



# A 4075 125W A 4085 250W 6 Input Mixer Amplifiers

## Operating Instructions



*Congratulations on purchasing a REDBACK Phase 4 Public Address Mixer Amplifier. Engineered and manufactured to high standards this unit will provide you with many years of trouble free use.*

A 4075 125 Watt Mixer Amplifier  
A 4085 250 Watt Mixer Amplifier

### FEATURES:

- Latest design and technology
- Very low noise and distortion
- 70V, 100V and 4-16 Ohm outputs
- 240V AC or 24V DC operation
- Rack mountable
- Thermal overload protection
- Thermally cued forced fan cooling

### Inputs and Outputs

Inputs 1-6 can be configured for balanced microphone or line use as desired. 3 pin XLR and dual RCA sockets are provided for each of these inputs. Outputs are 600Ω/0dBm 3 pin balanced XLR or dual RCA sockets for record/tape out.

### Input Configuration

Inputs 1-6 include an individual 4 way dip switch enabling selection of mic or line input operation, adjustable line input sensitivity (100mV or 1V), Priority/VOX muting for inputs 1-3 (see below for priority details) and phantom power on/off. Priority/VOX muting is not available on inputs 4-6.

Note, when the Priority/VOX muting function is selected (inputs 1-3) it will operate with the input set for either microphone or line operation.

### Speaker Connections

Speakers with total impedance of 4 to 16 ohms, or speakers fitted with a 70V/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 either 4Ω minimum for the 4-16Ω terminals or 80Ω minimum at 100V for the A 4075 (125W) and 40 Ω minimum at 100V for the A 4085 (250W). 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.

### Power Supply

Ensure power is switched off at the front panel of the amplifier. Connect either mains power to the IEC socket with the supplied power lead, or 24V DC to the screw terminals on the rear of the amplifier. High currents may be drawn (8.5 amps for the A 4075 and 18 amps for the A 4085). Therefore when operating from a 24V DC power supply, confirm the capacity of the DC power supply used.

### Optional Modules

Alert, evacuation and chime tones are available with the installation of the optional A 2073 tone generator.

### Front Panel LED Display

There are six indicators on the front panel, they are ;

- 1) A ten point LED VU display to indicate output level.
- 2) A signal LED to indicate any signal present at any of the inputs (1 to 6).
- 3) Overtemperature LED indicating if there is a fault such as the amplifier overheating or a short circuit on the speakers.
- 4) Peak LED. See below for more details on peak limiting
- 5) Overload LED indicates when the wattage of connected speakers exceeds the rated wattage of the amplifier.
- 6) Power on LED indicates that there is power (24VDC or mains) to the amplifier.

## OPERATION

Remove the mixer from its packaging and inspect for any damage. If the unit appears to be damaged then do not operate as this may damage the unit further.

1. Prior to installation, set input configurations as desired via the DIP switches on rear of unit. Table 1 shows the various settings.
2. Plug in a low impedance microphone into the microphone input, or a music source (tape or Compact Disc or similar) into the line input.
3. Turn all controls fully down and then switch the amplifier on.
4. Turn up the level control associated with the input that you are using to about half way. Talk into the microphone (or play some music) and adjust the Master level control to achieve the required volume.

For the best sound performance turn the input level control to a high setting (say 3/4 ) and use the Master as the volume control. Use the other input level controls to set the required mixing ratios. Adjust the bass and treble controls to obtain the desired sound. For best performance when using long lines between microphones/mixer and or amplifier use balanced lines. These reduce noise or hum that may be induced into the cables. Note that a balanced line uses three wires (two signal wires and one screened earth wire or shield) where an unbalanced cable uses only one signal wire and a screened earth. See the connection details (figure 2) for wiring up plugs etc.

**Do not tamper with the unit. Warning Mains Voltage is Present Inside. Leave servicing to qualified personnel.**

## OPTIONS AND FEATURES

### Vox Muting:

Vox muting is available on inputs 1-3. This is selected by DIP switches 1-3 (See table 1).

**Input 1:** When VOX is enabled on input 1 it will override all other inputs (including alert/evac tone module).

**Input 2:** When VOX is enabled on input 2 it will override inputs 3 to 6 (alert/evac tone module will mix with this input).

**Input 3:** When VOX is enabled on input 3 it will override inputs 4 to 6.

**Inputs 4-6:** No VOX

**Alert/Evac Tone Module:** VOX is always enabled for the A 2073. It will override inputs 3 to 6 and mix with input 2.

To adjust VOX sensitivity level for input 1 adjust the trimpot on the rear panel of the amplifier. To adjust VOX sensitivity level for inputs 2 & 3 adjust the trimpots inside the amplifier on the front board (see figure 1).

### Switched 24V 1A output and PTT (Push to talk) muting.

When set to "On" via the output DIP switch (see table 1) 24V DC appears at the "24V DC Switched Out" terminals on the rear panel, whilst the PTT terminals are shorted together. This is normally done with the switch of a push to talk microphone. The switched 24V output could be used to control external devices like remote volume controls with bypass relays for emergency paging.

**Peak Limiting.** This feature is both for the protection and ease of use of the amplifier

Peak limiting stops the amplifier from exceeding its maximum output level. Conditions that would cause excessive output are feedback, volume controls turned to maximum, excessive input signal level, no speaker connected or very low speaker loading. All of these conditions are potentially destructive to the amplifier.

Peak limiting is protection for the amplifier under all these conditions.

Under normal usage peak limiting will cut in and prevent temporary overload conditions such as, yelling into a mic or dropping it, momentary peaks of music through a radio or CD player.

These conditions would cause distortion or loud and unpleasant bangs or thumps through the speakers

Peak limiting stops these symptoms from occurring. The Peak led on the front panel lights whenever peak limiting is active.

**Phantom power.** 10V DC phantom power is available for all microphone inputs. This is set via rear panel DIP switches. Check Table 1 for details.

**Pre - amp send and return.** This allows external effects units, ie Graphic EQ'S , companders or signal processors to be connected to the amplifier. When not using this feature the send and return outputs must be linked externally (factory fitted). The amplifier will not work without this link. Only when an external effects unit is used can it be removed.

**Balanced line output.** A 3 pin 600Ω 1V balanced XLR output is provided for passing the audio signal on to other slave amplifiers or to record the output of the amplifier. This output can be set up to be effected (post master volume) by the master volume control or unaffected (pre master volume). Factory default setting disables the preout. Consult table 1 for DIP switch settings regarding this function.

**Tap Out** Dual RCA's provided for recording purposes. This level is pre master volume.

**Remote Volume** Overall volume can be adjusted by a remotely located volume control. This requires a two wire figure 8 type cable and a 500Ω-1kΩ potentiometer connected as shown in figure 3. Maximum distance 100m.

**IMPORTANT NOTE: Remote volume terminal must be linked when not using the remote volume feature to ensure the amplifier performs correctly.**

**Overload.** Limiting has been designed into this amplifier to protect against incorrect load on the speaker outputs damaging the unit.

**Overtemp.** When the amplifier reaches a dangerous temperature the unit will shutdown, preventing damage. If this occurs, check for short circuits on the speaker line or objects blocking the amplifiers air vents.

**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.

**Battery Charging:** The amplifier is provided with a trickle charge circuit to maintain the batteries in a charged condition. The charge rate is ≈300mA. Simply link the terminals marked "link to charge backup battery" on the rear of the amplifier. A flat battery will generally take overnight to charge, or even longer depending on the battery capacity.

**TABLE 1: DIP SWITCH SETTINGS**

Input Switches 1-3			
Switch	Item	On	Off
1	Input Type	Line	Mic
2	Line Level	1V	100mV
3	Priority	On	Off
4	Phan. Pwr	On	Off

Input Switches 4-6			
Switch	Item	On	Off
1	Input Type	Line	Mic
2	Line Level	1V	100mV
3	-	-	-
4	Phan. Pwr	On	Off

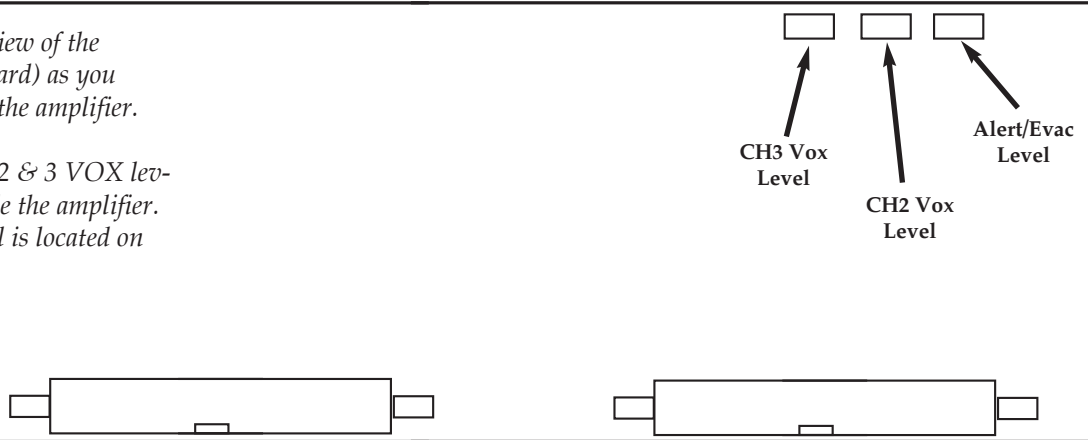
Output Switch			
Switch	Item	On	Off
1	Switched 24VDC Out	Off	On
2	-	-	-
3	Preout Pre Master Volume	On	Off
4	Preout Post Master Volume	On	Off

**IMPORTANT NOTE:**  
Switches 3 & 4 not to be set to On simultaneously.

*All switches are factory set to Off position.  
Installer to configure to installation requirements.*

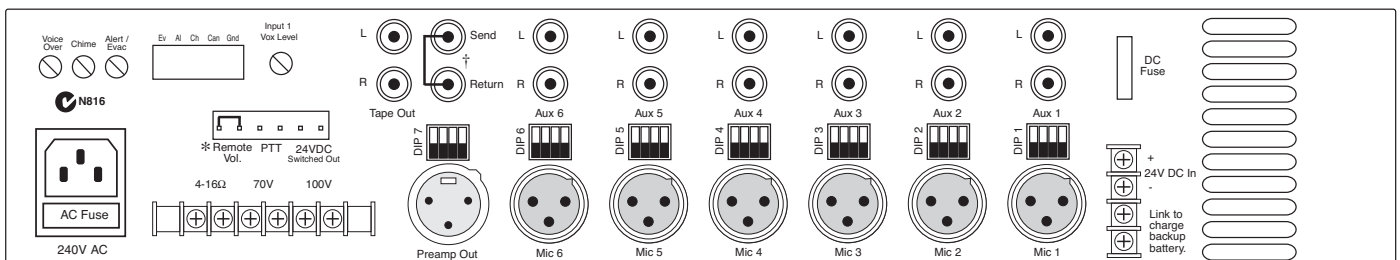
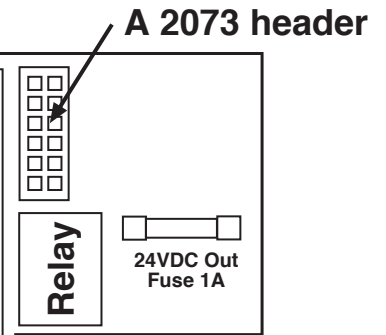
**Figure 1 :** This is a view of the Mixer PCB (front board) as you would view it inside the amplifier.

**Note:** Only channel 2 & 3 VOX levels are provided inside the amplifier. Channel 1 VOX level is located on the rear panel.



**Figure 2 :** This is a view of the Rear PCB as you would view it inside the amplifier. It shows the location of the header for the A 2073 alert/evac tone module.

**Metal Shield**



\* Remote Vol. : Link must be fitted when remote volume option is not installed.  
† Send/Return RCA: Link must be fitted unless effects unit is used.

**A 4075-85 Rear Panel Layout**

## 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 input DIP switches are set correctly.

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.

### No Output Volume

Check the Send/Return link is in place. Ensure the input selector dip switch is configured correctly for each corresponding input.

Ensure remote volume terminals are linked when no remote volume potentiometer is connected.

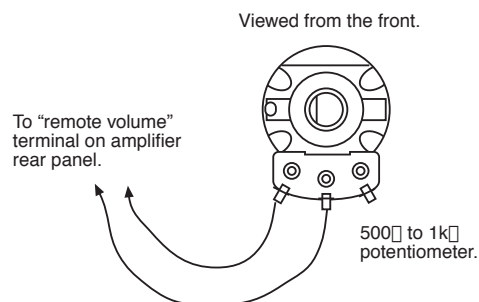
When connected, check remote volume control is not turned down.

### No Switched 24V DC

Check output switch for correct setting.

Check fuse located on rear PCB is not blown.

**Figure 3 :** Remote volume connection. Remove link from remote volume terminals and connect 500Ω-1K potentiometer. Maximum distance from amplifier: 100m



## INSTALLING THE TONE GENERATOR

### A 2073:

1. Remove lid from unit
2. Unscrew tone generator plate from rear panel
3. Locate tone generator 10 way header on board (this is located at the rear of the main board)
4. Connect ribbon cable header to the 10 way header on the rear board of mixer (see fig 2).
5. The tone generator is held in by way of 2 screws (supplied) through the rear panel (via the same holes that the tone generator plate was attached).
6. Refit lid and secure with screws.

**NOTE:** Tones are operated by closing contacts and remain operating whilst contacts are closed. The A 2073 assumes priority 2 when installed

## Important Note:

This product warranty covers a period of ten years after the date of manufacture. In the unlikely event that the amplifier develops a fault condition do not attempt to repair the unit. Return it to an authorised service agent or our own service department for repair, along with proof of purchase. Our contact details are, Phone: 1300 780 999, Fax : 1300 790 999

## SPECIFICATIONS

### POWER OUTPUTS

**A 4075:** .....125 watts RMS

**A 4085:** .....250 watts RMS

**Distortion:**.....< 0.5%, @ 1kHz

**Output line:** .....70V, 100V or 4 - 16Ω

**Line output:**.....600Ω balanced, 0dBV

### FREQUENCY RESPONSE

**Mic inputs:** .....50Hz - 12kHz, -3dB

**Line inputs:** .....50Hz - 15kHz, -3dB

### SENSITIVITY

**Mic inputs:**.....3mV balanced

**Line inputs:**.....100mV-1V

### SIGNAL TO NOISE RATIO

**Mic inputs:** .....> 75dB below rated output

**Line inputs:** .....> 81dB below rated output

### OUTPUT CONNECTORS

**Speakers:** .....Screw terminals

**Line out:** .....3 pin XLR

### INPUT CONNECTORS

**Inputs:** .....3 pin XLR balanced or 2 x RCA

**24V DC power:**.....Screw terminals

**240V AC power:** .....IEC power connector

**Muting:**PTT via microphone switch contacts or VOX muting (inputs 1-3)

### CONTROLS

**Mic inputs:**.....Volume

**Line inputs:**.....Volume

**Bass:**.....±10dB @ 100Hz

**Treble:** .....±10dB @ 10kHz

**Master:**.....Volume

**Power:**.....On/off switch

**Indicators:** .....Power, fault, VU meter, signal present, output peak limiting, overtemp

**Power Supply:**.....240V AC or 24V DC

### FUSE PROTECTION

**A 4075:** .....5A AC , 10A DC

**A 4085:** .....7.5A AC , 20A DC

**Switched 24VDC** 1A Internal (both models)

### DIMENSIONS

**All models:**.....~483W x 330D x 88H

### WEIGHT

**A 4075:**.....~14.5kg

**A 4085:**.....~19.5kg

**Colour:**.....Black

\*Specifications subject to change without notice