

TM

# FOCAL POINT AUDIO TECHNOLOGY

**WHERE ART MEETS SCIENCE**



MPA-2 Dual Channel Class A Microphone Preamplifier

Operating Manual

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## Description

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The MPA-2 is a two channel Pure Class A Microphone Preamplifier. The topology of the MPA-2 is fully discrete circuitry. There are no IC's or capacitors in the audio path. The MPA-2 is a true DC coupled output and a transformer coupled input.

The front panel consists of channel A and channel B controls. Both channels have the following.

Rotary encoder for gain setting.

Dual 7 segment LED for indication of channel gain setting.

10 LED's for output metering.

1 LED for indication of peak level. (Set to +24dBu).

Mute pushbutton.

+48V pushbutton.

Lo z Input option. Use with low impedance microphones. (Adds an additional small resistance for low impedance microphones to optimize the transformer input impedance).

20dB Input pad.

Polarity. (Inverts input polarity).

Located on the right side of the unit is the AC mains switch and LED indication for power supply status.

The front panel controls for both channels are handled by microcontrollers that setup the gain , LED's , Encoder operation , Internal switching.

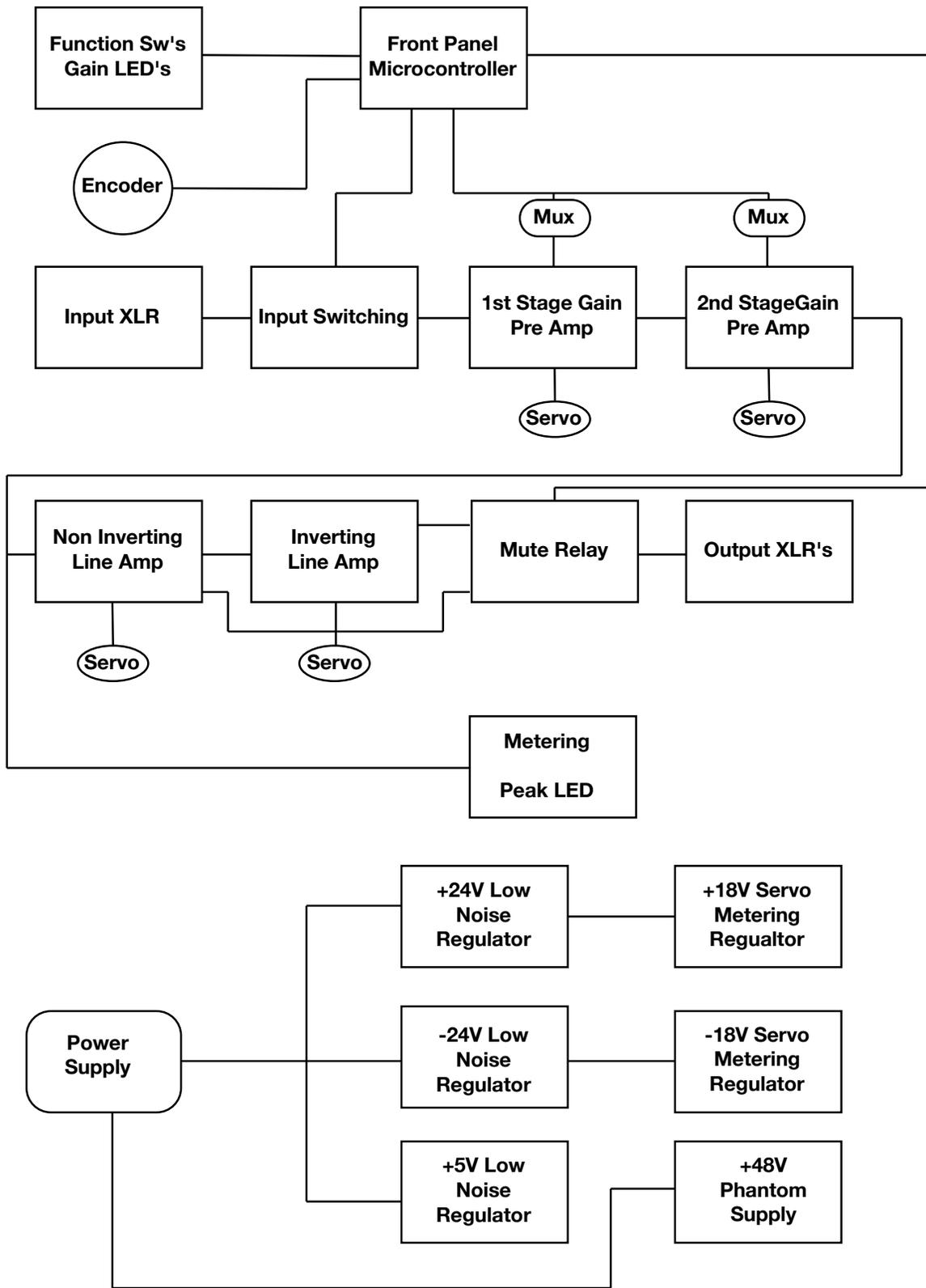
The rear panel consists of the AC mains input with fuse and voltage select. There are identical connectors and indicators for both channel A and channel B. These consist of the following;

Microphone XLR input.

Dual XLR output. (Both outputs are paralleled).

Indication of Phantom Power enabled on input.

Last setting memory, will return to prior setup if the unit loses power.



**MPA-2 Internal Flow Diagram**

## Safety Information

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Please observe the rear panel fuse rating and replace with the same type and rating fuse.

Set the correct operating voltage prior to applying power the MPA-2.

If replacement fuse blows return the MPA-2 for service. Do not install larger fuse. This will cause damage to the unit as well as possible harm to the user.

Do not expose the MPA-2 to moisture, this could cause damage to the unit and cause harm to the user.

Do not allow fluids to leak into the top lid vent slots. Damage to the unit will occur.

There are no user replaceable parts inside.

Do not attempt to service the MPA-2. There are dangerous voltages inside the unit.

Do not cut the U ground (3<sup>rd</sup> pin) on the AC cord. This could cause harm to the user.

Avoid blocking the top and side vents of the MPA-2. This could cause the unit to heat up and cause possible failure.

If rack mounting the unit use all 4 front panel rack mount holes. The MPA-2 is heavy and may sag in the rear if all 4 screws are not used. Use fiber washers under the screws to prevent front panel damage and scratching to the front panel anodize plating.

## Installation

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Verify operating voltage before applying AC mains. Replace fuse as needed for correct voltage setting.

Install in a location that will give the MPA-2 proper ventilation on the top and sides.

Try to avoid mounting the MPA-2 near any other equipment that may emit large magnetic fields like power amplifiers. The unit may pick up stray fields and pick up hum.

Plug in input XLR connectors and make sure they are all the way in.

Plug in output XLR connectors and make sure they are all the way in.

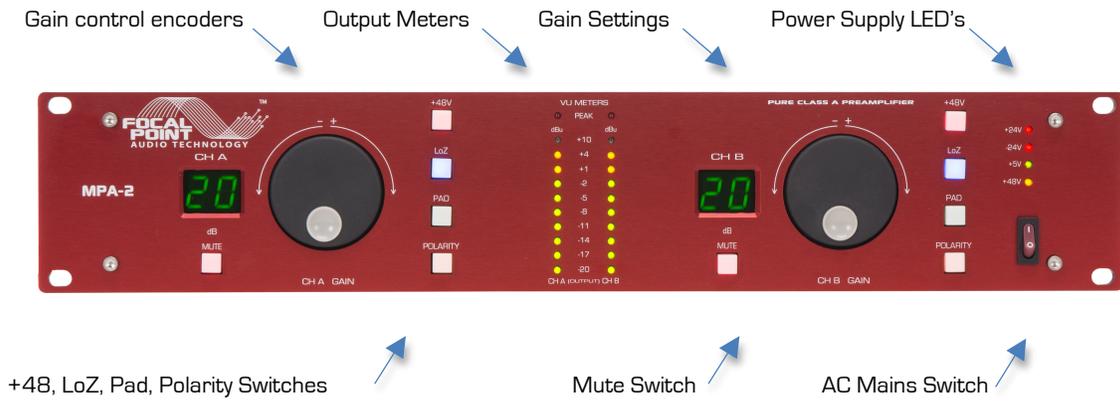
The two output connectors are paralleled and can drive two pieces of equipment. Careful not to load down the MPA-2 with too low of an output impedance.

Dual outputs can be used for sending one output to monitor rack and the other to Pro Tools rig if needed. Dual outputs have application for live sound support as well. If only one output is needed leave the other XLR unused.

Pay close attention to the rear panel "Phantom Power Enabled" LED. Make sure what you are plugging in to the XLR input requires phantom power. This voltage can cause catastrophic damage to some ribbon type microphones. This LED is illuminated only when the +48V function has been enabled from the front panel.

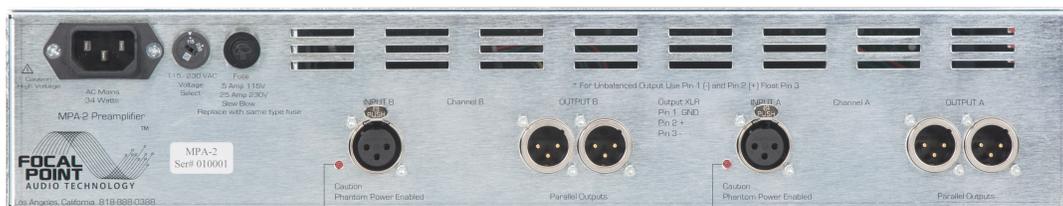
# Front Panel Controls

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## Rear Panel Connections

AC, Select, Fuse



XLR Input

Phantom Enable LED

XLR Outputs

## General Unit Operation

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The operation of the MPA-2 Microphone Preamplifier is fairly straightforward. Both channel A and Channel B are identical in operation.

All controls and adjustments are done on the front panel. Gain control is accomplished by means of a front panel rotary encoder that adjusts the gain from 20dB to 70dB in 2dB steps. The gain setting is displayed on the dual 7 segment front panel LED.

All front panel controls are handled via a microcontroller that handles all functions on the main audio board as well as the display and switch functions on the front panel.

Once you power up the MPA-2 the unit will stay in mute for 10 seconds to allow the unit to stabilize. The unit will also mute for one second when you switch in any of the options such as +48V, Pad, LoZ, Polarity. This is to avoid any loud popping on the output. The same is true when you switch out any of the options, the unit will again mute for one second.

All the front panel power supply LED's should be illuminated. If one if the LED's are out contact the factory as the unit may require service.

All pushbutton functions will illuminate the pushbutton to an on state. Once the function is no longer enabled the pushbutton LED will extinguish. All LED's have a small standby current applied so they will appear very dim but never totally go out. The Mute pushbutton will flash while the unit is booting up at startup.

It will take at least 20 minutes for the MPA-2 to fully come up to operating temperature. At that time all output offset voltages as well as the internal servos will have had enough time to settle.

The front panel LED meters read the MPA-2 output as it relates to balanced operation. The peak LED is factory set to come on at +24dBu (Balanced out). There is a 2 second hold on this LED. VU meters have a damped response for average level.

The MPA-2 uses a 2 dB step for gain change. \*Because this is a step gain control there will always be a small step click when changing gain.

The front panel optical encoder controls will rotate without hitting a stop. Once you reach the full 70dB gain spinning the encoder will not increment the display any longer. The same holds true for the minimum gain setting.

There are no internal user adjustments or settings.

For unbalanced operation follow the instructions on the rear panel. DO NOT GROUND PIN 3. FLOAT THIS PIN FOR UNBALANCED OPERATION. USE PIN 2 AS THE OUTPUT.

Recall last front panel settings. If the unit loses power the MPA-2 will power back up and retain the last known setup on the front panel. This includes gain setting and all front panel switch settings.

## Specifications

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Circuit topology: Fully discrete Class A. No overall global feedback. Transformer coupled input, DC coupled output.

Input switching / Output muting : NEC sealed relays.

Inputs: 2 XLR.

Outputs: 2, 4 XLR's. 2 paralleled connectors on each channel.

Front Panel Controls: Gain, Mute, +48V, LoZ, PAD, Polarity, AC Mains.

Metering: 10 LED's ,1 Peak LED , Per Channel. Peak set to +24dBu output

Regulation: Independent bipolar regulation on each channel. Separate supplies for analog , analog servos and logic control circuits.

Front panel control: 8bit microcontroller.

Gain: 20dB to 70dB, in 2dB steps.

THD+N: .002%

IMD THD: 4:1ratio .003%

Inter-channel Phase: Less than 5 degrees 20 -20kHz

Noise: @20dB gain 22-22K, A Wtd -101dBu

Input Impedance: 1.2K nominal.

Output Impedance: Less than 30 ohms.

Frequency Response: 10 Hz – 100kHz. +0 / -3dB

Gain Control Accuracy: +/- .5dB. Multiplexer controlled.

Maximum Input: +10dBu @ 20 dBu gain setting.

Maximum Output: +32dBu.

Gain Accuracy Between Channels: +/- .5dB.

Power Requirements: 115VAC / 230VAC 34 watts.

Fuse Requirements: 120VAC .5A time delay, 220VAC .25A Time delay

Dimensions: 19" x 12.5" x 3.5".

Weight: 18 LBS, 22 LBS Shipping wt.

## Warranty

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Focal Point Audio Technology warrants the MPA-2 Microphone Preamplifier for a period of 1 year from date of purchase against defects in materials and workmanship.

This warranty is non-transferable.

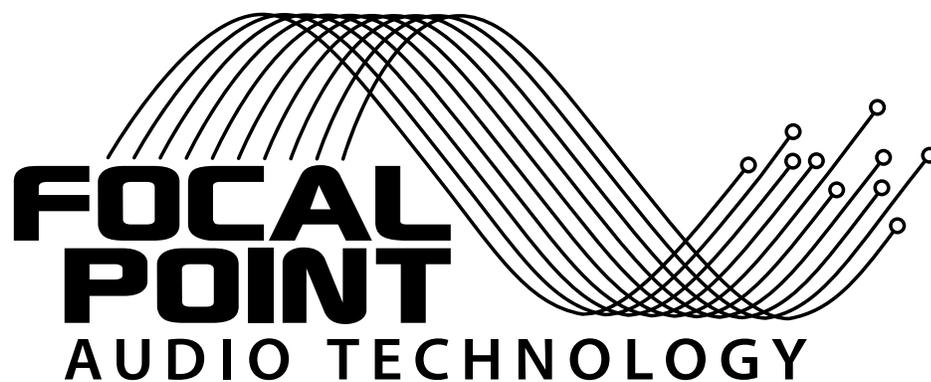
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