

QUICK START

This section has been provided as a convenience for those without enough patience to read the entire manual. If you are experienced with this unit or other Rane Flex modules, these few words should help refresh your memory.

Inputs may be mic or line level. The choice between the two is made by setting the pushbuttons on the rear of the unit near each input. Balanced inputs use pin 2 as hot, pin 3 as return and case as shield ground. Unbalanced inputs should be connected to pin 2 for hot and pin 1, signal ground, for return. The 1/4" expand outputs are to be used for daisy-chaining the inputs to another destination. These are tip ring sleeve connectors where the tip is hot, ring is return and sleeve is ground. Alternatively these may be used as inputs.

The outputs are 1/4" tip ring sleeve jacks where the tip is A output, ring is B output and sleeve is ground. Signal for these outputs may be sourced either before or after the **A** and **B MASTER** level controls. The switches which determine this are located within the confines of the unit's covers. All FPS 28s are shipped from the factory with the switches in the **POST** fader position.

Once inputs and outputs are satisfactorily connected, set the input gains as high as possible without causing the A and B overload indicators to illuminate steadily with very high input levels. If 1 x 8 splitter operation is required, only one input is used and the **STEREO / MONO** switch should be in the **MONO** position. If 1 x 4 stereo operation is chosen the switch should be in the opposite position.

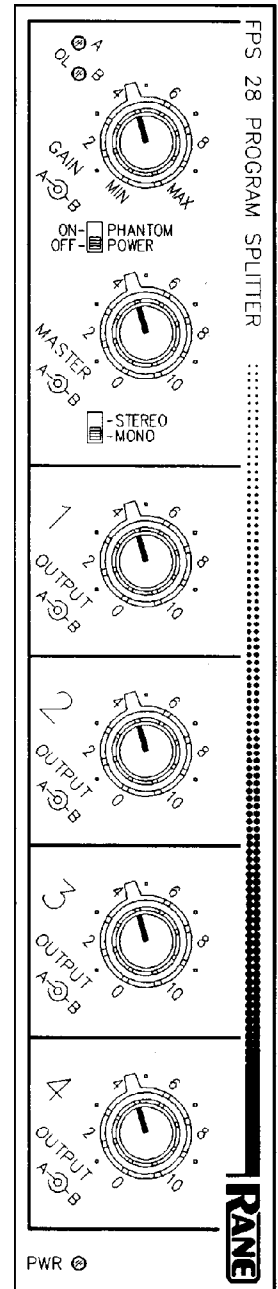
NEVER CONNECT ANYTHING EXCEPT AN APPROVED RANE POWER SUPPLY TO THE RED THING THAT LOOKS LIKE A TELEPHONE JACK ON THE REAR OF THE FPS 28. This is an AC input and requires special attention if you do not have a power supply **EXACTLY** like the one that was originally packed with your unit. See the full explanation of the power supply requirements elsewhere in this manual.

SYSTEM CONNECTION

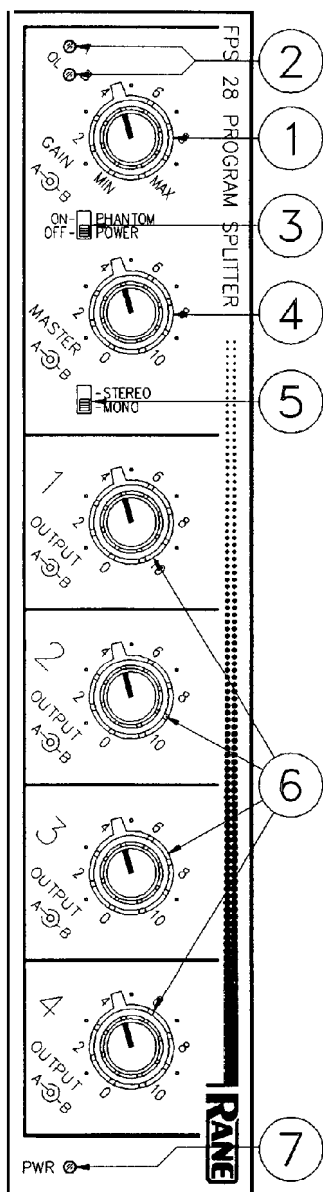
When connecting the FPS 28 to other components in your system for the first time, **LEAVE THE POWER SUPPLY FOR LAST.** This gives you a chance to make mistakes and correct them without damage to your fragile speakers, ears and nerves.

INPUTS. The two inputs on the FPS 28 are balanced. They may also be used in an unbalanced configuration. Use only shielded cable for inputs. This wire should always be two-conductor plus shield, even for unbalanced operation. Balanced inputs should be connected to both the "+" pin 2 and "-" pin 3 for signal hot and return. The shield should be tied to case ground. A neutral "pin 1" ground is not necessary (except when using phantom power). For unbalanced use, connect the hot side of the input cable to pin 2 and signal return to pin 1. It is never necessary on any Rane Flex module to ground the pin 3 input in the unbalanced mode. It won't, however, hurt anything if you do. 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.

OUTPUTS. The FPS 28's outputs are unbalanced. Channel A is present on the tip of these jacks, channel B is the ring. Use two conductor shielded cable for this purpose with the shield connected to the sleeve. *Shield must be connected on both ends of the cable.*



FRONT PANEL DESCRIPTION



1. INPUT LEVEL CONTROLS. These concentric level controls set the level of each input to be routed to the channel A bus and the channel B bus. The inner knob controls the level to be sent to bus A, the outer knob controls the signal applied to bus B. Rotating the knobs upward together from the “0” position creates a “pan centered” effect. Leaving one off and increasing the other emulates a full pan to one bus or the other.

2. A AND B OVERLOAD INDICATORS. These red LEDs illuminate whenever the combination of input level and input gain adjustment cause the input amplifiers to reach or exceed a level equal to 4dB below clipping.

3. PHANTOM POWER SWITCH. In the ON position, 15VDC phantom power will be present on both 3-pin inputs on the rear of the module.

4. MASTER A AND B LEVEL CONTROLS. These concentric controls set the level to each of the buses. Output levels may be selected via the four pairs of controls connected to the output sections. This is true, however, only if the internal PRE/POST switches are in the POST position (as shipped).

In the PRE position, the Master Level Control is bypassed for that respective output and only the Input Gain Control and the Output Level Control have any effect on an individual output.

5. STEREO/MONO SWITCH. To make one of the inputs on the FPS 28 available to all eight outputs, this switch needs to be in the MONO position. In the STEREO mode, Input A drives bus A only; Input B connects to bus B only.

6. OUTPUT LEVEL CONTROLS. Each pair of output controls sets the individual channel output levels. The inner knob is for channel A, the outer is channel B.

7. POWER INDICATOR. When this yellow LED is illuminated, the foregoing information should be correct. If darkness is present at this location, most or all of the above will be inoperative.

REAR PANEL DESCRIPTION

1. A AND B INPUT CONNECTORS. Use these 3-pin input connectors for either microphone or line level inputs to be split by the FPS 28. Connect balanced sources to the respective “+”, “-” and “GND” pins which are pins 2, 3 and 1 respectively. Unbalanced inputs should connect to pins 2 and 1 only. When using an unbalanced input, pin 3 may be left open or shorted to “GND”.

2. EXPAND OUTPUTS. These two tip-ring-sleeve 1/4" jacks directly parallel pins 1, 2 and 3 of the three pin input connectors. The tip is connected to pin 2, the ring goes to pin 3 and sleeve jumpers to pin 1. These are to be used in situations where more than a stereo 4-way or mono 8-way split is required from the same source(s). When expanding to one more FPS 28, a 1/4" to 1/4" patch may be made. The expand input may also be used as a primary input.

3. MIC /LINE SELECTOR SWITCH. In the out position, the respective input stage is set for microphone input levels. In the depressed position, line level signals are accepted.

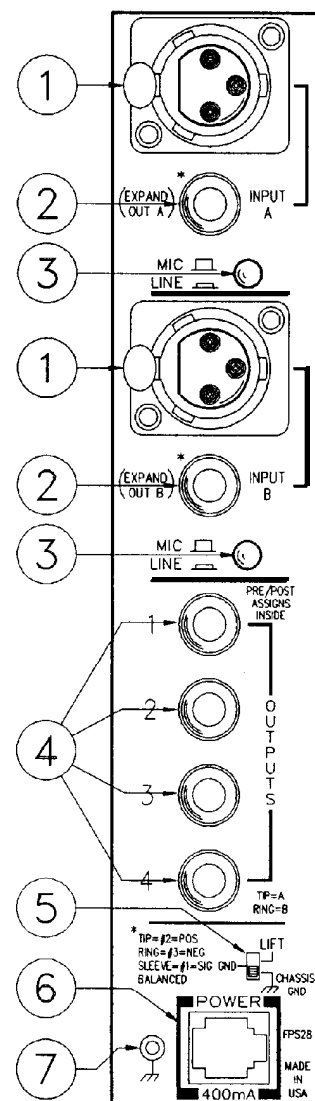
4. OUTPUT JACKS. These four 1/4" tip-ring-sleeve jacks provide all eight outputs of the FPS 28. Each contains a pair of signals, Bus A is on the tip and Bus B is on the ring. Sleeve is signal ground.

5. 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. 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. ALWAYS TURN YOUR AMPLIFIER LEVELS DOWN BEFORE CHANGING YOUR GROUNDS AROUND and then bring them up slowly.

6. POWER INPUT CONNECTOR USE ONLY A MODEL RS 1, FRS 8, OR OTHER REMOTE AC POWER SUPPLY APPROVED BY RANE. The FPS 28 is supplied with a remote power supply suitable for connection to this input jack. Consult the factory for replacement or substitution.

7. CHASSIS GROUND POINT. A 6-32 threaded hole used for chassis grounding purposes. See the CHASSIS GROUNDING note on the last page for details.



FPS 28 TOP-REAR COVER REMOVAL PROCEDURE:

To gain access to the internally mounted PRE/POST switches, remove the top/rear cover following this procedure:

- 1. Remove the five phillips screws securing the top cover to the chassis, using a #2 phillips screwdriver.
- 2. Slide the top/rear panel to the rear and off of the chassis.
- 3. To replace the top/rear cover, reverse the above procedure.

OPERATING INSTRUCTIONS

This module serves two similar yet different functions. In the “stereo” mode, it will split two inputs into four pairs of outputs. The two inputs may be set at different levels if necessary via the concentric MASTER level controls. All eight outputs (4 pairs) may be set as necessary through the use of the four sets of concentric OUTPUT level controls. In the “mono” mode, one input may drive all eight outputs, again with separate MASTER and OUTPUT level controls.

The internal PRE/POST switches allow you to determine whether an individual output is to be routed through the MASTER level control. If all eight switches are set to the PRE position, the MASTER level control is defeated and has no effect over any of the outputs. It is for this reason that all FPS 28s are shipped from the factory with all switches in the POST position. This helps eliminate questions about possible defective controls. The normal use of the FPS 28 would be in a situation where the MASTER level controls adjust the level of all outputs together without disturbing the relative levels between the outputs. There are eight separate switches so that some zones or splits can be adjusted with the MASTERS and some not.

For optimum noise performance from microphone inputs, it is always advisable to run as much gain as possible in the first stage of amplification. For this reason, set the gain control so that at the highest expected sound levels at the microphone the overload LEDs occasionally blink. Obviously, trading constantly lit overload LEDs (and the ensuing distortion) for lower noise is not a great idea. Make sure the selector switch on the rear is in the OUT position for microphone use. In the line level configuration, unity gain is probably a good place to start. This may be found at approximately “4” on the GAIN control.

POWER SUPPLY. As noted elsewhere in this manual, NEVER USE A POWER SUPPLY WITH YOUR FPS 28

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 module 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.