

APP CONTROLLED SIGNAL PROCESSOR

Audiopipe®



APP CONNECTION
With APP Control Feature

ADSP-CLEAN-APP 1 IN / 4 OUT



Owner's Manual



INTRODUCTION

Congratulations on your purchase of the Audiopipe signal processor. We are committed to high-quality music reproduction, and we are confident that you will be pleased with your purchase. These products provide optimum performance, which we are sure you will enjoy for years to come.

For maximum performance Audiopipe recommends having your signal processor installed by an authorized Audiopipe dealer.

Audiopipe ADSP-CLEAN-APP is an audio processor based on digital signal processing technology (DSP) that implements an audio chain with the most common controls in the industry such as graphic equalizer, parametric, routing of inputs to outputs, crossover, delay, phase, limiter, etc., controlled by parameters that are introduced by means of an encoder and displayed on an alphanumeric display of 2 lines. It also has 4 switches for quick and mute selection of outputs as well as 4 LEDs that indicate the status of the outputs and 4 LEDs for the limiters.

WARRANTY

Audiopipe warrants this signal processor for one year from date of purchase against all manufacturing defects only.

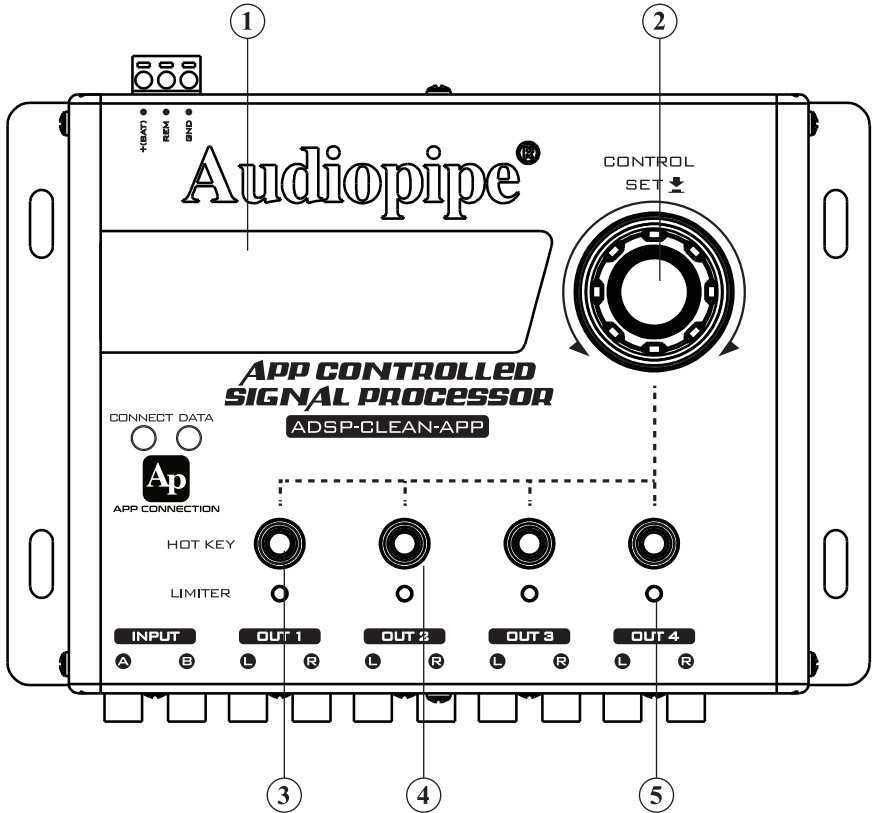
Warranty does not include physical damage or electrical abuse from being over-driven or short circuit from speaker failure.

For best performance this unit should be installed and programed by Authorized dealer.

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PROCESSOR FUNCTION



1. Alphanumeric Display
2. Encoder
3. 4 Buttons
4. 4 LEDs
5. 4 Limiter LEDs

PROCESSOR FUNCTION

The Audiopipe ADSP-CLEAN-APP includes:

1. Alphanumeric display - shows the access menu to system functions and parameters.
2. Encoder - allows interacting with the menu and system parameters. It has 3 functions:
 - Turn right or left.
 - Select: when pressed and released quickly
 - Hold: when pressed for a while.
3. 4 Buttons, one per output channel. Each button has 2 functions:
 - Select: allows to select the corresponding output channel
 - Hold: set the corresponding channel to MUTE or UNMUTE
4. 4 Multi Color LEDs, one per output channel.
 - Blue: the channel is muted.
 - Red: the channel is unmuted.
5. 4 Limiter LEDs
 - ON: when the limiter is limiting on the corresponding channel.
 - OFF: the limiter is not limiting.

When the device is turned on for the first time or after resetting, the device will reboot to the default setting, also the default parameters are activated. If it is not the first time the device is turned on, then the last parameters in use before the device was turned off the last time are loaded.

In the initial screen, rotating the encoder allows control of the master volume level from 0 and 100%

When selecting with the encoder (pressing and releasing it quickly) on the initial screen, the main menu of the device is displayed. To see the main menu options, turn the encoder to the right or to the left. When the last menu item is reached, it goes to the first one or vice versa if it is turned in the opposite direction.

Being in any menu option, selecting with the encoder allows you to enter that menu option and display the corresponding screen.

Being on any screen of the device, if a Hold is made (pressed down for a while), it returns to the previous screen and so on until reaching the initial screen where the name and version of the device is shown.

MAIN MENU

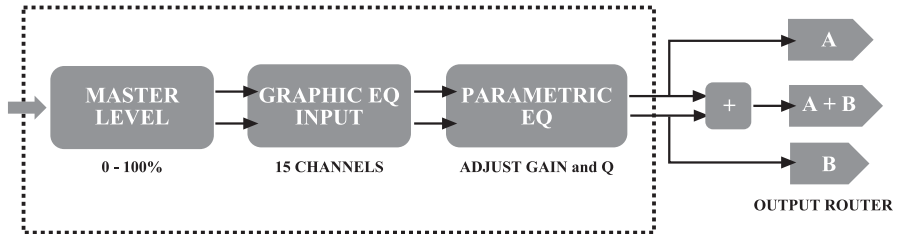
- **Audio Processing**
- **Graphic EQ Presets**
- **Save**
- **Load**
- **Security**
- **Tools**
- **Screensaver**
- **Language**

When selecting Audio Processing, you will go to the audio submenu where the parameters of all the modules of the audio chain are adjusted and controlled:

- **Graphic EQ**
- **Input Param. EQ**
- **Output Parm. EQ**
- **Routing**
- **Crossover**
- **Delay**
- **Phase**
- **Limiter**
- **Gain**
- **Mute**

COMMON AUDIO CHAIN ALL 4 OUTPUTS

The following diagram shows the audio chain at the output of the audio / tone selector to the signal rail A, A + B, B that is delivered to each of the 4 outputs



It consists of the master level, the graphic equalizer and the parametric input equalizer. These three modules process two channels and deliver their output to the 4 output channels

A) MASTER LEVEL

Allows adjustment of the audio level between 0 and 100% (0 to -80dB). Being in the initial screen of the system you can vary the volume control (Master level) by turning the encoder to the right or left

Menu Path: Start \ Audio Processing \ Gain

Parameters:

Master Lvl: (0 to 100%)

B) GRAPHIC EQUALIZER

The audio spectrums divided into 15 bands, separated 2/3 octave. It allows the adjustment of boost or attenuation (± 12 dB) for each band in 0.1 dB steps. The first band is 16Hz and the last one is 16,000Hz. The graphic equalizer acts similarly on both inputs

Menu Path: Start \ Audio Processing \ Graphic EQ

Parameters:

Freq: (25, 40, 63, 100, 160, 250, 400, 630, 1,000, 1,600, 2,500, 4,000, 6,300, 10,000, 16,000 Hz)

Boost: (-12 to +12 dB)

C) PARAMETRIC INPUT EQUALIZER

It allows to apply a boost or attenuation (± 12 dB) at a specific frequency as well as define the bandwidth of this equalizer by means of the Q factor.

Menu Path: Start \ Audio Processing \ Input Param.EQ

Parameters:

Freq: (10 to 2,200 Hz)

Gain: (-12 to +12 dB)

Q: (1.4 to 10)

COMMON AUDIO CHAIN FOR ALL 4 OUTPUTS

A) ROUTING

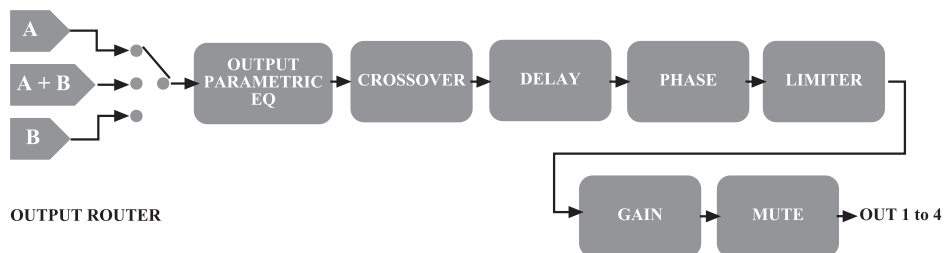
Selects the 4 audio input channels that carry that can be routed to one or all 4 outputs of the device. It selects the signal to be applied to one of the 4 audio output chains, between A, A + B and B.

Menu Path: Start \ Audio Processing \ Routing

Parameters:

In: (A, A + B, B)

OUT: (1 to 4)



The diagram shows one of the 4 identical audio chains that the equipment implements

B) PARAMETRIC OUTPUT EQUALIZER

It allows applying a boost or attenuation (± 12 dB) at a specific frequency, as well as defining the bandwidth of this equalizer by means of the Q factor. There is one output equalizer for each of the 4 outputs.

Menu Path: Start \ Audio Processing \ Output Parm.EQ

Parameters:

Freq: (10 to 2,200 Hz)

Gain: (-12 to +12 dB)

Q: (1.4 to 10)

OUT: (1 to 4)

C) CROSSOVER

Define the passband of an output. It is the combination of a set of low and high filters. Attenuation is defined for each set of filters. There is a crossover for each of the 4 outputs.

Menu Path: Start \ Audio Processing \ Crossover

Parameters:

Filter: (HPF, LPF) High pass and low pass

Freq: (10 to 22,000Hz) It is the cutoff frequency of the corresponding filter

Attenuation: (OFF, BW 12, 18, 24 dB / 8va and LR 12, 24, 36, 48 dB / 8th)

OUT: (1 to 4)

D) DELAY

It is a very useful tool to align the response time of the speakers according to the position of the listener. Ensures that the sound of each output arrives at the same time to the listener avoiding frequency cancellations. There is a delay module for each of the 4 outputs.

Menu path: Start \ Audio Processing \ Delay

Parameters:

Delay: (0 to 275 cm)

OUT: (1 to 4)

E) PHASE

It is a tool used to correct problems of physical connection of the speakers. Ensures that the sound of each output arrives with the same phase to the listener avoiding frequency cancellations. They are achieved by alternating between 0° and 180° the phase of each output. There is a phase module for each of the 4 outputs.

Menu path: Start \ Audio Processing \ Phase

Parameters:

Phase: (0, 180)

OUT: (1 to 4)

F) LIMITER

It is a tool that if correctly parameterized prevents amplifier and speaker breakage by limiting the amplitude of the signal that is sent to an output, based on 3 parameters that adjust the response threshold and attack and release times. There is a limiter module for each of the 4 outputs. One LED is available for each output to monitor the activity of the limiter

Menu path: Start \ Audio Processing \ Limiter

Parameters:

Threshold: 0 to -24dB

Attack: 0.1 to 100ms

Release: 1 to 1600ms

OUT: (1 to 4)

G) GAIN

It allows the individual adjustment of the gain of a channel between -45 and + 15dB. In addition, it allows the adjustment of the Master Level between 0 and 100%. There is a gain module for each of the 4 outputs.

Menu Path: Start \ Audio Processing \ Gain

Parameters:

Master Lvl: 0 to 100%

Gain: -45 to + 15dB

OUT: (1 to 4)

H) MUTE

It allows to individually switch the audio level of an output between MUTE and its current level. Alternatively, it allows to make the MUTE or UNMUTE of an output by pressing the corresponding output switch and leaving it pressed 500ms. When in MUTE, the LED associated with the channel turns red. If it is UNMUTE it lights blue. There is a MUTE module for each of the 4 outputs.

Menu Path: Start \ Audio Processing \ Mute

Parameters:

Mute: (ON, OFF)

OUT: (1 to 4)

MAIN MENU \ GRAPHIC EQUALIZER PRESETS

This option located in the main menu allows to configure the 15 bands of the graphic equalizer with the appropriate boost values for 12 different presets:

Menu Path: Start \ Graph EQ Presets

Parameters:

(FLAT, LOUDNESS, BASS BOOST, MID BASS, TREBLE BOOST,
POWERFUL, ELECTRONIC, ROCK, HIP HOP, POP, VOCAL, STREET)

MAIN MENU \ SAVE

This option of the main menu allows to save in memory all the current parameters of the equipment to load them later. The device can save up to 5 sets of parameters.

Menu path: Start \ Save

Parameters:

Memory 1 to Memory 5

MAIN MENU \ LOAD

This main menu option allows to load from memory one of the 5 previously saved presets. One of the options to load is "Default". It allows to set the default parameters of the device at any time.

Menu path: Start \ Load

Parameters:

Default, Memory 1 to Memory 5

MAIN MENU \ SECURITY

This main menu option has two commands

1) Lock / Unlock

It allows the device to be locked so that it is not possible to change its parameters.

For this you must enter the default password that is 1234.

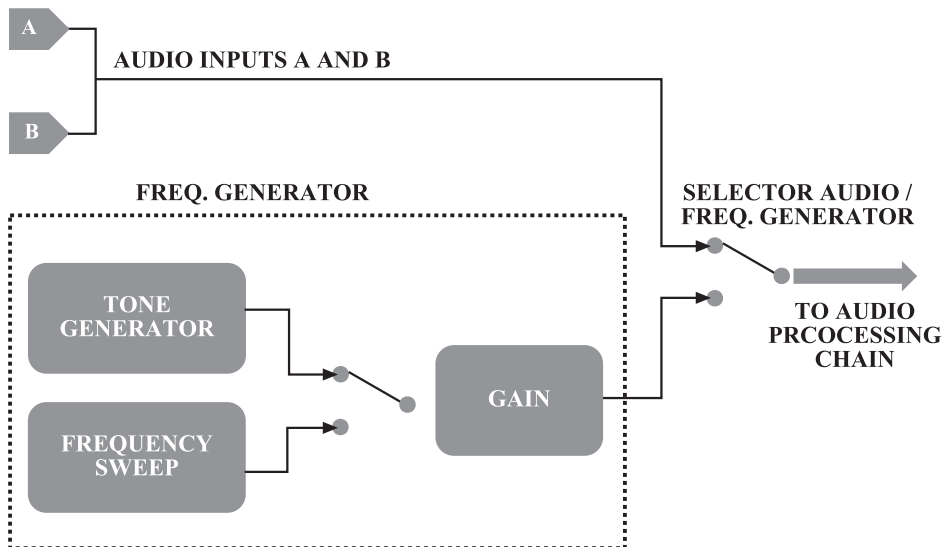
Menu path: Start \ Security \ Lock / Unlock

2) Change password

Change the device password.

Menu path: Start \ Security \ Change Password

MAIN MENU \ TOOLS



This menu option has two commands that provide the possibility of generating an audio tone or a frequency sweep

The previous diagram shows the Audio/Freq. Generator selector. It allows to select between one of the two main Inputs A and B or one of the Freq. Generator options.

A) MAIN MENU \ TOOLS \ TONE GENERATOR:

It generates a sinusoidal signal at audio frequencies from 10Hz to 22,000Hz. Once this tone generator (ON) is activated, you can exit the tone selection screen and enter any screen of the audio chain to vary parameters to check the operation of the chain. To switch to audio, return to the generator screen and turn off the tone (OFF). Both the tone gain (between 0 and -60dB) and its frequency can be dynamically varied with the encoder.

Menu path: Start \ Tools \ Tone Generator

Parameters:

Freq: (10 to 22,000Hz)

Gain: (0 to -60dB)

ON / OFF

B) MAIN MENU \ TOOLS \ FREQUENCY SWEEP:

It allows to generate a frequency sweep from a start to an end frequency. It can be from a lower frequency to a higher frequency or vice versa. You can also adjust the gain between 0 and -60dB. Once you exit this screen, unlike the tone generator, it switches to the audio inputs.

Menu path: Start \ Tools \ Frequency Sweep

Parameters:

Start: (10 to 22,000Hz)

End: (10 to 22,000Hz)

Gain: (0 to -60dB)

Speed: (Low, Medium, Fast)

ON / OFF

MAIN MENU \ LANGUAGE

Select the interface language.

Menu path: Start \ Language

Parameters:

(English, Spanish)

SOLUTION TO THE MOST COMMON PROBLEMS

1) Device does not turn On.

- The power cables (BAT, REM, GND) are incorrectly connected.
 - Check the connections.
- REM has no signal.
 - Check if there is approximately +12 Volts in this terminal.
 - Check if there is a good connection to GND

2) There is no sound

- In the initial screen of the device, turn the encoder clockwise to increase the volume (master level).
- MUTE outputs. Check that the LEDs of the outputs are blue.
- Check the connections of the audio inputs and outputs.
- If possible, perform a Factory Reset. When powering On the device, press the buttons on channels 1, 2 and 3 simultaneously.

3) Audio signal noise

- Check that the signal cables are of good quality and are not broken.
- Separate the input cables and output cables from any other cables.
- Use a 12 volts power supply exclusively for the device with a 1A fuse no more than 30 cm from the battery.
- Connect the GND terminal of the equipment as close as possible to the GND terminals of other audio equipment, if any.
- It is advisable to use a star topology for land connection.

TECHNICAL SPECIFICATIONS

Inputs..... 1 (RCA)
Outputs..... 4 (RCA)

Freq. Generator Tools

Tone Generator..... Freq: 10 - 22,000Hz, Gain: 0 at -60dB
Frequency Sweep..... 10 to 22,000Hz, Gain: 0 at -60dB,
3 Sweep Speeds

Common Controls

Master Level (Volume Control)..... 0 - 100%
Graphic Equalizer..... 12 Bands at 2/3 Octave. Boost \pm 12dB.
Presets..... 12 Presets
Input Parametric Equalizer..... Freq: 10 - 22,000Hz, Gain: -12 to +12dB,
Q: 0.4 to 10

Controls for the 4 Outputs

Routing..... A, A+B, B
Output Parametric Equalizer..... Freq: 10 - 22,000Hz, Gain: -12 to +12dB,
Q: 0.4 to 10
Crossover..... Freq: 10 - 22,000Hz, Attenuation: BW 12, 18,
24 dB/8th and LR 12, 24, 36, 48 dB/ 8th
Delay..... 0 to 8ms (0 to 275cm)
Phase..... 0° and 180°
Limiter..... Threshold: 0 to -24dB, Attack: 0.1 to 100ms,
Release: 1 to 1600ms. .
Output Gain..... -45 to +15 dB
Mute..... ON - OFF

Presets

Memory..... 1 to 5

Security

Block/ Unblock..... Password: 4 Alpha Numeric Characters
Factory Reset..... Yes

Language English, Spanish

Technical specifications

Input Impedance..... 10 K
Output Impedance..... 47 Ohms
Signal to Noise Ratio..... > 90dB
Total Harmonic Distortion (THD)..... < 0.01%
Channel Separation..... > 80dB
Frequency Response..... 10Hz - 22,000Hz
Input Voltage..... 5.6 Vpp
Max. Output Voltage..... 5.6 Vpp
Current Consumption..... 360 mA at 12.5V

