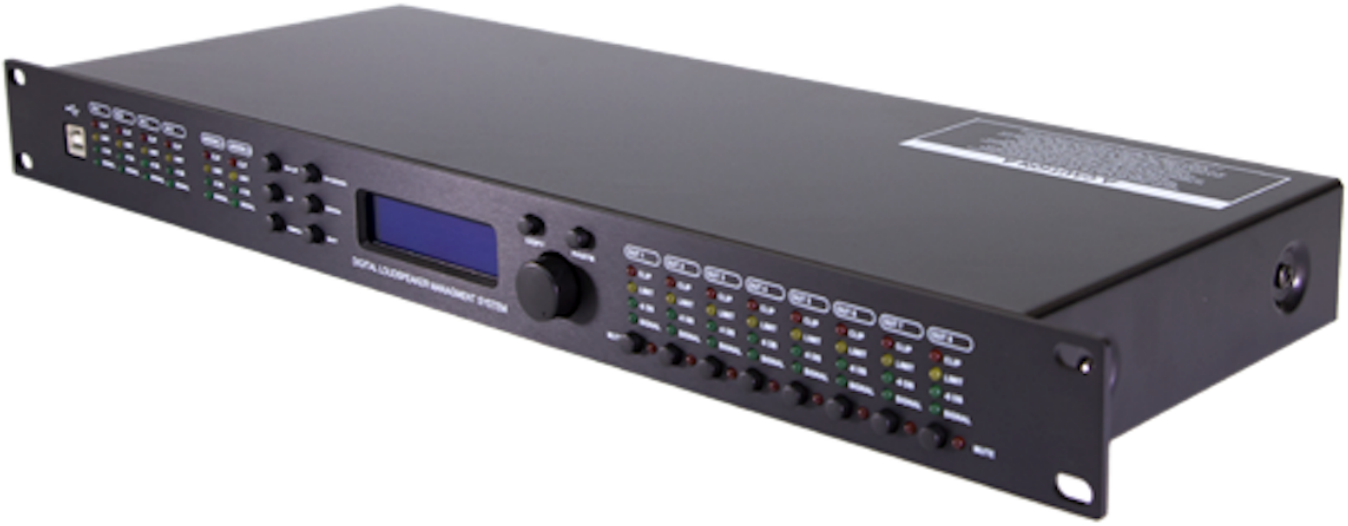
User Manual

for

ALLDSP PLP428



Introduction

Congratulations on the purchase of your PLP428. ALLDSP strives to be the best in high end digital audio processing. After you have become familiar with your processor, we encourage you to experiment and find the most effective and efficient way to run your system by utilizing the powerful processing of the PLP428.

The PLP428 is a powerful processor with four analog inputs, two AES3 inputs, optional Dante inputs, eight outputs (12dBu), 10 PEQ bands per input and output and a frequency range up to 26kHz. The rugged analog input stage accepts input voltages of up to +23dBu thus matching any source on the market today, with an excellent dynamic range of 118dB. Using a switch-mode power supply for clean power supply rails and superior ruggedness, 64-bit digital processing and some of the best converters available on the market today, the PLP428 offers sound quality that sets standards in professional as well as high-end home audio.

This User Manual describes how to operate the PLP428's settings via the front panel controls. Alternatively, the PLP428 can be configured completely via a remote connection to a PC, MAC, iPad or iPhone. Please refer to the Software User Manual for details on the remote control application.

Controlled via the front panel or via the remote control application, the DSP settings and coefficients are calculated on-the-fly at the moment of changing the parameters. Frequencies can be set with 1Hz accuracy, delays with 15 microseconds accuracy, and gains with 0.01dB accuracy. When editing values via the front panel, some values are limited in granularity; e.g. gain is set via 0.25dB steps in this case.

Features:

- 2 optional DANTE inputs
- 118dB dynamic range (inputs) / 114dB dynamic range (outputs)
- Electronically balanced inputs
- Matched-impedance outputs
- Frequency range 20Hz....26kHz
- 10 parametric filters per input and output
- EQs can be set as Bell, High Shelf, Low Shelf, Notch, Allpass, Band Pass, High Pass, Low Pass
- 2000ms delay per input, 2000ms delay per output
- Butterworth, Bessel, Linkwitz-Riley filters up to 24dB / oct.
- True RMS Compressor
- Zero Attack Peak Limiter
- Latency 990 microseconds
- Full configuration and real-time monitoring via PC, MAC, iPad or iPhone
- 100 Presets
- 64 bits multi-mode digital processing
- Loudspeaker Library support

Safety Instructions

WARNING, FOR YOUR PROTECTION READ THE FOLLOWING: The apparatus shall not be exposed to dripping or splashing liquid and no object filled with liquid, such as vases, shall be placed on the apparatus. CLEAN ONLY WITH A DRY CLOTH. DO NOT BLOCK ANY VENTILATION OPENINGS. INSTALL IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS. DO NOT INSTALL NEAR ANY HEAT SOURCES SUCH AS RADIATORS, HEAT REGISTERS, STOVES, OR OTHER APPARATUS (INCLUDING AMPLIFIERS) THAT PRODUCE HEAT. ONLY USE ATTACHMENTS/ACCESSORIES SPECIFIED BY THE MANUFACTURER. UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or third prong is provided for your safety. If the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus. Use only with the cart stand, tripod bracket, or table specified by the manufacture, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped. POWER ON/OFF SWITCH: If the equipment has a Power switch, the Power switch used in this piece of equipment DOES NOT break the connection from the mains. MAINS DISCONNECT: The plug shall remain readily operable. For rack mount or installation where plug is not accessible, an all-pole mains switch with a contact separation of at least 3 mm in each pole shall be incorporated into the electrical installation of the rack or building. FOR PRODUCTS EQUIPPED WITH EXTERNALLY ACCESSIBLE FUSE RECEPTACLE: Replace fuse with same type and rating only. MULTIPLE-INPUT VOLTAGE: This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. Connect this equipment only to the power source indicated on the equipment rear panel. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel or equivalent. If connected to 240V supply, a suitable CSA/UL certified power cord shall be used for this supply. This equipment is intended for rack mount use only.
WARNING: THIS APPLIANCE SHALL BE CONNECTED TO A MAINS SOCKET OUTLET WITH A PROTECTIVE EARTHING CONNECTION. The cores in the mains lead are colored in accordance with the following code: GREEN and YELLOW - Earth; BLUE - Neutral; BROWN - Live. As colors of the cores in the mains lead of this appliance may not correspond with the colored markings identifying the terminals in your plug, proceed as follows: The core which is colored green and yellow must be connected to the terminal in the plug marked with the letter E, or with the earth symbol, or colored green, or green and yellow. The core which is colored blue must be connected to the terminal marked N or colored black. The core which is colored brown must be connected to the terminal marked L or colored red. This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. If the attachment plug needs to be changed, refer servicing to qualified service personnel who should refer to the table below. The green/yellow wire shall be connected directly to the product's chassis.

WARNING: If the ground is defeated, certain fault conditions in the processor or in the system to which it is connected can result in full line voltage between chassis and earth ground. Severe injury or death can then result if the chassis and earth ground are touched simultaneously. The symbols shown above are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash with arrow point in an equilateral triangle means that there are dangerous voltages present within the processor. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the ownerâ€™s manual. These symbols warn that there are no user serviceable parts inside the processor. Do not open the processor. Do not attempt to service the processor yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturerâ€™s warranty. Do not get the processor wet. If liquid is spilled on the processor, shut it off immediately and take it to a dealer for service. Disconnect the processor during storms to prevent damage.

1. Overview of Connectors and Controls

In addition to the available features described in this manual, you also have the option of controlling the processor remotely over your network. Please refer to the Software Manual for details.

1.1. Front Panel

1.1.1. USB Connector

The USB connector is used to connect the PLP428 to a PC or MAC. It can then be configured and controlled in real time with the freely available PC and MAC configuration program. Please check our website regularly for updates.

1.1.2. Input VU Meters

There are 6 independent input meters available. The LEDs indicate the signal level at the inputs, in dBu, after the input gain faders. The Peak LED lights when the input level exceeds +20dBu.

1.1.3. Function Buttons

The function buttons allow direct access to all editing and navigating functions. See section three for a detailed description on the functions of each of these buttons.

1.1.4. Rotary Encoder

The rotary encoder is used to scroll through the menu items by pushing it, and to adjust values by rotating it. When values are changed, the DSP is updated in real-time.

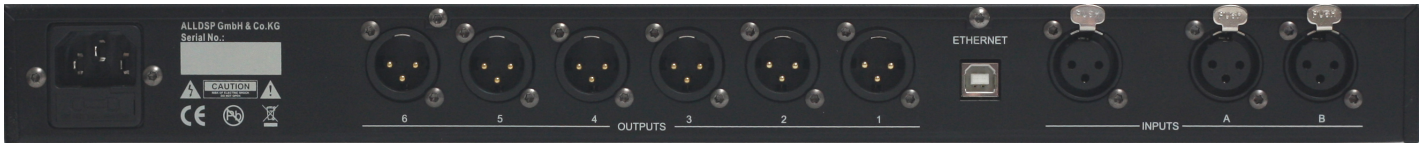
1.1.5. Output VU Meters

There are eight independent output meters available. The indication refers to the output level w.r.t. the threshold of the output peak limiter. The Limit LED lights when any gain reduction is taking place in that channel. The Peak LED lights when more than 12dB of gain reduction is taking place.

1.1.6. Output Mute Buttons

The eight output mute buttons are used to independently mute each output.

1.2. Rear Panel



1.2.1. Power Connector

The PLP428 has an internal power supply that will accept voltages ranging from 100V - 240V at frequencies from 50Hz-60Hz. A power cord is included.

1.2.2. Power Switch

The Power Switch turns the PLP428 on and off. As with all professional audio installations, power amplifier should be turned on last when powering up and must be turned off first when powering down.

1.2.3. Ethernet Connector

This RJ-45 connector is used to connect your product to a network. It can then be configured and controlled in real time with our PC and MAC configuration program, or with our iPad / iPhone control software (available on the Apple App Store). From the PC or MAC you can also update your processor to the latest firmware. Please check our website regularly for updates.

1.2.4. Analog inputs

The analog input section of the PLP428 offers four electronically balanced XLR connectors. The input level is +23dBu max, electronically balanced.

1.2.5. AES3 Inputs

The digital input of the PLP428 offers two input channels on one electronically balanced XLR connector. The input will accept AES3 input signals at 44.1, 48, 88.2, or 96kHz. An internal asynchronous sample rate converter (ASRC) converts the sample rate to the PLP428's native sample rate, thus preserving the highest possible processing quality even when running off a 44.1kHz digital signal.

1.2.6. DANTE Inputs

The PLP428 offers optional Dante input channels. No separate connector is needed; the PLP428 uses one Ethernet connection for Dante signals and Command & Control signals. The processor will accept sample rates of 44.1, 48, 88.2, and 96kHz. The Dante inputs can be configured though Audinate's Dante Controller Software. An internal asynchronous sample rate converter (ASRC) converts the sample rate to the PLP428's native sample rate, thus preserving the highest possible processing quality even when running off a 44.1kHz digital signal.

1.2.7. Analog Outputs

The output section of the PLP428 offers eight load balanced XLR connectors. The output level is +12dBu max, impedance matched.

2. Getting Started

2.1. Quick Start

For those of you that wish to jump right in, the following information has been provided to act as a quick start guide for optimizing performance of your processor.

2.2. Connections

When setting up your processor, make connections as follows:

2.2.1. Signal Connections

- Always make connections prior to applying power to the processor.
- Connect the output(s) from the sending device (mixer) to the Ch. 1 XLR input connector (mono) or both, Ch. 1 and Ch. 2 XLR input connectors (stereo).
- Make output connections from the output XLR connector(s) to the input connector(s) of the selected power amplifier(s).

Always make sure that your power amps are the last item turned on and the first turned off.
Once all of the connections have been made, and the processor is powered up, you can navigate through the entire signal path of your processor from the front panel. The display provides you with a clear and concise overview of each aspect of the signal path from the input (left side of display) to the output section (right side of display).

2.2.2. Remote Monitoring and Control

For the quickest and easiest results we recommend to install and use our freely available iPad, iPhone, PC or MAC configuration software. It provides a complete and comprehensive tool to make your loudspeaker configuration settings, and to manage your presets.
When connecting the PLP428 via an Ethernet network, you have several options. The PC/MAC application has an auto-discovery tool that will automatically connect to any unit found on the network.
Please refer to the Software Manual available on our website for details on the control software.

Note: Please make sure there is only one device (Windows PC, MAC PC or iOS device) running the ALLDSP software at any time. The software can control as many devices simultaneously as the network can handle. In a typical (default) DHCP configuration, this is 200 units.

2.2.2.1. Standard DHCP Network

This is the recommended connection method. For plug-and-play connection, use a standard Ethernet Router, plug in the unit and your computer, and the connection should be made automatically. Standard routers have a DHCP server built in and enabled. A DHCP server assigns a network address to your computer and to the PLP428, allowing them to connect automatically.

2.2.2.2. Connection without DHCP server

Alternatively, you can use a direct (cross) cable or a simple Ethernet Switch to connect the unit to your PC or MAC. Please note that in this case, especially Windows computers running Windows XP may take up to several minutes to assign themselves a network address (indicated by the text: "This connection has limited or no connectivity"). The computer and the PLP428 both will assign themselves a network address in the ZeroConfig range (169.254.0.0 - 169.254.255.255), and the PLP428 will be discovered automatically by the PC/MAC application. To facilitate connections without DHCP router, it may be convenient to set your computer to a fixed IP address. If you do this, please choose any address in the ZeroConfig range, and set the subnet mask to 255.255.0.0.

2.2.2.3. Fixed IP address

It is also possible to set a fixed IP address and subnet mask for the PLP428. WARNING: If you set a wrong address (in a different range than your computer), you may not be able to connect anymore. It is strongly recommended to consult a system administrator before making such settings. It is not possible to set the IP address via the front panel menu. If you have set a fixed IP address and subnet mask, you must set your computer to an address within the same subnet. To verify this, you can read out the IP address via the local LCD display: Press "Menu" 4 times, then press the rotary encoder until the IP address and subnet mask appear.

2.2.2.4. Firewall

After starting the software application for the first time, your computer may ask you to allow or block the application access to the network. Please make sure to allow this; if there is a firewall between the application and the PLP428, the application will not find the PLP428.

2.3. System Setup and Gain Structure

This product offers a wide range of tools for sound system design and setup. These tools can make your system more efficient and better sounding, but to get the best possible sound it is important to use these tools properly.
The following section explains how to maximize system gain and how to use the limiters to protect your amplifiers from clipping. In traditional system design, the output of your console would be routed to a system EQ, a compressor, and a crossover with output level control. From the crossover, there may be additional filters that are employed to improve the response of your speakers. There may also be limiters set up to keep your amplifiers from going into clipping and protect your speakers from the hazards of a clipped signal. Your amplifiers play a vital role in system setup, because they are last item in the chain before your speakers and offer the greatest amount of gain (that is their job after all). If your limiters and amplifiers are incorrectly setup you will not be using your system to its fullest potential and could be harming your speakers.

To ensure an optimal gain structure:
Play a signal at the nominal level from your mixing desk, and set the input gain of your processor to 0.
Set the crossovers that you want to use, while keeping the output gains also at 0.
With DISCONNECTED loudspeakers, turn up the volume of the power amplifiers entirely clockwise (full volume).
Now reduce the output gain and / or the output limiter setting to get the desired gain, so that the amplifier is just clipping and the built-in limiters of your processor are just limiting. If the amplifier does not have a built-in Peak limiter, set your processor's limiter so that the amplifier does not clip.
Now turn down the volume of the power amplifiers, connect your speakers, and slowly increase the volume while checking the sound.
If all is well, there should be distortion-free sound, and the limiter LEDs are flashing or off, but not continuously on. If they are continuously on, reduce the output gain of your processor.
If you can not reach enough signal level, increase the processor's input gain or turn up the level from your mixing desk.

3. Setup And Operation

Before plugging the processor in, always make sure that the power supply matches the product specification voltage. Install this device on a flat, stable surface, not bent or curved. Do not supply power before all components of the system are set up and connected properly. Make sure your power amplifiers are switched on last in order to avoid transients, which could damage your speakers or annoy your audience.

3.1. System Check

After connecting all cables, you should mute all outputs first or turn the gain/level setting on your amplifiers to minimum. Activate the HF-outputs first. In case of wrong cabling, High Frequency (HF) audio signals will come out of bass-speakers that cannot be harmed this way. Vice versa, the Low Frequency (LF) audio signals would destroy your HF-speakers. It is advisable to install a large capacitor in series with HF drivers (47 - 100 uF). That way, drivers are somewhat protected against accidental instrumentation errors.

3.2. Input Setup

Press the Channel Up or Down button to select the input channel you wish to edit. Make the first settings with the output turned low or muted.
To toggle through the different items, press the Item Up or Item Down buttons.

3.2.1. Gain

Adjust the gain by dialing the rotary encoder. The gain is adjusted in steps of 0.25dB. Smaller steps (0.01dB) can be set via the PC or MAC interface.

3.2.2. Input Selection

Select the source (Analog, AES3 or Dante) by rotating the encoder.

3.2.3. Delay

Set the delay time by turning the encoder. Select the displayed unit (ms or s, mm or m, feet, inches, or mils) by pushing the encoder.

3.2.4. Low Pass Filter

Adjust the Low Pass Filter frequency by turning the rotary encoder. You can switch the low pass filter off by turning the rotary encoder up (clockwise) until the frequency passes 20kHz.
Press the rotary encoder to change the filter type. Select the type by turning the rotary encoder. You can choose from: Butterworth 6dB, Bessel 6dB, Butterworth 12dB, Bessel 12dB, Linkwitz Riley12dB, Butterworth 18dB, Bessel 18dB, Butterworth 24dB and Bessel 24dB. Higher order filters may be set by adding filter sections in the PEQ blocks (see below).

3.2.5. High Pass Filter

Adjust the high pass frequency by dialing the rotary encoder. You can switch the high pass filter off by dialing the rotary encoder down (counterclockwise) until the frequency passes 20Hz.
Press the rotary encoder to change the filter type. Select the type by turning the rotary encoder. You can choose from: Butterworth 6dB, Bessel 6dB, Butterworth 12dB, Bessel 12dB, Linkwitz Riley12dB, Butterworth 18dB, Bessel 18dB, Butterworth 24dB and Bessel 24dB. Higher order filters may be set by adding filter sections in the PEQ blocks (see below).

3.2.6. Parametric Equalizer (PEQ)

There are 10 bands of parametric equalization. Each band can be adjusted freely over the frequency range of 20Hz to 20kHz. Adjust the frequency by dialing the rotary encoder.
Press the rotary encoder to select the parameters. The available parameters are: Frequency (20Hz to 20kHz), Gain (-12dB to +12dB), Q (0.2 to 25), Enabled (On or Off), Type (Bell, High Shelf, Low Shelf, Notch, All Pass, Band Pass, High Pass, Low Pass). For the Shelving filters, the Q value sets the steepness of the filter in dB/Oct.

3.2.7. Compressor

The compressor is a true RMS compressor. Turn the rotary encoder to set the threshold. Press the rotary encoder to select the parameters. The available parameters are: Threshold, Attack, Hold, Release, Ratio, and Makeup Gain.

3.2.8. Limiter

The limiter is a zero-attack peak limiter. Only the threshold and release can be set. Press the rotary encoder to select the parameters. The release value is displayed in dB per second.

3.2.9. Channel Link

By linking 2 channels, the settings are guaranteed to be identical for both channels, except for mixer and mute. Turn the encoder to set the Channel Link on or off.

3.3. Output Setup

Press the Channel Up or Down button to select the output channel you wish to edit. Make the first settings with the output turned low or muted.
To toggle through the different items, press the Item Up or Item Down buttons.

3.3.1. Gain

Adjust the gain by dialing the rotary encoder. The gain is adjusted in steps of 0.25dB. Smaller steps (0.01dB) can be set via the PC or MAC interface.

3.3.2. Mixer

Turn the rotary encoder to mix the signal from the selected input to the selected output. Push the rotary encoder to select the input. Attention: The mixer is only available while the outputs are not linked by Channel Link. If the channels are linked, the mixer will be skipped.

3.3.3. Delay

Set the delay time by turning the encoder. Select the displayed unit (ms or s, mm or m, feet, inches, or mils) by pushing the encoder.

3.3.4. Low Pass Filter

Adjust the Low Pass Filter frequency by turning the rotary encoder. You can switch the low pass filter off by turning the rotary encoder up (clockwise) until the frequency passes 20kHz.
Press the rotary encoder to change the filter type. Select the type by turning the rotary encoder. You can choose from: Butterworth 6dB, Bessel 6dB, Butterworth 12dB, Bessel 12dB, Linkwitz Riley12dB, Butterworth 18dB, Bessel 18dB, Butterworth 24dB and Bessel 24dB. Higher order filters may be set by adding filter sections in the PEQ blocks (see below).

3.3.5. High Pass Filter

Adjust the high pass frequency by dialing the rotary encoder. You can switch the high pass filter off by dialing the rotary encoder down (counterclockwise) until the frequency passes 20Hz.
Press the rotary encoder to change the filter type. Select the type by turning the rotary encoder. You can choose from: Butterworth 6dB, Bessel 6dB, Butterworth 12dB, Bessel 12dB, Linkwitz Riley12dB, Butterworth 18dB, Bessel 18dB, Butterworth 24dB and Bessel 24dB. Higher order filters may be set by adding filter sections in the PEQ blocks (see below).

3.3.6. Parametric Equalizer (PEQ)

There are 10 bands of parametric equalization. Each band can be adjusted freely over the frequency range of 20Hz to 20kHz. Adjust the frequency by dialing the rotary encoder.
Press the rotary encoder to select the parameters. The available parameters are: Frequency (20Hz to 20kHz), Gain (-12dB to +12dB), Q (0.2 to 25), Enabled (On or Off), Type (Bell, High Shelf, Low Shelf, Notch, All Pass, Band Pass, High Pass, Low Pass). For the Shelving filters, the Q value sets the steepness of the filter in dB/Oct.

3.3.7. Compressor

The compressor is a true RMS compressor. Turn the rotary encoder to set the threshold. Press the rotary encoder to select the parameters. The available parameters are: Threshold, Attack, Hold, Release, Ratio, and Makeup Gain.

3.3.8. Limiter

The limiter is a zero-attack peak limiter. Only the threshold and release can be set. Press the rotary encoder to select the parameters. The release value is displayed in dB per second.

3.3.9. Phase Inversion

Turn the rotary encoder to switch phase inversion on or off.

3.3.10. Channel Link

By linking 2 channels, the settings are guaranteed to be identical for both channels, except for mixer and mute. Turn the encoder to set the Channel Link on or off.

3.4. System Menu

Push the Menu button to enter the system menu. Push the Menu button again to toggle through the menu items. The available menu items are:

3.4.1. Load Preset

Turn the rotary encoder to select the preset you wish to load. Push the rotary encoder to select it, then turn it again to select "YES" and confirm again by pushing the rotary encoder knob. The preset is loaded and all settings are applied immediately. All settings that were in the unit prior to loading the preset will be erased. This action can not be undone.
The presets contain all filter, dynamics, gain settings etc; in other words, everything that makes out a loudspeaker configuration. Presets do NOT contain the name of the unit, network configuration, automatic standby delay, user access rights and passwords.

3.4.2. Save Preset

Turn the rotary encoder to select the location of the preset. If that location is not empty, the preset in that location will be overwritten. This action can not be undone.
The system will ask you to give a name to the preset name. Select a character in the cursor position by turning the rotary encoder; pushing the rotary encoder confirms the character selected and moves the cursor to the next character to edit. Pushing the exit/ESC button erases the last confirmed character. Once the name is set up, push the menu button again. If you want to continue storing the preset, select Yes by turning the rotary encoder and confirm by pushing it. To cancel, push the exit button. Now your preset is saved in the selected location.
The presets contain all filter, dynamics, gain settings etc; in other words, everything that makes out a loudspeaker configuration. Presets do NOT contain the name of the unit, network configuration, automatic standby delay, user access rights and passwords.

3.4.3. Access Level

The PLP428 has the option of locking away the front panel controls to avoid tampering of settings by unauthorized persons. To lock the unit, select "Locked" by turning the rotary encoder, and push it to confirm. The system will ask you to enter a password. Select a character in the cursor position by turning the rotary encoder; pushing the rotary encoder confirms the character selected and moves the cursor to the next character to edit. Pushing the exit/ESC button erases the last confirmed character. Once the password is set up, push the menu button again and the unit will be locked.
ATTENTION: Make sure to remember the password! When the unit is locked and you forgot the password, it is not possible to unlock it without contacting your local service representative.
To unlock the unit select "Unlocked" and enter the password. The password is automatically checked after each entered character, and the unit will exit the system menu when the password is confirmed.
The default password is "Password".

3.4.4. Version Information

By pushing the rotary encoder, the display toggles through the version information about the unit (serial number, firmware version), as well as some parameters like IP address, subnet mask, MAC address etc.

Appendix A: Declaration Of Conformity

DECLARATION OF CONFORMITY
ALLDSP GmbH & Co. KG
Kueferstrasse 18
59067 Hamm
Germany
declares that the product: PLP428

conforms to the following Product Specifications:

Safety: IEC 60065 -01+Amd 1
EMC : EN 55022:2006
EN 55103 -1, -2 2008
EN 55024:1998
FCC Part 15
Supplementary Information:
The product herewith complies with the requirements of the:
Low Voltage Directive 2006/95/EC
EMC Directive 2004/108/EC.
RoHS Directive 2002/95/EC
WEEE Directive 2002/96/EC
With regard to Directive 2005/32/EC and EC Regulation 1275/2008 of 17 December 2008, this product is designed, produced, and classified as Professional Audio Equipment and thus is exempt from this Directive.

A molded mains plug that has been cut off from the cord is unsafe. Discard the mains plug at a suitable disposal facility. NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAINS PLUG INTO A POWER SOCKET. Do not use the mains plug without the fuse cover in place. Replacement fuse covers can be obtained from your local retailer. Only use replacement fuses that are identical to the original fuse.

If you want to dispose this product, do not mix it with general household waste. There is a separate collection system for used electronic products in accordance with legislation that requires proper treatment, recovery and recycling. Private household in the 25 member states of the EU, in Switzerland and Norway may return their used electronic products free of charge to designated collection facilities or to a retailer (if you purchase a similar new one). For Countries not mentioned above, please contact your local authorities for a correct method of disposal. By doing so you will ensure that your disposed product undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health.

ELECTROMAGNETIC COMPATIBILITY
This device complies with part 15 of the FCC Rules and the Product Specifications noted on the Declaration of Conformity. Operation is subject to the following two conditions:
- this device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation. Operation of this processor within significant electromagnetic fields should be avoided.
- use only shielded interconnecting cables.