

M80

Eight Channel Microphone Preamplifier



Users Manual

M80

E I G H T C H A N N E L M I C R O P H O N E P R E -
A M P L I F I E R

USERS MANUAL

Version 1.0

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1 OVERVIEW

1.1 INTRODUCTION

Thank you for purchasing the PreSonus M80 Eight Channel Microphone / Instrument Preamplifier with Mix Bus. This pre-amp was designed using state of the art components to deliver crystal clear audio for an infinite period of time. We believe the M80 to be an exceptional sounding unit and an exceptional value. Feel free to contact us at 1-800-750-0323 anytime for any reason whatsoever. We value your suggestions and your comments. PreSonus Audio Electronics is committed to constant product improvement and feel the best way to accomplish this task is by listening to the *experts* on our gear, our valued customers. We appreciate the support you have shown us through the purchase of our products.

Please pay close attention to how you connect your M80 to your system. Improper grounding is the most common cause of noise problems found in studio or live sound systems. We urge you to scan this manual before hooking up your M80 to become familiar with its features and various applications.

Good luck and enjoy your M80!

1.2 FEATURES

The following is a summary of your M80 s features:

- Each channel of your M80 contains a Class A discrete input buffer followed by a twin servo gain stage. This provides ultra low noise and wide gain control. This allows the M80 user to boost desirable signal without increasing unwanted background noise (**NO capacitors!**)
- Each channel of the M80 has 48V Phantom power available. When the Phantom power switch is engaged, power is supplied at a constant rate whether one or all eight channels are utilized. This assures optimum performance of your condenser microphone(s) and that it will be free of distortion associated with insufficient power.
- A phase reverse switch is provided on each channel. This switch enables the user to invert the phase of a microphone when phase cancellation is noted. The

phase reverse switch allows the operator to avoid phase cancellation when identical microphones are used in close proximity to one another. The phase reverse switch also can compensate for different XLR connector hook-ups where pin connections have been inverted.

- A 20 dB pad is available on each channel for reducing the in-coming signal level. This pad provides a more manageable signal from high output devices giving the operator greater control over the in-coming signal and a much reduced chance of over-driving the input and thereby avoiding distortion.
- The M80 has +28 dBu of headroom on each channel. This feature gives you a very wide dynamic range and excellent transient response characteristics.
- A Rumble filter is located on each channel to eliminate low frequency noise. This lets you greatly reduce background noise such as air conditioners or wind noise with the flick of a switch without effecting the desired frequencies.
- Each channel of the M80 has a Mic/Instrument connector using the Neutrik ® Combo connector. This revolutionary new style connector lets you use either 1/4" phone or XLR connectors in the same female input.
- The M80 offers a high quality transformer on each channel. These feature an IDSS control (this control adjusts the drain current on the input FET amplifier altering the even harmonic levels of the signal being passed) with an adjustment range of 0% to 100%. The 0% position passes a pure signal. As the control is rotated to the 100% position, the signal's even harmonic series is boosted giving the signal warmth very much like a vacuum tube or analog tape saturation. This remarkable effect gives you the sound of a tube without the headache of uneven performance often encountered with vacuum tube devices (no tube to pick-up RF or to age and become microphonic)
- The M80 has a stereo mix bus for combining the input signals assigned to the bus using the L/R function switch on the front panel of the M80. A pan knob allows the placement of the selected signal anywhere in the stereo array of the stereo mix bus out-going signal (i.e.- left; left-center; center; right-center or right).
- Inserting stereo headphones into the jack on the front panel of the M80 enables the user to monitor the signals assigned to the Mix bus. Ample power has been provided to allow the operator to hear the processed signals in loud ambient noise

CONTROLS & CONNECTIONS

environments such as concert halls or clubs or in control rooms monitoring at high volume levels.

4 TECHNICAL

2.1 FRONT PANEL BASIC LAYOUT



Notice that the front panel is divided into eight identical Preamplifier sections plus a Master section.

These are the eight microphone preamplifier channels of the M80.

Preamp channels contain:

- Pan Control

CONTROLS & CONNECTIONS

- L/R Assign
- IDSS Control
- Phantom Power Switch
- Phase Reverse Switch
- -20db Pad
- 80 Hz Filter
- Gain Control

Master Channel contains:

- Stereo Output Control
- Headphone Level Control

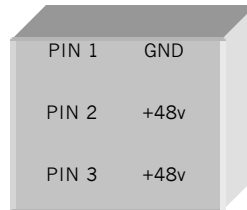
2 . 2 P R E A M P L I F I E R S E C T I O N

L/R Assign button assigns the signal coming through the channel to the stereo Left/Right Mix Bus output.

Pan control provides constant power panning to the stereo summing bus.

IDSS Control selects the amount of boost or cut applied to the even harmonic series of the signal being inputted. The effect of manipulating the harmonic distortion is of increasing or decreasing the apparent warmth of the signal. This capability is due to a new transformer that PreSonus is proud to debut in the M80. Experiment with IDSS and see what type of sounds you can get from your present microphone selection.

Phantom Power is available to each channel input of the **M80**. The **48 volts** is supplied by way of the XLR connector for condenser mics and any other devices requiring continuous power through the XLR input. This power is supplied at a constant level allowing use of all eight inputs for condenser mics without any degradation of audio quality.



XLR connector wiring for Phantom Power

Phase Reverse Switch allows the user to invert the polarity of the XLR connector by switching pins two and three. The inversion of the pins of the XLR connector may be necessary to alter the audio phase of two like microphones to compensate for phase cancellation. It may be required that the wiring of a cable's XLR connector be switched to successfully utilize Phantom power.

-20 dB Pad provides -20 decibels of attenuation with the push of a button. This is a very useful feature for rapidly reducing the level coming into the M80 and thus preventing the input signal from over-modulating (distorting) the input. This may occur due to high output level from a microphone or line device. Padding the input serves to provide increased headroom for the operator.

80 Hz Filter. The M80 has an eighty-hertz filter that is activated by engaging the switch on the front panel. This filter (often referred to as a *RUMBLE* filter) is useful for eliminating extraneous low-end information from the signal being amplified. Frequencies from eighty hertz and below are cut from the incoming signal. This feature is useful in eliminating low frequency noise such as air-conditioning rumble or reducing the sound of footsteps transmitted through the microphone stand into the microphone.

Gain control provides 60dB of gain. The amplifier has inherent gain of 12dB thus delivering a total gain possibility of 72dB.

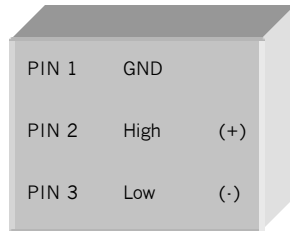
CONTROLS & CONNECTIONS

The Stereo Output control adjusts the output level of the **Stereo Mix Bus**. This potentiometer governs the output level of the Bus. Channels are assigned to the bus via the L/R assign switch on the individual pre-amp channels.

Headphone control is located above the 1/4-inch stereo headphone output on the front panel. This potentiometer regulates the volume of the headphones. The signal monitored by the headphones is the same as the Stereo Mix Bus output.

2 . 4 B A C K P A N E L B A S I C L A Y O U T

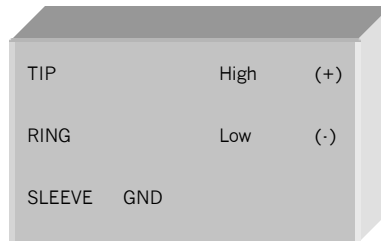
The **Input Jack** of the M80 features a Neutrik™ Combo connector. This connector accepts either a male XLR for microphones or high impedance instruments via the 1/4 inch portion of the connector. When an instrument cable is inserted into the 1/4 inch portion of the connector, the XLR interface to the microphone transformer is disconnected.



Cable Wiring Diagram for Input and Output XLR

The **Output XLR Connector** is servo balanced and operates at +4dBu.

The **Return / Line In** connector of the M80 is provided for use in conjunction with audio process devices such as compressor/limiters and as a Line In for recording media such as tape machines, hard disc recorders, or DAT s. When a device is connected to this jack, the Neutrik™ Combo jack is disconnected.



Cable Wiring Diagram for Balanced Send / Return Jacks

The **Send Jack** on the back panel of the M80 routes the signal being processed by the channel to outboard devices or to recording media.

Left and Right XLR Auxiliary Inputs are available for routing stereo signals into the Stereo Mix Bus. The Aux Inputs can be used to introduce a stereo signal such as the output of a stereo tape machine to the Stereo Mix Bus of the M80. The various input signals of the individual channels of the M80 can then be mixed with the introduced stereo signal by using the PAN controls located on the individual channels.

These **Aux Bus Inputs** can be used to combine the outputs of multiple M80 s. The M80 s can be cascaded by connecting the Stereo Mix Bus Outputs the Aux inputs of the next M80 in line. The combined signal to the XLR Stereo Mix Bus outputs of the last M80 in the signal chain becomes the master output of the cascaded M80 s.

A pair of XLR connectors are provided for the **Left And Right Outputs** of the stereo Mix Bus. Signals are assigned to these outputs using the L/R Assign switches on the individual channels.

2.7 Power Supply

The **Power Jack** on your M80 Power Supply accepts a standard IEC cord like those found on most computers and professional recorders. You can be assured of clean power and rugged construction that will last a long time!

Before powering on your M80 for the first time, be sure to check the position of the power selector. Make certain that the power voltage level selected for operation of the unit matches that of the country where the unit will be used. (USA = 115V)

3 OPERATION

3.1 Dynamic Microphones

Dynamic microphones are characterized by lower output levels. Hence, more gain is needed to amplify a dynamic microphone to operating level. Occasionally it is necessary to add the 20dB pad to the microphone to avoid distortion (e.g. when recording percussion). Do not use phantom power when using dynamic microphones.

3.2 Phantom Powered Microphones

Phantom powered microphones such as condenser and ribbon microphones require external power to pre-amplify the microphone acoustic pickup. These microphones typically have much higher output than dynamic microphones. Hence the 20dB pad is almost always necessary when close miking to avoid clipping the amplifier.

3.3 Instrument Input

The Neutrik™ combo jack accepts ¼ plugs from instruments such as guitars and basses. The instrument input is an ultra high impedance amplifier designed to allow an acoustic or electric instrument pickup resonate at its full frequency and dynamic range. Care should be taken not to overdrive the input with instrument preamplifiers.

3.4 Inserting Compressors, EQ's, etc.

Each channel of the M80 features a send jack and a return jack. This feature allows the use of external processors such as compression and equalization devices. Simply connect the send jack, balanced or unbalanced to the input of the external processor. Then connect the M80's return jack to the output of the external processor. The signal is now routed out of the M80, into the external processor, then back into the M80. The final, processed signal will be available at the M80 channel output XLR connector or the Mix Bus output if assigned to the mix bus.

3.5 Using Return as Line In

The return jacks on each channel can be used to insert external audio devices such as tape machine outputs, DAT machine outputs, etc. This then makes the audio device available to the mix bus for mixing in with microphones or instruments.

3.6 Aux Input Cascading Mixes

The Aux Input on the M80 mixes an external audio source in with any other channel assigned to the bus. This provides an opportunity to connect multiple M80 s together thus creating more inputs for the stereo mix bus. Connect the balanced bus outputs of one M80 to the Aux inputs of the next M80. The M80 that is the last in the chain is the master output device. Previous mixes can be controlled similar to sub-groups via the Master Level knob.

4 TECHNICAL

M80 Technical Specifications:

Number of Channels	Eight
Dynamic Range	>120dB
Noise Floor @ Bus	-90.2dBu
Noise Floor @ Main Output	-96.4dBu
Noise Floor @ Channel Output, +24dB Gain	-88.2dBu
Headroom	+28dBu
Frequency Response +/- 0.5dB	10Hz to 60kHz
Crosstalk	>82dB @ 10kHz
Channel Gain, Microphone Input	+24dB to +60dB
THD + Noise, (no idss)	0.0024%
THD + Noise, (max idss)	0.035%
Input Impedance	10k Ohms
Output Impedance	51 Ohms
THD + Noise	<0.02%
Bus Master Output Control	-72dBu to +10dBu
Metering	Full scale
Send Output Impedance	51 Ohms
Return Input Impedance	10k Ohms
Internal Operation Level	+4dBu = 0dB
Input Connectors	Neutrik combo jack,
Output Connectors	XLR
Send Connector	1/4", Tip Ring Sleeve
Return Connector	1/4", Tip Ring Sleeve
Power Supply	External, Toroidal Transformer, Linear Supply
Power Requirements	100VAC to 120VAC, or 200VAC to 240VAC
Main Connection	EIC receptacle
Size	2U Rack 19" X 3.5" X 7"
Weight	12 lbs.

As a commitment to constant improvement, PreSonus, Inc. reserves the right to change any specification stated herein at any time in the future without notification.

