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Note: Repairs and packages should be shipped to Suite 202



Model 4926
Distribution Amplifier

Users' Manual

QUICK START

To connect your 4926 unit as quickly as possible, without having to read the entire manual, just follow these steps.

1. Using the 4 mounting screws provided, mount the unit into your rack. Do not plug the unit in.
2. Set the AC voltage back panel switch to the appropriate 115 or 230VAC setting.
3. Connect the input channel(s) for either balanced or unbalanced operation, paying careful attention to the connections shown in Figure 1. Note: For unbalanced operation, audio negative must be connected to signal common, otherwise a 6 dB loss in signal level will result.
4. Connect the output cables for either balanced or unbalanced operation, paying careful attention to the connections shown in Figure 2. Note: For unbalanced operation, audio negative must be connected to signal common, otherwise a 6dB loss in signal level will result.
5. Set the output assignments by setting the 2 left-most levers in each 7 position output DIP switch to the desired signal routing configuration. A channel is "on" if its lever is up.
6. Check all signal connections. It is good practice to initially set the input signal gain to unity (input DIP switch levers all up) on both inputs and the output attenuation to 31 dB (output DIP switch levers all down) on all outputs. This will help prevent overdriving any devices connected to the 4926 at initial power-up. Plug the unit in.
7. Set the input gain and output attenuation to the desired setting. For example, 11 dB of gain would require the 8, 2 and 1 levers to be pushed down. For gain adjustments, it is good practice to reset the DIP switch lever settings to the "up" position before entering the new gain setting. For attenuation adjustments, it is good practice to reset the DIP switch levers to the "down" position before entering the new attenuation setting. These procedures prevent excessive output signal amplitudes during level setting. Remember: It is desirable to use as little output attenuation as possible when setting the 4926 gain structure. This maximizes the 4926 dynamic range and reduces noise.

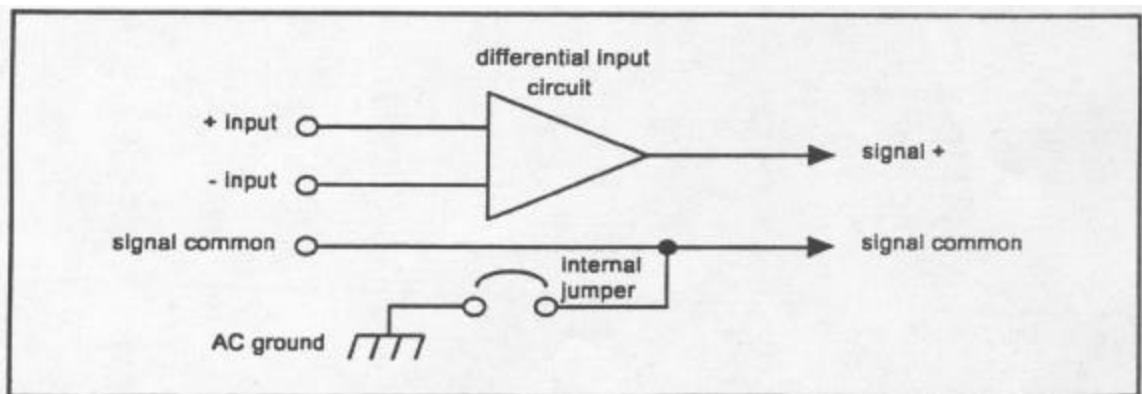


Figure 1 - *Input Connections*

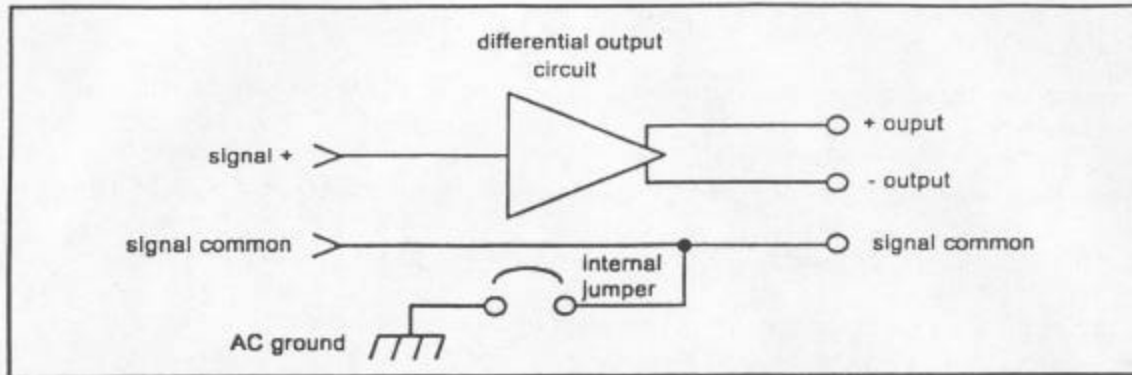


Figure 2 – Output Connections

UNPACKING

Carefully unpack and inspect your new **4926** for shipping damage. If the unit is damaged, immediately notify the carrier and us. For U.S. orders, your unit was shipped with full insurance unless you requested otherwise. The package should contain the following items

1. The 4926 unit.
2. This manual.
3. Four rack mounting screws.
4. One user service card.

FRONT PANEL FEATURES

The 4926 intentionally does not have any front panel controls. Each input has a green (0 dB) and red (clip) LED which indicates the input level measured after the gain stage. Each output has 2 green LEDs which indicate 0 dB and -10 dB levels at each individual output. Power is indicated by a green LED. Figure 3 identifies all of the 4926 front panel features.

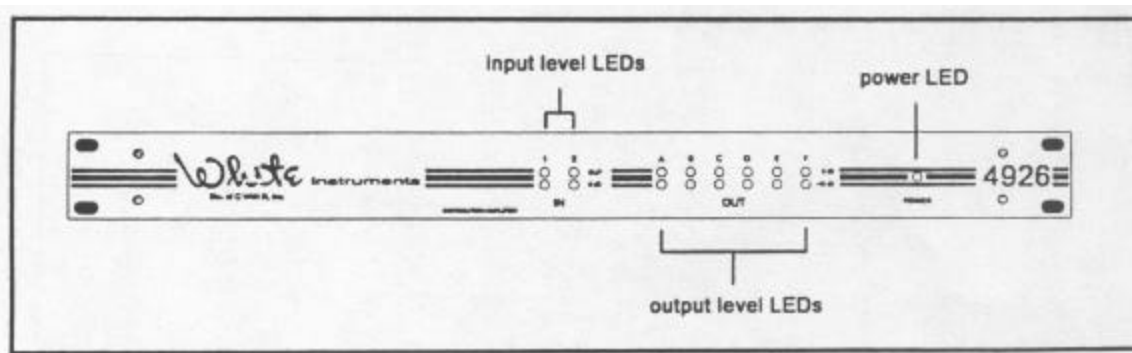


Figure 3 – Front Panel Features

REAR PANEL FEATURES

Each input and output in the 4926 is electronically balanced and interfaced with removable screw terminal connectors. Input gain is set using a 4 lever DIP switch and output attenuation is set using 5 of the 7 levers in each output DIP switch. Above each input gain switch is a 0 dB calibration LED. Output assignments are made using the 2 remaining levers in each 7 position output DIP switch, which allow selection of individual input channels or a sum of both inputs. The back panel also houses the AC voltage select switch and the fuse holder. Figure 4 identifies all of the 4926 rear panel features.

For convenience, a functional block diagram of the 4926 is provided on the unit top panel.

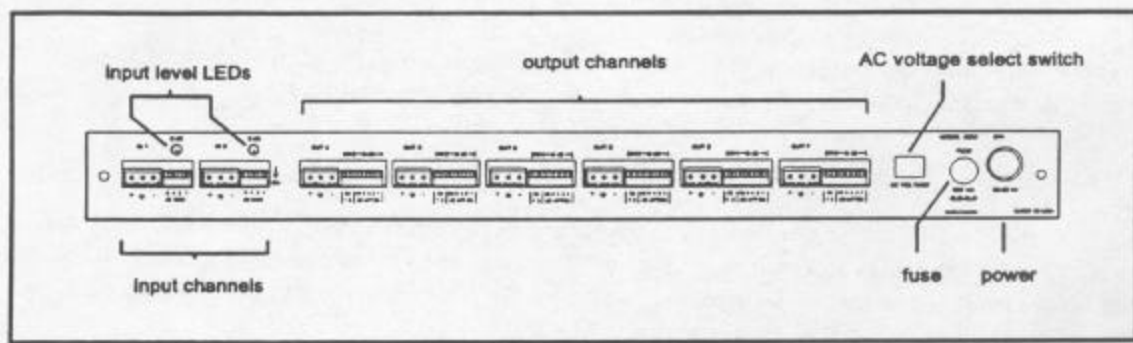


Figure 4 – Rear Panel Features

SOUND SYSTEM CONNECTIONS

This manual is not intended to provide an exhaustive explanation of sound system connections, however, in the interest of getting the absolute best performance from your 4926, a brief summary is given below.

NEVER remove the grounding lug from the AC power cable. To do so is dangerous and unlawful in most areas! Further, it is unnecessary since the audio circuitry can be isolated from earth ground by removing an internal jumper inside of the unit.

The shield should not be thought of as part of the audio circuit. Rather, it simply helps protect the audio circuit from electromagnetic and RFI noise. It is a generally accepted practice to connect the shield to earth ground at only ONE end of the audio cable. The other end should be left open or connected to earth ground through a 0.01 microfarad capacitor.

The 4926 circuit common is tied to chassis ground through an internal jumper. The user may isolate circuit common from chassis ground by removing the top panel and unplugging the jumper, labeled 'E1', which is located on the pc board near the transformer.

Unbalanced Operation

The 4926 can have each of its signal inputs or outputs independently connected for either balanced or unbalanced operation. This feature, for example, allows the user to take an unbalanced input signal going into the 4926 and generate balanced output signals. For minimum external noise pick-up, balanced connections are usually chosen. Unbalanced connections are sometimes chosen when cable cost is a factor and when external electromagnetic interference is minimal.

Balanced Operation

A balanced audio transmission line is a system which, like the shield, provides protection from electromagnetic disturbances or RFI noise.

In order for balancing to effectively reduce external noise, two conditions must be met:

1. The + and – input or output conductors must be in close proximity to each other so that any external electromagnetic disturbance is equally imposed on both conductors.
2. Both + and - leads must be referenced to a common point in the circuit.

When operating in balanced mode, the **4926** only amplifies the difference signal between the + and - leads, rejecting any signal common to both leads. Thus, any external interference present on both + and - input leads is rejected in the input stage of the 4926. The effectiveness of this rejection is measured by the common mode rejection ratio (CMRR)

Important: A device's internal circuit design, *not the audio interface (cables or connectors)*, defines whether the unit is balanced or not. A balanced device may be externally configured to operate unbalanced. However, an unbalanced device *cannot* be balanced. A balanced transmission line requires balanced driving and terminating devices as well as a balanced cable configuration. If any of these conditions is not met, the transmission line will not be balanced.

SYSTEM SET-UP

In order to obtain the maximum performance from your 4926, use the following set-up procedure and refer to the block diagram in figure 5.

1. Connect the **4926** to the rest of the sound system as explained in the 'Quick Start' section at the beginning of this manual.
2. Set the gain levels of the distribution amplifier while maximizing the dynamic range used.
 - A. Turn off all devices driven by the 4926.
 - B. Set the 4926 output assignments using the 2 dedicated levers in each output DIP switch. Refer to figure 5, if necessary.

- C. Send program material at the maximum anticipated signal level into both input channels of the 4926. Set the input gain such that the red input clip indicators occasionally flash. If the input signal level is unknown, its level may be determined to within 1 dB by adjusting the input gain in 1 dB steps until the green '0 dB' back panel LED turns on. The amount of gain added is the amount the input signal level is below 0 dB.
- D. Adjust the attenuation on all outputs to maximum by setting all the DIP switch levers to their down or 'on' position. Turn on all of the devices driven by the 4926. Reduce the attenuation of the appropriate output to the desired level in 1 dB increments following the recommended procedure of step 7 in the 'Quick Start' section.

Please Note: *If a particular output has been assigned to the a sum of (the inputs. The input signals are simply added and therefore, may be higher than the individual input levels. Also, remember if the device driven by the 4926 has a gain setting, it is desirable to use as little attenuation as possible in the 4926 output stages so that minimum gain is required in the following device.*

This set-up results in maximum utilization of the 4926 dynamic range and ensures good gain structure to minimize audible noise.

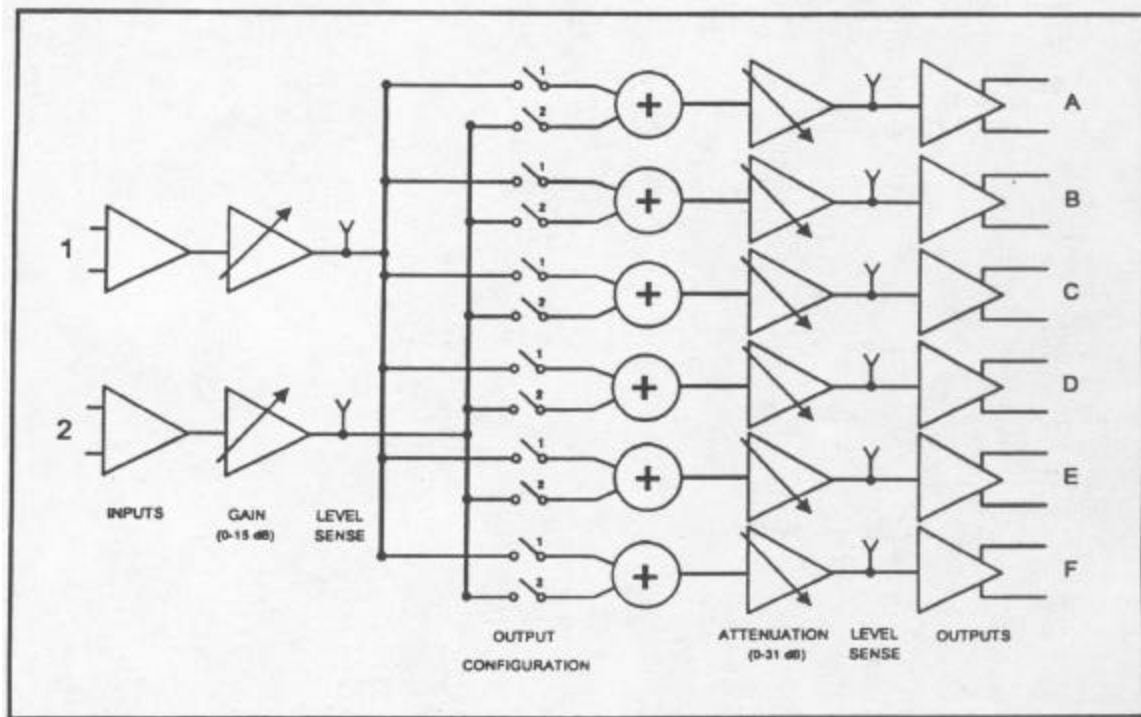


Figure 5 – Block Diagram

Specifications

Number of Channels:

Input two
Output six

Frequency Range:

20 Hz – 20 kHz, ± 0.5 dB

Maximum Operating Level:

+21 dBu

Input Gain:

15 dB in 1 dB increments using 4 position DIP switch.

Input Level indicators:

Front Panel:

Red (clip) and green (0 dB) LEDs.

Rear Panel:

Green (0 dB) LED.

Output Attenuation:

31 dB in 1 dB increments using 5 position DIP switch

Output Level indicators:

Front Panel:

Green (0 dB) and green (-10 dB) LEDs.

Output Assignment:

Assigned from either input or sum of both using 2 levers on each output DIP switch.

Dynamic Range:

>114 dB.

Distortion:

Less than 0.01% into 600 ohms, 20Hz - 20kHz.

Crosstalk:

Less than -90 dB at 1 kHz.

Input Impedance:

30 k Ω balanced, 10 k Ω unbalanced.

Input Circuit:

Active servo-balanced. Can operate unbalanced with no gain change.

Output Impedance:

102 ohms balanced, 51 ohms unbalanced.

Output Circuit:

Active servo-balanced. Can operate unbalanced with no gain change.

Connector Types:

Input/output - removable screw terminals.

Power Requirements:

100-130 or 200-260 VAC, 50/60 Hz, 30 Watts.

WARRANTY POLICY

Your White Instruments 4926 is warranted against defects in manufacturing, workmanship and original components for a period of **THREE YEARS** from the date of purchase. During this period, White Instruments will repair or replace the unit, at our option, so long as it has not been subjected to abuse. Abuse may be physical and/or electrical in nature. White Instruments will be the sole judge of these criteria.

White Instruments is the only warranty repair facility in the United States. Outside the United States, White Instruments distributors are authorized to make warranty repairs.

Warranty Repairs

Your 4926 should be securely packed and shipped, prepaid, to White Instruments or one of its authorized offshore distributors. Our U.S.A. shipping address is given in the **COMMUNICATIONS** section below. Contact the factory for the name and address of the distributor nearest you.

A copy of your sales receipt should be included to establish the warranty date in addition to a letter detailing the unit's malfunction.

Every effort will be made to complete warranty repairs within 5 working days of receipt of the unit. Your 4926 will be returned to you prepaid via surface freight. If you instruct us to return your 4926 via air freight, it will be shipped with freight charges collect.

Out-of-Warranty Repairs

Should the required repairs not be covered by our warranty you will be charged for the parts and labor required to repair the unit. Should you require an estimate of charges prior to repairing the unit you should notify White Instruments of this when returning the unit. Every effort will be made to complete the repair within 5 working days. The unit will be returned C.O.D. unless other arrangements have been made.

As a service to our customers, our repair center is non-profit.

Communications

White Instruments

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