DSLP48

Loudspeaker Management System
User Manual
Firmware Version 9.02
Software Version 9.02

Table of Contents

1.0 Introduction

The DSLP48 is a complete 4 input - 8 output digital loudspeaker management system designed for the touring or fixed sound installation markets. The absolute latest in available technology is utilized with 40 bit floating point processors and high performance 24-bit Analog Converters. The high-bit DSP prevents noise and distortion induced by truncation errors of the commonly used 24-bit fixed-point devices.

A complete set of parameters include I/O levels, delay, polarity, 8 bands of parametric EQ per channel, plus 1/3rd oct graphic EQ on the Inputs, multiple crossover selections and full function compressors (Input) and limiters (Output). Precise frequency control is achieved with its 1 Hz resolution. Delay is adjustable in 10 us steps. Multiple setup storage and system security is integrated into the operating system.

Inputs and outputs can be routed in multiple configurations to meet any requirement. The DSLP48 can be controlled or configured in real time on the front panel or with the intuitive PC GUI accessed via the RS-232/USB or Ethernet interface. Software and firmware upgrades for CPU and DSP via PC keep the device current with newly developed algorithms and functions as they become available.

Shipped contents:

- DSLP48 unit
- User Manual
- DSLP Control Software CD

2.0 Features

> 4 Inputs and 8 Outputs with flexible routing

> 40-bit floating point DSP

> High Performance 24-bit A/D Converters

> 1 Hz Frequency Resolution

> 8 Parametric Equalizers for each Input and Output

>1/3rd octave graphic EQ for each input

> Multiple Crossover types with Full Function compressors on the inputs

>Multiple Crossover types with hard limiting on the outputs

> Precise Level, Polarity and Delay on both inputs and outputs

> CPU and DSP upgrade via PC

> Individual Channel Buttons with Linking capability

> 2-Line x 16 Character Backlit LCD Display

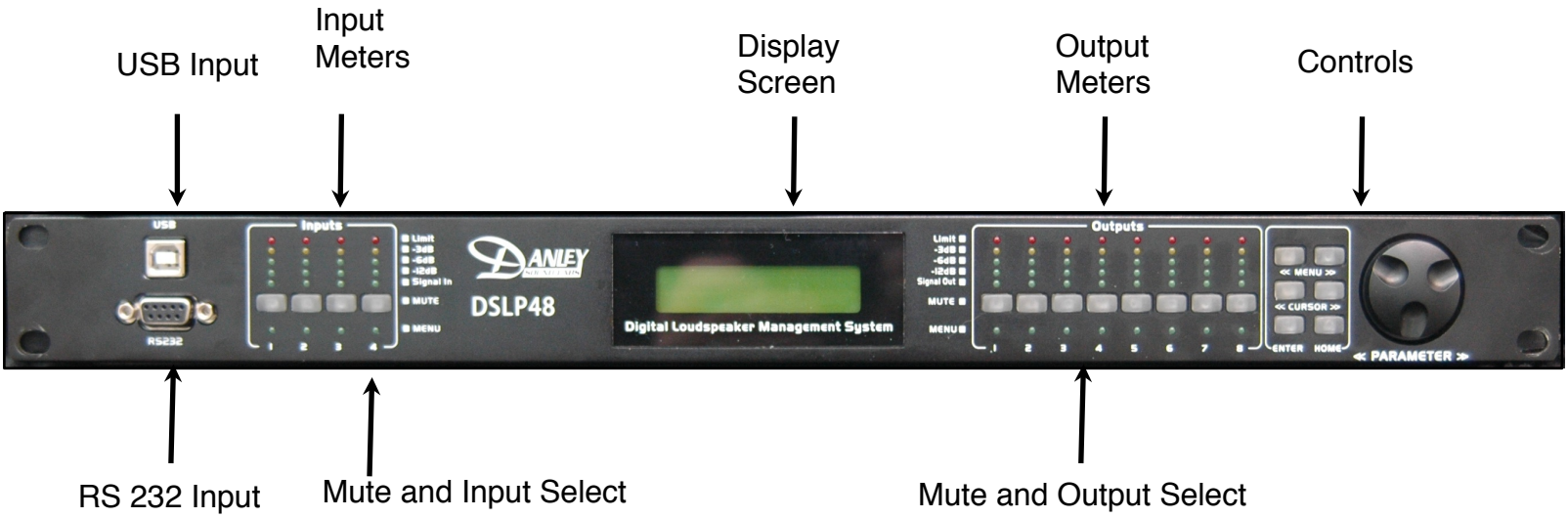
> Full 5-segment LED on every Input and Output

> Storage of up to 30 Program Setups

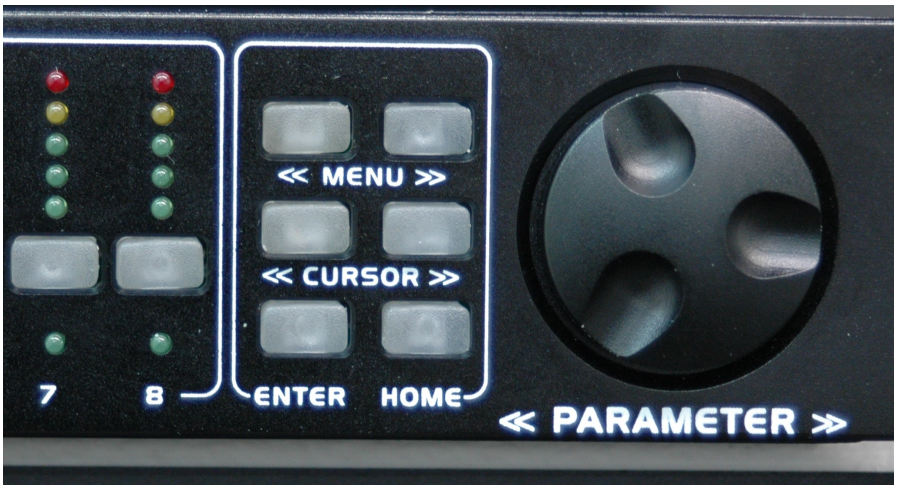
> Security Lock

> RS-232-USB-Ethernet Interface for PC Control, Configuration and Upgrading

3.0 Front Panel Functions



- **USB input** for connection to computer
- **INPUT Meters** Displays the actual Input level
- **Display Screen**
- **OUTPUT Meters** Displays the onset of limiting-not actual output level
- **Control Buttons**



- **<<MENU>>** Allows navigation between different menus under a desired page
- **<<CURSER>>** Allows navigation between parameters in a particular MENU
- **ENTER** Allows data entry to be stored.
- **HOME** Brings up the HOME screen
- **DATA WHEEL** Allows for data parameters to be changed.
- **RS232 Input jack** for connection to computer
- **MUTE and INPUT select buttons** - when used in conjunction with the <<MENU button, the MUTE button serves as a select button
- **MUTE and OUTPUT select buttons -**when used in conjunction with the <<MENU button, the MUTE button serves as a select button

4.0Rear Panel Functions

Switch, Fuse and Power connector **Input/Output**

Ethernet connection

- **Power switch** - Controls power On/Off.
- **Main Fuse** - T200mA-250V. Slow blow type.
- **Main Power** - Connects via a standard IEC socket. A compatible power cord is supplied with the unit. The voltage input is either 115VAC or 230VAC and is clearly specified on the unit. Voltage requirement has to be stated upon ordering.
- **Ethernet connection**
- **OUTPUT JACKS** M XLR pin 2 Hot- 3 Cold
- **INPUT JACKS** F XLR pin 2 Hot -3 Cold

5.0 Powering Up the Device

- After powering up the unit, the following initialization screen is displayed on the LCD:

- The initialization process takes about 8 seconds and during that period the unit boots and displays the DSLP48 firmware version.

- After the initialization process is finished the DSLP48 displays its main screen:

- The screen shows the current program number and program name currently loaded into the unit. The program assigned is always the last program the user recalled or stored before powering down the unit.

- Now the DSLP48 is now ready to operate.

6.0 Operating the Device

6.1 Channel Linking

Channels can be linked by pressing the LEFT MENU KEYS and the MUTE button of the Input or Output keys, holding it down and pressing any other MUTE key in the same group (Input or Output group). The channels selected will be linked together. The green menu LEDs for the linked channels are lit. Any modification of the data for the selected channel will be applied to the linked channels as well. To cancel the linking, press and hold the LEFT **Menu** key and a channel.

6.2 Input Menus

Each of DSLP48 input channels has a separate **Menu** key. There are 6 menus for each input channel. The MENU buttons select the different blocks of the signal chain. The CURSOR buttons select the different parameters within that particular block. The DATA WHEEL selects the particular adjustment needed.

Signal - Signal parameters

SIGNAL - Gain, -40.00dB to +15.00dB in 0.25dB steps.

POL - Polarity, can be normal (+) or inverted (-).

DELAY - Delay in 10 us steps. Can be displayed in ms, ft or m. The time unit of the delay can be changed in the **System** menu. The maximum delay permitted is (90ms).

EQ - EQ parameters

EQ# - Selects one of the 8 available Equalizers.

LEVEL - EQ level gain. Ranges from -30.00dB to +15.00dB in 0.25dB steps.

FREQ - EQ center frequency. Ranges from 20 to 20,000Hz in either 1Hz steps or 1/36 octave steps. The sampling rate and the frequency steps can be selected in the **System Menu**.

BW - EQ Bandwidth. Ranges from 0.02 to 2.50 octaves in steps of 0.01 octave steps for PEQ. The Q value is automatically shown beneath the octave value. For Lo-Slf or Hi-Shf, it is either 6 or 12dB/Oct.

I1: XXXXXX EQ
BW: 0.33 Q=4.36

Type - Type of EQ. The types can be parametric (PEQ), Lo-shelf (Lo-shf) and Hi-shelf (Hi-shf), AP (All Pass). There are 2 All Pass filters, AP 1 is a first order filter, AP2 is a second order filter.

GEQ
This is a standard 1/3rd octave graphic EQ on ISO centers (you cannot adjust the freq), but only the boost/cut.

XOVER
This allows for both high and low CUT filters of L/R, Bessel or Butterworth types and 6-48dB/oct slope rates.

COMP
This is a compressor that allows for THRESHOLD, ATTACK, RELEASE (as a ratio of input time), RATIO,

Ch-Name - Channel Name

- Name - Channel name. It is 6 characters in length.
- Use the cursor keys and the data wheel to enter the name

6.3 Output Menus

Each output channel of the DSLP48 has a separate menu key. There are 6 menus for each output channel.

Signal - Signal parameters
Signal Level (Output gain)-Polarity-Delay functions are available just as on the input channels.

EQ Refer to the Input Menus for details EQ - EQ parameters

XOver - Crossover parameters
Refer to the Input Menus for details

- FRQL - Filter cut-off Frequency of low frequency crossover point (low cut/high pass). Ranges from 20 to 20,000Hz in either 1Hz steps or 1/36 octave steps. The frequency steps can be selected in the **System General Menu**.

- SLPL - Filter Slope of low frequency crossover point (low cut/high pass). Ranges from 6 to 48dB/octave. If the selected Filter Type is Linkwitz Riley, the available slopes are 12 / 24 / 36 / 48 dB/octave. FTRH - Filter Type of high frequency crossover point (low pass).

- FTRH - Filter Type of high frequency crossover point (high cut/low pass).

- FRQH - Filter cut-off Frequency of high frequency crossover point (high cut/low pass).

- SLPH - Filter Slope of high frequency crossover point (low pass).

Filter	**Low crossover**	**High crossover**	
Configuration	**point**	**point**	
None FTRL	Off	FTRH Off	
Highpass	FTRL not Off	FTRH Off	FRQL
Lowpass	FTRL Off	FTRH not Off	FRQH
Bandpass	FTRL not Off	FTRH not Off	FRQL FRQH

Limit - Output Limiter

- THRESH - Limit Threshold. Ranges from -20 to +20dBu in 0.5dB steps. The Threshold adjusts the output LEVEL meter to read the onset of limiting-NOT output clipping.

- ATTACK - Attack time. Ranges from 0.3 to 1ms in 0.1ms steps, then ranges from 1 to 100ms in 1ms steps.

- RELEASE - Release time. Can be set at 2X, 4X, 8X, 16X or 32X the attack time.

Source - Input Source

- 1,2,3,4 Input channel source for the current output channel. Can be set to enable the input source (On) or disable it (Off). If more than one input source are enabled, they will be added together as the source for the current output channel. The numbers indicate the gain of a particular input routed to that particular output.

O1:XXXXXX Source
In1:0.00
O1:XXXXXX Source
In2:-10
O1:XXXXXX Source
In3:Off
O1:XXXXXX Source
In4:2.5

Ch-Name - Channel Name

- Refer to the Input Menus for details

6.4 System Menus

The **System Menus** allow the user to control and change parameters that are related to the system behavior and general operation. It can be accessed by pressing the **HOME and then ENTER** key in the main menu. All System Menus require the Enter key to be pressed for the selected action.

Recall - Program Recall

The DSLP48 has a built in non-volatile memory that can store up to 30 different program setups. A program can be recalled using this menu.

- PROG - Program Number to be recalled. Only first 8 characters of the program name are displayed.

Store - Program store

The DSLP48 has a built in non-volatile memory that can store up to 30 different program setups. A program can be stored using this menu. The old program with the same program number will be replaced. Once the program is stored in the flash memory, it can be recalled at a later time, even after power down.

- **PROG** - Program Number for the current data to be stored.
  O1:XXXXXX Store
  PROG:01

- **NAM** - Program Name, allows a maximum length of 12 characters.
  Use the cursor keys and data wheel for entry
  O1:XXXXXX Store
  NAM:XXXXXXXXXXXX

Config - Device Configuration

- MODE - configures the mode of operation.

(System Menus continued)

SYSTEM-SETUP MENU: Config
MODE: 2-Way

Mode:	Out 1	Out 2	Out 3	Out 4	Out 5	Out 6	Out 7	Out 8
None	Any	Any	Any	Any	Any	Any	Any	Any
Stereo 2-Way	In1	In1	In2	In2	Any	Any	Any	Any
Stereo 3-Way	In1	In1	In1	In2	In2	In2	Any	Any
Stereo 4-way In1	In1	In1	In1	In2	In2	In2	In2	

The unit assigns the Input source for the corresponding outputs when the Mode of Configuration is selected. The crossover point parameters like the filter type, cut-off frequency and slope have to be configured manually in the **Xover** Menu in each Output menu.

*Note: The configuration mode configures the input sources when selected. The user can change the source afterwards if desired. It does not keep the configuration in memory. Individual crossover points will have to be adjusted as well.

Copy - Copy channels

Copy Channels from the source to the target. When the Source and Targets are both Inputs or Outputs, all audio parameters will be copied. When one of the Source or the Target is an input while the other is an output, only the Level, Polarity, Delay and EQ are copied.

- SOURCE - Channel to be copied from.
  O1:XXXXXX Copy
  SOURCE: In1

- TARGET - Channel to be copied to.
  O1:XXXXXX Copy
  TARGET: In2

(System Menus continued)

General - General system parameters

SYSTEM-SETUP MENU: General
FREQ MODE: All Freq
DELAY UNIT: 01
DEVICE#: 1

- FREQ MODE - Selects the frequency control mode for EQ and crossover filters. Can be 36 steps/octave or All Frequencies (1 Hz resolution).
  O1:XXXXXX Generl
  FREQ MODE: All

- DELAY UNIT - ms, ft or m.
  O1:XXXXXX Generl
  DELAY UNIT: ms

System ISO

The System ISO (Internal System Optimizer) is a low level noise gate that turns on to let the signal pass. It is implemented to improve the signal to noise performance of the DSLP48. The default setting is a threshold of 102. Most of the time this will be the best setting.

TO CHANGE THE ISO SETTING

-hit the right menu button and enter to get into the System menu

- hit the right menu button 10 times until the screen reads, “SYSTEM ISO”

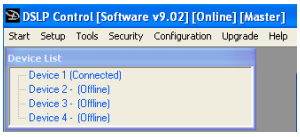
- Use the parameter wheel to enter a new value, from 80 to 120. Hit enter to accept the value

- To BYPASS the ISO, go to the ISO screen per the directions above, then hit the curser right key. This will bring up “SYSTEM ISO Bypass:” turning the parameter wheel will turn bypass on or off.

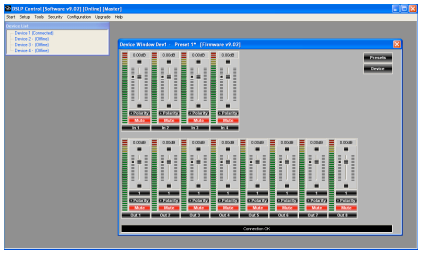
7.0 Security/Passwords/Locking

The DSLP48 enables the user to secure the unit and prevent undesired changes in the setup. In order to lock/unlock the unit the user must enter the correct password.

The DSLP48 is shipped from the factory with no password installed. When first connecting to the DSP the user will see the following:



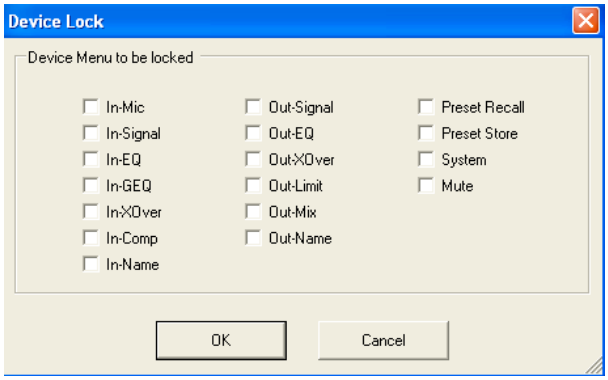
If the computer and DSP are communicating correctly, clicking on Device 1 will bring up the following screen



PLease Note: Once you have assigned a Password you will have to LOG IN to see the Security menu option. LOG IN is found under the Start menu

To set password, Select SECURITY and follow prompts until you see the password window. The password of the DSLP48 is 4 characters in length. The user can change it as needed, but only from the host computer. See section 9 for connecting the DSLP48 to a host computer.

Selecting LOCK CONTROLS from the Security Menu brings up the following window:



This window allow the user to select the features that will be locked on the DSP. When the items are locked, the user will not be able to change the parameters from the DSLP48.

The DSLP48 is shipped from the factory unlocked. If you purchased the unit used, the first thing you will need to do is to make sure your DSLP48 is unlocked. If the unit is locked you can see all functions but cannot make any changes via the front panel nor computer interface. You will need the password to unlock the unit. If you do not have the password, please contact Danley Sound Labs.

To verify that the unit is unlocked:

1: Press the Upper Left MENU key (on the control button on the right side of the unit) and while holding down-press one of the output Mute buttons, Release. This should bring up a screen with a Level control on it. Turn the data wheel and see if this level changes. If it does your DSP is unlocked. If it does not, follow the next steps.

2: If your unit is locked-proceed with the following. On the front of the DSP locate the control buttons towards the right side. Press the HOME button, then the ENTER button. If the unit is locked, The word SECURE will appear and space for the 4 digit password. Enter the Password using the data wheel and the cursor buttons. Now press ENTER-TWICE. This should unlock your DSP. Try step 1 above to see if the unit is unlocked.

8.0 Quick Reference

Parameters	Menu	Field	Min	Max	Steps	Units
<	<<Menu>>	<<Cursor>>				>
Level	Signal	LEVEL	-40	+15	0.25	dB
Polarity	Signal	POL			+ / -	
Delay	Signal	DELAY	0	2,400	1	21us step
EQ Number	EQ	EQ#	1	8	1	
EQ Level	EQ	LEVEL	-30	+15	0.25	dB
EQ Frequency	EQ	FREQ	20	20,000	1	Hz
EQ Bandwidth	EQ	BW	0.0/2	3.61	0.01	Octave
Crossover Low	XOver	FTRL	*Off / Butterworth / Linkwitz-Riley / Bessel*			
Crossover Low	XOver	FRQL	20	20,000	1	Hz
Crossover Low	XOver	SLPL	6	48	6	dB/octave
Crossover High	XOver	FTRH	*Off / Butterworth / Linkwitz-Riley / Bessel*			
Crossover High	XOver	FRQH	20	20,000	1	Hz
Crossover High	XOver	SLPH	6	48	6	dB/octave
Out Limit Thresh	Limit	THRESH	-20	+20	0.5	dBu
Out Attack Time	Limit	ATTACK 0.3	100	0.1/1	ms	
Out Release Time	Limit	RELEASE	2 / 4 / 8 / 16 / 32X Attack time			
Source	Source	1, 2, 3,4		Off / On/Level		
Channel Name	Ch-Name	NAME		6 characters		

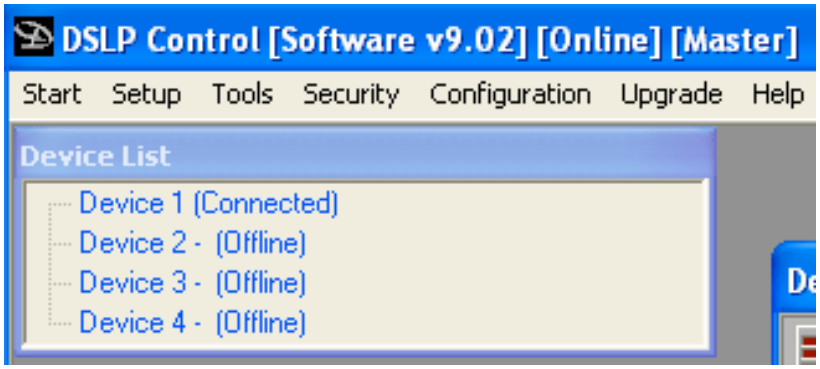
9.0 PC Control Software

The DSLP48 is shipped with a special PC Graphic User Interface (GUI) application – DSLP Control. This gives the user an option to control the DSLP48 unit from a remote PC via the RS232/USB/Ethernet communication link.

The GUI application makes it much easier to control and monitor the device, allowing the user to get the whole picture on one screen. Programs can be recalled and stored from/ to the PC hard drive, thus expanding the storage to become virtually limitless.

COMPUTER SETUP

1: Install and launch the software and follow the prompts. If the computer is able to connect to the DSP you will get a screen that looks like this:

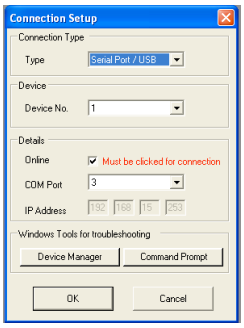


2: If you have OFF LINE in device 1 Check the following things. Open the SETUP window and go to Port connections. Make sure the ONLINE button is checked under the Details window. If it was not, then check it and close the software and reopen the software and try to connect.

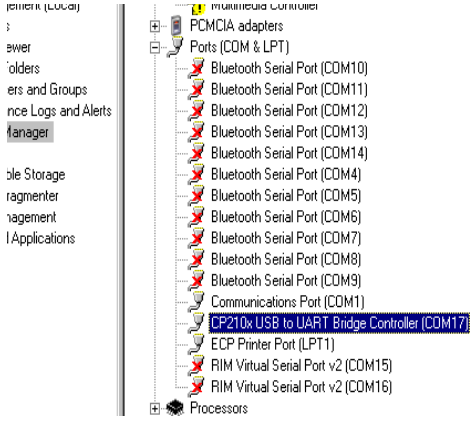
3: If you still do not have a connection, it is probably because you are not using the correct port number. Generally the Serial port is COM 1. If using a USB connection, it could be just about any number. Open the COM Port pull down window under Details in the SETUP-Port Connections window.

4: Scroll down and see if you have ports that have a blank beside the numbers. Most will say “not available”. If you have several with a blank, you will need to go to more detail to see which port is which. But if you only see one port that has a blank name then double-click that number and it should be entered into the port number. You will need to close and restart the software for this change to take effect.

5: If you have several blanks then you will need to identify which port is which. The software provides a shortcut to the Windows DEVICE MANAGER. It can be accessed by selecting DEVICE MANAGER from the Connection Setup window.



Scroll down until you see Ports Com and LPT. Open that up. You should see the port number next to the particular device that is using it. If you are using USB to communicate with the unit, find the COM PORT which is assigned to the UART Bridge Controller as shown below.



Note that number and then go back to step 4 above and enter that port number.

6: In a few unusual cases you will need to make another change. Following the steps in #5 above, go to the com port being used and double click it. Then open the RESOURCES tab. In the middle there should be a box that says “Use automatic settings”. It does not matter whether the box is checked or not; change it, then hit CHANGE SETTINGS and close out the windows. It may take a couple of seconds for this change to take effect.

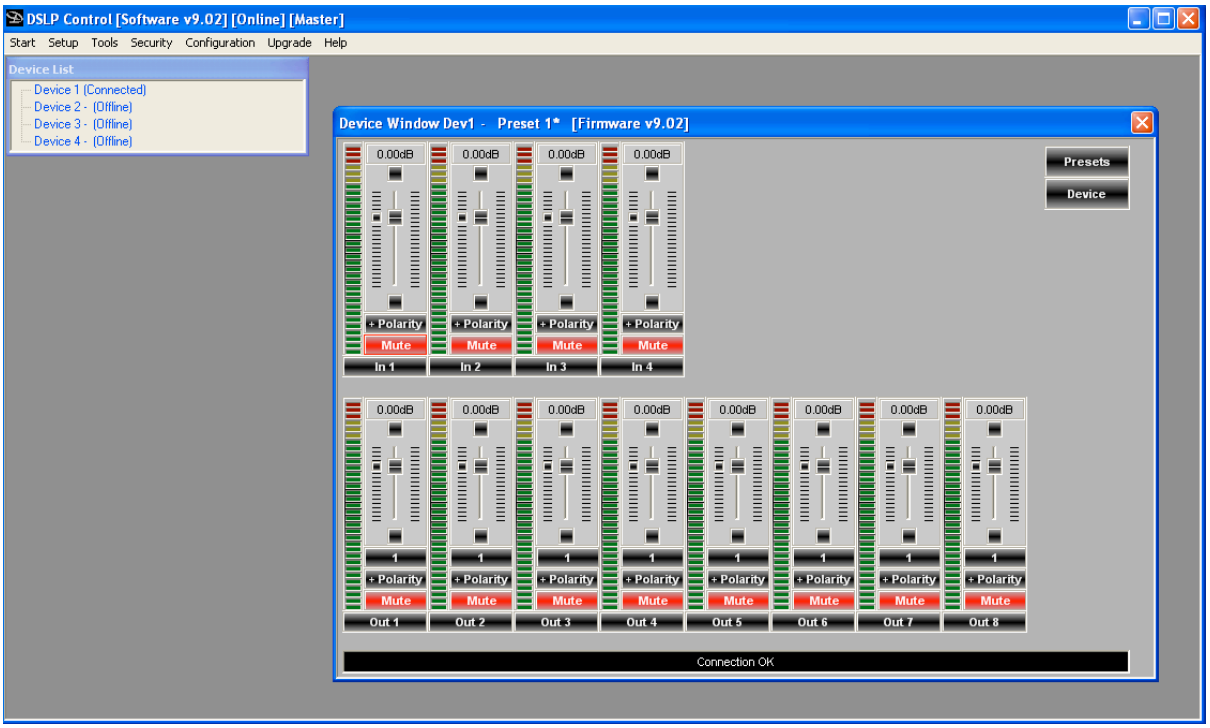
NOTE: If you have to do step 6 with your computer, you will need to change it every time you start your computer up and use the DSP.

You should now be able to connect to the device and go ONLINE.

IMPORTANT! If you wish to perform a firmware upgrade, you must use the R232 connection. Some USB to Serial adaptors do not work correctly. If you try to perform an UPGRADE and it repeatedly fails, try another USB to Serial adaptor.

10.0 Software Navigation

Click on a “CONNECTED” device and this basic DSP window will open.



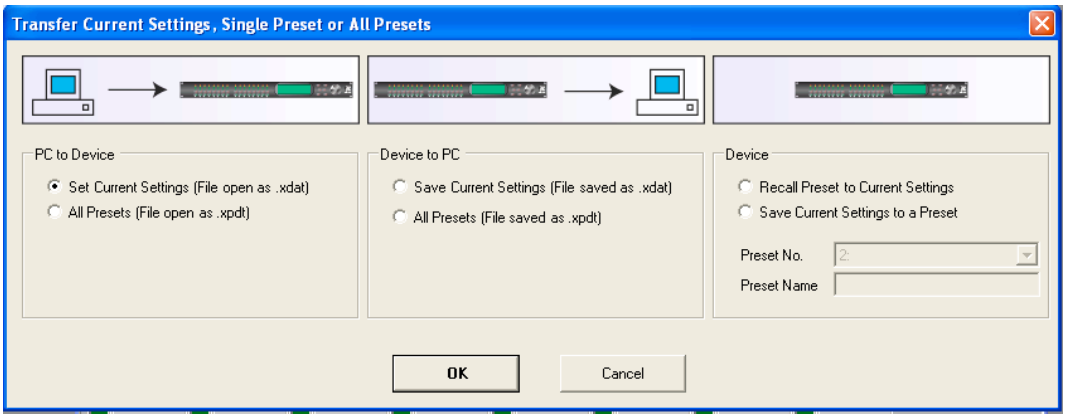
It is assumed that the user knows their way around the various functions available in modern DSP’s so the particular functions will not be discussed in detail, just basic operation/navigation.

METERS

The meters in the software indicate the actual level of the signal (unlike the panel display meters that show the onset of limiting on the output).

The **DEVICE** button in the top right side of the screen allows you to give the device a name-such as the name of the customer. If you have multiple devices in a system, this is also where you would assign device numbers to each unit.

The **PRESETS** tab in the bottom left side of the screen allows you to transfer settings between the computer and the processor.



Selecting the “set current settings” will bring up the Windows “Open” window and allow the user to select a file (.xdat) to load and transfer to the processor.

Selecting the “save current settings” option will allow the user to save the current setting in the processor to the computer.

In the right hand window the user can assign settings to presets in the processor.

INPUT CHANNELS

If you click on the 1st tab on the left (for example **IN 1**). This will open up all the functions available for that particular input.

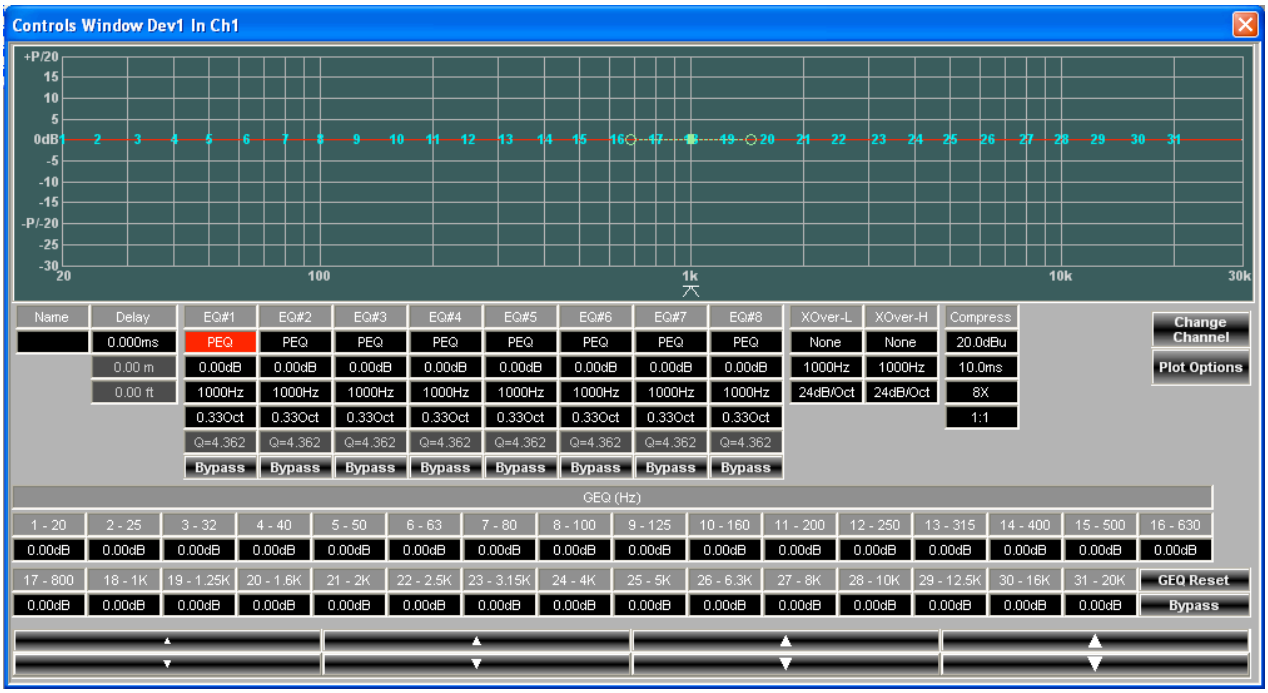
If you want to name the input click on the **NAME** window until it turns white with a flashing curser. Type in the name you want and hit ENTER. It will turn Red-until you go somewhere else on the screen and then the screen will retain the name you gave it.

Along the bottom of the window there are 4 groups of up/down buttons. The small ones on the left, will increment the value in a selected box in the smallest increment allowed. The larger arrows increment the value in larger increments.

As a general rule only the data in the DARK BLACK screens can be changed. The data in the lighter black windows is there for reference. For example, at the top left of the

screen, in the DELAY section, the data must be entered in ms, but you will also see the Meter and foot distances also.

The same thing applies for the **EQ** section and bandwidth and Q. Enter the data in



Bandwidth and see the Q equivalent. You can change the bandwidth by entering the particular number you want or by dragging the open circles associated with the filter center in the display window.

You can change the filter type by clicking on the **PEQ** window and then use the black up/ down arrows at the bottom of the screen to change to various different types of filters as needed.

Notice that that each of the four INPUT channels has an eight band parametric as well as a graphic (GEQ) equalizer.

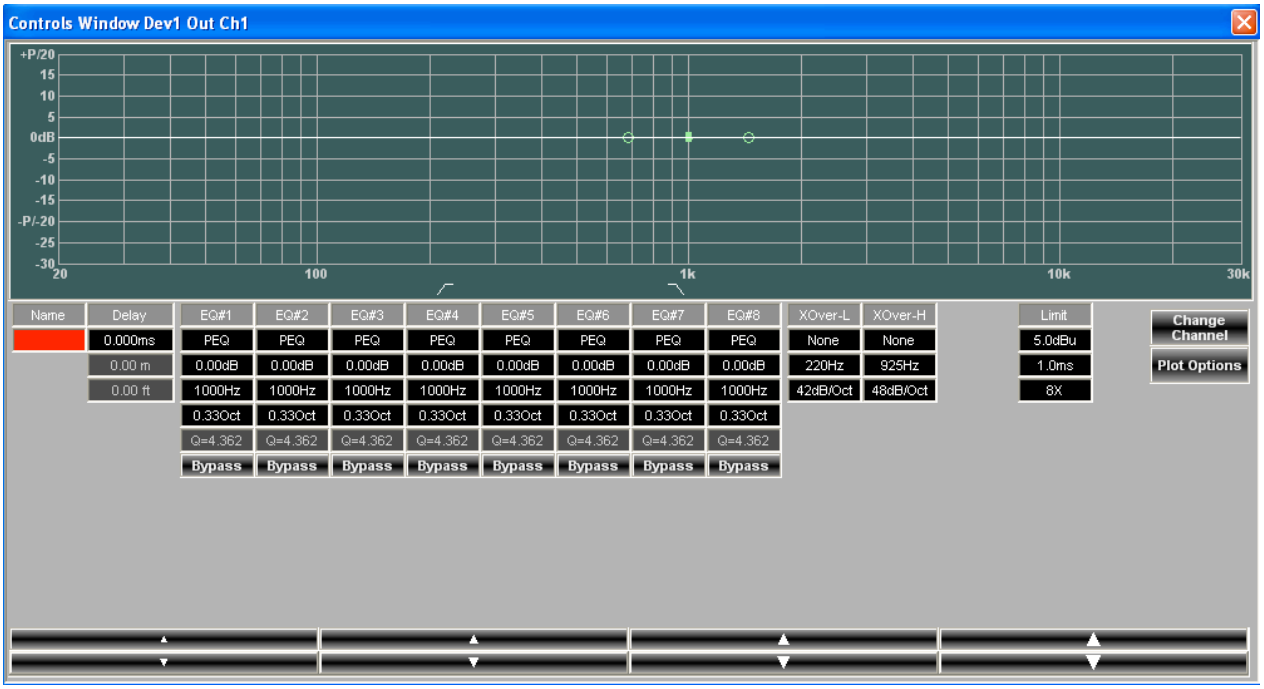
There are high and low pass filters available. In order to engage or change them, click on the NONE window under the high or low pass filter you want. Then use the UP/DOWN arrows at the bottom of the screen to change the filter type. You can also do the same for the slope rate you want.

OUTPUT Channels

The output controls work pretty much the same as the input channels-so be sure to read that first. There are a few exceptions. There is a **MIXER** on the output side of each DSP channel. It is accessed by clicking on the box directly above the "POLARITY" box. There will be a number in it. This number indicates which input channels are routed to it. For example if you have a 1 in the box, then input 1 is routed to that particular output. If you have a 124, that means that input channels 1 and 2 and 4 are routed to that particular output. But these numbers give no indication to the particular level of those inputs, they simply indicate that there is some level above full attenuation.

If you click on the mixer box you will see a mixer field open up with level controls. These are the particular level of the inputs going to that output.

The EQ section of the output channels has eight band parametric but no GEQ. The



output channels also have limiters rather then the compressors available in the input section.

The output meters (both on the DSP front panel and in the software) may not operate in the way you would normally think. They are referenced to the **LIMITER** trigger point. So if the limiter threshold is all the way up, then they are for the max output of the device. But as the limiter threshold is turned down, the red “peak” meter is the onset of limiting.

The output limiter differs from the input compressor in that you cannot adjust the ratio. This is designed solely to keep amplifiers out of clip, while the input compressor can be used for any number of various things as needed-smoothing out a signal-long term level reduction etc. Just adjust the parameters as needed.

NOTE: It is important that you save the current settings to the DSP before turning it off- or they will be lost. When the DSP is powered up it will revert to the last saved settings.

10.1 Upgrading Software/Firmware

From time to time Danley Sound labs will release new software and or firmware that will enhance or improve the functionality of the DSLP48. There will be a notice posted on our website announcing the software/firmware upgrades and links for downloading the new files.

*****IMPORTANT*****

Back up all files from the DSP to your host computer as performing a firmware upgrade will erase EVERYTHING in the DSP, including passwords!

For Upgrading both software and firmware.

1. Download the software files from the Danley website or import them from a Danley supplied CD.
2. Install the software and follow the prompts.
3. Have a USB to Serial adaptor available and make sure that the appropriate driver is installed.
4. Connect the computer to the DSLP48 using a Serial cable or a USB to serial adaptor.
5. Launch the Software and insure that the Computer is communicating with the DSLP48.
6. If the DSLP48 is password protected, log on and enter the password.
7. Select the menu item " UPGRADE" and "FIRMWARE" . Remember to back up all files before proceeding.
8. You will be prompted to locate the **.img** file that is the firmware upgrade.
9. Select the appropriate **.img** file and click open.
10. The firmware upgrade should begin. with a progress bar showing at the bottom of the screen. Make sure that the DSLP is not turned off or the connection interrupted until the upgrade is complete.
11. NOTE! There are some USB to Serial adaptors which will permit control of the DSLP48, but will not allow the UPGRADE to properly transfer. If the UPGRADE fails repeatedly, try a different adaptor.
12. Power cycle the DSLP48. (power down and up again) It should come up showing the latest firmware version in the display screen.
13. Restart the software, reload the password and setting. as needed.

11.0 Specifications

Inputs and Outputs

Input Impedance:	>10k Ohms
Output Impedance:	50 Ohms
Maximum Level:	+20dBu
Type:	Electronically balanced

Audio Performance

Frequency Response:	+/- 0.1dB (20 to 20kHz)
Dynamic Range:	115dB typ (unweighted)
CMMR:	> 100dB (50 to 10kHz)
Crosstalk:	< -100dB
Distortion:	0.002% (1kHz @+4dBu)

Digital Audio Performance

Processor:	40 bit floating point
Sampling Rate:	48kHz
Analog Converters:	High Performance 24-bit
Propagation Delay:	1.5ms

Front Panel Controls

Display:	2 x 16 Character Backlit LCD
Level Meters:	5 segment LED
Buttons:	12 Mute Controls
Dial Encoder:	Embedded Thumb Wheel

Connectors

Audio:	3-pin XLR
RS-232:	Female DB-9
USB	Type B
Ethernet	Standard Catt 5 RJ45
Power:	Standard IEC Socket

General

Power:	15 / 230 VAC (50 / 60Hz)
Dimensions:	19” x1.75” x9” (483x44x203 mm)
Weight:	10 lbs. / 4.6kg

Audio Control Parameters

Gain:	-40 to +15dB in 0.25dB steps
Polarity:	+/-
Delay:	Up to 90ms per input and output in 10 us steps (180ms total per path)

Equalizers (8 per I/O)

Type:	Parametric, Hi-shelf, Lo-shelf and GEQ (on inputs)
Gain:	-30 to +15dB in 0.25dB steps
Bandwidth:	0.02 to 3.61 octaves (Q=0.311 to 72)

Crossover Filters (2 per Output)

Filter Types:	Butterworth, Bessel, Linkwitz Riley, FIR
Slopes:	6 to 48dB/oct

Limiters

Threshold:	-20 to +20dBu
Attack:	0.3 to 100ms
Release:	2 to 32X the attack time
Ratio:	1:1-1:40 (compressor only)

System Parameters

No. of Programs:	30
Program Names:	12 character length
Delay Units:	ms, ft, m
Frequency Modes:	36 steps/oct, 1Hz resolution
Security Lock:	Lock/Unlock
Copy channels:	All parameters
Channel Names:	12 character length

Note: Specifications subject to change without notice

12.0 Warrantee

The DSLP48 is warranted covering materials and workmanship for a period of one (1) year, as determined by the date of retail purchase (according to the sales receipt from an authorized dealer) or the date of manufacture if the sales receipt is not available (according to the serial number). This warranty applies to the product; therefore, the remainder of the warranty period will be automatically transferred to any subsequent owner.

This warranty applies only to failure of a Danley Sound Labs product caused by defects in materials and workmanship during the stated warranty period. It does not apply to a unit that has been subjected to abuse, accident, modification, improper handling/installation, or repairs made without factory authorization or by anyone other than authorized Danley Field Service Stations. This warranty is void if the serial number has been defaced, altered or removed. Products covered by this warranty will be repaired or replaced at the option of Danley, without charge for materials or labor, provided all the terms of this warranty have been met.

For factory service, please call or email for a Return Authorization (R/A) number before shipping. If the product is shipped, the following information must be included in the package:

1. Owners complete name, daytime phone number, return street address and return authorization number.

2. The serial number of the product being returned and a copy of the retail sales receipt, if possible.

3. A complete description of the problem(s) experienced, including a brief description of how the equipment is being used and other equipments involved.

User Manual v3.0 (FEB 2009)
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