

QUICK START

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

Inputs may be microphone or line level. The choice between the two is made by setting the pushbuttons on the rear of the unit near each Input. Follow the silkscreening for proper wiring hookup. Choose between chassis, signal ground or open for shield connection.

Signal for the Outputs is 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 FDA 28s are shipped from the factory with the internal 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 for high input levels. If 1 x 8 Mono operation is required, use only one Input and set all **STEREO/MONO** switches to the **MONO** position. If 1 x 4 **STEREO** operation is chosen, all switches should be in the opposite position. Mix settings as each application demands.

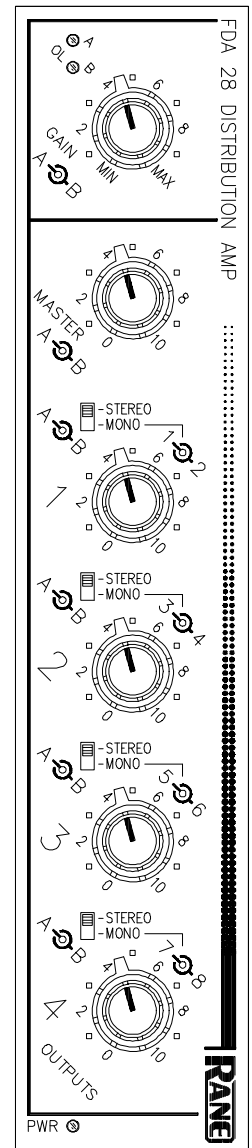
NEVER CONNECT ANYTHING EXCEPT AN APPROVED RANE POWER SUPPLY TO THE RED THING THAT LOOKS LIKE A TELEPHONE JACK ON THE REAR OF THE FDA 28. This is an AC input and requires special attention if you do not have a power supply **EXACTLY** like the one that was originally packed with your unit. See the full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

SYSTEM CONNECTION

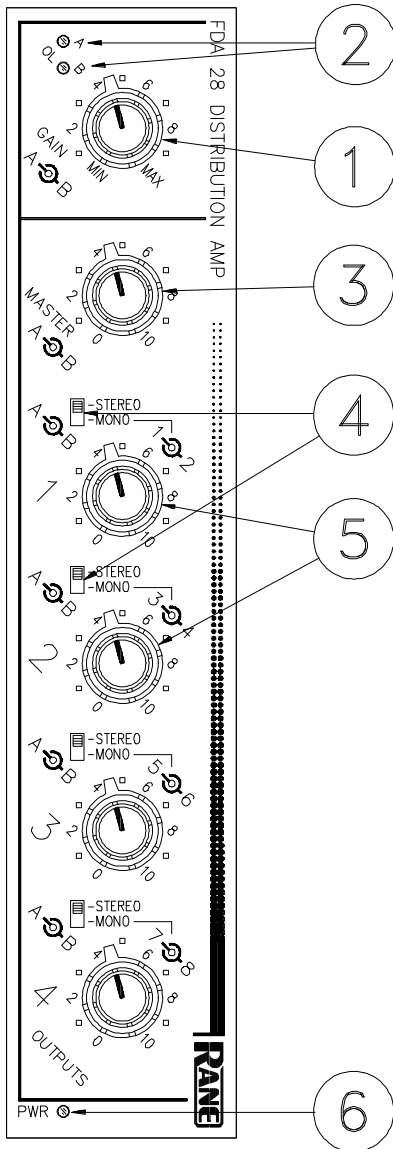
When connecting the FDA 28 to other components in your system for the first time, *leave the power supply for last*. This gives you a chance to make mistakes and correct them without damage to your fragile speakers, ears and nerves.

INPUTS. The two Inputs on the FDA 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 "+" and "-" terminals. Tie the shield to either chassis ground for normal use, or to signal ground when using Phantom Power (*required*). A neutral ground is not necessary (except when using Phantom Power). For unbalanced use, connect the hot side of the input cable to "+" and ground to signal ground. 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 FDA 28s Outputs are balanced. The same wiring conventions as the Inputs apply, with one exception. Unbalanced Outputs require tying the "-" Output to Signal Ground.



FRONT PANEL DESCRIPTION



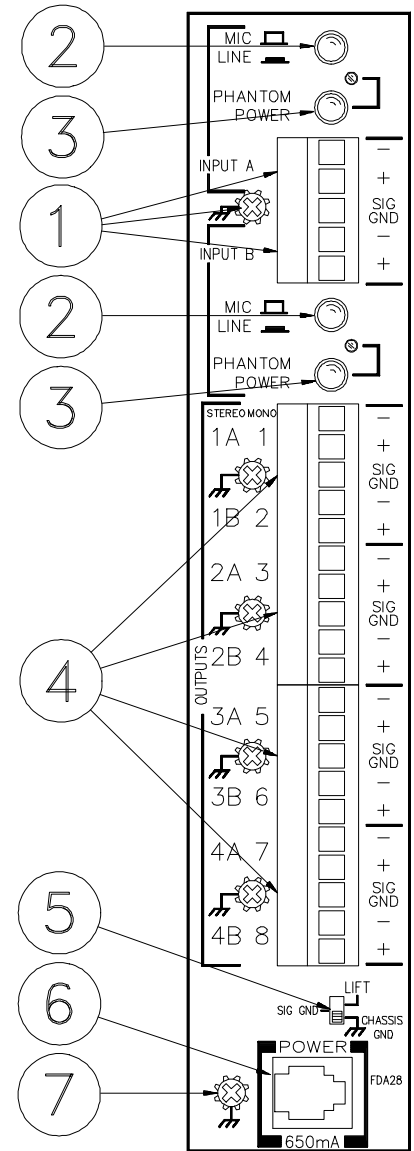
The FDA 28 is a combined Stereo or Mono unit. Outputs are labelled in white, 1A/B - 4A/B for STEREO use, and in gray, 1-8 for MONO operation. Note that in MONO the odd Output Channels are connected to INPUT A and the even Output Channels to INPUT B.

- 1. INPUT GAIN CONTROLS.** These concentric controls set the Gain of each Input to be routed to the A and B bus for Stereo operation, or to the odd and even buses for Mono use. The inner knob controls the level to be sent to bus A (odd), the outer knob controls the signal applied to bus B (even). Rotating the knobs upward together from the MIN 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. MASTER A AND B LEVEL CONTROLS.** These concentric controls set the level to each of the post buses. Output levels may be selected via the four pairs of controls connected to the Output sections 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.
- 4. STEREO/MONO SWITCHES.** To make one or both Inputs drive all eight Outputs, slide all switches to their MONO positions. In STEREO mode, INPUT A drives bus A (or odd) only; INPUT B connects to bus B (or even) only. Program each pair of Outputs as necessary. Monoing one Output pair will have no effect on the other Outputs.
- 5. OUTPUT LEVEL CONTROLS.** Each pair of OUTPUT controls sets the individual Channel Output levels. The inner knob is for Channel A (or odd), the outer is Channel B (or even).
- 6. 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

The FDA 28 uses Euroblocks that disconnect and accommodate any wire size from 26AWG to 12AWG.

1. **INPUT TERMINALS.** Use these for either Microphone or Line level INPUTs to be distributed by the FDA 28. Connect balanced sources to the respective “+” and “-” terminals, and choose a shield grounding terminal (either signal ground (SIG GND) or chassis ground). Unbalanced Inputs should connect to “+” and SIG GND only. When using an unbalanced Input you may leave “-” open, or short it to GND.
2. **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.
3. **PHANTOM POWER SWITCH.** In the *on* position, 15VDC PHANTOM POWER appears present on each INPUT, and the LED lights.
4. **OUTPUT TERMINALS.** Balanced OUTPUT for each Channel. Connect two conductor shielded cable to “+” and “-” terminals. Tie the shield to chassis, signal ground, or leave open—your choice. For unbalanced use, you must tie the “-” to SIG GND. *Failure to do so results in improper operation.*
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. 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, RAP 10, VC 18 OR OTHER REMOTE AC POWER SUPPLY APPROVED BY RANE. The FDA 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 screw is used for chassis grounding purposes. See the **CHASSIS GROUNDING** note on the last page for details.



INTERNAL ASSIGN SWITCHES SHIPPED IN “POST” POSITIONS.

OPERATING INSTRUCTIONS

This module serves two similar yet different functions. In 'all 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 'all MONO' mode, one Input may drive all eight Outputs, again with separate MASTER and OUTPUT level controls. Any combination of STEREO and MONO Outputs may be used.

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 FDA 28s are shipped from the factory with all switches in the POST position. This helps eliminate questions about possible defective controls. One normal use of the FDA 28 is 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 MIC 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 FDA 28 other than the one supplied from the factory or an exact replacement obtained or approved 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 commercial equalizers are supplied with a rear 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 lose it) for further information on system grounding.