

## General Description

The Rane MLM 103 Mic/Line mixer features six balanced, studio-grade microphone inputs and two balanced, stereo line-level inputs. The microphone preamplifiers feature direct outputs. These can monitor the signal ‘pre’ or ‘post’ the mix Level control via rear panel switches. Each microphone and *stereo* line input features three-band EQ and mix level controls. Input overload indicators are peak detecting and illuminate 4 dB before clipping. Three balanced outputs are provided. A and B outputs may be used as a stereo pair in a single zone or as two independent mono zones. The AUX output is mono. All connections are via Euroblock connectors.

Inputs 1 through 6 may be individually switched between Mic or Line level via rear panel switches. Inputs operate in Mic mode with a gain range of +12 dB to 60 dB. Each *pair* of Inputs may operate with or without 12 volt phantom power via rear panel switches. When Inputs are operated in Line mode, the gain range is -4 to 12 dB. When Line mode is selected, phantom

power is defeated. Each Input may be assigned to the A, B or AUX Output.

Stereo Line Inputs 7 through 10 accommodate +24 dBu signal levels. The gain range is  $-\infty$  to +12 dB. The A/B Assign switch for Inputs 7/8 assigns 7 to Output A *and* 8 to Output B. The A/B Assign switch for Inputs 9/10 assigns 9 to Output A *and* 10 to Output B. The Mono switch sends the *sum* of Inputs 7 and 8 (or 9 and 10) to bus A *and* bus B. Assigning 7/8 or 9/10 to AUX sends the *sum* of Input 7 and 8 (or 9 and 10) to the AUX Output.

The A, B and AUX Outputs feature independent level controls and 10 segment meters with peak hold. Each balanced Output provides an additional 6 dB of gain and delivers a minimum signal level of +24 dBu into a 10 k $\Omega$  load.

The MLM 103 features a built-in high efficiency, universal voltage power supply. A security cover for the EQ and Assign switches is included with the unit.

## Features

- **Six Studio-grade Mic Preamplifiers**
  - Mic or Line-level Operation
  - +12 volt Phantom Power
  - Continuously Variable Gain Trim
  - Direct Outputs (pre- or post- mix level)
  - A/B/AUX Assign Switches
  - Input Overload Indicator
  - EQ & Assign Switch Security Cover Included
- **Two Balanced Stereo Line-level Inputs**
  - Mono Switch
  - A/B/AUX Assign Switch
  - Input Overload Indicator
- **A/B/AUX Balanced Outputs**
  - Independent Level Control
  - 10-Segment Meter with Peak Hold
- **85-250 VAC Universal Power Supply**



Includes Security Cover for EQ and Assign Switches.

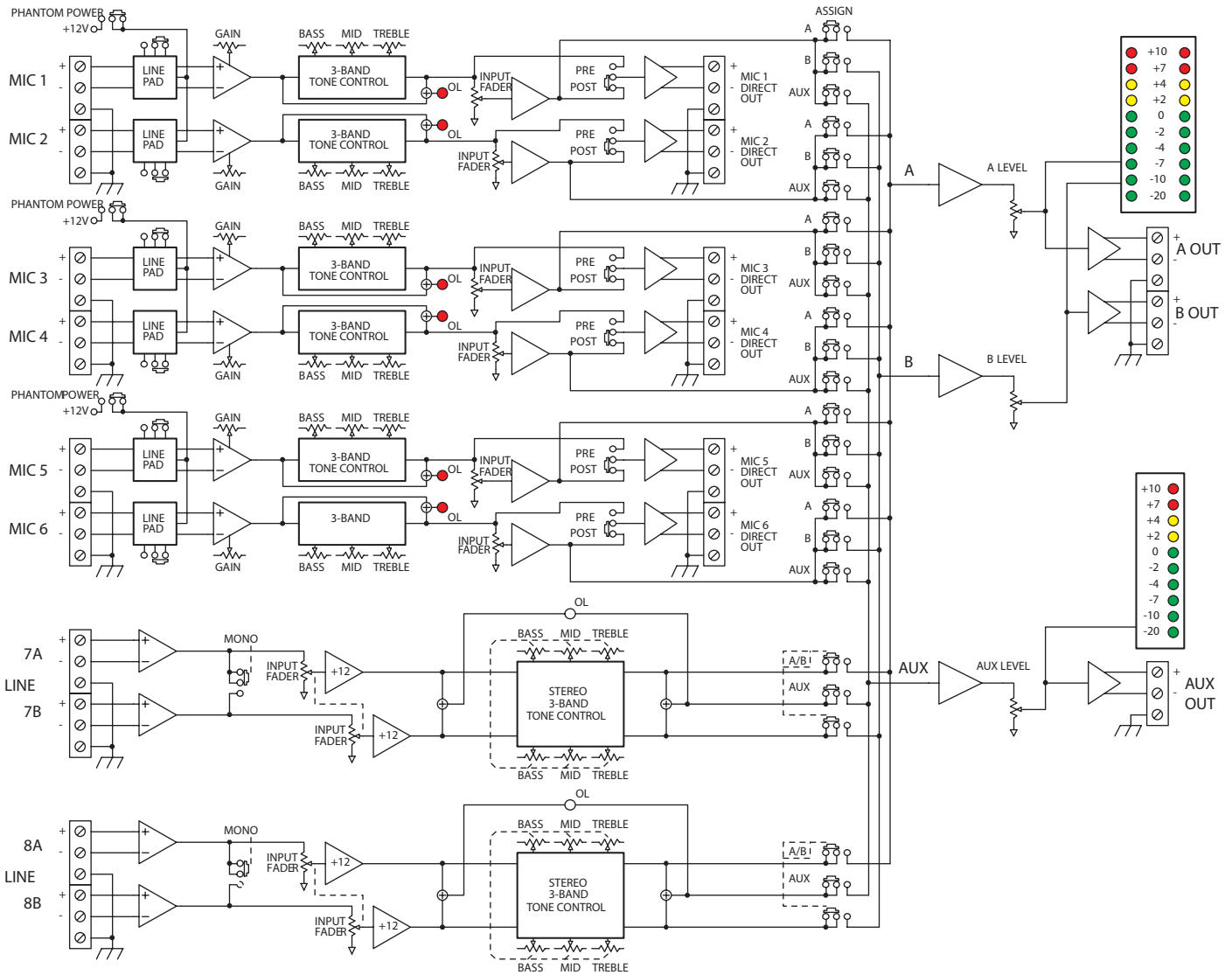
**MIC/LINE MIXER**

**Features and Specifications**

Parameter	Specification	Limit	Units	Conditions/Comments
Mic Inputs: Type	Active balanced			
.....Connectors	Euroblock			
.....Input Impedance Mic Mode	1.49 k	1%	Ω	745Ω each leg, 1 kHz
.....Input Impedance Line Mode	8 k	1%	Ω	4 kΩ each leg, 1 kHz
.....Gain Range Mic Mode	12 to 60	2	dB	Min/max, 1 kHz
.....Max Input Mic Mode	+8 / -40		dBu	Min/max gain, 1 kHz
.....Gain Range Line Mode	-4 / +12	1	dB	Min/max, 1 kHz
.....Max Input Line Mode	+24 / +8		dBu	Min/max gain, 1 kHz
.....Frequency Response	50 Hz-50 kHz	+5,-3	dB	Mic gain=60 dB
	10 Hz-50 kHz	+5,-3	dB	Mic gain=12 dB
.....Equivalent Input Noise	-127	typ	dBu	Mic gain 60 dB, Rs=150Ω 20Hz-20kHz
.....Common Mode Rejection	60	min	dB	1 kHz, Rs=150Ω, gain=60 dB
.....THD+N	0.01	typ	%	Mic gain=40 dB, +4 dBu, 20 Hz-20 kHz
.....Phantom Power	12	5%	VDC	Disabled in Line mode
Stereo Line Inputs: Type	Active balanced			
.....Connectors	Euroblock			
.....Input Impedance	10 k	1%	Ω	Each leg, common mode or differential
.....Gain Range	-infinity to +12	typ.	dB	1 kHz
.....Maximum Input	+24 / +12		dBu	Min/max gain, 1 kHz
.....Frequency Response	10 Hz-50 kHz	+5/-3	dB	
.....Common Mode Rejection	40	min	dB	1 kHz, Rs=150Ω
.....THD+N	0.005	typ	%	20 Hz-20 kHz, +4 dBu, Load=10 kΩ
Tone Controls: Type	Baxandall			2 stage, bass and treble shelving
.....Boost/Cut Range	±12	typ	dB	All filters
.....Low	±6	typ	dB	Boost/cut at 300 Hz
.....Mid	±6	typ	dB	Boost/cut at 300 Hz & 3.3 kHz, center 1 kHz
.....High	±6	typ	dB	Boost/cut at 3.3 kHz
Outputs: Type	Active balanced			
.....Connector	Euroblock			
.....Output Impedance	200	1%	Ω	100Ω each leg, 1 kHz
.....Maximum Output	+24	min	dBu	Load=10 kΩ, 1 kHz
.....Noise Floor	-100	typ	dB	No inputs assigned
	-89	typ	dB	Any line-level input assigned, output levels at max, 20 Hz to 20 kHz, re +4 dBu
.....Crosstalk	-80	max	dB	Any input to any output @ 1 kHz
.....Control Feed-through	-80	max	dB	All front panel assign and level controls
Meters: Type	Average dBu			
.....Range	-20 to +10		dBu	
.....Number of Segments	10			
.....Peak Hold	1 sec			
Power Supply Requirement				85 to 250 VAC, 50/60 Hz, .24 amp
Unit: Agency Listing				UL/cUL/CE
Unit: Construction	All Steel			
.....Size	5.25"H x 19"W x 5.3"D (3U)			(13.3 cm x 48.3 cm x 13.5 cm)
.....Weight	9 lb			(4.1 kg)
Shipping: Size	11" x 23" x 16"			(27.9 cm x 58.4 cm x 40.6) cm
.....Weight	13 lb			(5.9 kg)

Note: 0 dBu=0.775 Vrms

### Block Diagram



### Applications

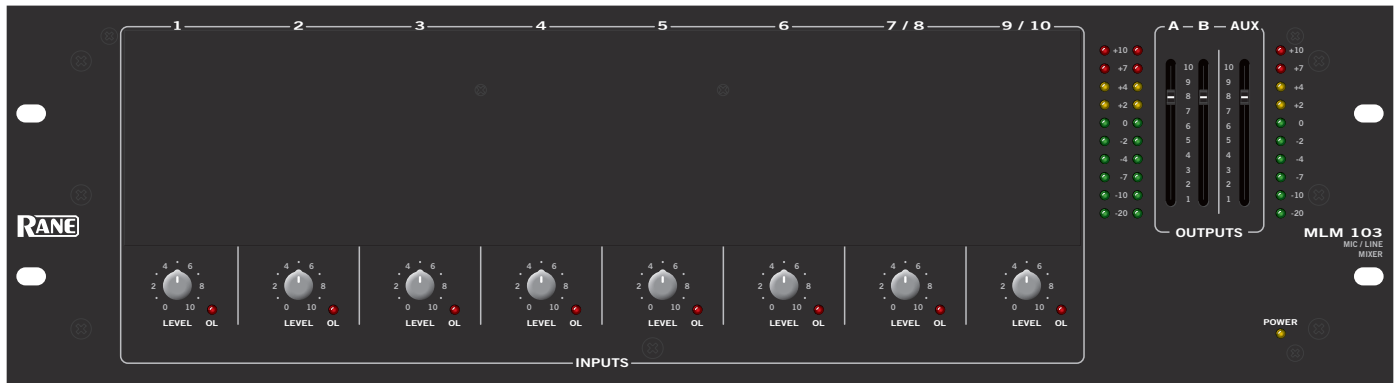
Applications include, but are not limited to, hotels, churches, conference rooms, schools and rental sound systems. The direct outputs may be used with the Rane SRM 66 Splitter/Router/Mixer for applications requiring room combining and/or flexible zone distribution. The studio-grade specifications of the MLM 103 allow many other applications such as sub-mixing, recording and post-production.

# MLM 103

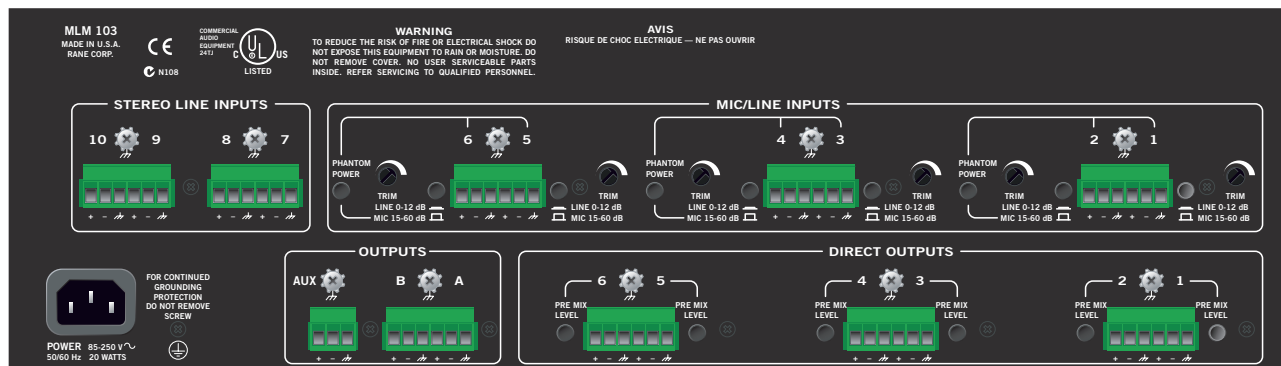
MIC/LINE MIXER



## Front Panel with Security Cover Installed



## Rear Panel



## Architectural Specifications

The Mixer shall be a high performance Mic/Line Mixer featuring six balanced, studio-grade microphone inputs and two balanced, stereo line-level inputs. The microphone preamplifiers shall feature direct outputs able to monitor the signal pre- or post- the mix Level control. Each microphone and *stereo* line input shall feature three-band EQ and mix level controls. Peak detecting input overload indicators shall be provided. The Mixer shall have A, B and AUX outputs with independent level controls and 10 segment level meters with peak hold. Each balanced output shall provide an additional 6 dB of gain and deliver a minimum signal level of +24 dBu into a 10 kΩ load. All connections shall be via Euroblock connectors.

Microphone inputs shall operate in Mic mode with a gain range of +12 dB to 60 dB. Each *pair* of microphone inputs may operate with or without 12 volt phantom power. Each microphone input shall be capable of line-level operate with a gain

range of -4 to 12 dB. If Line mode is selected, phantom power is defeated. Each microphone input may be assigned to the A, B or AUX output bus.

Stereo Line inputs shall accommodate +24 dBu signal levels with a gain range is  $-\infty$  to +12 dB. Each stereo line input shall feature a mono switch, A-B and AUX assign switch.

The Mixer shall include a security cover for the equalizer section and output assign switches, leaving only the level controls and metering exposed.

The Mixer shall feature a built-in, high efficiency, universal voltage power supply capable of operating from 85 to 250 VAC, 50-60 Hz. The unit shall feature an IEC socket and line cord. The unit shall meet UL/CSA and CE safety requirements. The unit shall be constructed of cold-rolled steel and mount into a standard 19" 3U EIA rack.

*The unit shall be a Rane MLM 103 Mic/Line Mixer.*