



# **MA 2.2 TRUE CLASS A MICROPHONE AMPLIFIER.**

## **USERS MANUAL.**

# Welcome...

**Thank you for choosing the Buzz Audio MA 2.2 True Class A Microphone Amplifier.**

**In this manual you will find important information regarding the use of your MA 2.2 and we suggest that you do read it before using the unit.**

**If after unpacking the MA 2.2 you find any damage you should contact your dealer or supplier immediately for advice on what to do.**

**We also suggest you retain the original packaging at least during the warranty period in case you need to return the unit for service, however we are confident this will not be necessary!!**

- **Warm Up.**

**The Buzz Audio MA 2.2 utilises discrete Class A amplifiers which take about 30 mins to warm up. We suggest you keep the MA 2.2 switched on whilst in regular use to ensure continuous sonic performance.**

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# 1] The Mains Input.

**As a safety precaution your MA 2.2 is shipped without a mains fuse fitted. Before use, you must select the correct mains voltage for your local supply on the rear panel and fit the correct mains fuse type into the fuse draw for that voltage.**

- **Setting the Voltage Selector...**

You will need a flat blade screwdriver.

If your mains voltage is 110V to 120V set the rear panel voltage selector to 120V.

If your mains voltage is 220V to 240V set the rear panel voltage selector to 240V.

## **POWERING UP THE MA 2.2 WITH THE WRONG VOLTAGE SETTING MAY CAUSE SEVERE INTERNAL DAMAGE !!**

- **Selecting the Correct Fuse...**

In the supplied accessories bag you will find;

2x 1 Amp slow blow fuses, FIT for 220V to 240V.

2x 2 Amp slow blow fuses, FIT for 110V to 120V.

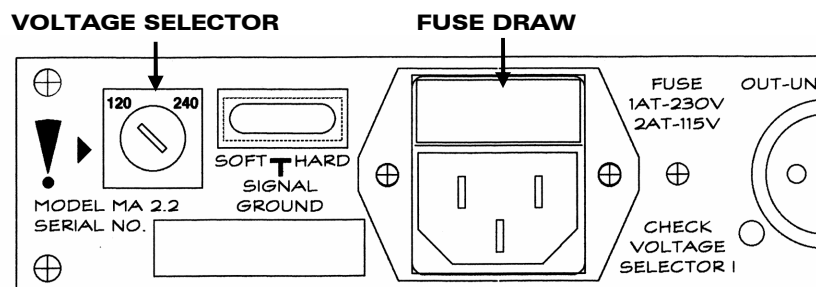
Slide out the fuse draw above the IEC power inlet and insert the appropriate fuse into the carrier clip. Note there is also a position in the carrier for a spare fuse (the square tube bit) and we suggest you store the second supplied appropriate fuse here.

- **Please Note...**

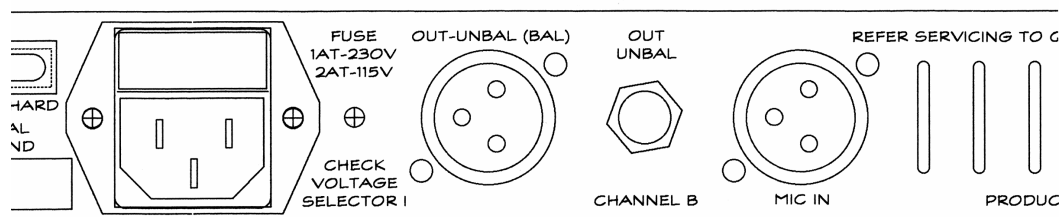
Fitting the wrong fuse may result in the fuse blowing on power up or inadequate protection.

Fitting fast blow type fuses may also result in the fuse blowing on power up.

Your dealer may have already set all this up for you but it pays to check it before powering up the MA 2.2.



## 2] Connections.



- **Mic Input.**

The MA 2.2 is designed as a balanced input microphone amplifier. The connection of unbalanced sources is not recommended. The XLR female style input connector is wired as follows;

- Pin 1 = Signal Ground (common)
- Pin 2 = Signal Hot (+)
- Pin 3 = Signal Cold (-)

- **Output.**

The MA 2.2 has two output connectors. In standard configuration the output is unbalanced to avoid the extra amplifier stage required and maintain the shortest possible internal signal path.

The XLR male style output connector is wired as follows;

- Pin 1 = Chassis Ground
- Pin 2 = Signal Hot (+)
- Pin 3 = Signal Ground (common)

If the optional output transformer is fitted (see the section on Options) the XLR is wired as follows;

- Pin 1 = Chassis Ground
- Pin 2 = Signal Hot (+)
- Pin 3 = Signal Cold (-)

In both cases, the 3 pole 1/4" jack socket always carries the unbalanced output, as follows;

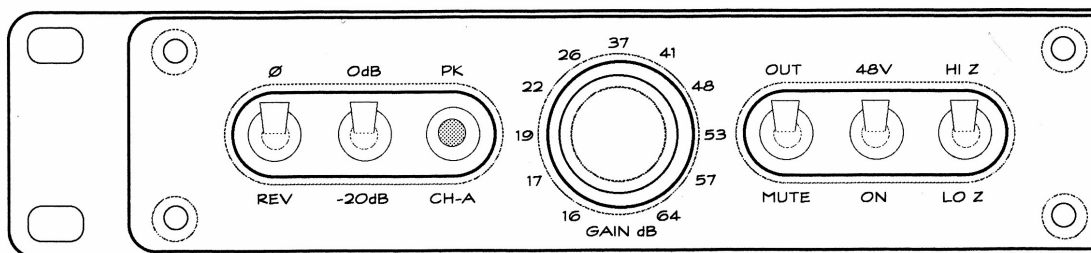
- Tip = Signal Hot (+)
- Ring = Signal Ground (common)
- Sleeve = Chassis Ground

- **Please Note...**

The Chassis Ground connection is intended for connecting cable SHIELDS. When connecting the MA 2.2 output to other devices, it is not always necessary to connect the shield at both ends of the cable. This may help prevent earth loops occurring. The mic input Signal Ground however is always connected at both ends to ensure correct shielding of the cable and mic body.

The Signal Ground source can be selected HARD or SOFT, see the Controls and Indicators section.

### 3] Controls and Indicators.



- **Ø ... REV**

Input phase reverse switch. In the up position the input is in phase with the output. In the down position the input phase is reversed. It is normal to hear a "click" when operating this switch.

- **0dB ... -20dB**

Input attenuator. In the up position the gain of the MA 2.2 is as marked around the GAIN knob. In the down position, a pad is inserted at the input, reducing overall gain by 20dB. Use for high level inputs such as drums when you can't turn down the GAIN far enough. It is normal to hear a "click" when operating this switch.

- **PK**

This led will light when the output of the MA 2.2 reaches +18dBu indicating a possible overload condition. The MA 2.2 is capable of +24dBu output level. The threshold of this indicator can be internally adjusted, see the section on Internal Adjustments.

- **GAIN dB**

Adjusts the gain/volume of the MA 2.2. What more can we say?

- **OUT ... MUTE**

This control mutes the MA 2.2 output when in the down position. Very useful in avoiding loud "bangs" when you have to switch on the phantom power or change the microphone input. Also read Tips.

- **48V ... ON**

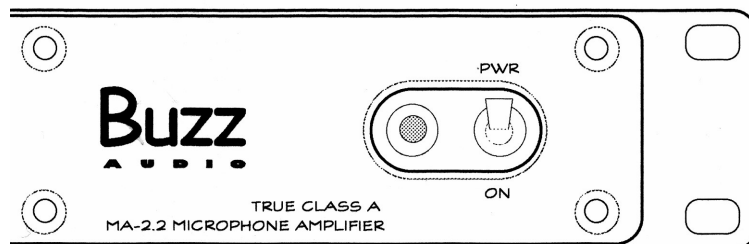
Phantom power required for condenser microphones and active DI boxes. In the down position, 48V is applied to pin 2 and 3 of the input XLR connector via 6k8 ohm resistors.

**CAUTION!!** Always MUTE the MA 2.2 when switching the 48V on or off to avoid loud "bangs" and damage to your loudspeakers and ears!!

- **HI Z ... LO Z**

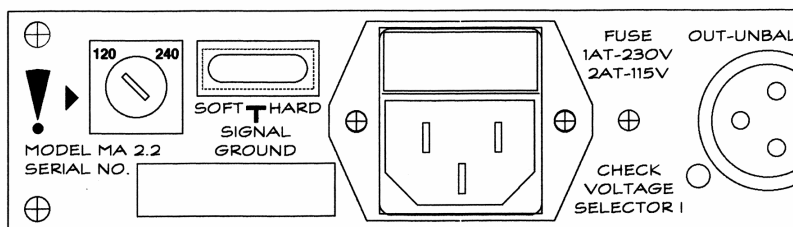
This control changes the input impedance of the MA 2.2. The input impedance is what the microphone "sees" as a load. In the up position, the MA 2.2 input impedance is 3k ohms. In the down position the input impedance is 1k2 ohms. Which position to use?? This is purely a subjective thing. Some microphones such as dynamic and older tube types may sound better in the LO Z position. It is normal to hear a "click" when operating this switch.

## Controls and Indicators continued...



- **PWR ... ON**

We recommend that your MA 2.2 remains powered whilst in regular use to maintain its excellent sonic performance. If you need to turn it off, this switch will do it. Down is ON by the way and the cool blue LED should light up. The audio outputs are automatically MUTED during power up and power down.



- **SIGNAL GROUND.**

This rocker switch on the rear panel selects HARD or SOFT internal signal grounding. In the HARD position, the MA 2.2 Signal Ground (common) is connected directly to the mains earth and MA 2.2 chassis. In the SOFT position, the Signal Ground is lifted from the mains earth via a 10 ohm resistor.

Normally the Signal Ground switch should be set to HARD. If you experience problems with "hum" when connecting the MA 2.2 to other devices, try the SOFT position.

- **Please Note...**

The mains earth to MA 2.2 chassis connection is unaffected by this switch. Also, the Chassis Ground connection on the output connectors is unaffected by this switch. Also see the Connections section of this manual.

**FOR SAFETY REASONS THE MA 2.2 SHOULD ALWAYS BE EARTHED.  
RESIST THE TEMPTATION TO REMOVE THE EARTH TO GET RID OF HUM.  
FIX IT ELSEWHERE IN THE SYSTEM.**

## 4] Options.

- **Output Transformer.**

Mounting holes on MA 2.2 bottom panel behind the main channel circuit board are provided for fitting a Sowter type 8403-A line output transformer. Sowter transformers are made in England and can be purchased on line at <http://homepages.tcp.co.uk/~sowter/>

Buzz Audio can also supply the transformers pre-fitted to the MA 2.2 or as a kit for retro fitting. Soldering is required to fit the output transformer. For further information contact your dealer or Buzz Audio.

- **Special Versions of the MA 2.2.**

Some of the special options Buzz Audio can supply include;

- High gain versions.
- Different input impedances, eg 600 ohm.
- Electronically balanced output module using hi-quality operational amplifiers instead of the transformer.

Contact your dealer or Buzz Audio for more information and pricing.

## 5] Tips.

- Ensure the MA 2.2 has adequate ventilation. The Class A circuitry does generate a fair amount of heat and the box will get warm. Avoid racking next to high heat generating devices.
- Avoid racking the MA 2.2 next to possible induced noise sources such as power amplifiers or anything with a big power transformer and equipment that uses large switching power supplies like computers or VDU's.
- Remember the standard output is unbalanced, if you seem to be getting no signal it may be that the MA 2.2 output is being shorted by a reversed phase (pin 3 HOT) unbalanced input.
- Avoid connecting/disconnecting microphones with the GAIN on a high setting and/or with the 48V phantom switched on. Switch the PAD to -20dB and MUTE the output. This will avoid huge transients entering the amplifier front end.
- Clean the MA 2.2 with a damp cloth and a little detergent. Do not use solvents or isopropyl alcohol, it may damage the finish.

## 6] Service.

Should you experience any technical problem with your MA 2.2, contact your dealer or Buzz Audio for recommendations on what to do. The modular nature of the MA 2.2 construction means most electronic faults can be easily repaired by swapping circuit boards.

For on line support visit our web site; <http://www.buzzaudio.com>

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## 7] Specifications.

<b>Min Gain;</b>	<b>+16dB (-4dB with pad in)</b>
<b>Max Gain;</b>	<b>+65dB</b>
<b>Max out level;</b>	<b>+24dBu (0dBu ref = 0.775mV)</b>
<b>THD;</b>	<b>100Hz 0.005%. 1kHz 0.005%. 10kHz 0.008%.</b>
<b>CMNR;</b>	<b>100Hz 80dB. 1kHz 80dB. 10kHz 70dB.</b>
<b>EIN;</b>	<b>-133.5dB (A wtg, 150 ohm source Z).</b>
<b>SNR;</b>	<b>-74dB (A wtg, input shorted)</b>
<b>BW;</b>	<b>2Hz to 250kHz @ 20dB gain. 20Hz to 250kHz @ 64dB gain. 20Hz to 40Khz with Output Transformer.</b>
<b>Input Impedance;</b>	<b>3k ohms/1k2 ohm switchable.</b>
<b>Power Requirements;</b>	<b>230/115 Volts selectable.</b>
<b>Package;</b>	<b>1U rack mount. 481W x 44.5H x 300D (mm).</b>
<b>Weight;</b>	<b>6kg</b>

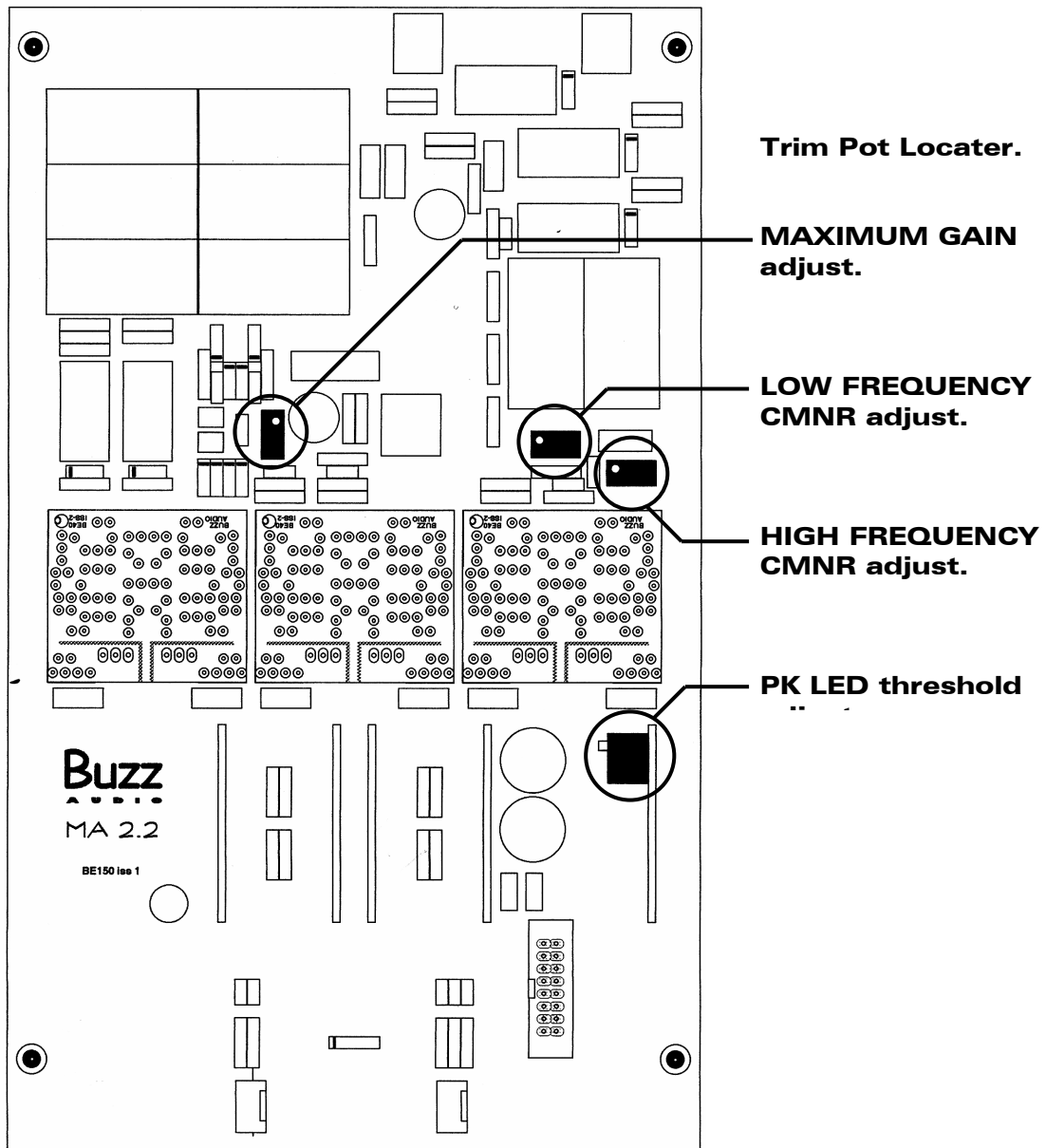
**SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.**



## 8] Internal Adjustments.

- The following information is provided should your MA 2.2 require re-calibration. All adjustments are performed in the factory and should not need re-adjustment unless the amplifier modules and/or other components have been replaced. You may wish to alter the PK LED threshold to a lower or higher setting.

**PLEASE NOTE - If in doubt, do not attempt any internal adjustments, seek technical help.**



**MA 2.2 Channel Card Top View**

# Internal Adjustments continued

- **Initial Setup.**

See the previous page for the location of the trimmer pots. Set all front panel switches (except for the PWR obviously) to the UP position. Set the GAIN knob fully anticlockwise. The MA 2.2 should be powered up for 1 hour before making adjustments. All measurements are referenced to 0dBu = 0.775V RMS, (sometimes called 0dBm).

- **Maximum Gain Adjustment.**

Connect an audio voltmeter to the channel output to be adjusted. Apply a -50dBu 1kHz balanced sine wave signal to the channel input. Turn the GAIN knob fully clockwise and adjust the MAXIMUM GAIN trimmer to obtain +15dBu at the output. This sets the maximum gain of the MA 2.2 to 65dB.

- **PK LED Threshold Adjustment.**

Connect an audio voltmeter to the channel output to be adjusted. Apply a -20dBu 1kHz balanced sine wave signal to the channel input. Adjust the GAIN knob to obtain +18dBu (or your desired threshold level) on the audio voltmeter. Adjust the PK LED trimmer so that the front panel PK LED just lights.

- **Low Frequency and High Frequency CMNR.**

CMNR is the Common Mode Noise Rejection, the ability of the amplifier to reject noise common to both "legs" of the balanced input.

Connect an audio voltmeter to the channel output to be adjusted. Apply a +10dBu approx 1kHz square wave signal to both PIN 2 and PIN 3 of the channel input connector. Set the GAIN knob to the 51dB marked position. Adjust the LOW FREQ CMNR trimmer for a minimum reading (dip) on the audio voltmeter.

Change the input frequency to 10kHz adjust the HIGH FREQ CMNR trimmer for minimum reading on the voltmeter. Return to the 1kHz input frequency and check the LOW FREQ adjustment, re adjust as necessary. Finally, check the HIGH FREQ adjustment null whilst still applying a 1kHz square wave input.

- **Problems ?**

Contact your dealer or Buzz Audio.

## 9] Warranty Information.

- **Disclaimer**

**Buzz Audio is not liable for any damage to microphones, amplifiers, consoles, speakers or any other equipment and/or electric shock to humans that is caused by negligence or improper installation and/or use of the MA2.2 True Class A Microphone Amplifier.**

- **Standard Product Warranty**

**Buzz Audio guarantees the MA2.2 True Class A Microphone Amplifier to be free of defective materials and/or workmanship for a period of 1 year (12 months) from the date of sale, and will replace defective parts and repair malfunctioning products under this warranty when the defect occurs under normal installation and use – provided the unit is returned to our factory (or duly authorised service centre) via prepaid transportation with a copy of the proof of purchase, ie, sales receipt. This warranty provides that examination of the returned product must indicate, in our judgement, a manufacturing defect. This warranty does not extend to any product that has been subjected to misuse, neglect, accident, improper installation, or where the date code has been removed or defaced. The standard warranty is NOT transferable.**

- **Product Warranty Extension**

**The above Warranty may be extended to a period of 2 years (24 months) from date of sale provided the enclosed Warranty Registration card is completed and returned to the office of Buzz Audio within 4 weeks (28 days) from purchase date. Alternatively, you may Register your purchase on-line at our web-site [www.buzzaudio.com](http://www.buzzaudio.com). The Extended Warranty is transferable.**

**Your Dealer is...**

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