QUICK START

This section is for those ready to just do it. It familiarizes you enough with the FPM 42 to allow operation without wading through the rest of the text. Please read at least this section to ensure reasonable operation of the unit.

Begin with the inputs. They are connected to the 3-pin (XLR) jacks on the rear. Follow the standard convention of pin 2 hot, pin 3 not and do it.

Set the internal PRE/POST Aux assign switches as necessary. The **A** and **B MASTER OUTPUTS** may be used balanced or unbalanced. If AUX outputs are needed change the internal jumper blocks as necessary, or take them from the BUS OUT connector.

Connect the Flex bus cables to the appropriate source for the **FLEX BUS IN** and the next unit for **FLEX BUS OUT.**

Set the **GAIN** switches on the front of the module so the desired level is obtainable without illuminating the red **OL** (overload) LEDs on the channels. Set the **A** and **B LEVEL** controls on each input for the desired level. Set the **AUX** level control as needed.

The MASTER A/B output level controls affect only the signal level at the direct outputs of the unit. They have no affect on the main output added to the **BUS OUT.**

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

SYSTEM CONNECTION

When connecting the FPM 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 four channel inputs on the FPM 42 are active balanced. Use only shielded cable for inputs and outputs. This wire should always be two-conductor plus shield, even for unbalanced operation. 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. For unbalanced inputs, drive pin 2 hot and pin 1 signal ground. It is not necessary to short pin 3 to ground. (It will not hurt anything either.) If the input is coming from another piece of equipment in the signal path, connect the shield only at the receiving end to help prevent ground induced hum. If a microphone is being connected to the unit, the shield may be connected to the case of the mic as well as to the ground terminal on the unit. (Phantom power applications require this.)

OUTPUTS. The FPM 42's Master A and B outputs are balanced as shipped and connected to the two l/4" TRS jacks. The Aux A/B outputs appear only on the BUS OUT jacks. You may reprogram this arrangement by changing internal jumpers. The new configuration puts an unbalanced Master A/B signal on one of the l/4" outputs, and an unbalanced Aux A/B signal on the other.

FLEX BUS IN. 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 FPM 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 (6 & 7) are spares on the FPM 42 and have been included for possible future compatibility reasons. This input is to be used when combining the FPM 42 with the bus outputs of other modules such as another FPM 42, an FMI 14, etc. Bringing in bus signals allows the FPM 42's mix to add to the bus and be routed on to the next unit, and so on.

FLEX BUS OUT. The FLEX BUS OUT of the FPM 42 connects to other Flex mixer modules to complete a system. The receiving device may be any Flex module with a FLEX BUS IN. See the Flex Users Guide for additional details.
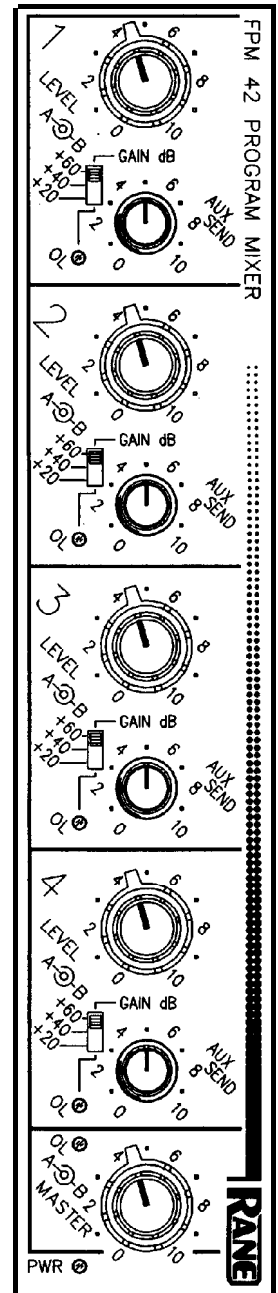
FRONT PANEL DESCRIPTION
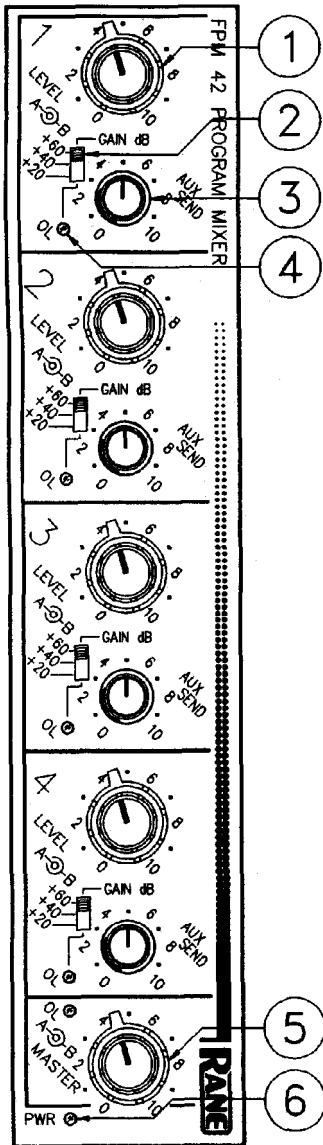
1. INPUT LEVEL CONTROLS. These concentric level controls set the level of each input to be routed to the Master A/B outputs and buses. The inner knob controls the level to be sent to A, the outer knob controls the signal applied to B. Rotating the knobs together creates a "pan centered" effect. Leaving one off and increasing the other emulates a full pan to one side.

2. GAIN SELECT SWITCH. These switches set the maximum gain of the input stages in each of the four input sections. The 60 dB mode is normally used for most microphones. The 40 dB mode would be used for high level microphones or very weak line level inputs. The 20 dB mode is suitable for line level inputs.

3. AUX SEND LEVEL CONTROL. There is only one of these for both the AUX A and B sends. It controls the amount of channel input fed equally to the optional A and B Aux outputs. This control's range is from Off to +10 dB. The Aux source is selected from either pre- or post fade via internally located switches.

4. OVERLOAD INDICATOR This red LED comes on anytime the input amplifier exceeds a level of 4 dB below clipping.

5. MASTER A & B LEVEL CONTROLS. These concentric knobs set the signal output level of the Master A output (inner knob) and the Master B output (outer knob). Their range is from Off to +10 dB.

6. POWER INDICATOR. Indicates power, as indicated.

REAR PANEL DESCRIPTION

1. CHANNEL INPUT CONNECTORS. Use these 3-pin connectors for either microphone or line level inputs. Connect balanced sources to pin 2 ("+"), pin 3 ("−") and pin 1 (GND) terminals. Unbalanced inputs connect only to pin 2 ("+") and pin 1 (GND). When an unbalanced input is used, pin 3 ("−") may be left open or shorted to GND.

2. MASTER A/B OUTPUTS. If balanced operation is your choice, use both jacks as indicated by the graphics printed to the right (or top) of the jacks. One is MASTER A output, and the other is MASTER B output.

3. AUX A/B OUTPUTS. These are optional unbalanced outputs programmed by changing jumpers inside the unit. Refer to the graphics found to the left (or bottom) of the jacks, and to the silkscreened word "AUX" found on the printed circuit board. Locate three (3) jumper blocks. Lift the jumper header up and reposition one pin over and slide back down (covering the word "AUX").

4. FLEX BUS IN CONNECTOR This input accepts bus information from other FLEX mixer modules, such as an FM1 14, FMM 42 or another FPM 42. This input adds to the program material connected to the FPM 42. The combined results appear at the FLEX BUS OUT jack, as well as the terminal strip outputs.

5. FLEX BUS OUT CONNECTOR This seven-pin DIN connector provides output to other mixer modules, such as another FPM 42, an FMI 14 or an FMM 42. Signals present here include the AUX of both this FPM 42 as well as any AUX sends generated by other FLEX mixer modules connected to the FLEX BUS IN above. The Master A and B signals are also available, which are the sum of this module and any other modules connected to the bus input.

6. AUX PRE/POST ASSIGN SWITCHES. Slide switches located inside the FPM 42. Used to select Aux source to be PRE- or POST- input LEVEL A/B controls. Shipped in the PRE positions.

7. POWER INPUT CONNECTOR USE ONLY A MODEL RS 1, FRS 8, OR OTHER REMOTE AC POWER SUPPLY APPROVED BY RANE. The FPM 42 is supplied with a remote power supply suitable for connection to this input jack. Consult the factory for replacement or substitution.

8. CHASSIS GROUND POINT. A 6-32 threaded hole, used for chassis grounding purposes.

9. 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, from the front). Since the switch's location prevents easy use once installed, 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.

10. PHANTOM POWER SWITCH & LIGHT. On this unit, the Phantom Power switch is located along the top edge (vertical mounting), or along the left-hand side (horizontal mounting, from the front). Since the switch's location prevents easy use once installed, it is suggested you decide if phantom power is required, and set it before installation. The ON position lights the LED when the switch is positioned to the rear of the unit.
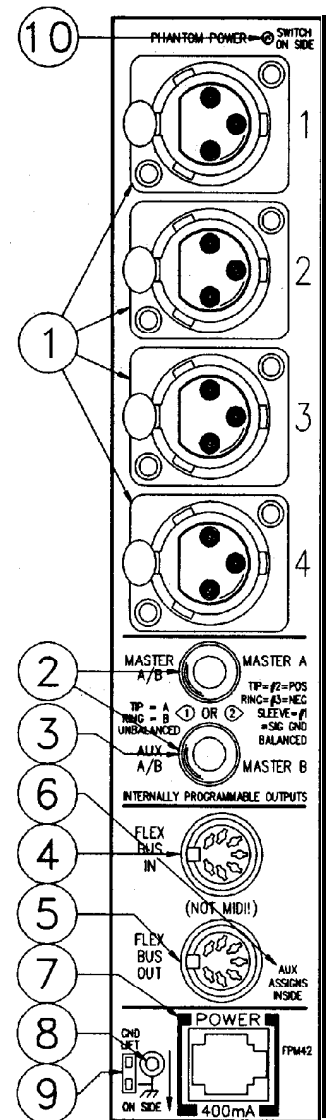
TOP-REAR COVER REMOVAL PROCEDURE:
To gain access to the PRE/POST switches and/or output jumpers, remove the top/rear cover as follows:

1. Using a #2 phillips screwdriver, remove the (5) screws securing the top/rear cover to the chassis.
2. Slide the top/rear cover to the rear and off of the chassis.
3. Replace the top/rear cover by reversing the above procedure.

OPERATING INSTRUCTIONS

This unit serves two similar yet different functions. It may be operated as a stand-alone 4-input to 2 or 4-output mixer, or it may be used in conjunction with other Flex mixer modules to create a larger system. For instance, via the Flex bus system, the FPM 42 may be connected to other like units to accommodate an infinite number of inputs, which may be mixed to as many as 4 outputs. It may also be used in conjunction with FMI 14s when the equalization features of those units are required on one or more inputs. The module may also be used with the FMM 42 Master Module which features auxiliary bus outputs, which also may be mixed with the A and B main outputs for effects mixing. The possibilities are staggering and we shall attempt to introduce them, so you may fully understand the range of talent provided by the FPM 42.

STAND-ALONE. As an independent 4-input to 2 or 4-output mixer, the FPM 42 is a reasonably straightforward device. The 4 inputs are mixed to either, or both, of two main buses, A and B, as well as to both auxiliary buses via the Aux send control on the front of the unit. The A and B input LEVEL controls determine the amount of input signal to be applied to each of the main buses. The A and B MASTER level controls at the end of the signal path set the levels for the final output at the A and B MASTER OUTPUT jacks on the rear of the unit. *The Aux inputs uppear ONLY on the bus unless you choose to change the optional internal jumpers to program the second l/4" output* to *be unbalanced Aux A/B.* The AUX send control on each input places an equal amount of program on each of the AUX A/B OUTPUTS. The source for the Aux is determined by setting the internal assign switches to be either pre- or post- the input LEVEL controls. *It is important to note that this is a single control for both outputs.*

MULTIPLE MODULES. As previously mentioned, the FPM 42 may be used in conjunction with other Flex mixer modules to create a large system. This is accomplished through the use of the BUS IN and BUS OUT jacks on the rear of the unit. Each mixer module in the system places its Master and Aux mixes on the respective buses internally and provides this information to the BUS OUT jack. When these signals are connected to the BUS IN jack on a succeeding unit, they combine in the next unit with any local program material generated in that unit and the sum of the two will be available at the second unit's BUS OUT jack.

Each Flex mixer module sums all bus information in such a way that the Flex BUS OUT is a low impedance line. This differs rather dramatically from the way most mixers operate. Normally this line would be very sensitive to noise and would be impossible to bring **out** of the mixer, even in a well shielded cable. This is not a problem with the Flex Bus System and this allows as many modules to be combined on one bus as could ever be necessary.

For further system connection possibilities, please refer to the **Flex Users Guide.**

POWER SUPPLY. As noted elsewhere in this manual, NEVER USE A POWER SUPPLY WITH YOUR FPM 42 OTHER THAN THE ONE SUPPLIED FROM THE FACTORY OR AN EXACT REPLACEMENT OBTAINED FROM RANE CORPORATION. This unit's power supply input is designed for an AC supply, delivering 18-24 volts, from a center-tapped transformer capable of supplying at least the current demanded by this product. Using any other type of supply may damage the unit and void the warranty (which at two years parts and labor is worth safeguarding, don't you think?).

IMPORTANT NOTE

CHASSIS GROUNDING

Rane Flex Series modules are supplied with either a rear, or a bottom/side mounted ground-lift switch. The unit is shipped with this switch in the "grounded" position, tying circuit ground to chassis ground. 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. Units with outboard power supplies do not ground the chassis through the line cord. Make sure that these units are grounded either to another chassis which is earth grounded, or directly to the grounding screw on an AC outlet cover by means of a wire connected to a screw on the chassis with a star washer to guarantee proper contact.

Please refer to Rane Note 110 (supplied with your unit and available on request at no charge if you lost your first one) for further information on system grounding.