

QUICK START

You're in a hurry, so you better read this quick, so you can get started right away.

The input may be mic or line level. Choose by pressing the pushbutton located near the MASTER control. A balanced input uses "+" as hot, "-" as return and GND as shield ground. An unbalanced input should connect to "+" and GND. Leave "-" unconnected.

The outputs are "+" and "-". Normally GND is not used on the sending end. Ground the shield only at the receiving end.

Signal for the outputs is sourced either before or after the MASTER level control. The switches which determine this are located within the confines of the unit's covers. All FDA 18s are shipped from the factory with the switches in the POST position.

Once the input and outputs are satisfactorily connected, set the input gain as high as possible without causing the overload (OL) indicator to illuminate steadily with very high input levels.

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 18. 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.

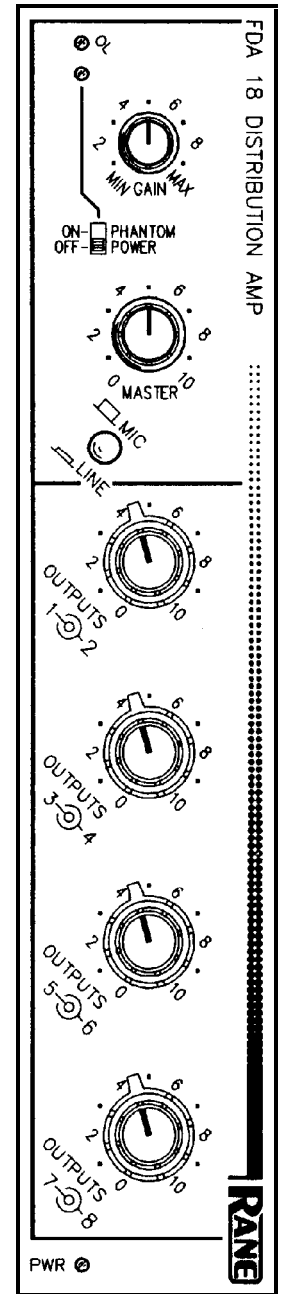
SYSTEM CONNECTION

When connecting the FDA 18 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.

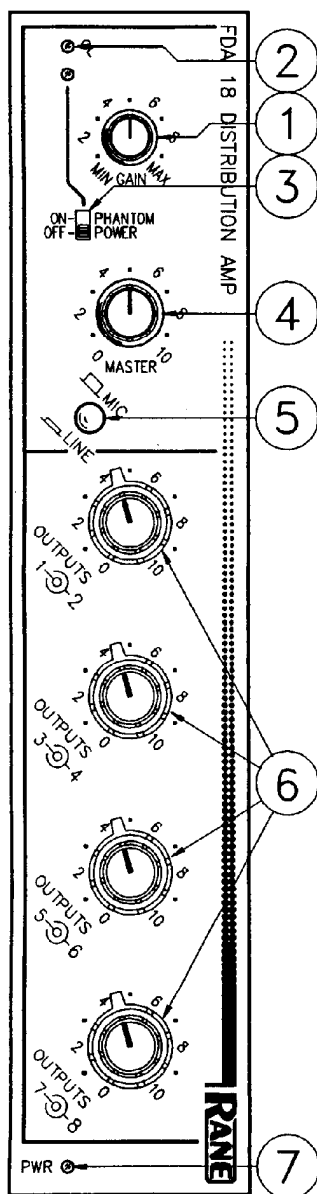
INPUTS. The input on the FDA 18 is fully differentially balanced, i.e., it is a true instrumentation amplifier. It may also be used in an unbalanced configuration. Use only shielded cable for your input. This wire should always be two-conductor plus shield, even for unbalanced operation. Balanced inputs should be connected to the "+" pin and "-" pin for signal hot and return. The shield should be tied to GND. 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 "+" and the signal return to GND. It is never necessary on any Rane Flex module to ground the pin 3 input in the unbalanced mode; however, it won't hurt anything either. If the input is coming from another piece of equipment (as opposed to a mic), connect the shield only at the receiving end to help prevent ground induced hum. If a microphone is the source, connect the shield to the case of the mic as well as pin 1, and to the ground terminal on the unit. This is mandatory when using phantom power.

OUTPUTS. The FDA 18's outputs are fully balanced using a cross-coupled type of output line driver stage. Use two conductor shielded cable for interconnecting to the next piece of equipment. Normally, grounding the shield only at the receiving unit gives the best shielding, and the most hum-free performance.

The cross-coupled output stage is capable of driving lines as long as 1000 without problems. Longer lines (in excess of a mile) can be driven by directly paralleling two outputs.



FRONT PANEL DESCRIPTION



1. INPUT GAIN CONTROL. This control sets the gain of the input. The adjustment MIN to MAX range is from 26 dB to 70 dB when MIC is selected, and from -7 dB to 37 dB for LINE sources. Set the highest level that does not cause the OL indicator to come on continuously.

2. OVERLOAD INDICATOR. This red LED illuminates whenever the combination of input level and input gain adjustment causes the input amplifier to reach or exceed a level equal to 4 dB below clipping.

3. PHANTOM POWER SWITCH AND INDICATOR. In the ON position (LED on), 15 VDC phantom power appears on each input terminal on the rear of the module.

4. MASTER LEVEL CONTROL. This control sets the signal level appearing on the internal distribution bus. Output levels may be selected via the four pairs of concentric 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 individual OUTPUT level control has any affect.

5. MIC/LINE SWITCH. In the out position, the input is scaled for microphone input levels. In the depressed position, the input stage is set for line-level input.

6. OUTPUT LEVEL CONTROLS. These concentric controls set each individual output level. The inner knobs are for odd numbered channels, and the outer knobs are for even numbered channels.

7. POWER INDICATOR. When this little yellow LED illuminates, the foregoing information applies. If darkness persists at this location — ignore the above. Pity.

REAR PANEL DESCRIPTION

1. INPUT TERMINALS. Use these for either a microphone or a line level input to be distributed by the FDA 18. Connect a balanced source to the respective “+”, “-” and GND pins (pins 2, 3 and 1 respectively). An unbalanced input should connect to “+” and GND only. When using an unbalanced input, you may leave “-” open, or short it to GND, doesn't matter.

2. OUTPUT TERMINALS. Balanced output for each channel. Connect two-conductor shielded cable to “+” and “-”. Normally the shield is tied only at the next unit's input.

For unbalanced use, you must ground the “-” output, Failure to do so results in improper operation.

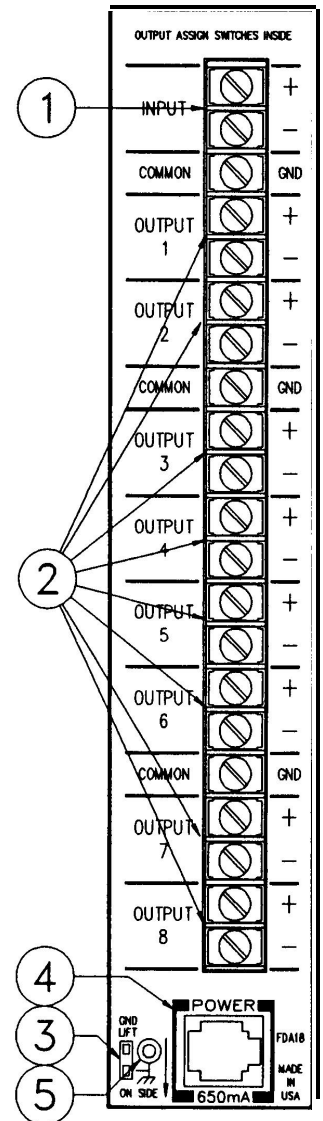
3. GROUND LIFT SWITCH. This switch (mounted on the side) provides the ability to separate chassis ground and signal ground. Normally, this switch should be in the LIFT position (pull toward the rear). In some circumstances it may be necessary to move it to the opposite position to eliminate stubborn 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.

4. POWER INPUT CONNECTOR. USE ONLY A MODEL RS 1, FRS 8, RAP 10, OR OTHER REMOTE AC POWER SUPPLY APPROVED BY RANE. The FDA 18 is supplied with a remote power supply suitable for connection to this input jack. Consult the factory for replacement or substitution.

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



NOTE: ASSIGN SWITCHES SHIPPED IN “POST” POSITIONS

OPERATING INSTRUCTIONS

This module serves the very straightforward function of splitting, or distributing, one balanced input signal into 8 separate balanced outputs. Each output has its own level control.

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 their PRE positions, the input MASTER control is completely bypassed and has no effect over any of the outputs. This is why FDA 18s ship from the factory with all switches in the POST position. This helps reduce questions about possible defective controls. A common use of the FDA 18 is a situation where the MASTER level control adjusts the level of all outputs together without disturbing the relative levels between them. There are eight separate switches, so you may program some zones or splits to be adjusted with the MASTER control, and others 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 MIC/LINE selector switch 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 FDA 18 OTHER THAN THE ONE 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.