

M A 2 0 0



User Guide

Installation

Connect the MA200 to the mains supply (nominally 230V AC). If using a British 13 Amp mains plug (to BS1363A), fit a 13 Amp fuse in the plug. (If a 5 Amp fuse is fitted, it may blow due to the surge at switch on. The MA200 has a 2 Amp fuse on its front panel, but this is an ANTI-SURGE type. Mains plug fuses are not anti-surge types.) Connect the wires to the plug as follows:

- 1 Brown = live
- 1 Blue = neutral
- 1 Green/Yellow = earth
- 1 The MA200 must be earthed.

NEVER disconnect the earth, even in an attempt to prevent 'hum'. If the earth were disconnected, it could result in equipment connected (even indirectly through a mixer) to the input, such as microphones, becoming live in the event of a fault (such as a liquid spillage into the amplifier) The MA200 circuitry is only "loosely coupled" to earth so is extremely unlikely to be the cause of a "hum loop".

Install the MA200 away from sources of moisture; avoid areas where drinks can be spilled onto the amplifier as this may cause serious damage.

The MA200 requires a "line level" signal. This is the signal level from a mixer, a CD or tape player, or the audio output from a video player or satellite TV receiver. This signal level is generally referred to as 0dBm or 775mV. A signal from a microphone, electric guitar or turntable is not suitable; neither is the speaker output from another power amplifier, which may cause damage to the MA200 if connected to an input. A signal of **775mV RMS (0dBm)** is required to achieve full power output with the volume controls set on maximum.

Connect the input signal to the ¼" mono jack socket on the rear panel. If connecting from a stereo output, use a ¼" stereo jack plug to two ¼" mono jack plugs splitter lead. The input to the left channel is located towards the right of the amplifier when viewed from the back.

Connect the speakers to the output ¼" jack connectors.

Any number of speakers may be connected to each channel, as long as the combined impedance is not less than 4 Ω . Two connectors are provided for each channel; the speaker loading applies *per channel* regardless of which of the two sockets the speakers are connected to. The more speakers that are connected, the **lower** the impedance. Connecting too low an impedance may damage the amplifier.

If one of the outputs is not being used, it is not necessary to connect any load to it.

For speakers connected in PARALLEL on each channel:

The following combinations **MAY** be connected

Speakers	Combined impedance
2 × 16 W	8 W
3 × 16 W	5.3 W
4 × 16 W	4 W
1 × 16 W, 1 × 8 W	5.3 W
2 × 16 W, 1 × 8 W	4 W
2 × 8 W	4 W
1 × 4 W	4 W

The following combinations **MAY NOT** be connected

Speakers	Combined impedance
3 × 8 W	2.7 W
4 × 8 W	2 W
1 × 4 W, 1 × 8 W	2.7 W
1 × 16 W, 2 × 8 W	3.2 W
2 × 4 W	4 W

Speaker Leads

Speaker leads should be chosen with care, especially with a high powered amplifier. Current carrying capacity is not usually a problem, but the use of too thin a cable can lead to loss of output. The table below shows the maximum cable lengths for a 10% loss in output.

NEVER use screened lead to connect speakers to an amplifier, and never connect the output of the amplifier to a light controller with screened lead: use thin speaker cable.

Cable size	Maximum length for:		
	4 W load	8 W load	16 W load
0.5mm ²	2.3m	4.6m	9.2m
0.75mm ²	3.5m	7.0m	14.0m
1.0mm ²	4.7m	9.4m	18.8m
1.25mm ²	5.85m	11.7m	23.4m
1.31mm ²	6.0m	12.0m	24.0m
1.5mm ²	6.75m	13.5m	27.0m
2.5mm ²	11.4m	22.8m	45.6m

Ventilation

ALWAYS ensure that an adequate flow of cool air is available at the air intakes at the sides and back, and that the hot air exhaust on the lid is not obstructed.

If the amplifier is installed in a cupboard, make sure that there is an adequate supply of cool air, and that hot air from the exhaust is not recirculated back to the air intakes.

The fan and air vents should be cleaned periodically to remove dust and smoke fluid residues.

NEVER install the amplifier in a sealed cabinet.

Operation

ALWAYS connect the speakers and turn the volume controls to zero before switching on; do not touch the speaker outputs whilst the amplifier is running as this could result in electric shock.

Set the input level controls so that the red "clip" LEDs only illuminate on the loudest peaks when the levels on the mixer are at their highest setting.

If the amplifier is being asked to produce more power than it can supply it will 'clip' the signal, and if this happens the red LED will be illuminated. In this state, the amplifier can produce an output in excess of 150 Watts at levels of distortion up to 30%, which could cause damage to speakers. This distorted signal has a large amount of extra treble which can damage high frequency units.

If the "clip" indicators are on excessively there is only one solution, **TURN THE VOLUME DOWN.**

Choosing loudspeakers.

If the amplifier is likely to be over-driven, then it is advisable to use speakers which can handle the extra power. Use a 150W 4 ω speaker, or, if two 8 ω speakers are connected to each channel, they should be rated at 75W each. Using a 100W and a 50W together may result in damage to the 50W speaker, as they will each receive 75W. NJD accepts no responsibility for damage caused to speakers by over-driving.

When choosing loudspeakers, always refer to the RMS rating, "music power" or "peak music power" ratings which are normally between two and four times higher than the RMS power capability, should be ignored.

When the MA200 is operating normally, the green LED will be illuminated.

If a fault occurs within the amplifier leading to a DC condition on the speaker outputs, the speakers will be disconnected before any damage can occur. If this occurs, consult a dealer.

Short circuit protection.

The MA200 is protected against short-circuits on the outputs. If this happens, it will limit its output current to a safe level until the short circuit is removed. A short circuit should be removed as soon as it is discovered, as the amplifier is not intended to be run indefinitely into a short circuit. Short circuit protection does not protect the amplifier from having too many speakers connected to the output.

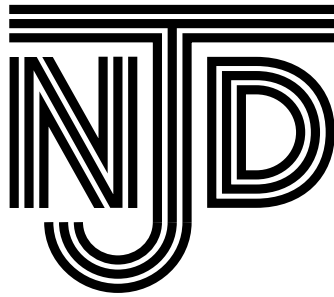
If speaker leads are too long or too thin, their resistance may prevent the short circuit protection operating in the case of a short circuit at the loudspeaker end of the lead - in this case the impedance of the cable may be indistinguishable to the

amplifier from a low impedance speaker.

T E C H N I C A L S P E C I F I C A T I O N

Dimensions:	19"x3½"(2U)x10" (483x88x254mm)
Weight:	6.5kg
Cooling:	Convection
Power output:	125W RMS into 4 ω at onset of clipping 90W RMS into 8 ω 50W RMS into 16 ω
Max. Output voltage:	96V peak-peak.
Damping factor:	360 at 100Hz into 4 ω .
Output impedance:	0.022 ω
Input impedance:	10k ω
Input sensitivity:	775mV (0dBm) for 400W into 4 ω
Frequency response:	15Hz to 30kHz \pm 3dB
Hum and noise:	-93dB
Channel separation:	90dB
Harmonic Distortion:	0.05% at 120Watts into 4 ω
Intermodulation Distortion:	0.05% at 120Watts into 4 ω at 50Hz and 5kHz
Slew rate:	20V/ μ s
Power requirement:	230V AC 50/60Hz 225VA
Fuse:	T2A HRC 5x20mm (2 Amp ANTI-SURGE)
Connections: Mains:	0.75mm ² cable to BS6500
Input:	¼" jack
Output:	¼" jacks

The MA200 complies with EN60065 (Electrical Safety), EN55014 (Electromagnetic Compatibility) and EN60555 (mains harmonic currents)



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