



# USER MANUAL



## PSR-8A

### Active Professional Two-Way Sound Reinforcement Loudspeaker

This manual does not include all of the details of design, production, or variations of the equipment. Nor does it cover every possible situation which may arise during installation, operation or maintenance.

The information provided in this manual was deemed accurate at the publication date.

[www.prolight.co.uk](http://www.prolight.co.uk)

### Important Safety Instructions

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with a dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat exchangers, stoves, or other apparatus that produce heat.
- 9) Please ensure that this apparatus is correctly earthed at all times.
- 10) Protect the power cord from being walked on or trapped, particularly at plugs, receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with a cart, stand, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 14) To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.



**TO PREVENT ELECTRIC SHOCK DO NOT REMOVE TOP OR BOTTOM COVERS. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**



#### WATCH FOR THESE SYMBOLS:

The lightning bolt triangle is used to alert the user to the risk of electric shock.



The exclamation point triangle is used to alert the user to important operating or maintenance instructions.





**Table of Contents**

Important Safety Instructions .....2  
Table of Contents .....3  
Introduction ..... 4-5  
Hookup Diagrams .....6-7  
Rear Panel Description.....8  
Block Diagram.....8  
Specifications ..... 9-10  
Notes ..... 11



## INTRODUCTION

Thank you for choosing **W** audio° active sound reinforcement speakers.

The PSR-8A is an active two-way loudspeaker capable of extremely high sound pressure levels, and designed to give you the best performance of any loudspeaker in its class and price range.

Our design goal was to build a sound reinforcement speaker with:

1. High precision, high output, and accurate playback.
2. Very wide, smooth dispersion of mid and high frequencies.
3. Ergonomically correct physical design for easy transport and set up.

Through the combined resources of our top-notch mechanical and analog engineers, we were able to achieve our design goals in every respect. The result is a sound reinforcement system equally at home in a concert setting, in the studio, in the cinema, or in a home theater.

### The Transducers

The PSR-8A active speakers feature a 8-inch high -power low-frequency woofer and a 1.5-inch aluminium diaphragm high-output precision compression driver. This high-frequency driver is mounted on an acoustically non-resonant exponential waveguide, providing a wide, controlled dispersion and precise reproduction of the critical upper mid-range and high frequencies. The result is an unbelievably smooth off-axis response that allows everyone in the audience to experience the same high-resolution audio no matter where they are seated.

Each driver has been specifically designed by our engineers for optimum performance in the lightweight high-strength cabinet.

## W Series Power Amplifiers

PSR-8A, Our exclusive design uses low negative feedback, yet allows the amplifiers to maintain low distortion and stability and to quickly recover when driven into clipping.

The amplifiers include the following features:

- The low-frequency amplifier produces up to 200 watts peak (100 continuous) before clipping.
- The high-frequency amplifier produces up to 100 watts peak (50 continuous) before clipping.
- Each amplifier has its own compressor circuit that acts when the input signal is large enough to cause clipping, distortion and excessive voice coil heat. The compressor will automatically decrease the input signal to a safe level. The compressor in the low-frequency amp works independently from that in the high-frequency amp.
- The low-frequency amp uses servo feedback loop which senses the current flowing in the woofer coil. This controls the low-frequency response and maintains low distortion at high output levels.
- The low-frequency amplifier also has a seeping filter. This will automatically move the low cut-off frequency up or down depending on the amplifier output.



## The Cabinet

The PSR-8A cabinet was designed to be the strongest moulded composite cabinet on the planet. This material is rigid enough to prevent unwanted vibrations in the cabinet. It has built-in fly points for hanging, and a socket in the bottom for mounting on a tripod stand. Although it is an exceptional choice for portable sound system use. The asymmetrical trapezoidal design of the cabinet makes it easy to use as a floor wedge for stage monitor applications.



## The Active Advantage

There are a number of advantages to using an active speaker system over a passive loudspeaker:

The internal crossover is active, and its low power circuitry operates on line-level signals. It does not waste speaker-level power like a passive crossover with large coils, caps, and resistors. The input signals are crossed over before they reach the amplifiers, so each amplifier only receives the correct frequency range for its driver.

The amplifiers are designed specifically for these speaker load impedances. There is no guesswork as to what load each amplifier has to drive, so they can provide maximum acoustic output from the speakers, yet minimize the danger of speaker damage due to overdriving. The connecting wires between the amplifier outputs and the drivers are kept to a minimum, so the damping factor of the amplifier is not compromised by the resistance of long speaker cables. In addition, all the power from the amplifier is transferred directly to the drivers with no speaker cable losses. The acoustic sum of the outputs from the two drivers is optimized electronically, as well as physically, so the output response is flatter.

The presence of active circuits within the speaker cabinet allow the designer to add on extra details, such as a high quality mic/line input section and optional accessory modules.

In short, all the complex interconnected components in the system are designed to work in harmony with each other to produce the best possible sound.

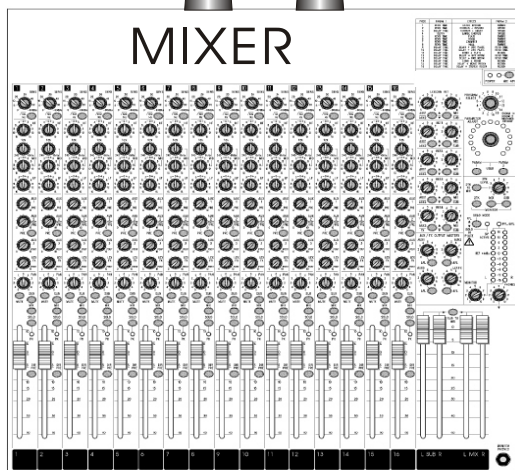
HOOKUP DIAGRAMS

PSR-8A STEREO OPERATION WITH A MIXER



Left Line level output

Right Line level output



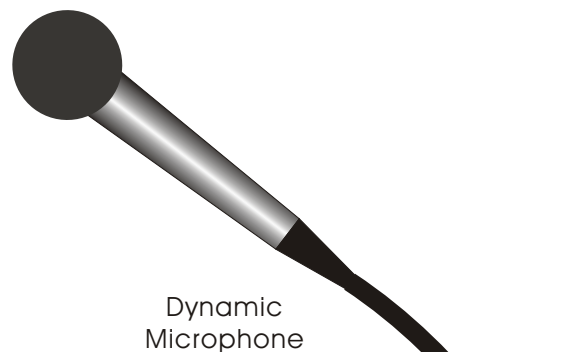


### HOOKUP DIAGRAMS

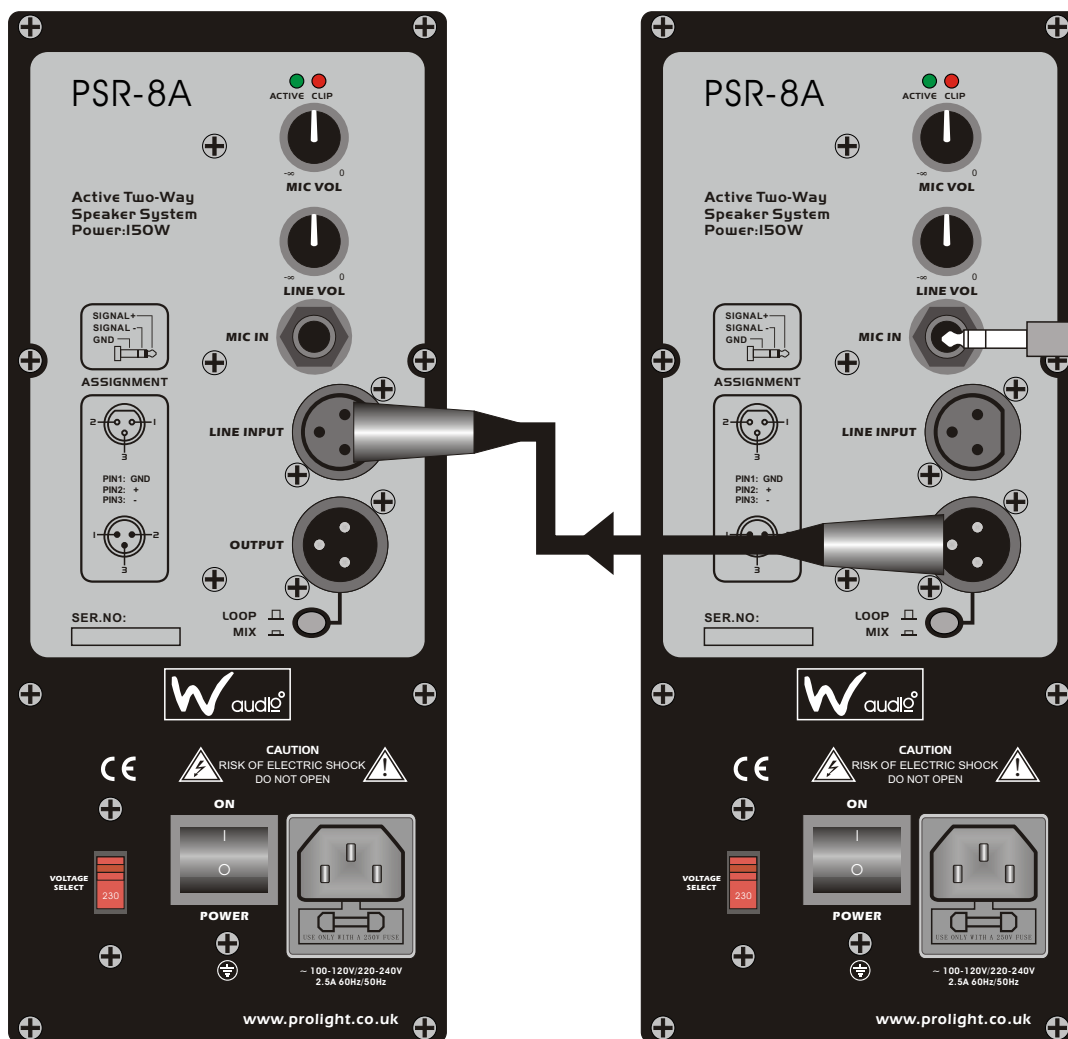
#### PSR-8A USING A MICROPHONE AND THE THRU CONNECTION

For microphone connections, you can daisy-chain up to two PSR-8A using the MIX OUTPUT jacks as shown.

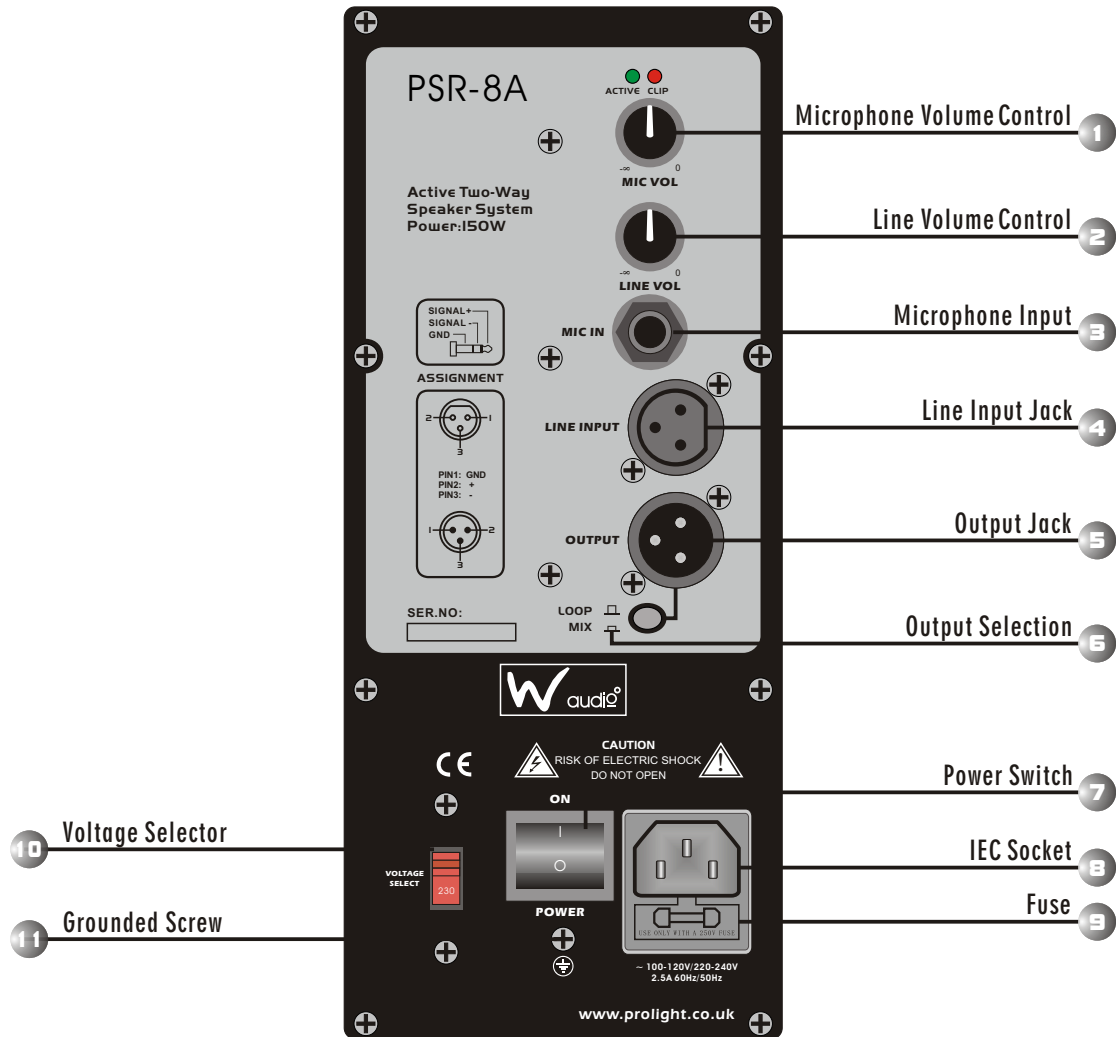
Take great care to point any microphones away from the PSR-8A, otherwise you may get feedback.



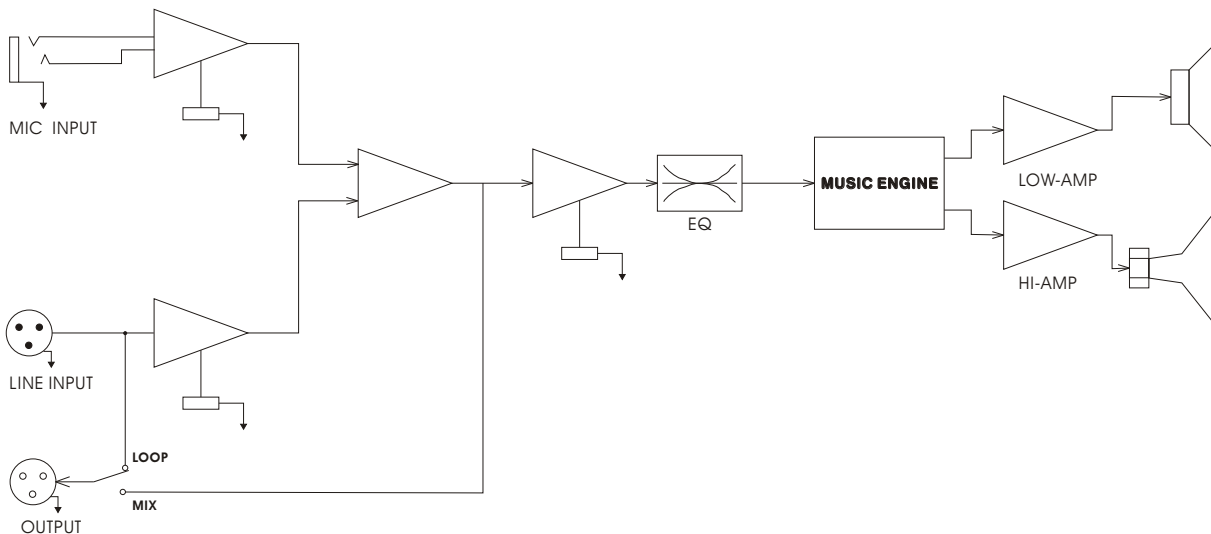
Dynamic Microphone



**REAR PANEL DESCRIPTION**



**PSR-8A BLOCK DIAGRAM**







**PSR-8A SPECIFICATIONS**

System Specifications	
Frequency Response(-3dB)	70Hz-20kHz
Frequency Range(-10dB)	60Hz-20kHz
Max SPL Long-term@1m	114dB
Max SPL Peak@1m	117dB
Horizontal Coverage	90°
Vertical Coverage	60°
Crossover	Linkwitz-Riley, 24dB/octave@3.5kHz
Audio	
Input Type	Balanced Differential
Input Impedance	20kohms
Sensitivity	
Line	0dBu
Mic	-32dBu
Maximum Input Level	+18dBu
Low-Cut Frequency	30HZ, Second-order filter
Operating Temperature Range	-10°C to 45°C(14°F to 113°F)
Power Amplifiers	
Low-Frequency Power Amplifier	
Rated Power	100 watts*
Rated THD	<0.1%
Cooling	Convection Extrusion
Design	Class AB
Hi-Frequency Power Amplifier	
Rated Power	50 watts*
Rated THD	<0.1%
Cooling	Convection Extrusion
Design	Class AB
*Rated power is continuous rms wattage into transducer rated impedance @ 1kHz for the HF amplifier and @ 100 Hz for the LF amplifier.	
Transducers	
Low-Frequency Transducer	
Diameter	8 in/203mm
Voice Coil Diameter	2 in/50mm
Frequency Range	45Hz-3kHz
Sensitivity(1W@1M)	94dB
Nominal Impedance	4 ohms
Power Handling	120 watts, program
High-Frequency Transducer	
Diaphragm Diameter	1.5 in/34mm
Diaphragm Material	Aluminium
Frequency Range	1.5kHz-20kHz
Sensitivity(1W@1M)	105dB
Nominal Impedance	8ohms
Power Handling	30 watts, program



## PSR-8A SPECIFICATIONS

Physical Properties	
Height	17.1 in/435mm
Width	10 in/255mm
Depth	9.6 in/245mm
Weight	20.9 lb/9.5kg
Disclaimer	
Since we are always striving to make our products better by incorporating new and improved materials, components, and manufacturing methods, we reserve the right to change these specifications at anytime without notice.	



