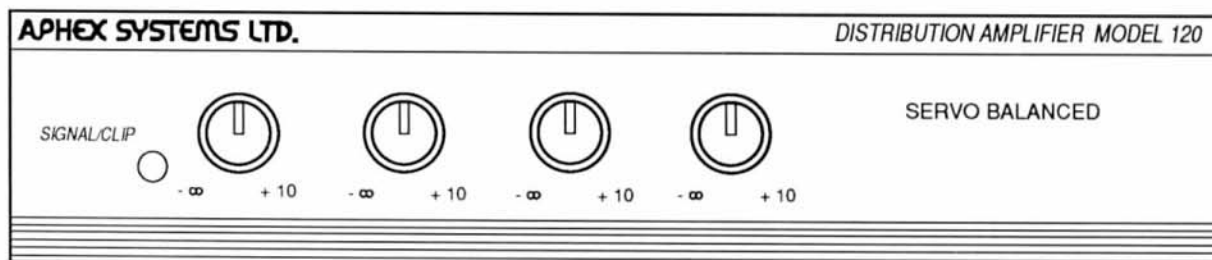


DISTRIBUTION AMPLIFIER

MODEL 120

(covers Model 120A and 120B)



OWNER'S GUIDE

APHEX[®]
MAKING YOUR WORLD SOUND BETTER

1.0 INTRODUCTION

The Aphex Servo-Balanced Distribution Amplifier, Model 120, is a high-performance audio distribution amplifier with a single high impedance input and four low impedance outputs, all electronically servo-balanced. The Model 120's transformerless circuits are designed for wide, flat frequency response, free from ringing or overshoot, making it ideal for distribution of SMPTE time code, as well as audio signals. Each output has its own amplifier and level control for maximum versatility and isolation. A tri-level SIGNAL/CLIP indicator provides visual confirmation of AC power, presence of signal, and warning of signal clipping. The sturdy steel chassis may be used stand-alone or rackmounted, singly or in pairs. A block diagram, shown in Fig. 1, illustrates the signal path used in the design of the Model 120.

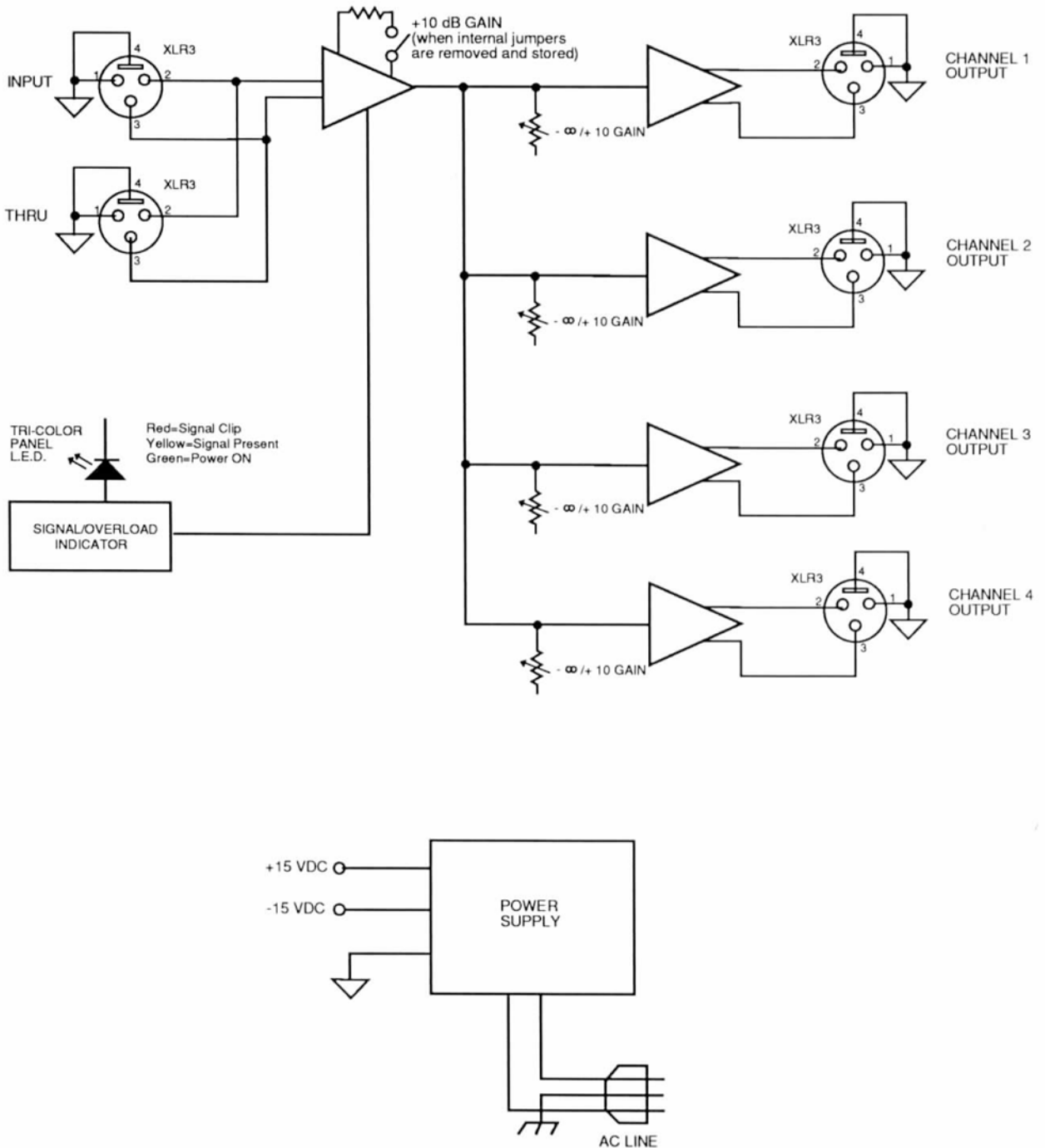


Fig. 1. Block Diagram of Aphex Servo-Balanced Distribution Amplifier, Model 120.

2.0 FUNCTIONAL DESCRIPTION

2.1 Balanced Input

The INPUT circuit is a true instrumentation type, adjusted for good common-mode rejection of greater than 45 dB. Servo-balancing compensates for high common-mode voltages, so headroom isn't sacrificed. The high input impedance of 100 kOhms allows bridging of the input signal via the THRU connector with minimum loading. This way several amplifiers can be easily driven from the source. The input circuit is fully RF protected. XLR-type connectors are used, with Pin 2 or 3 interchangeable as the HIGH side, as shown in Fig. 2. For phase integrity, use the same polarity standard for inputs and outputs.

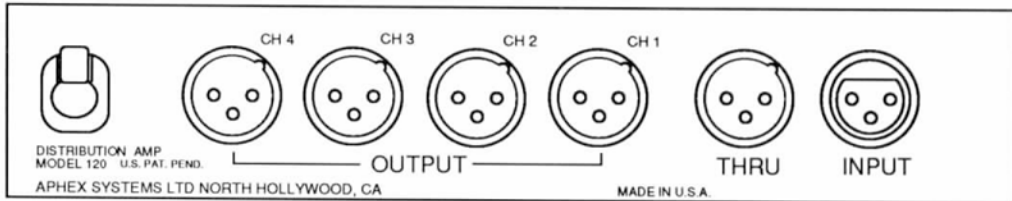


Fig. 2. Rear Panel Layout of Apex Servo-Balanced Distribution Amplifier, Model 120.

2.2 Balanced Outputs

Channel OUTPUTS, 1 through 4, are high-level, balanced outputs at a nominal level of +4 dBm. Recessed front panel adjustments, provide level control of each output over a range from signal cutoff to +10 dB of gain, as shown in Fig. 3. These outputs are transformerless for improved transient response with a peak output level of +25 dBm. Because of the servo-balance circuit design, the outputs can be used unbalanced (single-ended) at any time by simply grounding the unused pin, much like a transformer. The circuitry assures there is no 6 dB loss that typically results when other types of balanced outputs are grounded at one pin. However, peak headroom is reduced to +21 dBm when used in this manner. The low output impedance of 65 Ohms perfectly drives 600 Ohm loads with minimal hum and noise pickup and will drive long lines effortlessly. XLR-type connectors are used, with pin 2 or 3 interchangeable as the HIGH side.

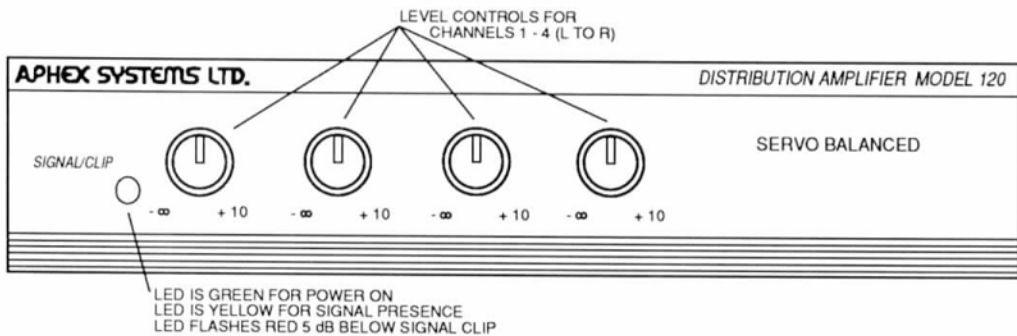


Fig. 3. Front Panel Layout of Apex Servo-Balanced Distribution Amplifier, Model 120.

3.0 APPLICATIONS

3.1 Facility Distribution Amplifier (DA)

The most common application of the Apex Servo-Balanced Distribution Amplifier is to amplify and distribute audio signals or SMPTE Time Code throughout an audio production facility. Typical installations would include post-production machine rooms, dubbing and transfer facilities, radio and television control rooms, mobile radio and TV units, sound reinforcement installations, and press feeds. Two Model 120 units can be installed in a single rack space and can be configured for use as either a stereo 2 x 4 DA or mono 1 x 8 DA (when the THRU connections are tied together). The Model 120 was designed to be as transparent as possible. This means it exhibits a wide, flat frequency response, a very low threshold of noise and hum, excellent transient reproduction and a dynamic range surpassing digital. The individual channel level controls as well as the servo-balanced outputs provide a precise level matching without regard to length of cable runs.

3.2 Location Distribution Amplifier

The Model 120 is housed in a compact, rugged package that can easily take the abuse of location film and video shoots, as well as sound tours to major concert arenas or venues. A production mixer can use this unit to distribute headset communications to production people or split off audio feeds from the console to a variety of remote locations. At the end of the date, a Model 120 can be quickly packed into a bag or case for transport to the next location.

3.3 Line Driver

The servo-balanced input and output stages of the Model 120 can be used as a very effective line driver for driving long lines. The output stage provides a short circuit proof, low impedance source that is relatively unaffected by the impedance of the cable. If needed, adjust the gain controls (front panel) to boost signal level.

4.0 INSTALLATION

4.1 Unpacking and Mounting

Your Model 120 was carefully packed at the factory, and the container was designed to protect it. Nevertheless, we recommend careful inspection of the box to determine if any damage occurred in transit. Save the box, so the Model 120 can be repacked in case it should ever need repair. Due to its compact size, the Model 120 can be placed almost anywhere. Rack mounting one or two Model 120 units (or other Series 120 unit) is easily accomplished with the optional rack mounting kit, Aphex Part No. 44-008. Complete instructions are included with the kit.

4.2 Channel Level Set

The Model 120 has four level controls for individual gain setting of channels 1 to 4 (see Fig. 3) from the front panel. The twelve o'clock position on each recessed knob approximates a unity gain setting. For precise level settings, use appropriate test equipment (i.e. DVM, oscilloscope, etc.) to monitor each channel output as you adjust each level control. For low level signals, an additional +10 dB of gain can be added via internal jumpers. Remove the top cover and locate the NORMAL/+10 dB jumpers on the Input daughterboard. Remove the two jumpers and store on the end posts, as shown on the printed circuit board artwork.

4.3 AC Line Voltage and Fuse

The AC line operating voltage on the Model 120 is NOT user-selectable. A desired voltage (100, 120, 220 or 240 VAC) must be specified at time of purchase. Due to the low current draw, the Model 120 uses a thermal fuse built into the power transformer. This should only fail due to a catastrophic problem in the PCB or transformer itself. If failure occurs, the unit must be returned to Aphex or an authorized distributor for repair.

5.0 SPECIFICATIONS AND WARRANTY

FREQUENCY RESPONSE	5 Hz to 100 kHz, +0,-0.5 dB
THD	0.002% @ +4 dBm, 0.005% @ +20 dBm,
I MD	0.002% @ +10 dBm
HUM and NOISE	Better than 90 dBm at unity gain
INPUT IMPEDANCE	100 kOhms, balanced
MAX INPUT LEVEL	+25 dBm
INPUT CMRR	>60 dB
OUTPUT IMPEDANCE	65 Ohms
MAX OUTPUT LEVEL	+25 dBm into 600 Ohms Balanced, +21 dBm Unbalanced
OUTPUT GAIN RANGE	+15 dB
CHANNEL ISOLATION	>70 dB
CONNECTORS	XLR Inputs and Outputs
SLEW RATE	13 V/uSec
AC POWER	100, 120, 220 or 240 VAC, 50-60 Hz (Specify)
SIZE	1.75" H x 8.25" W x 7.25" D
WEIGHT	3.5 lbs.

Aphex Systems is constantly striving to maintain the highest professional standards. As a result of these efforts, modifications may be made from time to time to existing products without prior notice. Specifications and appearance may differ from those listed or shown.

Aphex Systems warrants parts and labor for the Servo-Balanced Distribution Amplifier, Model 124, for a period of one year from the date of purchase. If it becomes necessary to return a unit for repair, repack it in the original carton and packing material, if possible. For warranty repair, enclose a copy of proof of purchase and send package to:

Aphex, 3500 N. San Fernando Blvd., Burbank CA 91505
818-767-2929