PRECAUCION

To reduce to the risk of fire or electrical shock, do not expose this apparatus to rain or humidity. Do not spill water or any other liquid on the unit.

- To diminish the risk of fire, do not cover the ventilation openings of the equipment with any type of object. Do not arrange lamps in the direction of the product.

To prevent the risk of electric shock, do not remove the cover of the apparatus.

Before operating the apparatus, PLEASE READ this user guide completely.

- Do not use the unit if the AC cable is broken or ripped open. The AC cable shall be routed so that nobody can walk on it or being exposed to any type of damage.

- Always operates the product with the physical ground cable connected to an electrical ground system.

- The supply voltage is indicated on the rear part of the equipment. No guarantee is valid if the apparatus is connected to a different voltage.

- Turn off and disconnect the voltage supplies before connecting the apparatus.

- Do not place the unit near sources of heat, like radiators, lamps, stoves, etc.

- Do not connect the outputs of a channel with the outputs of another channel. Do not connect the outputs of the processor in parallel with the outputs of another processor. Bunker Electronics S.A. de C.V. is not responsible for damages caused to other units.

- Do not connect any red terminal (“hot”) to ground or to any other red terminal (“hot”).

This symbol indicates the presence of DANGEROUS VOLTAGES that do not have isolation within apparatus and represent a risk of electrical shock.

This symbol has the intention to alert the user to follow important instructions or procedures on the operation and maintenance within the documentation of the apparatus.

WARNING

The user is warned of any change or modification not approved in this manual could void their authority to handle this apparatus.

INDICE

INTRODUCTION

CONGRATULATIONS, you have acquired the Digital Audio Processor model BPD-1 PLUS of the series Power Drive by BUNKER ELECTRONICS SA DE CV.

Bunker Electronics S.A. de C.V. has proudly developed the processor Bunker Power Drive model BPD-1 PLUS. This processor features the latest in technology for the audio signal processing. It simplifies the handling of speaker systems with a quality of sound never heard before.

The Bunker Power Drive BPD-1 PLUS features 3 analog inputs (channels left, right, and RTA) and 8 analog outputs. This configuration allows the user to divide the input signals into several ways (up to 4 ways stereo), resulting in an optimal range of frequency for your speaker system. This Processor is controllable from a computer thanks to the USB-RS485 Interface.

Bunker is known for having robust products. Or robustness is, among other, shown by having a universal power supply that works in a range of 85-240VAC. Our processor BPD-1 PLUS is designed to operate in the most extreme conditions.

The System Configuration Wizard, the Graphic User Interface (GUI), and the Simple Menu, facilitate and accelerate the units programming. The Real Time Analyzer (RTA) and AUTO-EQ (Automatic Equalization) are modules that help the sound engineer in the adjustment and calibration of the system efficiently and in less time.

Bunker BPD-1 PLUS Processor Features:

- **Dual 31-band Graphic EQ (Stereo or Linked)**
- **Sub-harmonic Synthesizer**
- **State-of-Art Compressor**
- **Crossover Configurations (L-R and Butterworth) 2x2, 2x3, 2x4, 2x5, 2x6, 2x7, 2x8**
- **Stereo Multi-band Parametric EQ (5 bands per way)**
- **Stereo Output Peak Limiters**
- **Speakers Alignment Delay (4-Way:12mSec; 3-Way:16mSec; 2-Way:25mSec; 1-Way:50mSec)**
- **Pink Noise Generator**
- **Auto-EQ with 31-band RTA**
- **Output Deactivation “Mute”**
- **Output Polarity Inversion**
- **Software Lock**
- **Gain Control per Output**
- **10 User Programs/7 Factory Programs**
- **2 Channel XLR Input + RTA Input and 8 Channel XLR Output**
- **Full Graphic LCD Display**
- **Universal Power Supply (85-240VAC)**
- **24-Bit ADC/24-Bit DAC Burr Brown**
- **32 bits Floating Point DSP Texas Instruments TMS320C6722.**

UNPACKING

Inspect the unit when unpacking it. Notify your vendor if you find damage caused by transportation or any others. Keep the original packing since it will be needed when sending the unit back for service or warranty claims.

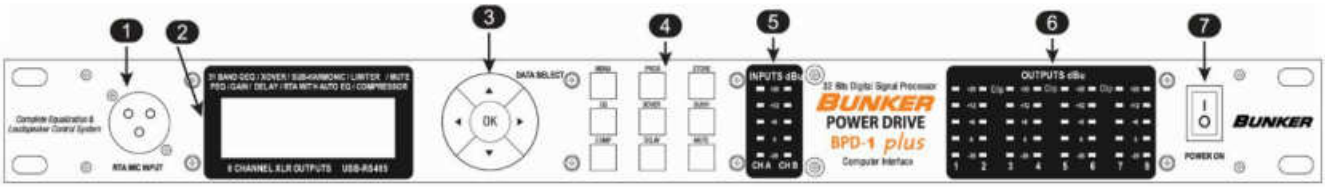
INSTALATION AND MOUNTING

The digital audio processor BPD-1 PLUS is designed to be mounted on standard rack of 19”. This is of a sing le rack space. In case of being put under mechanical stress, it is recommended to add support to the rear part of the unit.

SPECIFICATIONS

Inputs	
Connectors	Female XLR
Quantity	3 (2 Signal Inputs and 1 microphone RTA)
Impedance	> 10 k Ω
Maximum Level	+20 dBu
Mic Phantom Voltage	+12 VDC
Outputs	
Connectors	Male XLR
Quantity	8 Signal Outputs
Impedance	150 Ω
Maximum Level	+20 dBu (7.75 Vrms)
Power Supply	
Operating Voltage	85-240 VAC 50/60Hz, 30 Watts
Processing	
DSP	32 Bits Floating Point TI TMS320C6722
ADC	Burr Brown , SNR < -118 dB (Typical)
DAC	Burr Brown , SNR < -118 dB (Typical)
Sampling Rate	96kHz
THD+N	0.001%, 1kHz, 0 dB
Physical	
Weight	5.5 lbs (shipping weight 7.5 lbs.)
Dimensions	1.75” Height x 6.0” Length x 19” Width

FRONTAL PANEL



1. RTA MIC INPUT
It is the microphone input for the Real Time Analyzer (RTA), the connector is a XLR female of 3 pins balanced.

2. LCD Screen
Displays the Graphic User Interface (GUI), it provides all the options for configuring the Bunker Power Drive BPD-1 PLUS. Among these options are the signal routing, effects and functions.

3. Navimec
By means of the Navimec the user is allowed to navigate the graphical user interface. With it is possible to move through the menu, to load the programs, and to select and edit parameters.

4. Direct Access Buttons.
These 9 buttons give the user direct access to the different modules in the system.

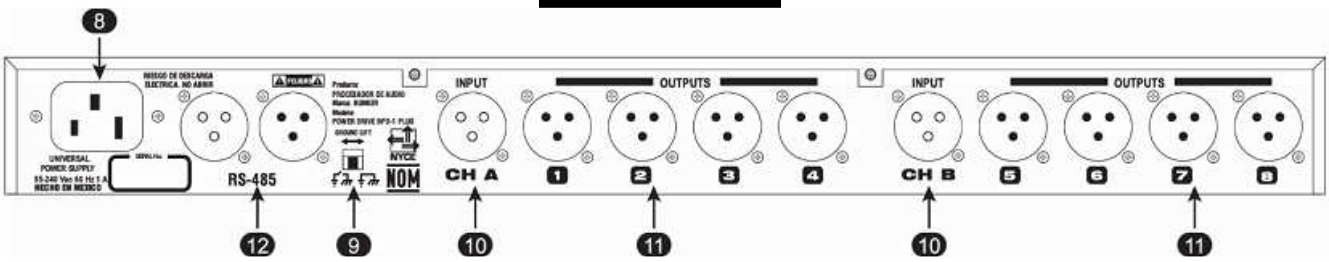
<MENU>	Main Menu.
<PROG>	Creates or modifies a program.
<STORE>	Saves changes made to the program.
<EQ>	Direct access to the Graphic Equalizer Interface.
<XOVER>	Direct access to the Crossover Interface.
<SUBH>	Direct access to the Subharmonic Synthesizer Interface.
<COMP>	Direct access to the Compressor Interface.
<DELAY>	Direct access to the Alignment Delay Interface.
<MUTE>	Direct access to the Mute Interface, where the user can activate/deactivate outputs.

5. Input Level Columns
The Input Level Columns help to monitor the magnitudes of the signals applied to the inputs BPD-1 PLUS, level given in dBu. The unit has two columns, one for the channel A, and another one for channel B, in which the input levels are displayed in real time. The range of the displayed levels is from -20 dBu to +20 dBu.

6. Output Level Columns
The Output Level Columns help to monitor the magnitude of the signals outputted by the BPD-1 PLUS. The unit has eight columns, one for each output, in which the output levels are displayed in real time. The range of the displayed levels is from -20 dBu to +20 dBu.

7. Power On/Off Switch
This switch controls the power On/Off of the unit.

REAR PANEL



8. AC Power Connector
The BPD-1 PLUS includes an AC cable of 3x18 AWG.
The unit has the capacity of accepting AC voltage range from 85 to 240VAC in frequencies from 50Hz-60Hz.

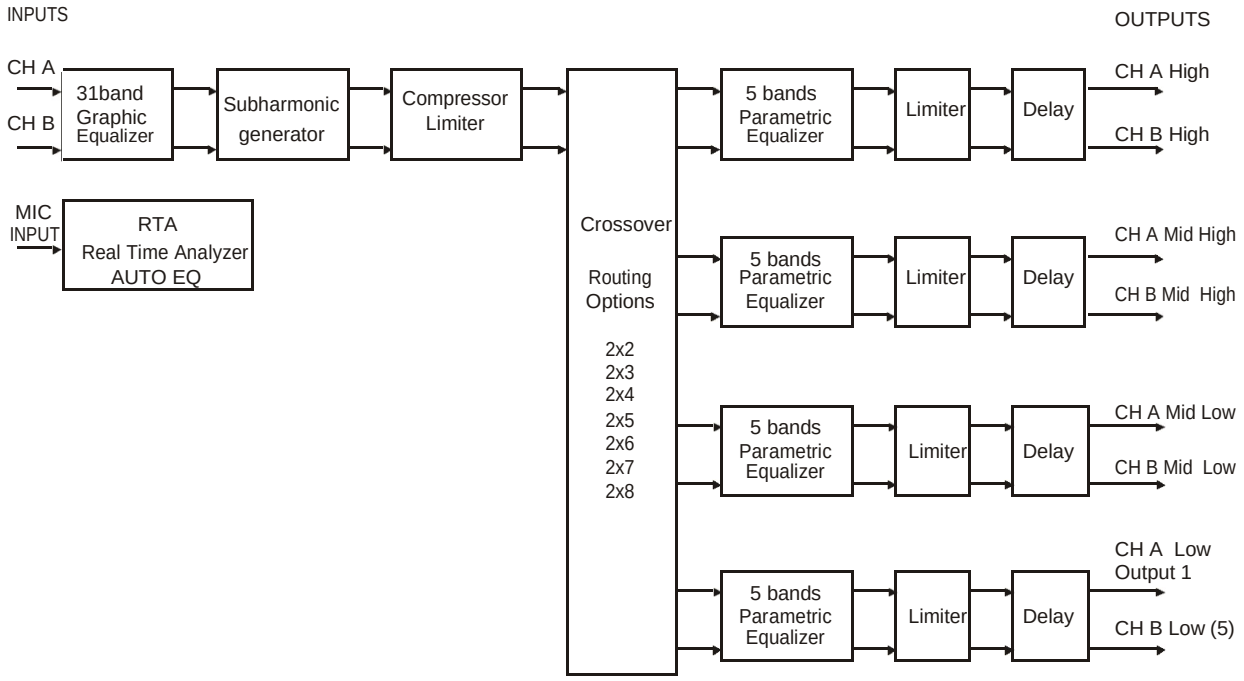
9. Ground Lift Switch
This double-pole-double-throw (DPDT) switch allows to ground the unit to physical ground. It is recommended for security reasons that all the installations are physically grounded. To obtain this is necessary that the Ground Lift Switch is in the Right position. The factory configuration for this switch is of Physically Grounded (Position to the Right).

10. Inputs
The unit has two independent balanced inputs, one for each channel (A and B). The connector is a XLR female of 3 pins.

11. Outputs
The unit has eight balanced outputs, four for each input channel. Input A is routed to Outputs 1 through 4, Input B is routed to Outputs 5 through 8. The connector is XLR male for connecting to amplifiers.

12. RS485 Communication
Two XLR connections (male and female) for communication with computer and to link communication with other BPD-1 PLUS. See Page 12 for more information about USB-RS485 Communication.

EXECUTABLE CODE IN BLOCKS



CONNECTIONS

The following instructions must be followed during the installation of the unit:

- Make the connection with the unit turned off.
- Connect the output of the source to the inputs of the BPD-1 PLUS and connect the outputs of the BPD-1 PLUS to the amplifiers. Make sure the audio amplifiers are off before making the connection.
- Before turning on the BPD-1 PLUS make sure the audio amplifiers are turned off.
- Before turning off the BPD-1 PLUS make sure the audio amplifiers are turned off.

SYSTEM PROGRAMMING

Once turned on, the BPD-1 PLUS starts in the program menu, loading automatically the parameter of the last program used. On the LCD, the most relevant information will be displayed like the program name and crossover routing.

If changes to the loaded program are desired, the user can navigate through the direct access buttons or main menu and modify the desired parameter. Press **MENU** to access the main menu where the different modules will be shown. The modules are:

- Graphic Equalizer
- Crossover,
- Subharmonic Synthesizer,
- Signal Compressor,
- Alignment Delay,
- Parametric Equalizer,
- MUTE,
- Signal Limiter,
- Store Program,
- Real Time Analyzer (RTA),
- Auto Equalization (AUTO EQ),
- Language,
- Polarity and
- Lock
- Gain

For more information see section **Modules of Operation.**

To change to another program, use the up-down key from the Navimec to navigate through the different programs. Notice that the non-loaded programs will have at the top the label “LOAD… OK” and the associated name. Press the **OK** key to load once the desired program is found.

If a new program is required follow these steps to generate it:

1. Press the direct access **PROG** key.
2. Select **New Program**.
3. The unit will ask for the configuration, that is, the amount of ways desired for the crossover (signal routing). Pressing the up-down keys of the Navimec the LCD will display the seven different routings options of the signal, press the OK key to select the desired program configuration.
4. The BPD-1 PLUS features a wizard. The user can choose to use it or not, though.
5. If the wizard is not used, the BPD-1 PLUS will proceed to the main menu, where changes to parameters are possible. Once the desired configuration is achieved, it is recommended to save the program. For more information refer to the section
Modules of Operation.

6. If the wizard is used, the BPD-1 PLUS will proceed to the Graphic Equalizer, Crossover, and Save Program.
For more information refer to **Modules of peration**.

MODULES OF OPERATION

The main menu features the following modules of operation:

GRAPHIC EQUALIZER (GEQ)

The BPD-1 PLUS Dual Graphic Equalizer has 31 bands. The user can select STEREO an independent equalization per input channel or a common equalization for both input channels by selecting LINKED. To direct access this module, press the **EQ** key or select **Graphic Equalizer** in the main menu and press the **OK** key. To enable the GEQ select **Yes** on the option **GEQ,** this is done by pressing the right key of the Navimec. To disable the GEQ select **No** on the GEQ, this is done by pressing the left key of the Navimec. When the GEQ is disabled the gain adjustment for all 31 bands is **0 dB**

The Graphic Equalizer User Interface is shown in FIG 1. Label **1** indicates the Channel to be modify, A and/or B. Label **2** indicates the selected frequency band in Hertz. Label **3** indicates the gain at that specific frequency. Use the left-right keys of the Navimec to select a new the frequency band. Use the up-down key s of the Navimec to change and gain for that specific frequency band.
The center frequencies of the 31 bands GEQ are allocate between 20 Hz and 20 KHz. The gain range at each band is between -12 and 12 dB in 0.5 dB increments.

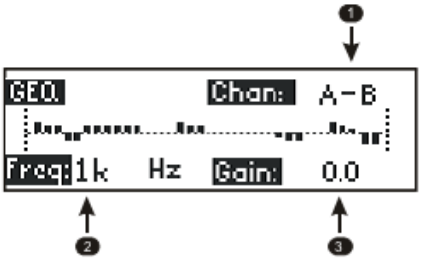


FIG. 1
GRAPHIC EQUALIZER MODULE

CROSSOVER (XOVER)

The BPD-1 PLUS Crossover allows the divisions of the input signal into up to four frequency bands, this allows a more optimum frequency response from the loud speaker system. Each frequency band is independent from each other. The BPD-1 PLUS uses High Pass Filters (HPF), Low Pass Filters (LPF), and Band Pass Filters (BPF) based on the selected configuration. To direct access this module press the **XOVER** key or select **Crossover** in the main menu.

Once in the crossover module, the user will be prompt to select the filtering type: Butterworth or Linkwitz Riley. When choosing the Butterworth filtering, the filter slope can be chosen to be 6, 12, 18, or 24 dB/Oct. When choosing the Linkwitz Riley filtering, the filter slope can be chosen to be 12 or 24 dB/Oct.

The Crossover has many routing configurations (2x2, 2x3, 2x4, 2x5, 2x6, 2x7, or 2x8) as shown in FIG 2A. For options 2x3, 2x5, 2x7, the inputs from way 1 from Inputs channel A and B are added to produce a mono output at Output 1 (as a result, Output 5 gets deactivated). The mono output is always the output number 1. The mono configuration is recommended for low frequencies.

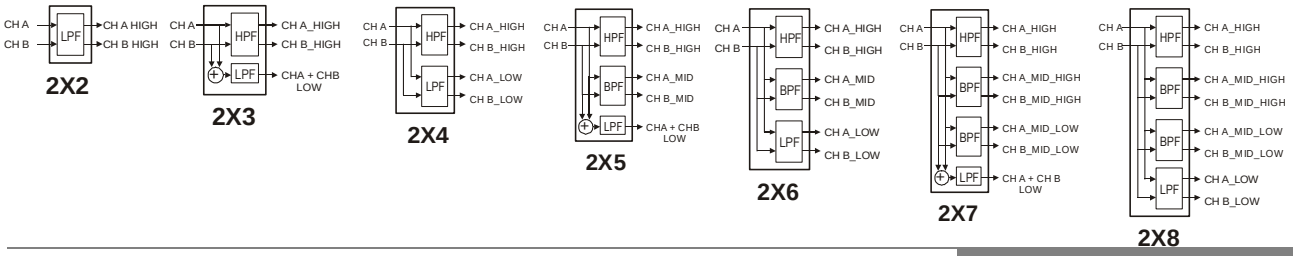


FIG 2A
CROSSOVER ROUTING OPTIONS

The Crossover User Interface is shown in FIG. 2B. Labels **1** and **3** indicate the selected way and outputs (Fig 2B shows way 1 selected, outputs 1 AND 5). Each way has five modifiable parameters:

- Pass-Band **'a'** frequency in Hertz,
- Slope **'a'** (Butterworth 6, 12, 18, or 24; Linkwitz Riley 12 or 24) in dB/Oct.
- Pass-Band **'b'** frequency in Hertz,
- Slope **'b'** (Butterworth 6, 12, 18, or 24; Linkwitz Riley 12 or 24) in dB/Oct.
- Gain (from –INF to +20) in dB.

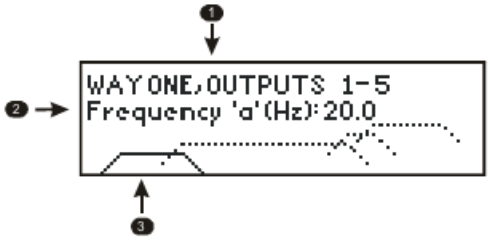


FIG. 2B
CROSSOVER MODULE

Label **2** displays the selected parameter. Using the left-right keys in the Navimec changes to the next parameter, while the up-down keys changes the parameter value. As shown in label **3**, the effect of the changes to the parameters will be refreshed in the graphic representation. The selected way is always displayed with a solid line, while the other ways are displayed with a dotted line.

SUBHARMONIC SYNTHESIZER (SUBH)

The Subharmonic Synthesizer was developed to enhance the low frequency response of the audio. The module analyzes signals in the range of 50 to 170 Hz, and generates lower frequency harmonics with a relationship to the main signal determinate by the user-selected percentage. To direct-access this module, press the **SUBH** key, or select **Subharmonic Synthesizer** in the main menu.

The Subharmonic Synthesizer User Interface is shown in FIG. 3. Label **1** indicates the parameter to enable/disable synthesizer. Label 2 indicates the percentage of subharmonic content to be added. Use the up-down keys of the Navimec to select the parameter, and the left-right keys to change the value.

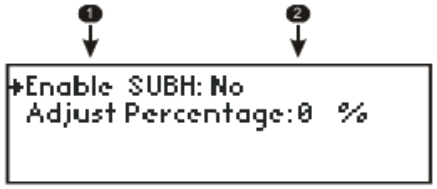


FIG 3
SUBHARMONIC SYNTHESIZER MODULE

SIGNAL COMPRESSOR (COMP)

The Signal Compressor processes the input signals in such a way that the amplitude of the signal changes at the user-desired rate when the input signal is above the user-defined threshold. To direct-access this module, press the **COMP** key, or select **Compressor** in the main menu.

This module features four modifiable parameters: Softknee, Threshold, Ratio, and Gain. The parameters affect both inputs simultaneously.

The **Softknee** (soft-transition) features ten levels of adjustment, from 1 to 10 (0 is Off). Knee is where the module starts compressing. The level of the softness controls the roughness of the transition between no-compressing and the user-selected compression. The maximum level (10) delivers the softest transition (softknee), while the lowest level (0) delivers the standard sharp transition (hardknee). Use the up-down keys of the Navimec to select the parameter, and the left-right keys to decrease or increase the level.

The **Threshold** is the RMS point where the module starts compressing. Signal levels above the threshold are compressed. To achieve better results, the input signal should only have few spikes above the threshold. The threshold adjustment goes from -40 to +20 dBu.

The **Ratio** is the amount of compressing that will be applied to the signal once it exceeds the threshold. The higher the ratio is, the higher the compression. The range of the ratio goes from 1 to Infinity. The Compressor becomes a Limiter when the ratio is chosen to be Infinity.

The **Gain** can be chosen from -20 to +20 dB. This adjustment allows for compensation of signal loss.

ALIGNMENT DELAY (DELAY)

The Alignment Delay allows the user to align independently the loud speaker system. This helps to compensate for phase problems and sound cancelation generated by the different positions of speaker system, especially for low and hi frequencies. To direct-access the module press the **DELAY** key or access the module by scrolling through the main menu and selecting **DELAY**.
The alignment delay module can adjust in meters or milliseconds. If the user chooses milliseconds, the delay can be adjusted from 0 to a Max mSec per way based on the amount of ways enabled (Max: 4-Way:12mSec; 3-Way:16mSec; 2-Way:25mSec; 1-Way:50mSec). If the user chooses meters, the delay can be adjusted accordantly from 0 to a maximum amount meters based on the amount of ways enabled.
To choose a way in the **DELAY** menu use the up-down keys of the Navimec, the available ways will be displayed based on the loaded program. The delay is adjusted with the left-right keys of the Navimec. The user interface for the Alignment Delay is shown in FIG 4. The selected way is displayed in **1** and its corresponding outputs are displayed in **2** (in this case, Fig 2 shows Outputs 1 AND 5). The graphical representation of the current delay is displayed in **3**.

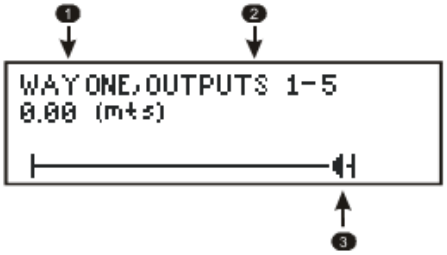


FIG 4
SPEAKER ALINGMENT DELAY MODULO

PARAMETRIC EQUALIZER (PEQ)

The Parametric Equalizer module features three bands per way. This module is located right after the crossover, one per output way. The first screen shown of the PEQ menu displays the following options:

WAY ONE
PEQ = Yes
CONFIGURE
EXIT

The option **WAY** allows the user to select the output way to configure. Use the left-right key of the Navimec to change the WAY number. The option **PEQ** allows the user to enable or disable the parametric equalizer for the selected way. Select the option **CONFIGURE** to modify the parameters of the PEQ filters.

Once the option **CONFIGURE** has been selected, the user will be able to scroll up-down through the parameters of all the parametric filters, and change the parameters with the left-right keys.

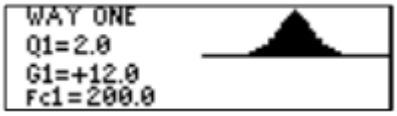


FIG 5
PEQ MODULO

The Q controls the width of the filter, and can be selected from 0.2 (widest) to 16 (narrowest).
The Center Frequency moves the filter across the frequency range, and can be adjusted from 20 to 20 kHz.
The Gain adjusts the addition/subtraction of the selected range, and can be adjusted from -12 to +12 dB.

The response of the system as a result of the user-selected parameters is shown in real time on the LCD display.

MUTE (MUTE)

The MUTE module allows the user to independently enable/disable the BPD-1 PLUS outputs. This is a useful tool when making installations or repairs of the sound system. To direct-access this module, press the **MUTE** key or select **MUTE** in the main menu.

To modify the state in this module, select the output to change by scrolling up-down with the Navimec, and modify the state with the left-right keys. To exit, scroll down to Exit and press OK.

SIGNAL LIMITER

The Signal Limiter processes the input signals in such a way that the amplitude of the signal is kept below the user-defined threshold. Select **Limiter** in the main menu to access this module.

The first menu of the Signal Limiter has the following options:

WAY: 1
CONFIGURE
EXIT

When **WAY** is selected press the left or right key of the Navimec to change the output way to be configured.

Once the option **CONFIGURE** has been selected, the user will be able to scroll up-down through the parameters of the Signal Limiter, and change the parameters with the left-right keys. This module features two modifiable parameters: Softknee and Threshold. The parameters affect both inputs simultaneously.

The **Softknee** (soft-transition) features ten levels of adjustment, from 1 to 10 (0 is Off). Knee is the threshold from which the module starts compressing. The level of the softness controls the roughness of the transition between no-compressing and fully compressed (limited). The maximum level (10) delivers the softest transition (softknee), while the lowest level (0) delivers the standard sharp transition (hardknee). Use the up-down keys of the Navimec to select the parameter, and the left-right keys to decrease or increase the level.

The **Threshold** is the RMS point where the module starts compressing. Signal levels above the threshold are limited. To achieve better results, the input signal should only have few spikes above the threshold. The threshold adjustment goes from -40 to +20 dBu.

STORE PROGRAM

Once the system has been properly configured, it is recommended to save the program to the build-in non-volatile memory of the BPD-1 PLUS. The BPD-1 PLUS has the capacity to save up to 10 user programs where the user can save his system configurations. To direct-access this module, press the **STORE** key, or select **Store Program** in the main menu.

The first step is to assign a name to a program. The name can be of up to 8 characters. Use the left-right keys of the Navimec to select the position, and the up-down keys to change the letter. Once the name has been generated, press **OK**. The unit will display a message to overwrite one of the available user programs, to continue press **OK**. Finally, with the up-down keys of the Navimec, select the program to overwrite, and press **OK** to proceed, the program is stored.

REAL TIME ANALYZER (RTA)

The Real Time Analyzer module (RTA) can assist the user to verify the acoustic response of the loud speaker system. For this module to operate, a flat-response microphone is needed connected to the input **RTA MIC INPUT**.

In the next menu the user will be able to adjust the level of the pink noise that is applied to the room.

MIC 70 dB (SPL)
Pink Noise: 0.0
RTA
Exit

The BPD-1 PLUS will display in **MIC** the sound pressure level (SPL) in dB measured by the microphone. The minimum recommended reading to start the auto equalization is 90 dB. If the level is below 90 dB, it is recommended that the user increase the level of the pink noise by selecting Pink Noise and pressing the left-right keys of the Navimec. For best results, adjust the level to the level the user is planning to be using for the acoustic system during regular operation.

Once the sound pressure level has been selected, the user can proceed to the RTA by selecting the option **RTA**. The BPD-1 PLUS will proceed to the Real Time Analyzer (RTA) and begin to display graphically the sound pressure level at each frequency band (as captured by the microphone). At the bottom left side of the LCD the central frequency is displayed and at the bottom right corner the gain is given. The user can select the frequency to be displayed by using the left-right keys of the Navimec. To exit, press the **OK** key.

AUTO EQ

The RTA module helps the user to calibrate the frequency response of the system in the lowest amount of time. This module auto equalizes both inputs together. For this module to operate, a flat-response microphone is needed connected to the input **RTA MIC INPUT**.

When accessing this module, the first menu will allow to adjust the Precision of the adjustment:

H (High),
M (Medium),
L (Low).

In addition, the user can select one of five possible acoustic frequency responses:

- Format 0: Flat Response
- Format 1: Bass Response (enhance the lower frequencies)
- Format 2: High Response (enhance the high frequencies)
- Format 3: Bass – Highs Response (enhance low and high frequencies)
- Format 4: Mid Response (enhance the mid frequencies)

Once the precision and response has been selected, press **OK** to continue to the next menu. In the next menu the user will be able to adjust the level of the pink noise that is applied to the room.

MIC 70 dB (SPL)
Pink Noise: 0.0
Auto EQ
Exit

The BPD-1 PLUS will display in **MIC** the sound pressure level (SPL) in dB measured by the microphone. The minimum recommended reading to start the auto equalization is 90 dB. If the level is below 90 dB, it is recommended that the user increase the level of the pink noise by selecting Pink Noise and pressing the left-right keys of the Navimec. For best results, adjust the level to the level the user is planning to be using for the acoustic system during regular operation.

Once the sound pressure level has been selected, the user can proceed to the auto equalization by selecting the option **Auto EQ**. The BPD-1 PLUS will proceed to the Real Time Analyzer (RTA) and begin to display graphically the sound pressure level at each frequency band (as capture by the microphone). When done, the BPD-1 PLUS will display the recommended equalization for the system based on the frequency response selected. The user can save the displayed equalization by selecting **Save** and pressing **OK**. However, the user should select **Exit** to reject and ignore the displayed equalization.

LANGUAGE

The BPD-1 PLUS features to languages for the menu, in English and Spanish. To change the language, press the **MENU** key,
scroll to the Language option with the up-down keys of the Navimec, select the option by pressing **OK**, scroll through the languages with the up-down keys, and press **OK** to select the language.

POLARITY

The Polarity module allows the user to change the polarity of the output signal. This is a useful tool when making installations or adjustments of the sound system. To access this module select **POLARITY** in the main menu.

Use the up-down keys of the Navimec to select the output, and the left-right to invert the polarity of the output. The BPD-1 PLUS will display the status of the output as “Normal” or “Invert”.

When an output has been deactivated (due to program selection or by Mute enabled), the LCD will display “Off” for the output. As a result, the polarity of the signal cannot be change. To exit the module, select **Exit** and press **OK**.

LOCK

The lock module allows the user to block other people from performing changes to the configuration of the BPD-1 PLUS. Only the users with the PIN (Personal Identification Number) are allowed to perform modifications.

To access the menu of this module, select **Lock** in the main menu. The Lock menu contains the following options:

Lock: Disabled
Change PIN
Exit

To select the option to change, scroll to it with the up-down keys of the Navimec. To enable/disable the lock, press the right/left keys of the Navimec.

The PIN is composed of four digits. The factory default is 1111. To change the default value, select **Change PIN**, input the new value and press **OK** to confirm. Once the unit is turned on again, the BPD-1 PLUS will request the PIN before accepting modifications.

GAIN

The Gain module allows the user to adjust the gain of the signal at each output (gain adjustments at the Crossover are per way). The gain adjustment is done in 0.5 dB increments.

To modify the gain, select **GAIN** in the main menu. Select the output by moving up or down with the Navimec, and change the gain with the left-right keys of the Navimec.

BPD Address

In this module the user can set the address to be used by the BPD during the communication with the computer. The addresses available are from 1 to 10. Two BPDs connected to the same communication network can’t use the same address.

The User may choose to setup a “Daisy Chain” RS-485 network of BPD-1 PLUS by linking one with the next one, and control them ALL from a single computer using the USB-RS485 interface. Up to 10 BPD-1 PLUS can be controlled.

USB-RS485 Communication

To communicate the BPD-1 PLUS and the Computer, the User needs:

1. USB-RS485 Communication Cable (not-included, sold separately, or build your own):

a. USB-RS485-WE-1800-BT (Digikey PN 768-1041-ND)
b. Switchcraft AAA3MPZ 3-pin XLR male (Digikey PN SC1533-ND)
c. Connectivity:
   i. Black (GND) to XLR Pin 1,
   ii. Yellow (DATA-) to XLR Pin 2,
   iii. Orange (DATA+) to XLR Pin 3.

2. A computer running Windows with an available USB port

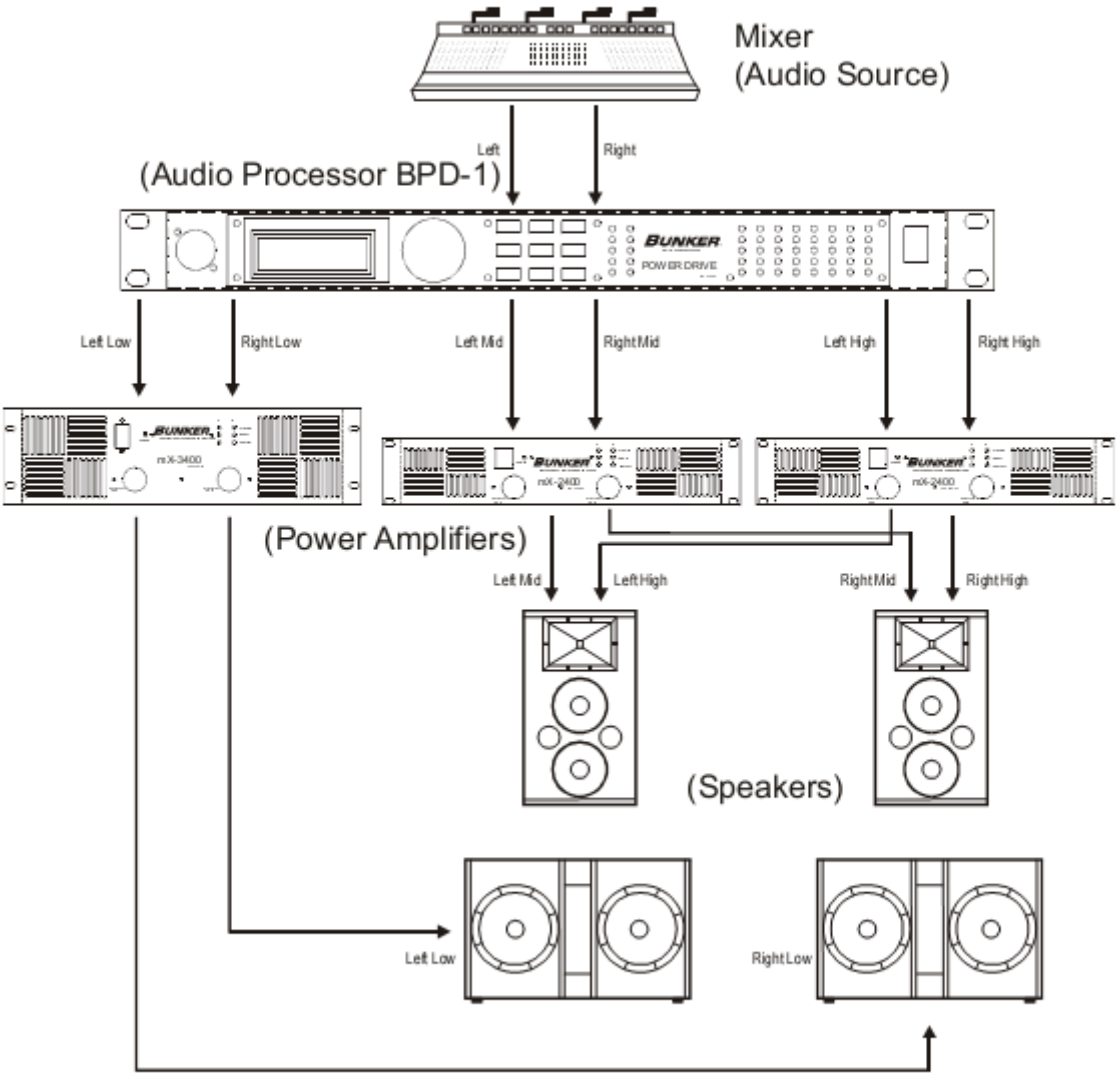
   a. The drivers for the cable purchased from Bunker can be obtained from http://www.ftdichip.com/Drivers/VCP.htm

3. To download the latest version of the software Bunker BPD Soft from http://bunkeraudio.com/

APPLICATION GUIDE

The following is an example of how to connect the BPD-1 PLUS to the rest of a system.
1. Before making a connection, make sure the mixer and the amplifiers are turned off.
2. Connect the outputs of the mixer to the inputs of the BPD-1 PLUS.
3. Connect the outputs of the BPD-1 PLUS to the inputs of the amplifiers.
4. Connect the outputs of the amplifier to the speakers.
5. Turn on the equipment in the following sequence: First the BPD-1 PLUS, then the Mixer, and then the Amplifiers.
6. Choose the program to use (5 Three ways Stereo, this is 2 input signals, and 6 output signals), and press OK.

2X6 Crossover Example



WARRANTY

Bunker Electronics S.A. de C.V. warranties the quality of its products from the Power Drive series for a 3 years period against any fabrication defect of pieces and components, as well as workmanship. This warranty also includes shipping charges.

This warranty is valid, if and only if, the owner of the product complies with all of the following conditions:

CONDITIONS TO MAKE THIS WARRANTY VALID:
1. The user must fill up the following information:

MODEL:_____
PURCHASE DATE:_____
SERIAL NUMBER:_____
DISTRIBUTOR:_____

2. The unit must be sent/delivered to the location of purchase including the receipt and this warranty policy filled up completely.

3. This warranty policy does not covers:

a. The installation and adjustments needed for proper operation in the user's system, or problems related to the interconnection to other apparatus.
b. Cosmetic defects and/or defects caused by accident, wrongful used, abuse, negligence, or modifications of any part or function of the unit.
c. This warranty does not cover damage caused by wrongful operation or maintenance, connecting to improper voltage, as well as repairs performed by personal not authorized by Bunker Electronics S.A. de C.V.
d. This warranty is void if the serial number applied from factory and/or warranty seal is modified or removed.

For your convenience and warranty claims in the United States of America, Bunker Electronics S.A. de C.V., please contact:

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