

# MPA1

PROFESSIONAL

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## MONOBLOCK POWER AMPLIFIER

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INSTRUCTION MANUAL



**B&W**

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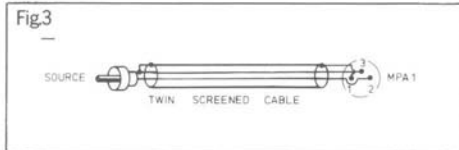
## INTRODUCTION

The B&W MPA1 is a high quality 120 watt (into 8ohm load) monoblock amplifier; its design is directly derived from the Mos-Fet power modules employed in the MPA810 professional studio amplifier.

This unique amplifier is the first in a series of electronic products which incorporate the highest engineering technology within a set of sophisticated designs developed specifically for use in the home. In line with established B&W tradition, the new products are designed and produced entirely in-house.

System topology and component specification are in keeping with the latest knowledge of how sonic realism is best achieved. For those who like to deploy the more exotic system configurations, MPA1 is equipped with dual outputs, to facilitate bi-wiring – and with ATO (audio turn-on) to simplify the remote siting of power amplifiers. Some professional and audiophile systems call for long input wiring runs, frequently necessitating the use of balanced line feeds. Consequently, MPA1 is equipped with a balanced XLR input in addition to the more common single-ended phono connection.





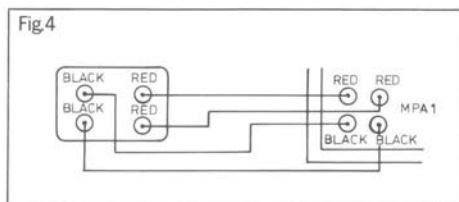
### 3. LOUDSPEAKER CONNECTION

The majority of loudspeakers are provided with two terminals. Either pair of MPA1's output terminals (one red, one black) may be connected to these.

Connection should be made using heavy-gauge copper wire. As a rough guideline, for lengths up to five metres, wire of 2.5mm<sup>2</sup> gauge should be sufficient.

(It may be worthwhile to experiment with different cables, because the constituent materials can vary in composition, giving rise to subtle modifications in perceived sound quality.)

Certain loudspeaker systems, such as the B&W Matrix 'E' series, are equipped with dual inputs for bi-wiring. The two input pairs should be connected using four wires to the corresponding outputs. Both amplifier outputs are equally well suited to high- or low-frequency drive. The bi-amp connection is illustrated in Fig. 4.



### 4. OPERATION

With two MPA1 units connected to (1) the appropriate source, (2) loudspeakers and (3) power, the system should be ready for use. Ensure that the indicators are illuminated, showing that the units are in standby mode. Main power may now be activated by moving the power switch either to 'ON' or to 'ATO', in which case switching occurs immediately the signal is applied. In 'ATO' mode, switch-off occurs automatically after a few minutes.

The MPA1 runs approximately 15°C above ambient temperature with no signal applied. This increases with a

signal, so the amplifier should be used with fins vertical and good ventilation.

In the case of an offset fault (internal or external) or sustained current overload, the main supply will be removed automatically. To reset the unit following correction of the fault condition, put the rear panel switch to the 'OFF' position for a few seconds, before returning it to 'ON' or 'ATO'.

### 5. CIRCUITRY

MPA1 contains three circuit boards: input buffer, power amplifier and power supply.

The input buffer is a low noise, unity gain differential amplifier which converts balanced inputs to single-ended signals which can then be fed to the main amplifier stage. In addition, this board contains the signal detection circuitry for ATO, the main power switching control and both current and offset protection. This circuitry is supplied by a small, regulated standby supply, which remains active as long as the mains power is connected.

The main amplifier consists of a dual complementary differential input stage feeding high linearity cascode drivers to give voltage gain. Finally, two matched pairs of complementary power Mos-Fets are incorporated as current buffers. Separate supply connections are made to the output stage, permitting independent supply regulation for the input and driver stages.

The heart of the power supply is a custom-designed 300VA transformer with two low-impedance, 10,000µF capacitors providing the main charge storage elements for the output stage. An additional pair of capacitors with regulators supplies the higher voltage requirements of driver and input sections. Mains power control is achieved with an opto-isolated solid state switch, allowing operation for the low level output of the power control logic circuitry.

## 6. SPECIFICATION

<b>Power output</b>	120W/8 $\Omega$ 200W/4 $\Omega$ (continuous 20Hz–20kHz).
<b>Current limit</b>	$\pm 16A$ .
<b>Output impedance</b>	1m $\Omega$ (measured at main PCB).
<b>Input impedance</b>	24k $\Omega$ .
<b>Voltage gain</b>	29.2dB.
<b>Frequency response</b>	10Hz–20kHz +0dB –0.4dB (input filter limited).
<b>Distortion</b>	better than –86dB (20Hz–20kHz at 5W/8 $\Omega$ ) (A-weight).
<b>Signal-to-noise ratio</b>	–100dB (A-weight).
<b>AC voltage requirements</b>	110/130/150/220/240/ 260VAC.
<b>Power consumption</b>	standby 1.2VA (at 240V) idling 40VA full output 4 $\Omega$ –500VA.

B&W Loudspeakers Ltd reserve the right to amend details of their specifications in line with technical developments.

Your MPA1 represents the first in a series of superb quality products in which B&W set out to meet the combined requirements of the professional and the audio enthusiast. Neither effort nor expense have been spared in perfecting this amplifier, which we believe will give you many satisfying years of listening pleasure. In choosing the B&W MPA1, you have acquired more than a state-of-the-art amplifier; it is a rare example of how the aspirations of the design-conscious can be met within the home environment without the slightest compromise in engineering integrity.

**B&W**

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