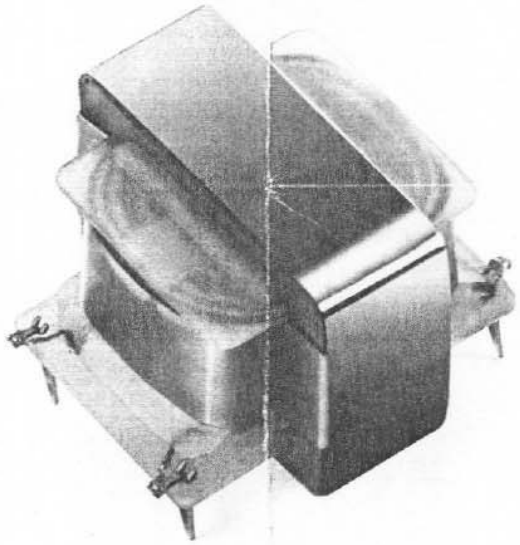
InterActive Technology
Linked Component Control
600 Cecil Street, Buchanan, MI 49107
800/234-6831, 616/695-6831, FAX 616/695-1304

ITM Input Bridging Transformer



DESCRIPTION

The InterActive Technology Model ITM is a line level transformer designed to "bridge" a low impedance source to the high impedance input of an IT compatible input module. The turns ratio of the line transformer is 1:1 for full transformer isolation and high common-mode rejection. The ITM transformer is internally mounted on an IT comptable input module. The provision for an attenuation pad is on the input module and will accommodate both "H" and "T" type pads. The pad is used to attenuate high level input signals for "matching" to the optimum input level of the Input Module. A table of pre-calculated resistor values for typical attenuation is provided along with formulas to calculate other attenuation loses. The H-pad may also be converted to a balanced-T-type attenuator using the formula provided.

INSTALLATION INSTRUCTIONS

BRIDGING TRANSFORMER WITH PAD

1) Remove power and all input connections to the amplifier.
2) Remove the two screws securing the input module to the rear panel of the amplifier and pull the Input Module out of the amplifier.
3) Place the input module on a suitable work station. Desolder and remove jumpers JMP1, JMP2, JMP3, JMP4.
4) Install transformer T1 in the mounting holes provided and solder the transformer terminals to the Input Module printed circuit board. *Refer to Table 1.*
5) Desolder and remove the four jumpers located in the RH1, RH2, RH4, and RH5 positions.
6) Install the appropriate resistor values from Table 1 into their designated positions on the Input Module printed circuit board.
7) Clean the Input Module circuit board of any residues left by the soldering operation.
8) Install the Input Module back into the amplifier. Secure the Module to the back panel of the amplifier using the two screws removed in step 2.
9) Reconnect the power and input signals to the amplifier.

BRIDGING TRANSFORMER WITHOUT PAD

Follow above steps 1 through 4 and steps 7 through 9, omitting steps 5 and 6.

SPECIFICATIONS (NOTE: 0dBu = 0.775 Vrms)

Recommended Driving Source Impedance:	<600Ω recommended 15 kΩ maximum
Recommended Load Impedance:	> 15 KΩ
Turns Ratio (primary:secondary):	1:1
Impedance Ratio (primary:secondary):	15KΩ/15KΩ
Nominal Primary Impedance: (Ref. 1kHz, secondary terminated with 15KΩ load)	15KΩ
Maximum Input Level:	+18 dBu (6.16 Vrms) (Ref. 20 Hz, 1% THD)
Total Harmonic Distortion (below saturation):	20Hz: <0.1% 1kHz: <0.01%
Frequency Response: 30 Hz to 15kHz, (Ref. 1kHz, 0 dBu input level)	±0.5 dB
Phase Shift at 20 kHz: (Ref. 1kHz, 0 dBu input level)	<28°
Bandwidth (-3dB): (Ref. 1kHz, 0 dBu input level)	>50kHz
Insertion Loss: (Ref. 1kHz, 0 dBu input level)	<1 dB

Choices for Pad Types:
H-pad or balanced-T with terminating resistor

Overall Dimensions:	0.85 in (2.16 cm.) high 1.05 in (2.66 cm) wide 0.97 in (2.46 cm) deep

Table 1

Desired Attenuation	Resistor Values for Pad in Ohms RH1	RH2	RH3	RH4	RH5	RH6
600Ω H-Pad Resistance Values Using 1% Resistors						
20dB	243	243	121	243	243	604
15dB	210	210	221	210	210	604
10dB	154	154	422	154	154	604
none	short	short	open	short	short	604
600Ω H-Pad Resistance Values Using 5% Resistors						
20dB	240	240	120	240	240	620
15dB	200	200	220	200	200	620
10dB	150	150	130	150	150	620
none	short	short	open	short	short	620
15Ω H-Pad Resistance Values Using 1% Resistors						
20dB	6190	6190	3010	6190	6190	open
15dB	5230	5230	5490	5230	5230	open
10dB	3920	3920	10500	3920	3920	open
none	short	short	open	short	short	open
15Ω H-Pad Resistance Values Using 5% Resistors						
20dB	6200	6200	3000	6200	6200	open
15dB	5100	5100	5600	5100	5100	open
10dB	3900	3900	10000	3900	3900	open
none	short	short	open	short	short	open

Conversion to Balanced-T-type attenuator
The H-Pad may be converted to a balanced-T-type attenuator by replacing resistor RH3 with resistors RH7 and RH8 where RH7 = RH8 = RH3 /2. Refer to Figure 1 for details.

Calculating the Resistor Values for Other Attenuation Losses
Other losses may be calculated for the following formulas:

$$RH1 = RH2 = RH4 = RH5 = \frac{(Z_L)(\sqrt{N} - 1)}{2(\sqrt{N} + 1)}$$ InterActive

$$RH3 = \frac{2\,(Z_L)(\sqrt{N})}{(\sqrt{N} - 1)}$$

$RH6 = Z_L$

Z_L = terminating impedance (usually 600Ω or 15kΩ)

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

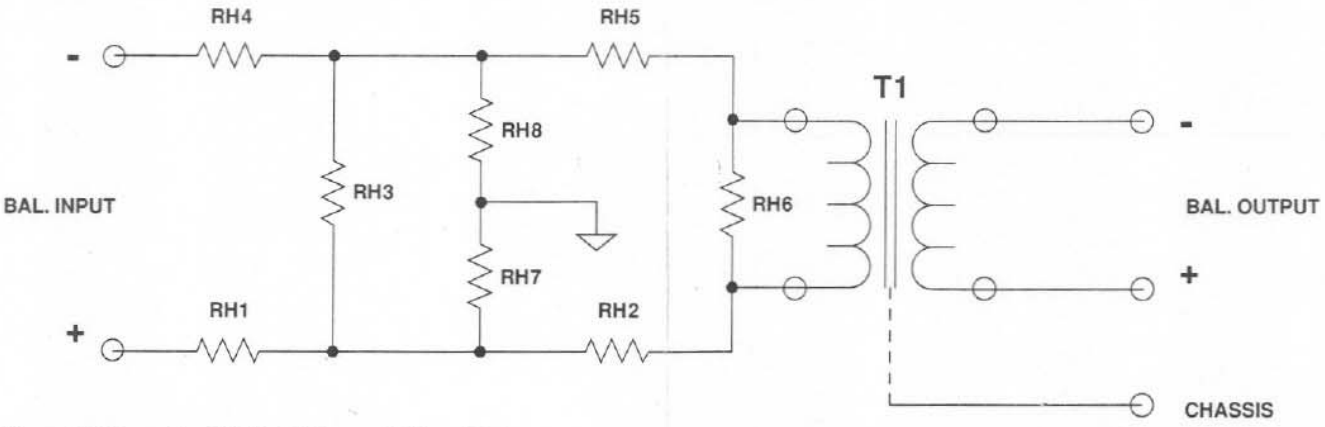


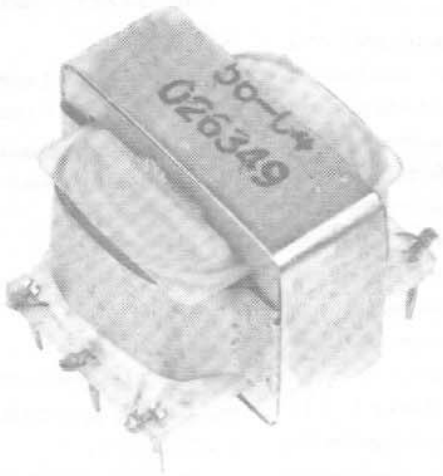
Figure 1 Schematic of H-Pad/Balanced-T-Type Pad

InterActive Technology
Linked Component Control

ITM

Input Bridging Transformer

- Line-level transformer
- Single-channel configuration
- Full transformer isolation
- High common-mode rejection



Description

InterActive Technology provides optional signal processing PCBs for use with all IT compatible amplifiers.

Model ITM is a line level transformer designed to "bridge" a low-impedance source to the high-impedance input of an IT compatible signal input module.

The turns ratio of the line transformer is 1:1 for full transformer isolation and high common-mode rejection. The ITM transformer is internally mounted on an IT compatible signal input module.

The provision for an attenuation pad is on the signal input module and will accommodate both "H" and "Balanced-T" type pads. The pad is used to attenuate high level input signals for "matching" to the optimum input level of the signal input module.

Architects' and Engineers' Specifications

The specified signal processing PCB module shall provide full transformer isolation of a given signal when properly installed on a single channel of a signal input module of an InterActive Technology compatible amplifier. The turns ratio of the line transformer shall be 1:1 and provide high common-mode rejection.

Provisions for an attenuation pad shall be provided. This attenuation pad shall accommodate both "H" and "Balanced-T" type pads. The manufacturer shall provide charts and formulas for use by the installer to modify the attenuation pad.

Transformer PCB installation shall require installer to make limited solder connections of the PCB to the compatible IT signal input module.

The specified signal processing PCB shall be InterActive Technology model ITM.

ITM Input Bridging Transformer

Uniform Limited Warranty Statement

InterActive Technology products are guaranteed against malfunction due to defects in materials or workmanship for a specified period, as noted in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual, beginning with the date of original purchase. If such malfunction occurs during the specified period, the product will be repaired or replaced (at our option) without charge. The product will be returned to the customer prepaid. **Exclusions and Limitations:** The Limited Warranty does not apply to: (a) exterior finish or appearance; (b) certain specific items described in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual; (c) malfunction resulting from use or operation of the product other than as specified in the product data sheet or owner's manual; (d) malfunction resulting from misuse or abuse of the product; or (e) malfunction occurring at any time after repairs have been made to the product by anyone other than EVI Audio Service or any of its authorized service representatives. **Obtaining Warranty Service:** To obtain warranty service, a customer must deliver the product, prepaid, to EVI Audio Service or any of its authorized service representatives together with proof of purchase of the product in the form of a bill of sale or receipted invoice. A list of authorized service representatives is available from EVI Audio Service at 10500 W. Reno Avenue, Oklahoma City, OK 73127 (800-845-8727 or FAX 405-577-3274). **Incidental and Consequential Damages Excluded:** Product repair or replacement and return to the customer are the only remedies provided to the customer. InterActive Technology shall not be liable for any incidental or consequential damages including, without limitation, injury to persons or property or loss of use. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. **Other Rights:** This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Specifications

Recommended Driving, Source Impedance:
<600 ohms recommended
15 kohms maximum

Recommended Load Impedance:
>15 kohms

Turns Ratio (primary:secondary):
1:1

Impedance Ratio, (primary:secondary):
15 kohms/15 kohms

Nominal Primary Impedance, (ref. 1 kHz, secondary terminated with 15 kohms load):
15 kohms

Maximum Input Level:
+18 dBu (6.16 V rms)

Total Harmonic Distortion (below saturation):
20 Hz <0.1%
1 kHz <0.01%

Frequency Response:
±0.5 dB
30 Hz to 15 kHz
(ref. 1 kHz, 0 dBu input level)

Phase Shift at 20 kHz:
<28 degrees
(ref. 1 kHz, 0 dBu input level)

Bandwidth (-3 dB):
>50 kHz
(ref. 1 kHz, 0 dBu input level)

Insertion Loss:
<1 dB
(ref. 1 kHz, 0 dBu input level)

Choices of Pad Types:
H-pad or Balanced-T with terminating resistor

Dimensions:
Height: 21.6 mm (0.85 in.)
Width: 26.6 mm (1.05 in.)
Depth: 24.6 mm (0.97 in.)

InterActive Technology
Linked Component Control
600 Cecil Street, Buchanan, MI 49107
616/695-6831, Fax 616/695-1304

Part Number 534253—9705