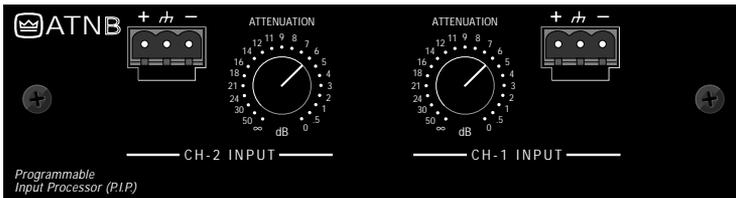


# P.I.P.-ATNB

## REFERENCE MANUAL



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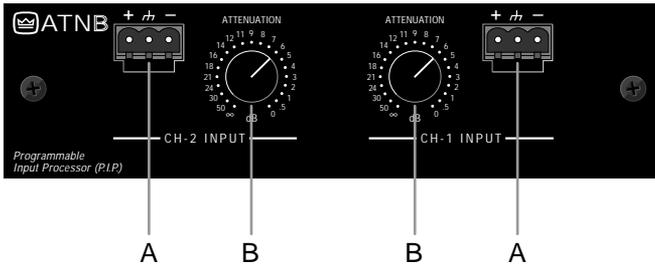


Fig. 1.1 Front View

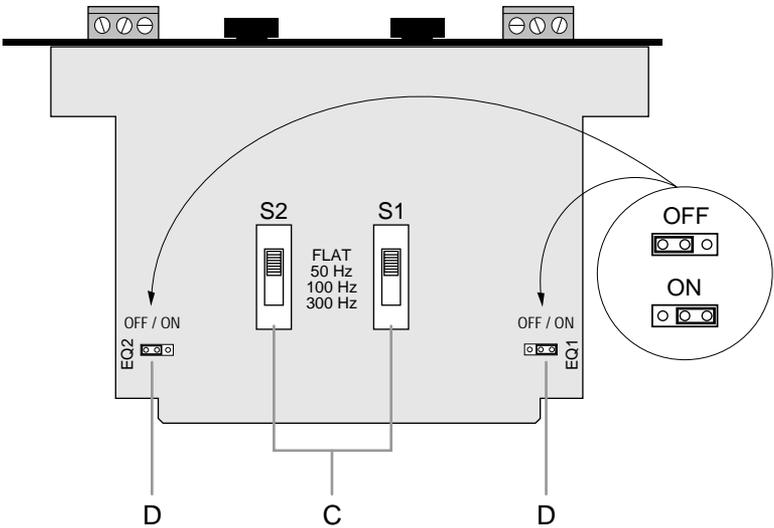


Fig. 1.2 Bottom View

## 1 Welcome

Thank you for purchasing the Crown *P.I.P.–ATNB* accessory. *P.I.P.*® (Programmable Input Processor) modules are designed to quickly install in the rear panel of Crown *Com-Tech*®, *Macro-Tech*® or *Studio Reference* series amplifiers. Their versatile features expand the capabilities of your amplifier and enable you to customize it for your particular needs.

You should find these items when you unpack:

- P.I.P.–ATNB Module
- Two 8-32 Phillips Machine Screws
- Two Lock Washers
- Two Quick-Disconnect Barrier Blocks
- This Reference Manual

## Features

- ❑ Balanced inputs with 1:1 isolation transformers to minimize input noise.
- ❑ RFI filter for attenuation of unwanted ultrasonic frequencies. The RFI filter is a 12 dB/octave, Bessel-tuned low-pass filter with a 3 dB roll-off point at 33 kHz.
- ❑ Switchable subsonic/bass filter with the following settings: flat, 50, 100, or 300 Hz roll-off.
- ❑ Switchable constant-directivity horn equalization network.
- ❑ Calibrated 21 position attenuators give accurate level control of the input signal.
- ❑ Removable barrier block connectors provide greater wiring flexibility and easy installation.

## Facilities

### A. Balanced Input

These removable barrier-block connectors (Figure 1.1) make it quick and easy to attach an input cable with just three screws. Once the cable is attached, the connector can be quickly unplugged and, if desired, moved to a different amplifier.

### B. Input Attenuators

Each channel has a calibrated attenuator (Figure 1.1) for accurate level adjustment. They have 21 detented positions which “click” into place for ease of use.

### C. Subsonic/Bass Switch

A 4-position slide switch for each channel (Figure 1.2) controls the subsonic/bass filter. This filter is an 18 dB/octave Butterworth high-pass filter which can be selected to attenuate frequencies below 50 Hz, 100 Hz or 300 Hz. It can also be switched off (FLAT). The switch positions are labelled on the circuit board between the two switches.

### D. Horn Equalization Jumper

A jumper is provided for each channel (Figure 1.2) to enable/disable the constant-directivity horn equalization. The jumper for channel 1 (EQ1) is shown in the ON position while the channel 2 jumper (EQ2) is shown in the OFF position. This equalization circuit is a 6 dB/octave shelving network with a 3 dB rise at 3.2 kHz and a peak boost of 12.5 dB at 24 kHz.

## 2 Installation

Before installing this *P.I.P.* module, it will need to be configured. The first two steps in the installation procedure focus on this. A phillips screwdriver is required.

**CAUTION:** Before installing this or any *P.I.P.* in your amplifier, it is important to turn down the amplifier's level controls, turn off the amplifier and disconnect the AC power. Even though the amplifier is off, there could still be enough energy in the circuitry to cause electric shock.

*Please note: The RFI filter is always on—it cannot be switched off.*

1. Adjust the constant-directivity equalization jumper of each channel to be ON or OFF (see Figure 1.2). Figure 2.1 shows the frequency response through the *P.I.P.-ATNB* when this filter is on.

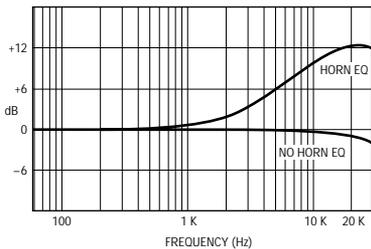


Fig. 2.1 Constant-Directivity Horn Equalization (with RFI filter)

2. Select the desired position for the Subsonic/Bass filter switch for each channel. Sliding the switch to the FLAT position switches off the filter. The switch positions are identified on the circuit board between the two switches (see Figure 1.2). Figure 2.2 shows the frequency response through the *P.I.P.-ATNB* when this fil-

ter is set in each of its four modes (Flat, 50 Hz, 100 Hz, 300 Hz).

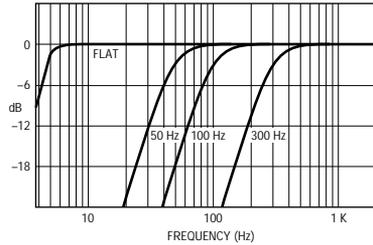


Fig. 2.2 Subsonic/Bass Filter Settings

3. Turn the Attenuator controls of the *P.I.P.-ATNB* full counterclockwise to  $\infty$  (full or infinite attenuation).
4. Turn down the amplifier level controls (fully counterclockwise), turn off the amplifier, and unplug it from the AC power source.
5. Remove the existing *P.I.P.* module or panel (two screws). For *PIP2* amplifiers, this may involve disconnecting the *P.I.P.* from a *PIP2* input adapter (see Figures 2.4 and 2.5). If a *PIP2* input adapter is already present, do not remove the ribbon cables from the adapter. Otherwise you will have to reconnect them in the next step.
6. Standard P.I.P. Amplifiers: Align the edges of the *P.I.P.-ATNB* in the *P.I.P.* card rails and firmly push the unit in until it is seated against the mounting bracket (see Figure 2.3).

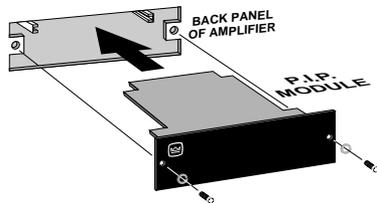


Fig. 2.3 Installation into a Standard *P.I.P.* Amplifier

*PIP2 Amplifiers:* (Requires the PIP2 ADAPTER.) Connect the PIP2 input adapter to the two input cables of the amplifier (see Figure 2.4). Notice the PIP2 input adapter should be positioned with the P.I.P. edge connector on top and facing away from the amplifier. The 20 pin cable (A) is connected first, then the 18 pin cable (B) is connected. Both ribbon cables should extend below the PIP2 input adapter.

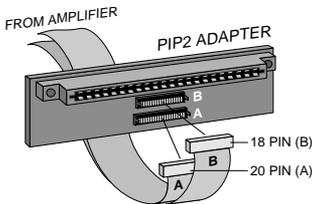


Fig. 2.4 PIP2 Input Adapter Connection

Next, insert the edge connector of the P.I.P.–ATNB into the PIP2 input adapter (see Figure 2.5) and insert the assembly into the P.I.P. opening in the back of the amplifier.

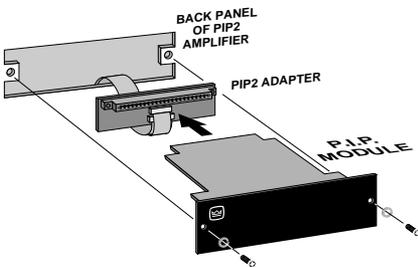


Fig. 2.5 Installation into a PIP2 Amplifier

7. Secure the P.I.P.–ATNB with the two screws and lock washers provided. The lock washers are important because they bond the P.I.P. to amplifier chassis ground to ensure electrical and mechanical integrity for safety and performance.
8. Reconnect the amplifier to the AC power and turn it on.
9. Connect the audio signal wiring to the XLR connectors of the P.I.P.–ATNB according to the instructions in your amplifier's Reference Manual.
10. Adjust the amplifier level controls to the maximum desired level. This should be the maximum setting you ever want the amplifier to use in case the Attenuation controls on the P.I.P.–ATNB are ever set to 0 (zero) dB attenuation.
11. Use the Attenuator controls on the P.I.P.–ATNB, to adjust the input audio signal level. *Note: If you do not want to use the Attenuator controls on the P.I.P., turn them to 0 dB (full clockwise) and use the amplifier level controls to adjust the input audio signal level.*

Do NOT change the circuitry. Unauthorized circuit modifications, void the warranty.

**Remember:** Crown is not liable for damage resulting from overdriven components in your sound system.

*Electronic image for this figure were not included due to quality considerations. Please refer to the printed documentation.*

**Only one channel shown**

*Electronic image for this figure were not included due to quality considerations. Please refer to the printed documentation.*

J0723-7 Rev. A

**Notes:**

1. All resistors are in ohms, 0.25W, 1%, unless specified otherwise.
2. All capacitors are in microfarads unless specified otherwise.

### 3 Specifications

*Note: All specifications referenced to a 0.775 V input signal.*

**Signal to Noise:** Better than -85 dB (equivalent input noise) from 20 Hz to 20 kHz.

**Common Mode Rejection:** Better than 60 dB at 1 kHz.

**Crosstalk:** -82 dB at 1 kHz.

**Input Impedance:** Nominally 10 kohm.

**Recommended Source**

**Impedance:** 1 kohm or less.

**Maximum Input Level:** +20 dB at 1 kHz.

**Nominal Gain:** Unity.

**Frequency Response:**  $\pm 1$  dB from 20 Hz to 20 kHz when filters set flat

and horn equalization off. High-pass (subsonic/bass) filter has selectable -3 dB roll-off points of 50, 100 or 300 Hz (see Figure 2.2). Constant-directivity horn equalization network has 3 dB rise at 3.2 kHz with 12.5 dB peak at 24 kHz (see Figure 2.1). Both these filters can be switched off if desired.

A permanent RFI filter with a -3 dB roll-off at 33 kHz also affects the response.

**Attenuation:** 21 position attenuator for each channel. The attenuation settings are: 0, .5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 14, 16, 18, 21, 24, 30, 50 and  $\infty$  (infinite) dB.

**Dimensions:** 6 <sup>3</sup>/<sub>8</sub> x 1 <sup>7</sup>/<sub>8</sub> x 3 <sup>7</sup>/<sub>8</sub> in (16.2 x 4.8 x 9.8 cm).

**Weight:** 12 ounces (340 grams).

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