PROBE INTERFACE POD

Model PIP *II*

User's Manual

"Creating New Directions in Digital Audio Electronics"

PROBE INTERFACE POD

MODEL PIP *II*

USER'S MANUAL

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1.0 OVERVIEW

The Probe Interface Pod (PIP *II*) is a high-performance amplifier designed for countermeasures applications. Using the included 17-piece probe kit, the pod can be directly interfaced to telephone lines, power mains, or other types of wiring. Sheathed banana jacks are utilized to protect the user from accidental electrical shock, and the internal circuitry is capable of withstanding voltages of up to 500VDC/350VAC. A built-in hum filter effectively removes 50/60Hz hum harmonics below 310 Hz, allowing the 0 to +40dB output gain stage to amplify signals which might be buried. Finally, a built-in adjustable 1.2 VDC to 27 VDC PHANTOM SUPPLY allows condenser microphones and/or remote amplifier units, which may be present on a wire pair, to be powered and detected.

2.0 PIP *II* OPERATION

2.1 Front Panel Functions

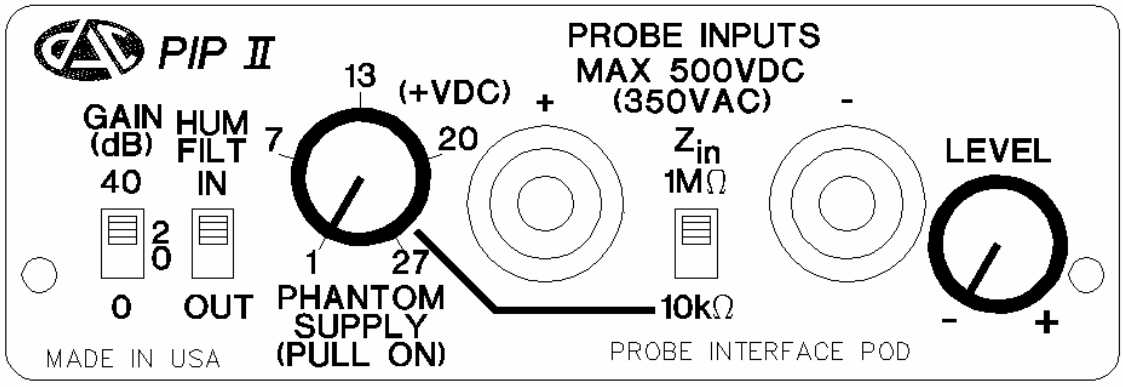

Figure 1: PIP *II* Front Panel

From the front panel, the user can adjust input LEVEL, switch the 6-pole 310 Hz Tschebychev HUM filter IN or OUT of the circuit, apply 0 to 40dB of GAIN to the final output, select the input impedance, and control the PHANTOM supply.

To vary the input level of the source signal use the LEVEL adjustment knob. Two input impedance options are provided: 10 k ohms (lowest impedance), and 1 M ohm (highest impedance). For most applications where high voltage is not present, the 10k setting is recommended. The 1 M ohm setting is recommended when interfacing to power mains, or in situations where it is desired that the PIP *II* place an absolute minimum load on the line under test. The input impedance can be switched between 1 M ohm and 10 k ohms via the Z_{in} switch.

The GAIN switch allows three different output gains to be applied to the signal in addition to the main LEVEL adjustment knob. These gain values are 0 (no gain), 20 dB (10X gain) and 40 dB (100X gain).

The PHANTOM SUPPLY is controlled via its knob on the front panel. When the knob is pushed “in” the supply is OFF. When pulled “out” the PHANTOM SUPPLY is turned ON. The output voltage can be adjusted between 1.2 VDC and 27 VDC. The PHANTOM SUPPLY voltage is applied to the probes only in the 10k ohms impedance setting; the red probe will have positive polarity, while the black probe will have negative polarity.

2.2 Rear Panel Functions

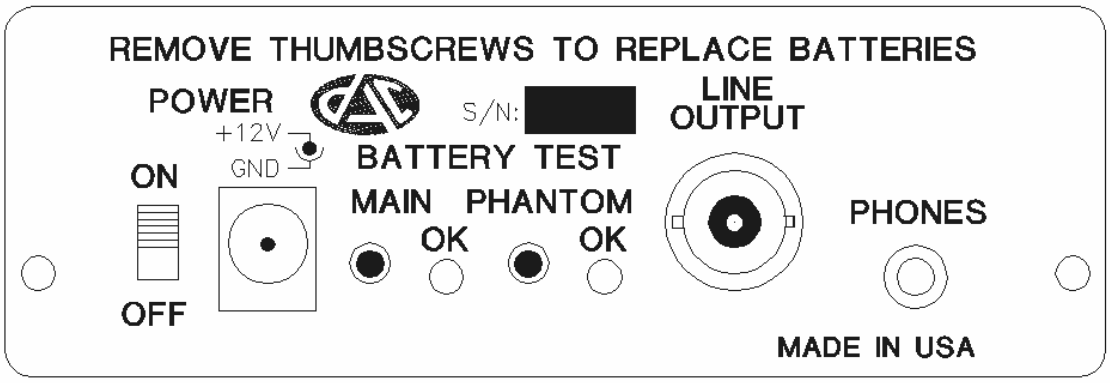

Figure 2: PIP *//* Rear Panel

From the rear panel, the user can power the unit ON and OFF, attach an external power supply, test the MAIN and PHANTOM batteries, and connect monitoring headphones and the line output.

A line-level OUTPUT BNC allows the unit to be directly attached to either input of the CSP4096, as well as to any other device which accepts line-level audio input. A 1/8” stereo phone jack allows direct connection of standard 8 ohm headphones. The front panel LEVEL knob is useful in controlling the output level of the headphones, as well as the line output.

The BATTERY TEST switches indicate the status of the internal MAIN and PHANTOM batteries. If the corresponding LED fails to illuminate when either the MAIN or PHANTOM switches are pressed, the corresponding internal 9V battery needs replacing.

2.3 Powering the Unit

The unit is powered either from an internal 9VDC alkaline MAIN battery or an external 9-18 VDC power source (NOTE: The internal MAIN battery is disconnected whenever the external power source is plugged into the rear panel). When utilized with the CSP4096 Compact Signal Processor, a special cable allows power to be drawn from the CSP4096.

The PHANTOM supply for the PROBE INPUTS is always powered by the PHANTOM battery, even when the PIP *II* is receiving it's power from an external source. This dedicated battery allows electrical isolation of the PHANTOM power from the rest of the unit. See section 3.0 for information on 9V battery replacement.

When the PHANTOM supply is not needed, make sure that the front panel PHANTOM SUPPLY knob is pushed "in" to prevent unnecessary drain on the PHANTOM battery.

3.0 BATTERY REPLACEMENT PROCEDURE

To replace the 9V batteries:

1. First disconnect all cables from the unit (including the DC power cable.) Ensure that the rear power switch is in the OFF position. Loosen (if thumb screws are too tight use a flathead screwdriver) and remove the thumb screws on the rear panel.

WARNING	Be careful not to damage any of the components in the PIP *II* by static electricity. Before opening the unit be sure to touch a grounded metal object.

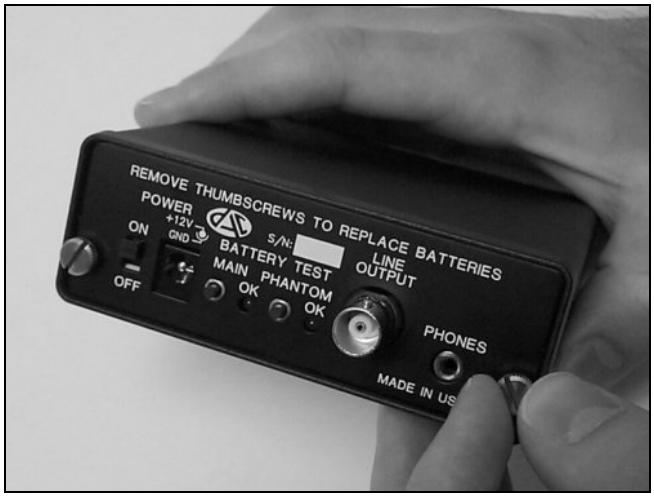

Figure 3: PIP II Rear Panel Thumb Screws

2. Remove the rear panel and bezel

Figure 4: PIP II Rear Panel Removal

3. While holding the base of the unit, gently pull the black top cover toward the rear of the unit.

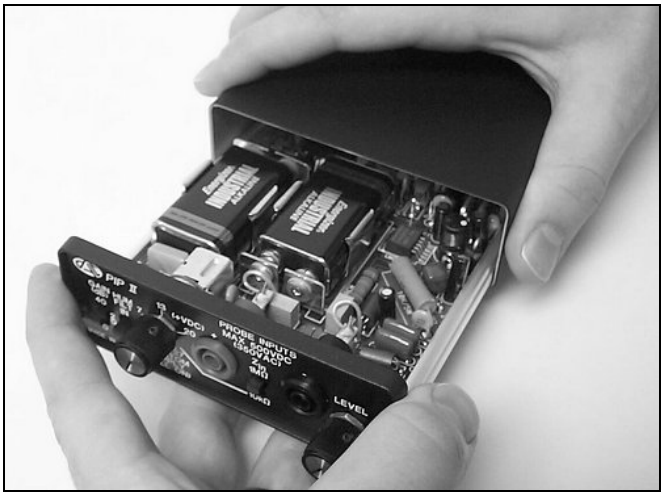

Figure 5: PIP II Top Cover Removal

4. To remove the batteries push firmly on the back (the end opposite the terminals) of each battery in the direction of the terminals while prying upward. The battery should snap out of its clips back end first.

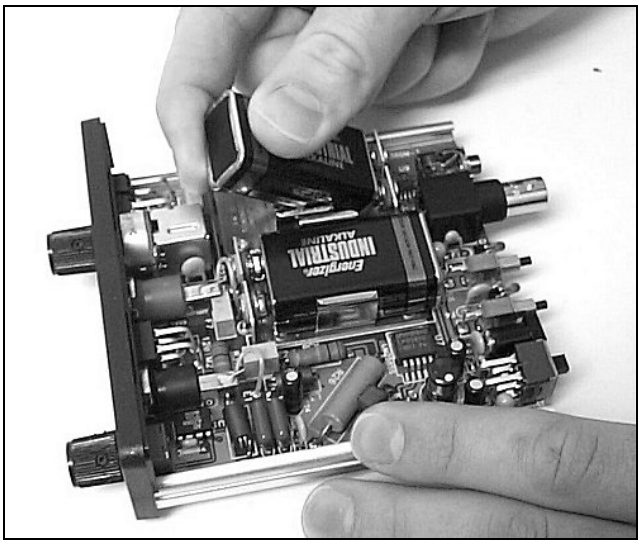

Figure 6: PIP II Battery Removal

To insert the new batteries simply reverse the previous action. First insert the terminal end of the battery by slowly prying it between the clips. Next press down on the body of the battery. It should snap into place. Ensure that it is making good contact with the connection terminals.

Replace the top cover of the PIP II by sliding it back into place. Re-tighten the thumb screws and the PIP II is again ready to use.

For applications where longer battery life is needed, longer life lithium batteries are available at many electronics stores.

4.0 SPECIFICATIONS

Input Connections:	Differential RED and BLACK sheathed banana jacks, capable of accepting a wide variety of probes and attachments
Input Voltage Range:	+/- 500 VDC, or 350 VAC
Phantom Supply:	Adjustable 1.2 VDC to 27 VDC or OFF Dedicated isolated internal 9V PHANTOM battery. Phantom voltage applied in 10k impedance setting.
Input Impedance:	10k ohms 1M ohms
Gain Range:	0 to +100dB from inputs to LINE OUTPUT and PHONES output
CMRR:	75dB or better
Equivalent input noise:	Less than 1000nVrms
Bandwidth:	100 – 10000Hz
Input Gain Stage:	0 to +60dB, continuously adjustable
Hum Filter:	Six-pole Tschebychev, highpass, 310Hz cutoff
Output Gain Stage:	0, +20, or +40dB, switchable
Line Output:	2Vrms, nominal output level Capable of driving 1K ohm load Standard isolated BNC connector
Phones Output:	1/8” stereo phone jack, drives standard 8 ohm stereo headphones
Power:	9-18VDC external DC power input Two internal 9VDC alkaline battery
Indicators:	Battery OK LEDs and pushbutton switches for testing MAIN and PHANTOM batteries
Packaging:	1.5”H x 4”W x 4.4”L, aluminum
Probe Kit:	19-piece Pomona probe kit, including pouch