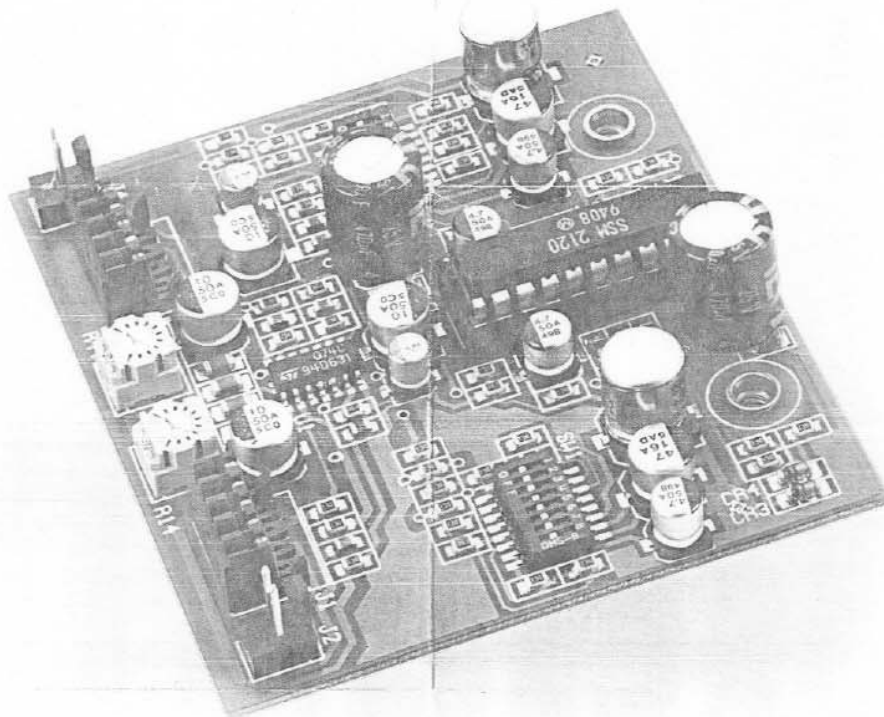


ITP-1 Dual Power Limiter PCB



DESCRIPTION

The InterActive Technology Model ITP-1 is a dual channel power limiter PCB providing loudspeaker protection by limiting the output power of an amplifier to a predetermined level. This power level is user selectable by switches from 0 dB to -10 dB referenced to the amplifier's rated output power. The PCB plugs directly into the 5 pin headers of an IT compatible Input Module. The ITP-1 also features three selectable attack/decay times: fast (above 500 Hz), medium (full range), and slow (below 500 Hz).

The ITP-1 is designed with the feedforward approach eliminating the possibility of oscillation with high compression ratios as in a *feedback* design. The versatility of selectable power level limits and response times allow more flexibility in using the ITP-1 for a countless number of applications.

INSTALLATION INSTRUCTIONS

- 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) Remove (and save) the shorting jumpers from J5 and J6.
- 4) Install the ITP-1 Printed Circuit Board onto the 5-pin headers for channel one and channel two.
- 5) Secure the ITP-1 to the Input Module by using the screws provided through the bottom side of the Input Module into the threaded standoffs of the ITP-1.
- 6) 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
- 7) Reconnect the power and input signals to the amplifier

SPECIFICATIONS

Input Impedance:	15 kΩ Unbalanced
Maximum Input Level:	+18 dBu (Ref. 0 dBu = 0.775 Vrms)
Output Type:	Unbalanced
Output Source Impedance:	<50Ω
Minimum Load Impedance:	2kΩ
Total Harmonic Distortion:	<0.05% at 0 dBu output over full bandwidth with Slow Attack/Decay setting
Noise Floor:	<-80 dBu
Power Requirements:	± 15 VDC
Dimensions:	2.6 in L x 2.9 in W
Response Times:	Fast - 3 mS Medium - 40 mS Slow - 500 mS
Power Limits:	0.0 dB -0.5 dB -1.0 dB -1.5 dB -2.2 dB -3.0 dB -5.2 dB -10.0 dB

POWER LIMIT SELECTION

To establish a safe power limit setting, the impedance and RMS rated power (long term power rating) of the speaker system must be determined. SW1 switch positions 1-6 set the power limit, or threshold of the power limiter. Refer to Table 1 for these settings.

Table 1 Power Limit Settings

Power Limit in Decibels	1	2	3	4	5	6
0.0	ON	ON	ON	ON	ON	ON
-0.5	—	ON	ON	ON	ON	ON
-1.0	ON	—	ON	ON	ON	ON
-1.5	ON	ON	—	ON	ON	ON
-2.2	ON	ON	ON	—	ON	ON
-3.0	—	ON	ON	ON	—	ON
-5.2	ON	—	ON	—	—	ON
-10.0	—	ON	ON	—	ON	—

POWER LIMIT ADJUST

The ITP-1 Power Limiter adjustments were made at the factory. These adjustments were made by selecting the -1.0 dB power limit level switch setting and adjusting the corresponding trimmer (R14 for channel one, and R44 for channel two) until the output power of the amplifier is -1.0 dB referenced to the rated output power into 8 Ω loads. This properly adjusts all of the power level settings. The ITP-1 can be setup for different loads or input sensitivities by selecting the -1.0 dB switch setting and adjusting the trimmers until the output power of the amplifier is -1.0 dB referenced to the rated output power.

POWER LEVELS FOR VARIOUS AMPLIFIERS

Power Limit in Decibels	Power Limit (8Ω load)		
	100W	200W	400W
-0.5	90 W	180 W	360 W
-1.0	80 W	160 W	320 W
-1.5	70 W	140 W	280 W
-2.2	60 W	120 W	240 W
-3.0	50 W	100 W	200 W
-5.2	30 W	60 W	120 W
-10.0	10 W	20 W	40 W

RESPONSE TIMES

The remaining two switch positions on SW1 (7,8) determine the response times of the power limiter. For the fastest response time, the FAST Attack/Decay setting is obtained with both switches (7,8) in the OFF position. This setting gives about 3 ms attack and about 3 mS decay. The fast response is most useful for limiting high frequency signals (such as a high frequency output of a crossover in a bi-amped or tri-amped sound system). However, low frequency distortion may be heard on full-range material if the fast response time is used with a full range sound system. This is due to the excessively quick response times.

For normal full-range limiting, the MEDIUM Attack/Decay setting is accomplished by selecting SW1 switch 7 to the ON position with switch 8 set to the OFF position. This setting gives about 40mS attack and 40 mS of decay.

For sub-woofer limiting applications, the SLOW Attack/Decay setting is accomplished by selecting SW1 switch 7 to the OFF position with switch 8 set to the ON position. This setting gives about 500mS attack and decay times. This will give long-term overload protection for large speakers such as subwoofers.

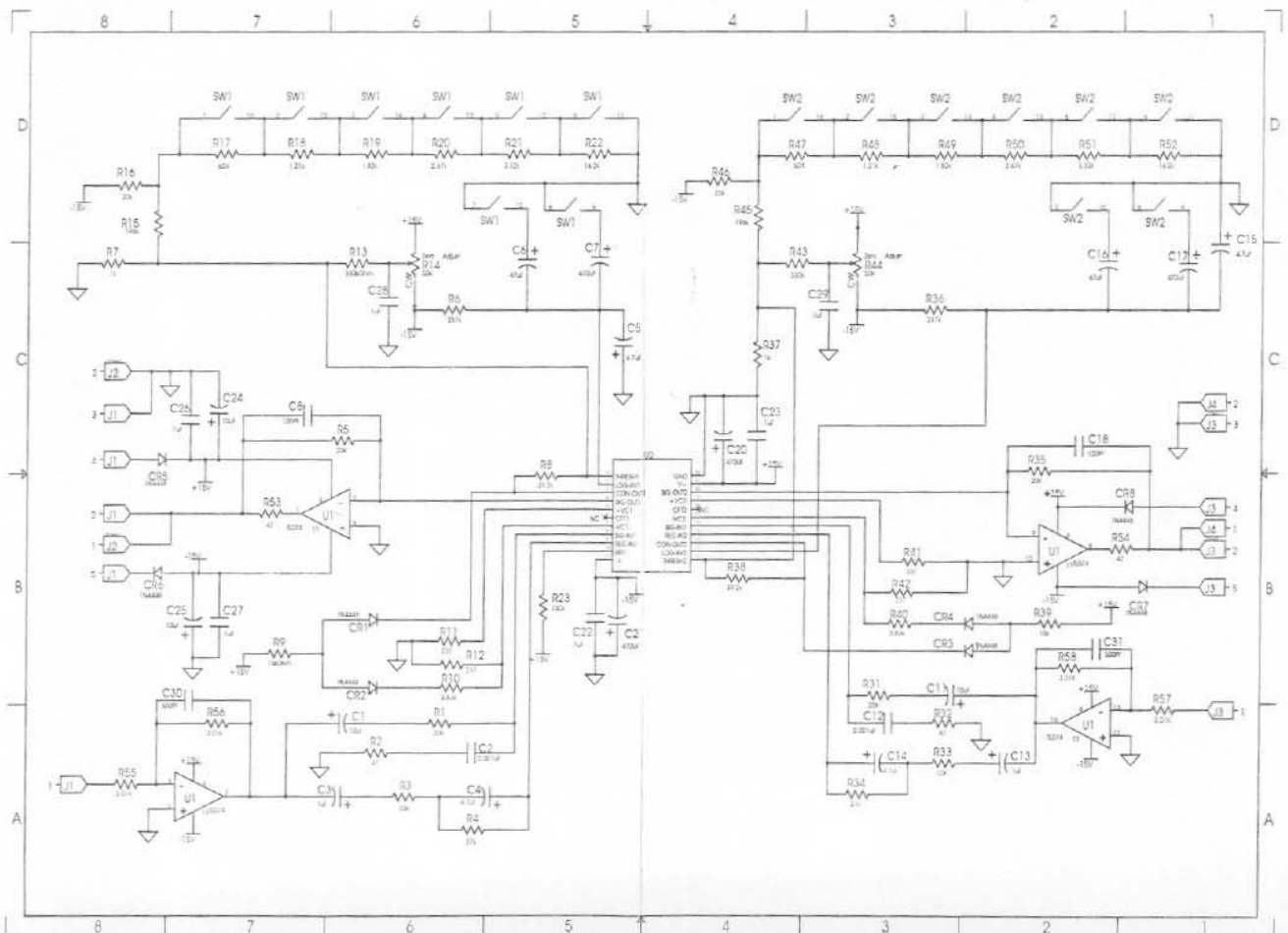
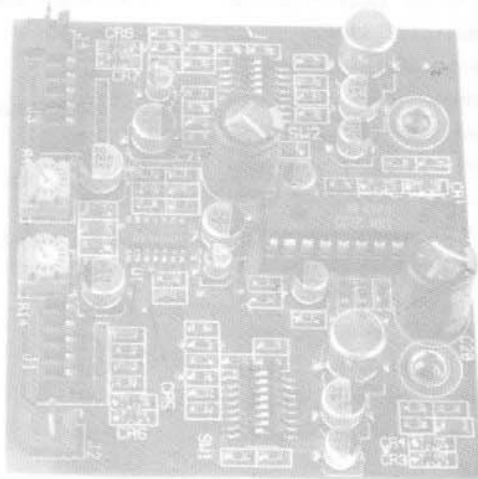


Figure 1 Schematic of ITP-1

InterActive Technology

Linked Component Control



ITP-1

Dual Channel Power Limiter PCB

- Power limiter protection
- User selectable power level
- User selectable attack/delay
- Able to link multiple channels
- Simple to install

Description

InterActive Technology provides optional signal processing PCBs for use with all IT compatible amplifiers. Model ITP-1 is a dual-channel power limiter providing user configurable output levels and selectable attack/decay times.

The ITP-1 signal processing PCB plugs directly into the two 5-pin headers of an IT compatible input module, providing power limiting for both channels of the amplifier.

The ITP-1 dual channel power limiter PCB provides loudspeaker protection by limiting the output power of an amplifier channel to

a predetermined level. Power level is user selectable by switches from 0 dB to -10 dB, for each channel (independent of each other). The ITP-1's "feedforward" design eliminates the possibility of oscillation associated with high-compression ratios of "feedback" designs.

The versatility of selectable power level limits and response times allow the ITP-1 to be more flexible and applicable to multiple installations.

Architects' and Engineers' Specifications

The specified signal processing PCB shall provide output power limiting for both chan-

nels of an InterActive Technology compatible power amplifier.

Output power limiting shall be user configurable from 0 dB to -10 dB relative to the power amplifiers rated output power.

The response time of the specified PCB shall also be user selectable, providing three optional times: fast, medium and slow. Actual time values shall be 3 mS, 40 mS and 500 mS, respectively.

All user selectable settings shall be made via dip switches provided on the PCB module.

The specified power limiter PCB module shall be InterActive Technology model ITP-1.

ITP-1 Dual-Channel Power Limiter PCB

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

Input Impedance

15 kohms

Maximum Input Level

+18 dBu
(ref. 0 dBu = 0.775 V rms)

Output Type

unbalanced

Output Source Impedance

<50 ohms

Minimum Load Impedance

2 kohms

Total Harmonic Distortion

<0.03% at 0 dBu output
over full bandwidth

Intermodulation Distortion (SMPTE)

<0.03% at 0 dBv output

Noise Floor

<-80 dBu

Power Requirements

±15 V dc

Response Times

Fast = 3 mS

Medium = 40 mS

Slow = 500 mS

Power Limits

0.0 dB

-0.5 dB

-1.0 dB

-2.2 dB

-3.0 dB

-5.2 dB

-10.0 dB

Connectors

J1 5-pin header

Pin 1= input ch 1

Pin 2= output ch 1

Pin 3= ground

Pin 4= +15 V dc

Pin 5= -15 V dc

J2 2-pin header

Pin 1= aux out ch 1

Pin 2= ground

J3 5-pin header

Pin 1= input ch 2

Pin 2= output ch 2

Pin 3= ground

Pin 4= +15 V dc

Pin 5= -15 V dc

J4 2-pin header

Pin 1= aux out ch 2

Pin 2= ground

Dimensions,

Length:

66 mm (2.6 in.)

Width:

74 mm (2.9 in.)

**InterActive
Technology**
Linked Component Control

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