



# Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for RANE FMI 14. You'll find the answers to all your questions on the RANE FMI 14 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

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OPERATING / SERVICE MANUAL

FMI 14  
MIXER INPUT

#### QUICK START

No one likes to read manuals. Most like to plug in and turn on. That's usually OK, and with only a very few exceptions, damage is unlikely to result from such procedures with the FMI 14. First, determine if the input is to be microphone or line and set the MIC/LINE select switch accordingly. If a microphone is to be used which requires phantom power, set the PHANTOM POWER switch to its ON position. With the SENDS and MASTER levels all the way down, set the PAD and GAIN controls so that the highest input will not illuminate the overload light. If the SENDS are to be used, set the Aux Send selector switches to the desired position. Adjust the A and B MASTER output levels to deliver the required amount of signal to the bus and direct outputs.

**NEVER CONNECT ANYTHING EXCEPT AN APPROVED RANE POWER SUPPLY TO THE THING THAT LOOKS LIKE A TELEPHONE JACK ON THE REAR OF THE FMI 14.** This is an AC input and requires special attention if you do not have an operational power supply EXACTLY like the one that was originally packed with your unit. See the full explanation of the power supply requirements elsewhere in this manual.

#### SYSTEM CONNECTION

When connecting the FMI 14 to other components in your system for the first time, *leave the power supply for last.* This will give you a chance to make mistakes and correct them before any damage is done to your fragile speakers, ears and nerves.

**INPUTS** on the FMI 14 are balanced. This means that standard 3-pin (XLR) connectors on the ends of any good quality cable will work well with the FMI 14 and microphones of your choosing. As with all Rane products, pin 2 is used for "hot" or "+" signal polarity, pin 3 is "return" or "-", and pin 1 is signal ground. If you are using the 1/4" TRS line input, tip is hot, ring is return and sleeve is ground. For unbalanced inputs, drive pin 2 or tip as hot and pin 1 or sleeve as ground. It is not necessary to short pin 3 or ring to ground on Flex series microphone inputs. It will not hurt anything, either. You may use either pin 1 or case for shield ground on the 3-pin input. (See Rane Note 110 for further information on this subject).

**OUTPUTS.** The FMI 14's Master outputs are balanced. The Aux outputs are unbalanced. On the balanced outputs, tip is hot, ring is return and sleeve is ground. If unbalanced output is required, use only a tip-ring-sleeve connector and leave the ring unterminated. A "mono" type 1/4" (tip and sleeve only) connector may be used on the Aux outputs. They are unbalanced only and require no special attention. Again, have a look at Rane Note 110 for more detail.

**BUS OUTPUTS.** The 7-pin DIN Bus input and output may be used only with other Flex modules. These are not

MIDI inputs and outputs. A detailed explanation of the wiring in these connectors is not necessary. The only thing the user must know is that only a DIN cable as supplied with each module from the factory should be used. If, for some reason, there is not a cable in the box with your FMI 14, you should contact Rane for a replacement. If you are in a bind and need to make one, a 5-pin DIN may be used instead of a 7-pin. The two outside pins are not used on the FMI 14 and have been included due to possible future compatibility requirements. All pins should be wired "straight through" (1 to 1, 2 to 2, etc.).

A typical FLEX system using FMI 14s would be one where several FMI 14s are used as input channels for a mixer with one FMM 42 Master module as the termination. In a case like this, the first FMI 14's BUS OUT would go to the second's BUS IN, its BUS OUT to the third's BUS IN, and so on down the line. The last FMI 14's BUS OUT would connect to the FMM 42's BUS IN. This would sum all FMI 14s properly. See the Flex User's Guide for additional details.



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**Manual abstract:**

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First, determine if the input is to be microphone or line and set the MIC/LINE select switch accordingly. If a microphone is to be used which requires phantom power, set the PHANTOM POWER switch to its ON position. With the SENDS and MASTER levels all the way down, set the PAD and GAIN controls so that the highest input will not illuminate the overload light. If the SENDS are to be used, set the Aux Send selector switches to the desired position. Adjust the A and B MASTER output levels to deliver the required amount of signal to the bus and direct outputs. NEVER CONNECT ANYTHING EXCEPT AN APPROVED RANE POWER SUPPLY TO THE THING THAT LOOKS LIKE A TELEPHONE JACK ON THE REAR OF THE FMI 14. This is an AC input and requires special attention if you do not have an operational power supply EXACTLY like the one that was originally packed with your unit. See the full explanation of the power supply requirements elsewhere in this manual.

FMI 14 MIXER INPUT SYSTEM CONNECTION When connecting the FMI 14 to other components in your system for the first time, leave the power supply for last. @ @INPUTS on the FMI 14 are balanced. @ @ @ @ @ @ For unbalanced inputs, drive pin 2 or tip as hot and pin 1 or sleeve as ground. It is not necessary to short pin 3 or ring to ground on Flex series microphone inputs. It will not hurt anything, either.

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If, for some reason, there is not a cable in the box with your FMI 14, you should contact Rane for a replacement. If you are in a bind and need to make one, a 5-pin DIN may be used instead of a 7-pin. The two outside pins are not used on the FMI 14 and have been included due to possible future compatibility requirements. All pins should be wired "straight through" (1 to 1, 2 to 2, etc.). A typical FLEX system using FMI 14s would be one where several FMI 14s are used as input channels for a mixer with one FMM 42 Master module as the termination. In a case like this, the first FMI 14's BUS OUT would go to the second's BUS IN, its BUS OUT to the third's BUS IN, and so on down the line. The last FMI 14's BUS OUT would connect to the FMM 42's BUS IN. This would sum all FMI 14s properly. See the Flex User's Guide for additional details.

FRONT PANEL DESCRIPTION 1. MIC / LINE SELECT SWITCH. A pushbutton switch which in its out position determines that the 3-pin MIC INPUT on the rear will be active and structures the input gain accordingly. In the in position the balanced 1/4" LINE INPUT is active and gain is reduced to suit. 2.

48V PHANTOM POWER SWITCH. In the "on" position, 48 volts D.C. phantom power is applied to pins 2 and 3 of the 3-pin MIC INPUT connector. 3. INPUT GAIN CONTROL. This rotary control increases input GAIN as it is rotated clockwise. Its range is from 20dB at full CCW rotation to 60dB at full CW rotation. 4. 20dB PAD SWITCH. In its 20dB position, this switch decreases the gain range of the input GAIN control (item #3, above). by 20dB, which is times ten. @ @ 5. CHANNEL OVERLOAD INDICATOR. @ @ Five key locations are monitored.

6. HIGH FREQUENCY EQ CONTROL. @ @ @ @ @ @ 7. MIDRANGE EQ CONTROL. @ @ Again, the range is from -15dB to +12dB. 8. MIDRANGE BANDWIDTH SELECTOR. @ @ 9. MIDRANGE CENTER FREQUENCY CONTROL. @ @ Its range is from 95Hz to 4kHz.

10. LOW FREQUENCY EQ CONTROL. @ @ The center detent provides a ground for the filter which bypasses it. @ @ 11. EQUALIZER DEFEAT SWITCH. @ @ @ @ 12. AUX SEND SELECTOR SWITCHES. @ @ @ @ @ @ If PRE EQ is used, the signal is obtained before the EQ section. 13. AUX A / B SEND CONTROLS.

@ @ 14. MASTER A / B LEVEL CONTROLS. @ @ Rotated together, they act as a conventional level control. Rotated individually, they create a pan function.

15. POWER INDICATOR LED. @ @ 3-PIN MIC INPUT CONNECTOR. Pin 2 is positive, pin 3 is negative and pin 1 is signal ground. 2. 1/4" LINE INPUT CONNECTOR.

@ @ Tip is (+), ring is (-) and sleeve is ground. 3. 1/4" INSERT CONNECTOR. @ @ The tip is send, the ring is return and the sleeve is ground. @ @ @ @ 4. FLEX BUS IN. This connector is intended to be used to connect the FLEX BUS OUT of another Rane Flex unit to the FMI 14. See the system connection section for details. 5. FLEX BUS OUT.

This connector is intended to be used to connect the FMI 14 to another piece of Rane Flex equipment. Any other use will void the warranty on your firstborn child. NOTE: Special cabling may be constructed which would allow the Bus Inputs and Outputs to be used for direct inputs and outputs. See the Flex User's Guide for additional information. 6.

AUX A / B OUTPUTS. These are unbalanced direct AUX Outputs. These Outputs contain only local material. This means that any Aux material on the Bus input will not be present at these Outputs. See the FMI 14 data sheet block diagram for details.

7. MASTER A / B OUTPUTS. These are balanced 1/4" outputs. Tip is (+), ring is (-) and sleeve is ground. 8. GROUND LIFT SWITCH. This switch provides the ability to separate chassis ground and signal ground. Normally, this switch should be in the LIFT position. In some circumstances it may be necessary to move it to the opposite position to eliminate stubborn hum and buzz problems. We realize a scientific explanation of this switch would be helpful, unfortunately science doesn't seem to have much to do with it.

If you are tempted to try moving this switch with your power amplifiers turned on or turned up, don't be. Always turn your amplifier levels down before changing your grounds around and then bring them up slowly. Put a speaker re-coner out of work today! 9. REMOTE POWER SUPPLY INPUT. The FMI 14 is supplied from the factory with a Model RS 1 Remote Power Supply suitable for connection to this input jack. The power requirements of the FMI 14 call for an 18-24 volt AC centertapped transformer only. This is not a DC input. It is not a telephone jack. Never use a power supply with your FMI 14 other than the one supplied or an exact replacement obtained or approved by Rane Corporation. Using any other type of supply may damage the unit and void the warranty.



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Two years parts and labor is worth safeguarding, don't you think? 10. GROUND CONNECTOR. Since the FMI 14 is powered from a remote AC power supply which does carry chassis ground through to the grounding pin of the AC cord, this screw has been provided in case your system does not have another earth grounding means such as through rack rails, etc. Its use or disuse should be determined by your specific application. OPERATING INSTRUCTIONS

The FMI 14 has been designed to operate in a very similar fashion to most mixer input strips.

The input GAIN control, PAD, Overload indicator and PHANTOM POWER selector have all been placed at the top (in the vertical mounting configuration).

Next down the line comes the EQ section, then the AUX source selectors and level controls, and finally the MASTER faders. Anyone familiar with mixers should have no difficulty mastering the FMI 14. INPUT SECTION. When setting up the input section, one should always take as much gain as possible right at the input.

@@@ Failure to do so will sacrifice noise performance down the line. EQUALIZER. The EQ section of the FMI 14 is particularly interesting.

@@@ What this means is that the rolloff rates are much steeper than those usually encountered. The midrange section of the FMI 14s equalizer is parametric. The bandwidth may be set to one of three settings: 1/3 octave, 1 octave, or 2 octaves. The center frequency may be adjusted over a range of 95Hz to 4kHz. All three bands cover an amplitude range of -15dB to +12dB. All of the level controls feature a grounded center detent thus ensuring that a "zero" setting gives you just what you wanted: a guaranteed zero (flat). The EQ IN/OUT switch provides a "hard-wire" bypass around the equalizer section.

Even though the center detents of the EQ level controls provide a guaranteed zero, some engineers use the bypass to compare the EQ setting with the dry non-EQ without changing settings. AUX SENDS. The AUX Outputs of the FMI 14 feature both direct outputs on the rear as well as AU.



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