

## QUICK START

This section is provided as a convenience for those in a rush. If you are experienced with this unit or other Rane products, these few words will refresh your memory.

**INPUTS 1** through **4** may be microphone or line level. The choice between the two is made by setting the **LINE** push buttons on the REAR of the unit next to the **MIC/LINE INPUT JACKS**. Each microphone input may be assigned to **A**, **B** or **A+B** outputs using the front panel **ASSIGN** switches.

**INPUTS 5** through **8** are stereo line inputs which may be set to mono using the recessed **MONO** switches located on the front panel.

Internal switches allow setting output signal levels for **MIC** or **LINE**. The factory default setting is **LINE**. If the MLM 82a is connected directly to a power amplifier, equalizer or recorder input, choose **LINE** level. If the MLM 82a is connected to a microphone jack of an existing sound system, choose **MIC** level.

Once Inputs, Outputs, and power are properly connected, with the **OUTPUT LEVELS** counterclockwise (*off*), set the Input **LEVELS** as high as possible without causing the **SIG/OL** indicators to blink red except during extreme signal peaks. Now slowly raise the **OUTPUT LEVELS** as desired.

*Never connect anything except an approved Rane power supply to the red thing that looks like a telephone jack on the rear of the MLM 82a.* This is an AC input and requires special attention if you do not have a power supply *exactly* like the one that was originally packed with your unit. See the full explanation of the power supply requirements on page Manual-3.

## MLM 82a CONNECTION

When connecting the MLM 82a to other components in your system for the first time, leave the power supply for last. This gives you a chance to make mistakes and correct them without damage to your fragile speakers, ears and nerves.

### MIC/LINE INPUTS 1-4

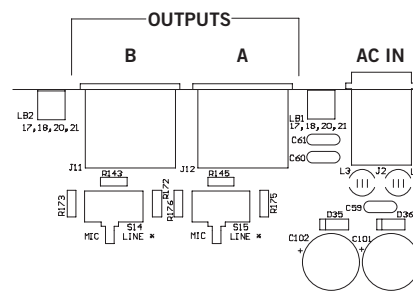
The four XLR jacks provided on the MLM 82a are balanced MIC/LINE inputs. They will also accept unbalanced connectors. Use only shielded cable for inputs. For best noise rejection use two-conductor-plus-shielded wire, even for unbalanced operation. Connect the shield at both ends to help insure proper grounding. See the Sound System Interconnection RaneNote included with this manual for all cable adaptations. Rane follows the AES recommended practice of pin 2 positive, pin 3 negative, and pin 1 to shield. Switch any input connected to a microphone to the MIC position (*out*) using the associated switches on the rear panel. When connecting line level signals, switch the input to the LINE position (*in*). A single phantom power switch is provided for the four MIC inputs. *If LINE is selected, Phantom Power is disabled for that input.*

### STEREO LINE INPUTS 5-8

The 1/4" connectors are line-level balanced/unbalanced Inputs. If the MLM 82a is to be used with unbalanced sources, consult the Sound System Interconnection RaneNote included with this manual for proper wiring. Stereo Inputs use both A and B jacks at each INPUT. INPUTS 5 through 8 also serve as mono Inputs when the front panel MONO switch is engaged.

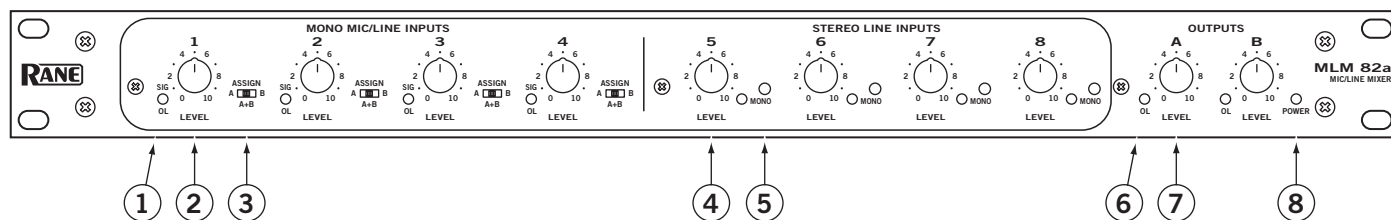
### OUTPUTS

The MLM 82a's OUTPUTS are balanced. The same wiring conventions as the XLR Inputs apply. The type of device following the MLM 82a must be considered when setting the internal Output Level switch. Choose between LINE (0 dB) or MIC (-40 dB) output, the factory setting is LINE. If the MLM 82a is connected directly to a power amplifier input, choose LINE level. If the MLM 82a is connected to a microphone jack on an existing sound system, choose MIC level. For unbalanced OUTPUT connections *do not* tie pin 3 (i.e. "–") to ground.



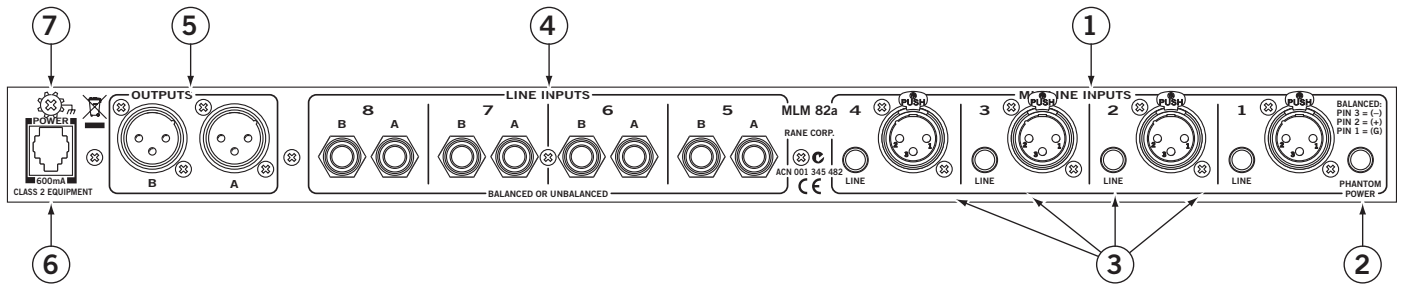
**WEAR PARTS:** This product contains no wear parts.

## FRONT PANEL DESCRIPTION



- ① **SIGnal present/OverLoad LED.** This bi-color LED lights green for a -30 dBu signal, and turns red when the Input is within 3 dB of clipping.
- ② **MONO MIC/LINE INPUT LEVEL controls 1-4** determine the MIC/LINE preamp gain and mix level to be assigned to the A, A+B, B Outputs.
- ③ **ASSIGN switches determine between the A, A+B or B** Outputs for each MIC/LINE input.
- ④ **STEREO LINE INPUT LEVEL controls 5-8** determine the amount of stereo or mono line Input routed to the Outputs.
- ⑤ **MONO switch** mixes the A and B sides of each STEREO LINE input together. When active, the associated LED lights, and the A and B Inputs for that channel have exactly the same level.
- ⑥ **OUTPUT OverLoad LED** illuminates within 3 dB of an approaching overload condition. To avoid this, the associated OUTPUT LEVEL control may be decreased, or the problem-causing individual Input Level may be lowered.
- ⑦ **A and B OUTPUT LEVEL controls** set the Output Level for A and B outputs.
- ⑧ **POWER LED** is lit whenever adequate power is applied to the unit.

## REAR PANEL DESCRIPTION



- ① **MIC/LINE INPUTS 1 through 4.** These XLRs connect either balanced Microphone or Line signals, depending on the LINE switch setting (see ③). Rane adheres to the international and U.S. standard for balanced pin configurations: Pin 1 is chassis ground (neutral), pin 2 is positive (+), and pin 3 is negative (-).
- ② **PHANTOM POWER switch** applies 15 V Phantom Power to any Inputs 1-4 that are set for MIC Input.
- ③ **LINE Input selectors** switch the sensitivity and input impedance for either a microphone or line level input. If LINE is chosen, Phantom Power is deactivated for that Input.
- ④ **1/4" LINE INPUTS.** These stereo pairs of balanced inputs accommodate stereo line-level signals. These TRS (Tip-Ring-Sleeve) 1/4" jacks handle either balanced or unbalanced signals. In most cases an unbalanced signal may use a mono 1/4" plug (Tip-Sleeve). See the Sound System Interconnection RaneNote included with this manual for proper connection.
- ⑤ **A and B OUTPUT jacks.** These balanced XLR's provide the A and B mixed output. INTERNAL OUTPUT LEVEL switches allow setting the output level for MIC or LINE level. Pin connections are the same as above in ①.
- ⑥ **POWER supply input.** *This is not a telephone jack.* The MLM 82a is supplied from the factory with an RS 1 remote power supply suitable for connection to this input jack. The power requirements call for an 18 volt AC center-tapped transformer only. Call the Rane factory for RS 1 replacement or substitution.
- ⑦ **Chassis ground point.** A #6-32 screw is provided for chassis grounding purposes. See the note below for details.

### CHASSIS GROUNDING

The MLM 82a is supplied with an external power supply (the RS 1). **This power supply does not ground the unit.** On the rear chassis a #6-32 screw is provided to allow for attachment of the grounding wire. This chassis ground point must be connected to earth ground either through another product which utilizes a three-prong grounded AC power cord or by attaching the wire to a known earth ground, (the screw on a grounded AC outlet.)

If after hooking up your system it exhibits excessive hum or buzzing, there is an incompatibility in the grounding configuration between units somewhere. Your mission, should you accept it, is to discover how your particular system wants to be grounded. Here are some things to try:

1. Try combinations of lifting grounds on units that are supplied with ground lift switches or links.
  2. If your equipment is in a rack, verify that all chassis are tied to a good earth ground, either through the line cord grounding pin or the rack screws to another grounded chassis.
  3. Try moving the device away from high magnetic field sources, such as large transformers used in power amplifiers.
- Please refer to the RaneNote "Sound System Interconnection" for further information on system grounding.

# OPERATING INSTRUCTIONS

## MONO MICROPHONE/LINE LEVEL INPUTS 1-4

The microphone pre-amps in the MLM 82a have a combination gain trim, Level control. The LEVEL control adjusts both the input dynamic range and mix level. There is no need for the typical independent gain trim control found on most mixers. The PHANTOM POWER switch activates 15 volt Phantom Power for all Inputs selected for microphone use. With LINE selected, Phantom Power is defeated only in that Input. 15 volts is sufficient power for all but the most esoteric condenser microphones. If in doubt, check the manufacturer's microphone specs.

## SIGNAL PRESENT/OVERLOAD INDICATORS

The MLM 82a has four bi-color indicators for Signal Present/Overload (green/red). Green indication occurs when there is a signal present above -30 dBu. This lamp should be glowing green when signal is present. If this lamp is *off*, check these possibilities:

- A. The Input may not be connected.
- B. There is little or no signal present at the moment.
- C. There is a Mic connected to a channel switched to LINE.
- D. The Mic needs Phantom Power (See Rear Panel, ②).
- E. The LEVEL control needs to be increased (clockwise).
- F. The cable is not wired properly (See the Sound System Interconnection RaneNote).

A red glowing LED indicates that the levels are so high that distortion due to clipping is occurring or imminent.

Check these conditions:

- A. The LEVEL control may be turned too high.
- B. The Output of the preceding device may need to be reduced.
- C. The Input may be switched to MIC with a line-level source.  
Switch the Input to LINE.

STEREO LINE INPUTS 5 through 8 do not have overload indicators. Because 12 dB of gain is added after the STEREO LINE INPUT LEVEL controls, it is possible to overload a line input without an overload indication. The A and B OUTPUT OL indicators can overload from the Line Inputs if the OUTPUT LEVEL controls are set to 10. Although a single Input may be at unity gain, multiple active Inputs mixed together can cause an overload. If the OL indicators illuminate, just turn down the OUTPUT LEVELS until the overload stops—mix ratios will not change.

## STEREO LINE LEVEL INPUTS 5-8

The STEREO LINE INPUT LEVEL controls adjust both A and B Inputs equally. Use the OUTPUT LEVEL controls together for overall output adjustment, or separately to control balance.

A single mono input may be used for the A and/or B inputs. Any mono source connected to A will go to the A output. Any mono source connected to the B input will go to the B output. If you wish one or two mono sources to go to both A and B outputs, press the MONO switch. If you wish to mono a single stereo source and have it present in A and B outputs, press the mono switch. STEREO LINE INPUTS 5-8 may each be independently set for mono operation.

## HOLE PLUGS

To protect the setting of any rotary control, remove the knob by simply pulling it off, and snap in one of the hole plugs included with your unit.

To protect the entire front panel, use a Rane SC 1.7 Security cover.