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You can read the recommendations in the user guide, the technical guide or the installation guide for RANE FMM 42. You'll find the answers to all your questions on the RANE FMM 42 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

FMM 42
MASTERMODULE

QUICK START

Operating Manuals! You can't live with them; you can't live without them. If you don't read them, the damn thing never works right; and if you do read them, you get so confused you never get it turned on! For you, we present the famous Quick Start section. Read this, and you get dessert.

If you are using the FMM 42 as a master mixing module, connect the FLEX BUS OUT of the last mixing module to the FLEX BUS IN on the FMM 42 using the 7-pin DIN patch cable supplied. Aux bus program is routed through the AUX BUS level controls and then the AUX BUS LOOP jacks and into the MASTER A/B outputs. Insert your reverb, or any other signal processing unit, into the BUS LOOPS, by means of the tip-send, ring-return jacks. In addition to the BUS input, the FMM 42 has a MIC/LINE 1 input and a STEREO LINE 2 input. The MIC/LINE 1 input is equipped with a Ducking (attenuating) feature, allowing its use as a priority paging input. This allows voice or other signals to override or attenuate (duck) all other program routed through the FMM 42. The BUS THRU jack allows routing of the unaltered Flex bus material to another FMM 42 or other Flex bus equipped module. The FMM 42 may also be used stand-alone, without any bus inputs, as a straightforward background music/paging system or the like. In this case the AUX BUS LOOP jacks may be used as additional line inputs by using special 1/4" TRS cables with tip left open, ring as signal hot and sleeve as ground.

NEVER CONNECT ANYTHING EXCEPT AN APPROVED RANE POWER SUPPLY TO THE RED THING THAT LOOKS LIKE A TELEPHONE JACK ON THE REAR OF THE FMM 42. 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

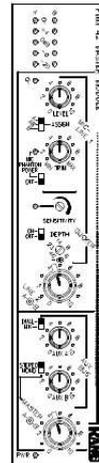
When connecting the FMM 42 to other components in your system for the first time, LEAVE THE POWER SUPPLY FOR LAST. This gives you a chance to make mistakes and correct them without damage to your fragile speakers, ears and nerves.

INPUTS. The MIC-LINE 1 INPUT on the FMM 42 is balanced. This means that standard 3-pin (XLR) connectors on the ends of any good quality cable work well with the FMM 42 and a microphone of your choice. In compliance with American, British and International standards, pin 2 is used for "hot" or "+" signal polarity, pin 3 is "return" or "-" and pin 1 is signal ground. For unbalanced inputs, drive pin 2 as hot and pin 1 as ground. It is not necessary to short pin 3 to ground on Flex series microphone inputs; however, it will not hurt anything, if you do. 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). If you are using the 1/4" STEREO LINE 2 input, tip is Channel A, ring is Channel B and sleeve is ground.

OUTPUTS. The FMM 42's Master Outputs are balanced. On these outputs, pin 2 is hot (+), pin 3 is return (-) and pin 1 is signal ground. If unbalanced output is required, use pin 2 as hot and pin 1 as ground. Do not short any pins to any others. This is not a transformer balanced output.

BUS INPUTS. The 7-pin DIN bus connectors are used primarily with other Flex modules. These are not MIDI connectors. Use only the supplied DIN cable. If for some reason there is not a cable in the FMM 42 box, please contact Rane for a replacement. If you are in a bind, a 5-pin DIN may be used instead of a 7-pin. The two outside pins are spares on the FMM 42 and have been included for possible future compatibility reasons. All pins on the DIN cable should be wired straight through, i.e., 1 to 1, 2 to 2, etc.

A typical Flex system using FMM 42s would be where several FMM 1-4s are used as input channels, possibly mixed with a FPM 44 program mixer, all combined with one FMM 42 as the master termination module. In a case like this, the first FMM 1-4's BUS OUT goes to the second's BUS IN, its BUS OUT to the third's BUS IN, and so on down the line. FPM 4-4s, FPM 42s, and FLM 82s connect the same way. The last BUS OUT connects to the FMM 42's BUS IN. This sums all input modules properly. See the Flex Users Guide for additional details.



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Manual abstract:

If you don't read them, the damn thing never works right; and if you do read them, you get so confused you never get it turned on! For you, we present the famous Quick Start section. Read this, and you get dessert. If you are using the FMM 42 as a master mixing module, connect the FLEX BUS OUT of the last mixing module to the FLEX BUS IN on the FMM 42 using the 7-pin DIN patch cable supplied. Aux bus program is routed through the AUX BUS level controls and then the AUX BUS LOOP jacks and into the MASTER A/B outputs. Insert your reverb, or any other signal processing unit, into the BUS LOOPS, by means of the tip=send, ring=return jacks. In addition to the BUS input, the FMM 42 has a MIC/LINE 1 input and a STEREO LINE 2 input. The MIC/LINE 1 input is equipped with a Ducking (attenuating) feature, allowing its use as a priority paging input. This allows voice or other signals to override or attenuate (duck) all other program routed through the FMM 42. The BUS THRU jack allows routing of the unaltered Flex bus material to another FMM 42 or other Flex bus equipped module. The FMM 42 may also be used stand-alone, without any bus inputs, as a straightforward background music/paging system or the like.

In this case the AUX BUS LOOP jacks may be used as additional line inputs by using special 1/4" TRS cables with tip left open, ring as signal hot and sleeve as ground. @@@@INPUTS. The MIC-LINE 1 INPUT on the FMM 42 is balanced. This means that standard 3-pin (XLR) connectors on the ends of any good quality cable work well with the FMM 42 and a microphone of your choice. In compliance with American, British and International standards, pin 2 is used for "hot" or "+" signal polarity, pin 3 is "return" or "-" and pin 1 is signal ground.

For unbalanced inputs, drive pin 2 as hot and pin 1 as ground. It is not necessary to short pin 3 to ground on Flex series microphone inputs; however, it will not hurt anything, if you do. 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).

If you are using the 1/4" STEREO LINE 2 input, tip is Channel A, ring is Channel B and sleeve is ground.

OUTPUTS. The FMM 42's Master Outputs are balanced. On these outputs, pin 2 is hot (+), pin 3 is return (-) and pin 1 is signal ground. If unbalanced output is required, use pin 2 as hot and pin 1 as ground. Do not short any pins to any others. This is not a transformer balanced output. BUS INPUTS. The 7-pin DIN bus connectors are used primarily with other Flex modules. These are not MIDI connectors. Use only the supplied DIN cable.

If for some reason there is not a cable in the FMM 42 box, please contact Rane for a replacement. If you are in a bind, a 5-pin DIN may be used instead of a 7-pin. The two outside pins are spares on the FMM 42 and have been included for possible future compatibility reasons. All pins on the DIN cable should be wired straight through, i.e., 1 to 1, 2 to 2, etc. A typical Flex system using FMM 42s would be where several FMI 14s are used as input channels, possibly mixed with a FPM 44 program mixer, all combined with one FMM 42 as the master termination module. In a case like this, the first FMI 14's BUS OUT goes to the second's BUS IN, its BUS OUT to the third's BUS IN, and so on down the line. FPM 44s, FPM 42s, and FLM 82s connect the same way. The last BUS OUT connects to the FMM 42's BUS IN.

This sums all input modules properly. See the Flex Users Guide for additional details. FRONT PANEL DESCRIPTION 1. MASTER OUTPUT METERS.

These LEDs illuminate at the levels indicated.

They track output level of each channel only. Calibration: "0dB" LED = Peak equivalent for +4dBu balanced output level. 2. INPUT 1 OVERLOAD INDICATOR. This red LED illuminates when the input amplifier approaches a level of 4dB below clipping.

3. INPUT 1 LEVEL CONTROL. This rotary control sets the output level of the Mic/ Line 1 input stage. It is used to set the relative balance between this input and all others including the Bus inputs. 4. ASSIGN SWITCH. This three position slide switch sends the output of the Input 1 stage to Channel A only, both A & B, or Channel B only. 5. INPUT 1 TRIM CONTROL. This knob is used to set the gain of the input amplifier to accommodate a broad range of microphone sensitivities or line levels.

6. PHANTOM POWER SWITCH. When in the ON position, Phantom Power (15VDC) is applied to pins 2 and 3 of the 3-pin INPUT connector on the rear panel. @@7. DUCKER SENSITIVITY CONTROL AND INDICATOR. @@The adjacent LED illuminates when this action takes place. 8. DUCKER ON/OFF SWITCH. In the OFF position, you may ignore items 7 and 9 on this page. 9.

DUCKER DEPTH CHARGE. @@10. LINE 2 A & B INPUT CONTROLS. @@11. AUX A AND B BUS LEVEL CONTROLS.

@@12. DUAL / MIX SWITCH. @@@@13. MASTER A AND B OUTPUT LEVEL CONTROLS. @@@@14.

STEREO / MONO SELECTOR SWITCH. In the STEREO mode, Master A and B outputs are totally independent. In the MONO mode, A and B are summed and identical. 15. POWER INDICATOR. Indicates power, as indicated. REAR PANEL DESCRIPTION 1. 3-PIN INPUT CONNECTOR. @@Unbalanced inputs should drive pin 2 and use pin 1 as ground. 2.

MIC / LINE SELECTOR. @@@@3. STEREO LINE 2 INPUT. This is a TRS stereo input. Tip is connected to Channel A, ring gets connected to Channel B. 4. FLEX BUS INPUT CONNECTOR. @@@5. FLEX BUS THRU CONNECTOR. @@@@See the Flex User's Guide for additional information.

6. AUX A AND B BUS OUTS/LOOPS CONNECTORS. @@@@7. MASTER A AND B OUTPUTS. @@For unbalanced operation, pin 2 should be used as hot and pin 1 as ground.

Do not short pin 3 to any other pin. Leave it open. 8. POWER INPUT CONNECTOR. USE ONLY A MODEL RS 1, RAP 10, FRS 8, OR OTHER REMOTE AC POWER SUPPLY APPROVED BY RANE.

The FMM 42 is supplied with a remote power supply suitable for connection to this input jack. Consult the factory for replacement or substitution. 9.

CHASSIS GROUND POINT. A 6-32 threaded hole used for chassis grounding purposes. See the CHASSIS GROUNDING note on the last page for details. 10. GROUND LIFT SWITCH. On this unit, the Ground Lift switch is located along the bottom edge (vertical mounting), or along the right-hand side (horizontal mounting). Since the switch's location may prevent easy use once installed in the rack, it is suggested you decide which position is required, and set it before installation.

The LIFT position is when the switch is slid to the rear of the unit. 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. See the CHASSIS GROUNDING note on the last page for details. If you are tempted to try moving this switch with your power amplifiers turned on or turned up, don't be.



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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!
OPERATING INSTRUCTIONS This unit serves two different, yet similar, functions. It may be used as a stand-alone mixer/controller or as a master module for moderate to large mixing systems.

Either way it is a very flexible module. **STAND-ALONE.** As an independent mixer, the FMM 42 provides a switchable MIC or LINE balanced INPUT as well as a stereo LINE-level unbalanced INPUT. This is useful in situations where an audio source such as music or noise masking needs to be combined with a microphone for paging or voice-over requirements. When combined with the capabilities of the ducker feature, the FMM 42 is quite powerful, indeed. To use the module in this way, connect your mic or line source to the MIC/LINE 1 INPUT jack, set the push button adjacent to the connector for the proper source and then set the input trim appropriately. This is accomplished by watching the red overload LED just below the output meters. The input TRIM control should be set so that the overload light comes on only when the input signal is as high as it can ever get. Setting too low a level in the input gain stage can impair noise performance later in the system. The level control follows the input gain stage and is used to set the relative mix between this input and all others.

@@@@@Normally, this is used as a paging priority controller. @@Setting the sensitivity too high might cause nuisance engagement of this controller. When the ducker activates, all audio (except Input 1) at the master outputs will be attenuated by the amount set by the depth control. The amount of gain reduction may be varied between -6dB and -40dB. **MASTER MODULE OPERATION.** The FMM 42 was primarily designed to serve as a master output module for use with FMI 14 input modules and FPM 44, FPM 42, CM 86 and FLM 82 mixers. These modules have 7-pin DIN bus outputs which may be connected to the BUS Input of the FMM 42. When used this way, everything stated above regarding the use of this module in a stand-alone fashion remains true. Now, ho.



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