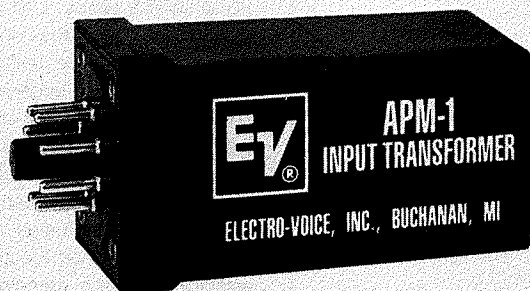


Electro-Voice®

a MARK IV company



Model APM-1 Input Transformer With Pad Option

SPECIFICATIONS¹

Turns Ratio:

1:1

Impedance Ratio:

15,000:15,000

Input Impedance:

15,000 nominal

Source Impedance:

< 600 ohms recommended

15,000 ohms maximum

Output Impedance:

15,000 nominal

Load Impedance:

15,000

Maximum Input Level:

+ 18 dBu²

Total Harmonic Distortion at + 18 dBu:

< 0.10% @ 20 Hz

< 0.01% @ 1,000 Hz

Frequency Response:

30-15,000 Hz ± 0.5 dB

Phase Response:

< 28° @ 20,000 Hz

Insertion Loss:

< 1 dB

Magnetic Shield Effectiveness:

> 30 dB

Available Pad Configurations:

H and T (with grounded center tap)

Overall Dimensions:

4.07 cm (1.6 in.) high

4.07 cm (1.6 in.) wide

5.08 cm (2.0 in.) deep

Net Weight:

89.2 g (3.16 oz)

Shipping Weight:

453.6 g (16 oz.)

1. 15,000-ohm load impedance.

2. 0 dBu is 0.775 volts RMS sine wave.

DESCRIPTION

The APM-1 is an octal pin plug-in accessory for the AP2600, AP2600SA, and 7300 power amplifiers. The module contains a 1:1 turns ratio line input transformer for isolation and high common-mode rejection. The transformer is internally mounted on a small printed circuit board to which optional resistors forming a resistive pad may be installed. A resistive pad may be desired so that attenuators operate in a more optimum range when driven by telephone-line-like levels.

INSTALLATION

To install the APM-1, remove the two jumper pins in the octal socket associated with the channel in which the transformer is to be inserted. Align the key and insert the module fully into the socket.

SIGNAL CONNECTIONS

Schematically the module will be inserted between the input connectors and the balanced input stage of the power amplifier. The transformer follows the resistive pad. Refer to the schematic in Figure 2 for details.

DISASSEMBLY OF CASE

The snap-a-part case makes disassembly quick and convenient. Apply pressure to one locking tab near the base of the module with a medium-size flat blade screwdriver until the base is free. If necessary, repeat the process for the remaining tab.

INSTALLATION OF RESISTIVE H-PAD

1. Remove the case from the octal plug base (see Disassembly instructions above) to expose the circuit board.

2. Desolder (and save) the four jumpers installed at locations at locations R1, R2, R4, and R5. Refer to the component layout in Figure 1.
3. Install the appropriate resistor values from Tables 1a, 1b, 1c, or 1d into their designated positions on the circuit board. Refer to Figure 1 for details.

The factory provides the APM-1 from stock without any resistive pad. Zero-ohm jumpers (1/4-watt size) are installed for resistors R1, R2, R4, and R5, and all other resistor locations are vacant. As supplied, only the transformer will be in the signal path.

CONVERSION TO BALANCED-T-TYPE PAD

The H-pad may be converted to a balanced-T-type attenuator by replacing resistor R3 with resistors R7 and R8 where $R7 = R8 = R3 \div 2$. Refer to Figure 2 for details.

CALCULATING THE RESISTOR VALUES FOR OTHER ATTENUATION LOSSES

Other losses may be calculated from the following formulas:

$$R1 = R2 = R4 = R5 = \frac{Z_L (\sqrt{N} - 1)}{2 (\sqrt{N} + 1)}$$

$$R3 = \frac{2 Z_L (\sqrt{N})}{(N - 1)}$$

$$R6 = Z_L$$

where Z_L = terminating impedance (600 ohms minimum, AP2600 and 7300 amplifiers are 15,000 ohms)

and $N = 10^{(\text{Loss in dB}/10)}$

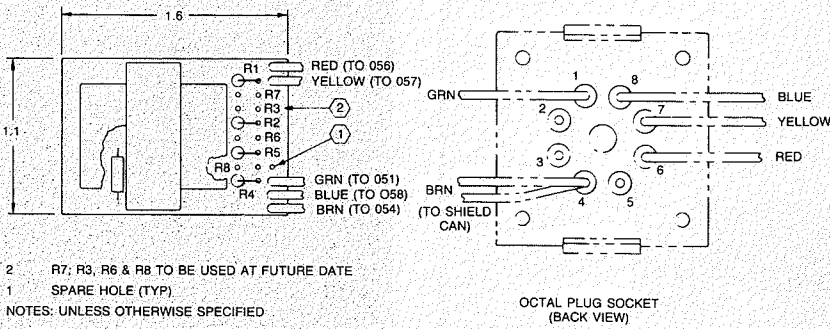


FIGURE 1 — Component Layout

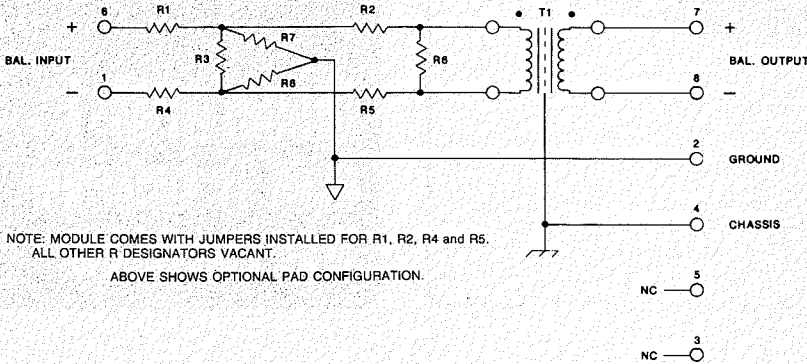


FIGURE 2 — Schematic of the APM-1

TABLE 1a. 600Ω H-Pad Resistance Values Using 1% Resistors

Desired Attenuation	Resistor Values for Pad in Ohms					
	R1	R2	R3	R4	R5	R6
20 dB	243	243	121	243	243	604
15 dB	210	210	221	210	210	604
10 dB	154	154	422	154	154	604
none	0	0	x	0	0	604

TABLE 1b. 600Ω H-Pad Resistance Values Using 5% Resistors

Desired Attenuation	Resistor Values for Pad in Ohms					
	R1	R2	R3	R4	R5	R6
20 dB	240	240	120	240	240	620
15 dB	200	200	220	200	200	620
10 dB	150	150	430	150	150	620
none	0	0	x	0	0	620

TABLE 1c. 15kΩ H-Pad Resistance Values Using 1% Resistors

Desired Attenuation	Resistor Values for Pad in Ohms					
	R1	R2	R3	R4	R5	R6
20 dB	6190	6190	3010	6190	6190	x
15 dB	5230	5230	5490	5230	5230	x
10 dB	3920	3920	10500	3920	3920	x
none	0	0	x	0	0	x

TABLE 1d. 15kΩ H-Pad Resistance Values Using 5% Resistors

Desired Attenuation	Resistor Values for Pad in Ohms					
	R1	R2	R3	R4	R5	R6
20 dB	6200	6200	3000	6200	6200	x
15 dB	5100	5100	5600	5100	5100	x
10 dB	3900	3900	10000	3900	3900	x
none	0	0	x	0	0	x

WARRANTY (Limited) — Electro-Voice Accessories are guaranteed for one year from date of original purchase against malfunction due to defects in workmanship and materials. If such malfunction occurs, unit will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to the proper Electro-Voice service facility. Unit will be returned prepaid. Warranty does not extend to finish, appearance items or malfunction due to abuse or operation under other than specified conditions, nor does it extend to incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee. A list of authorized service centers is available from Electro-Voice, Inc., 600 Cecil Street, Buchanan, MI 49107 (AC/616-695-6831); Electro-Voice, Inc., 3810 148th Avenue N.E., Redmond, WA 98052 (AC/206-881-9555); Electro-Voice, Inc., 10500 W. Reno, Oklahoma City, OK 73128 (AC/405-324-5311); and/or Electro-Voice West, 8234 Doe Avenue, Visalia, CA 93291 (AC/209-651-7777). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Service and repair address for this product: Electro-Voice, Inc., 10500 W. Reno, Oklahoma City, OK 73128.

Specifications subject to change without notice.



ELECTRO-VOICE, INC., 600 Cecil Street, Buchanan, Michigan 49107

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