

# M-PRO

## **MC Series** Power Amplifiers Owner's Manual



## Important Safety Precautions & Explanation of Symbols



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “dangerous” voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to humans.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in this manual.



The lightning flashes printed next to the output terminals of the amplifier are intended to alert the user to the risk of hazardous energy. Output connectors that could pose a risk are marked with the lightning flash. Do not touch output terminals while amplifier power is on. Make all connections with amplifier turned off.



**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.**



**WARNING: To prevent fire or electric shock, do not expose this equipment to rain or moisture.**

This amplifier has a serial number located on the rear panel. Please write this and the model number down and keep them for your records. Keep your purchase receipt. It is your proof of purchase.

Serial Number: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Purchased From: \_\_\_\_\_

# **INTRODUCTION**

Complementary class AB/H bipolar outputs, with unique floating drive stage for optimum audio performance.

No dynamic switching of audio outputs or supply voltages.

Sophisticated monitoring of load, temperature and operating parameters. If overheating occurs, the power supply is reduced to a safe level - protecting the unit without shut-down.

Low noise vari-speed fans for quiet operation.

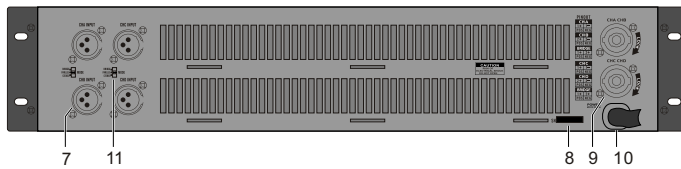
Accurate Peak Level Meters indicating headroom, which automatically adjust to power supply and load. These double as level control position indicators when adjustments to level are made.

Full DC and short circuit (serious fault) protection which automatically reconnects when the fault is cleared. Front panel LEDs indicate fault condition.

Modular construction with proprietary heat sinks for ease of serviceability.

Soft start "power on" sequence with full inrush protection.

# **CONTROLS, CONNECTORS & FEATURES**



- 1- Unit Power Switch
- 2-Clip Display
- 3-Signa Displayl
- 4- Gain Controll
- 5-Power Display
- 6-Protection Display

- 7-XLR input connectors
- 8-Serial number label
- 9-speakon output connectors
- 10-Power cord connector
- 11-Configuration selector switch
- 12-Limiter selector switch
- 13-sensitivity
- 14-XLR link connectors

## **SELECTING STEREO, PARALLEL, OR BRIDGE MODE**

The amplifier can be set for normal Stereo operation, Parallel input Mode, or BridgeMono Mode.

**Stereo Mode** - Each channel remains independent. The amplifier may be used for two different signals.

**Parallel Mode** - This setting connects both inputs together. One signal feeds both channels. Each channel's Gain control and loudspeaker connection remain independent.

**Bridge Mode** - This setting combines both channels into a single channel with twice the output power. Use only the first channel's input and Gain control.



**Do not connect different inputs to each side of a channel pair when operating in Parallel or Bridge Mode.**



## **SETTING CLIP LIMITERS**

Each channel has a Clip Limiter with its own on-off switch. The limiter only responds to actual clipping, and automatically compensates for load and voltage variations. Clip limiting is generally recommended, especially to protect high frequency drive

## **XLR INPUTS**

Each channel has a balanced 3-terminal XLR input. Inputs are connected with standard cables and can be changed quickly. Pinouts are marked on the rear panel and shown in the illustration.

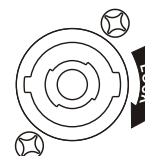
The input impedance is 20k ohm balanced or 10k ohm unbalanced.

Balanced connections are recommended to reduce AC hum and interference, especially with long cable runs. Unbalanced connections may be suitable for short cables. The signal's source impedance should be less than 600 ohms.



## **SIGNAL LINK**

Twin male XLR Connectors for daisy chaining input signal to other amplifiers (parallel connected to female input connectors).



## **OUTPUTS**

Wiring connections are shown on the back of the chassis.

### **BINDING POST OUTPUTS**

Stereo and Parallel Mode: Wire as shown by loudspeaker symbols 1 and 2.  
Bridge Mode: Wire as shown by Bridge Mono loudspeaker symbol.

### **SPEAKON OUTPUTS**

Each channel accepts a normal 2-wire cable. In addition, Channel 1 accepts 4-wire cables for single cable stereo or (bi-amp) connection.



### **OUTPUT TERMINAL SAFETY WARNING!**

**Do not touch output terminals while amplifier power is on.  
Make all connections with amplifier Turned off. Risk of hazardous energy!**

**Stereo and Parallel Mode-** Connect each loudspeaker to its own channel of the amplifier, as shown on the left side of the chassis label. The Mode configuration switches must be set for Stereo or Parallel Mode.

**Bridge Mode-** Bridge Mode configures the channel pair to drive a single audio circuit. The Mode configuration switches must be set for Bridge Mode. Connect the load as shown on the right side of the binding posts or to the left on Channel 1's Speakon. 4 ohms is the minimum impedance for Bridge Mode use.



**Do not use less than 4 ohm load in Bridge Mode!  
Note polarity of connection for Bridge Mode.**



**OUTPUT WIRING WARNING:  
CLASS 2 WIRING SHALL BE USED. FOR BRIDGED MONO MODE,  
CLASS 3 WIRING SHALL BE USED.**

# GAIN CONTROLS

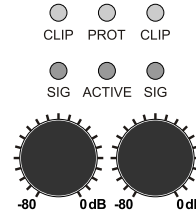
Turn the Gain controls clockwise to increase Gain and counterclockwise to decrease Gain.

# LED INDICATORS

## Displays

The LED displays for each channel operate as follows:

ACTIVE	Green	Main power supply active on this channel.
CLIP	Red	Shows activity of Limiting circuit, which responds to both clipping and to thermal overload. Protect Red Flashes as amplifier approaches maximum temperature. Illuminated steadily plus flashing during thermal



### Typical Power Up, Operation, Power Down Behavior

When the amplifier is first turned on, the green POWER displays will light up, and there will be a 2 second turn-on delay, during which all red LEDs will be bright (PROTECT and CLIP). If a channel will not come out of muting, it may be responding to an excessive high frequency level at the input. Turning down the Gain controls (before you power up the amp is best) allows the muting to release, and is always a good idea to prevent an unexpected input signal from overdriving the load. Signal Level will be shown as the green Signal Present, -20dB and the yellow -10dB display illuminate with increasing signal level.

When the amplifier is turned off, muting should be virtually instantaneous, with all red LEDs illuminated until the power supply discharges.

CLIP is illuminated at full brightness when the output is muted (PROTECT LED is on, too).

ON/OFF MUTING



NO SIGNAL



If CLIP is illuminated at less than full LEVEL display, the load is shorted or abnormal. PROTECT may flash, too.

SHORTED LOAD



SIGNAL PRESENT (-25 dB)



CLIP flashing at full LEVEL display indicates the amp has reached full power (clipping) and the limiter is acting to prevent severe overdrive.

CLIPPING



SIGNAL PRESENT (-10 dB)



A steady CLIP glow after the flashing PROTECT display has started indicates the onset of thermal limiting.

OVERHEATING



SIGNAL PRESENT (-5 dB)



PROTECT flashes as the amplifier approaches max temperature. Full brightness plus flashing indicates thermal muting.

THERMAL MUTING



CLIPPING



### Key to LED representations:

- Not Illuminated
- Full Brightness
- Variable or Occasional Flashing
- ⊗ Flashing
- ⊗ Full Bright & Flashing

LED Displays During Abnormal Operating Conditions

LED Displays During Normal Operation

# SPECIFICATIONS

	<b>MC404</b>	<b>MC604</b>	<b>MC704</b>
8 ohms Stereo Power	4X400W	4X600W	4X700W
4 ohms Stereo Power	4X600W	4X900W	4X1000W
8 ohms Bridge Power	2X1200W	2X1800W	2X2000W
THD @ Rated Power 4 ohms			
1 KHz	<0.01%		
20Hz - 20KHz	<0.03%		
Hum&Noise	-103dB		
Damping Factor 1 kHz, 8 ohms	>200 @ 8 $\Omega$		
Input Sensitivity	1.2V		
Input CMRR	>80dB		
Frequency Response	20Hz—20KHz,+0/-0.5dB		
Input Impedance(actively balanced)	20K $\Omega$		
Power Requirement(220VAC)	20amps	25amps	30amps
Dimensions - 2U	88X483X490		
Net Weight	12kg	13kg	13.5kg