

Raven Labs

APD-1



• Front Panel



• Rear Panel

Extremely accurate electronics, low noise, useful features, and ultimate portability make the Raven Labs Model APD-1 unique in the world of direct boxes. Loaded with features and technology you'd expect in a box five times the size, weight and price, the APD-1 is ideal for both the live stage and the recording studio. The APD-1 can be powered with two 9 volt batteries or an optional A/C wall adapter. With over 100 hours of battery life under normal conditions, it is the perfect choice for remote location recording.

The APD-1's precision electronics are built around a Multiple Arrayed Geometric Inductive Coupled (MAGIC) balanced output transformer. This transformer has very little loss thus producing a "hot" output signal. Therefore, less gain needs to be added to the signal path. This unique feature produces a crystal clear signal with less noise, distortion and other unwanted anomalies.

The APD-1 from Raven Labs comes with a 5 year guarantee against parts and workmanship.

Front Panel Features

- Two independent inputs, each with their own In/Out switch
- Side chain effects loop with Blend Control.
- Effects Assign Switch. Effects can be routed to both the XLR and To Amp jack, or just to the Amp output.
- Passive Phase Reverse switch. Affects XLR out only.
- XLR Pad with -20dB, -10dB, 0, and +6dB positions.
- Mute switch with red LED indicator.
- Power switch with green LED indicator.

Rear Panel Features

- To Amp jack. This sends the input signal to an amplifier or other unbalanced input.
- Tuner send. Being on a side chain and isolated, it will not load down the instrument.
- Effects Send and Receive jacks.
- Balanced XLR out with Ground Lift switch.
- A/C adapter In jack.
- Dual 9 volt battery holder.

Specifications

All measurements taken with fresh 9 volt batteries. • **Input Impedance, both channels:** 10 Meg Ohms. • **Maximum Input Signal:** 3 volts RMS. • **Maximum Output Signal:** 6 volts RMS. • **Frequency Response:** 10Hz to 60KHz, +0, -1dB. • **Distortion:** 0.008%, 20Hz to 20KHz. Output level 0dB, load: 1 K ohm. • **Signal to Noise Ratio:** greater than -95dB, unweighted. • **Output Impedance:** To Amp, Effects Send, Tuner jacks: 100 ohms. • **Effects Return Jack Input Impedance:** 22K ohms minimum. • **Output Impedance, XLR out:** 600 ohms CT • **Output Transformer:** Core Material: High permeability nickel. • Wire: Oxygen free, high purity copper magnet wire. • Winding construction: Trifiler wound, fully symmetrical close coupling with balanced DCR. Wide bandwidth design with full isolation and low insertion loss. • **Chassis:** All steel, powdercoated. • **Size:** 6.7" W x 1.75" H x 6.25" D • **Weight:** Approximately 2 lbs.



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MODEL APD-1

OPERATING MANUAL

GENERAL INFORMATION:

The Active/Passive Direct Box utilizes active electronics applied to the input stages, coupled with a unique passive balanced output transformer. This combination essentially provides the "best of both worlds" in DI applications. The transformer provides full isolation with only 2dB of insertion loss. Therefore, less gain is needed to boost the original signal to line levels. Depending on the output level of the source, recording direct to tape is possible. The high input impedance of the active electronics assures no loading of the source, and maintains a broad frequency response with little noise or distortion.

The APD-1 will operate up to 100 hours on 2 nine volt batteries, or an optional A/C wall adapter. Because the output of the adapter is +/- 9 volts DC, the lead should not induce any humm in surrounding equipment. As well, one adapter will power several units from Raven Labs.

We sincerely thank you for choosing our product and welcome any comments or suggestions you may have.

FRONT PANEL FEATURES:

INPUTS: Two 1/4" TS inputs are provided. Totally independent, they can be used separately or together. The inputs can receive a maximum of 3 volts RMS, and have an input impedance of 10 Meg ohms.

IN/OUT SWITCHES: Each input has its own mute or in/out switch. The Channel 1 & 2 switches correspond to their respective inputs.

EFFECTS BLEND CONTROL: This feature is activated by inserting a cable into the receive jack on the back panel. As the control is moved clockwise, more "effect" will be blended into the original signal. The Effects Loop is on a side chain to help maintain signal integrity and low noise.

EFFECTS ASSIGN SWITCH: When using the Effects Loop, the effects device can be sent to both the XLR and Amp outs, or just the To Amp output.

In the "OUT" position, the signal inserted into the Receive jack will be heard through both the XLR and To Amp outputs. Pushing the switch to the "IN" position assigns the effect to the To Amp jack only.

This feature is useful for: "auditioning" an effect in the studio; using an effect on stage (such as a separate EQ) that doesn't need to go through the "house"; or when the musician wants another signal going to his amp (drum machine, synth patch, etc), but not to the DI.

PHASE SWITCH: This function reverses the phase 180 degrees (from the input signal) at the XLR out ONLY. This is accomplished passively by reversing the primary leads on the XLR out transformer. In the OUT position, the input and output signals are in phase.

XLR PAD: This feature adjusts the output level at the XLR jack only. At the "0" position, the input signal and output levels are equal (less 2 dB transformer loss). From the "0" setting, the output levels are reduced -10 dB or -20 dB respectively. Moving the switch to the +6 dB position, boosts the output level to twice that of the source (input) level.

Please be sure that the switch is positioned in one of the four desired settings. There are no "in between" positions.

MUTE: The mute switch defeats, or kills the signal going to the XLR, To Amp, and Effects Send outputs. It does NOT affect the Tuner send jack. When the Mute switch is engaged, the red LED above it lights, and the green Power LED goes out. Please note that battery drain is the same as long as the Power switch is on.

POWER: Pushing the Power switch to the In position activates the APD-1. This is indicated by the green LED above it lighting.

BACK PANEL FEATURES:

BATTERY HOLDER: To insert or remove the batteries, lift up and out on each individual holder. Be sure to insert the batteries correctly. Push each drawer in until it locks in place. If your unit does not turn on, immediately turn the APD-1 off and recheck polarity.

A/C ADAPTER IN: To use the optional wall adapter, first insert the adapters mini stereo plug in the A/C adapter In jack, then plug the adapter into the wall socket. This automatically switches from battery power to wall power. Unplugging the adapter switches back to battery operation. This is especially useful if the adapter gets accidentally dislodged during a performance! Always unplug the adapter from the wall after each use.

XLR OUT: Use this feature to send a signal to any balanced input such as a tape deck or mixer. Output impedance is 600 ohms. Level adjustments can be made via the XLR pad on the front panel.

Pin out of the XLR is as follows: pin 1 = ground, pin 2 = +, pin 3 = -

XLR GROUND LIFT: To correct ground loops or humm problems that may exist, try moving the slide switch to the "lift" position. This removes the chassis ground from pin 1 on the XLR jack. Generally speaking, start with this switch in the GND position.

SEND: To use the Effects Loop, insert a shielded cable from the Effects Send to the Input of your effect. Then use a second shielded cable from the Output of your effect to the Effects Receive jack. Use the Blend control on the front panel to mix in your device with the original signal.

The Send jack can also be used to send a signal to any desired unbalanced input, such as a cassette deck, etc. Remember that this jack is affected by the Mute control on the front panel.

RECEIVE: Inserting a plug into this jack activates the Blend control on the front panel. The Receive jack can be used to mix in any mono signal with the instrument or device plugged into any one, or both, of the Input jacks. It does not have to be used in conjunction with the Send jack. Remember that the Blend control adjusts the amount of signal heard.

TO AMP: Use this feature to send a signal to your instrument amplifier, etc. Present at this jack is the signal coming from any Input jack, and the Receive jack (if used). Note that the Mute switch affects this output. This is especially useful when tuning up, as you won't disturb your bandmates.

TUNER: To use an instrument tuner or other device, run a shielded patch cord from the Tuner jack to the Input of your tuner, etc. Since the Tuner output is on a side chain, it won't load down your instrument. The Mute switch does NOT affect this output.

RACK MOUNTING: An 8-32 pem nut is located on the bottom of the APD-1 to aide in mounting it to a rack shelf, etc. Use an 8-32 threaded screw no longer than 1".

ADDITIONAL ELECTRONIC INFO:

The APD-1's active electronics were selected for optimum performance for both in-house and remote locations. The output transformer is proprietary to Raven Labs. Only low noise, 1% resistors, and high grade German Wima mylar or biplolar caps are used. The IC's were researched and field tested a total of 2 years and are inserted into double wiping IC sockets. All assembly of components and wiring are done by hand. The circuit board is double sided, plated through for maximum reliability. No surface mount components are used, making it 100% field serviceable.