



## SIMON SYSTEMS™

### DB-1A ACTIVE DIRECT BOX OWNERS MANUAL

Congratulations! You are now the proud owner of the **finest** direct box available. The DB-1A is designed to convert unbalanced signals such as those from electric guitars, basses, and keyboards, into a buffered balanced or unbalanced output, for direct insertion into mixing consoles and tape recorders. The unique design approach used in the DB-1A allows the ultimate in sonic accuracy and performance. Please read this manual thoroughly to familiarize yourself with all of its features and capabilities. Thanks for choosing Simon Systems - Simply The Best!™

Power Switch: The DB-1A uses a separate power switch so that musicians can connect or disconnect instruments at the input jack without turn off/on "thuds." This switch is also an integral part of the automatic power system check (see "Batt Check").

Output Level Switch: The **NORMAL** position is for use with most instruments when the output of the direct box is connected to a mixing console mic input amplifier. In this position, the output of the DB-1A is at the same level as the input, i.e. no insertion loss! The unique **LINE** switch position increases the output level to a line level signal (gain of +20dB), allowing direct connection to a line input or tape deck! The amount of gain can be adjusted by opening up the DB-1A and adjusting VR1 on the circuit board. The **CUT** position attenuates the output level by 12dB (gain of -12dB). The amount of attenuation can be adjusted by opening DB-1A and adjusting VR2 on the circuit board.

Input Jack: Unbalanced, high impedance input. When no input is present, the "hot" lead is shorted to ground to minimize output noise.

To Amp Jack: Unbalanced convenience jack which is normalled to the input jack allowing loop thru to another high impedance input (e.g. electric guitar amplifier).

Batt Check: This uniquely designed C-MOS LED Circuit indicates the condition of the batteries (not included), and checks the overall power situation of the DB-1A. There are three methods to power the DB-1A. This is how the **Batt Check** Circuitry applies to them.

- 1). External Power: When an external power supply is connected (Simon Systems PS-1 DC Regulated Power Supply is recommended), and the power switch is turned on, the LED will flash on and off for a few seconds, and then go out. This indicates all is well.
- 2). When batteries are the power source, the same situation will occur except that the flashing time will last longer than with a PS-1 Power Supply connected. When batteries are new, the LED should flash about 3-5 times, then go out. As the batteries get weaker, the flashing time gets loner. If it takes more than 10 flashes before the LED goes out,



replace the batteries or use the external supply. If the LED begins to flash while the DB-1A is in use, this also indicates a weak battery situation.

3). If rechargeable batteries are the source of power, the LED circuitry works the same as regular batteries except that the excess flashing means recharge rather than replace them.

If the LED never flashes when the power switch is turned on, then there is no power connected to the DB-1A.

Bal Out: Final low impedance balanced output using standard XLR type connector. For balanced connections; pin 1=gnd, pin 3=low, pin 2=high. For unbalanced connections; pin 1=gnd, pin 2=high, leave pin 3 open, **do not ground pin 3**. NOTE: The DB-1A can be wired for pin 3 hot by reversing the connections on pin 2 and 3 inside the box.

Pin1 Switch: Provides an optional ground isolation (lift) at the output. Normally leave this switch in the "Gnd" position.

Ext Pwr: To get the maximum performance from the DB-1A, it is recommended to use an external power supply such as the Simon Systems PS-1 DC Regulated Power Supply. It delivers  $\pm 18$  VDC ( $\pm 15$ VDC on newer PS-1 models), to the DB-1A with more than 10 times the current a phantom supply system can provide (See "Notes"). When the PS-1 is connected it automatically takes over for batteries and conserves their power. In the case of rechargeable batteries, the PS-1 will automatically recharge the batteries even if the box is being used! It will also charge the batteries when the power switch is off so you can keep the supply connected when the DB-1A is not in use. Batteries are inserted by removing the bottom cover of the DB-1A (remove the bottom screws), hook up the battery clips and slide the batteries into the holders. Two 9V (alkaline recommended) batteries or rechargeable 9v type nickel cadmium batteries should be used. The switch located on the printed circuit board determines the mode of operation. This switch should only be in the **CHARGE** position when rechargeable batteries are connected.

**WARNING: Failure to place the switch in the NORMAL position unless rechargeable batteries are connected may result in battery damage.**

Notes: Rechargeable batteries work better and last longer when they are used often and constantly recharged. Try to recharge them before they completely discharge.

Rechargeable batteries differ from the alkaline type in that once they weaken they discharge quickly. Therefore, when the "Batt Check" LED continues to flash, don't waste time, recharge them. You cannot really overcharge these batteries in the DB-1A. This feature allows you to keep a PS-1 Supply hooked up and charging them. Disconnect the direct box from the supply for power cord free use, an reconnect it when finished. Now you will always have freshly charged direct box ready to go.



The use of a separate power supply is not all that common with direct boxes. Why use it when you have a phantom supply available with most consoles? There are many good reasons. First, while phantom supplies have ample output voltage capability, the current that you can draw from them is limited by the 6.8k ohm isolation resistors that are used in series with the supply. These resistors are a compromise that must be made if you want to send power and signal down the same lines. But this compromise severely limits the design of a direct box. Only low current circuit designs can be used with phantom power, otherwise the series resistors can "eat up" most if not all of the 48 volts. Because the DB-1A is independently powered, it uses a state-of-the-art transformerless circuit design with superior components that result in specifications and sonic accuracy that must be heard to be believed. Add to this features like line level output, and rechargeable battery capability, and you have simply the best direct box money can buy!

#### DB-1A Technical Specifications

Frequency Response: 10Hz - 150k Hz +0, -.5 db into 1k $\Omega$  load

Total Harmonic Distortion: <.005%

Dynamic Range: 106 db (normal mode)

Signal to Noise Ratio: -104 db (normal mode, 20k $\Omega$  source)

Input Impedance: 510k $\Omega$  nominal

Output Impedance: 50 $\Omega$  unbalanced, 100 $\Omega$  balanced

Transient Response: .5  $\mu$ s

Recommended Load Impedance: 300 $\Omega$  to  $\infty$

Maximum Input Voltage: 50 volts

Maximum DC Voltage on Output Connector: 85 volts

Power Requirements: Simon Systems PS-1 Power Supply, 2 9V alkaline batteries, or 2 9V type nickel cadmium batteries (GE GC9B type).

Typical Battery Life: Alkaline Batteries; 37 continuous hours until Batt Check LED begins to flash. Rechargeable Batteries; 6.5 - 8 hours on a full charge (minimum 14 -16 hours charge time to obtain a full charge).

Dimensions & Weight: 6.3" L, 3.1" W, 2.6" H, 1.42 lbs.

\*Specifications subject to change without notice.

Simon Systems Products are Manufactured by Simon-Kaloi Engineering, Ltd.

#### WARRANTY

Simon-Kaloi Engineering, Ltd ("SKE"), warrants this product to be free from defects for a period of one year from the date of purchase. If this product is defective under warranty, it must be returned to SKE or authorized service representative with proof of purchase (shipping costs for service are not covered by the warranty). This warranty is in lieu of all other warranties, expressed or implied, including, but not limited to, the implied warranties of merchantability or fitness for particular purpose, which are hereby expressly disclaimed. Warranty service must be done by SKE or authorized service representative. Unauthorized service invalidates the warranty.

#### LIMITATION OF LIABILITY



SKE shall not be liable for any damage due to accident, abuse, misuse, normal wear and tear, or exceeding manufacturers specifications. The only remedy for breach of warranty is repair or replacement at the sole discretion of SKE. SKE shall not be liable for any incidental or consequential damages for breach of any expressed or implied warranty. SKE shall not be liable for any damage, whether arising in tort, contract or otherwise, for any amount in excess of the dealer cost of the product. Any claims for breach of warranty or contract must be brought within one year of acceptance of the product. Notice of such claims must be received by SKE within 60 days after acceptance of the product.