be surprised to learn that Redback is still manufacturing hundreds of product lines right here in Australia. We have resisted the move offshore by offering our customers better quality products with innovations to save them time and money.

Our Balcatta production facility manufactures/assembles:
Redback public address products
One-shot speaker & grill combinations
Zip-Rack 19 inch rack frame products

We strive to support local suppliers wherever possible in our supply chain, helping to support Australia's manufacturing industry.

Redback Audio Products

100% developed, designed & assembled in Australia.

Since 1976 we have been manufacturing Redback amplifiers in Perth, Western Australia. With over 40 years experience in the commercial audio industry, we offer consultants, installers and end users reliable products of high build quality with local product support. We believe there is significant added value for customers when purchasing an Australian made Redback amplifier or PA product.

Local support & feedback.

Our best product features come as a direct result of feedback from our customers, and when you call us, you speak to a real person - no recorded messages, call centres or automated push button options.
It's not only the assembly team at Redback who are employed as a direct result of your purchase, but hundreds more at local companies used in the supply chain.

Industry leading 10 year warranty.

There's a reason we have the industry leading DECADE warranty. It's because of a long tried and tested history of bullet-proof reliability. We've heard PA contractors tell us they still see the original Redford amplifier still in service in schools.
We offer this comprehensive parts & labour warranty on almost every Australian Made Redback public address product. This offers both installers and end users peace of mind that they will receive prompt local servicing in the rare event of any problems.