



# User Manual

## DSP48

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SPEAKER PROCESSOR

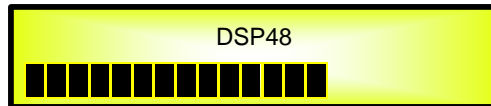
Described below are the functions of the front panel control buttons and encoders for the DSP48.

- **Getting Started**

As soon as the DSP48 is turned ON the device model name will appear in the LCD screen:



and a status bar will show the progress of the DSP48 initialization process:



After the first time activation, the DSP48 will show on the LCD :



- **Encoders and ENTER, ESC buttons**

The DSP48 is equipped with 3 Relative Encoders, "PM1", "PM2" and "PM3", These encoders allow you to navigate the user interface and edit sections of the processor. They allow the user to navigate within the screen for the selection of sub-menus, pages and parameters and to select the values to be assigned during the editing operations.

The "ENTER" and "ESC" buttons allow the user to confirm or NOT confirm the operations performed by the encoders.

- **UTILITY, A/B/C/D and 1/2/3/4/5/6/7/8 buttons**

The UTILITY button allows the User to enter the Sub-menus and set the general characteristics of the Processor. The A , B , C and D buttons allow the User to enter the Editing Menus of the Processor's Input Channels and buttons 1, 2, 3 , 4, 5, 6, 7 and 8 allow the User to enter the Editing Menus of the Processor's Output Channels.

The A , B , C and D buttons as well as the 1, 2, 3 , 4, 5, 6, 7 and 8 buttons have double functions dependent on the push and hold time.

When the A , B , C and D buttons are pushed and held for more than one second Input Channels A or B or C or D are either muted or unmuted. The red LED will illuminate when the Channel is muted. When the "MUTE" LED is OFF, then the related Input Channel is UN-MUTED.

A momentary push of the A , B , C and D buttons enters the Editing Mode for the Input Channels (see later for the Input Channel Editing details).  
The blue "EDIT" LED will now be ON.

When the 1, 2, 3 , 4, 5, 6, 7 and 8 buttons are pushed and held for more than one second the Output Channels 1, 2, 3 , 4, 5, 6, 7 and 8 are either muted or unmuted. The red LED will illuminate when the Channel is muted. When the "MUTE" LED is OFF, then the related Output Channel is UN-MUTED.

A momentary push of the 1, 2, 3 , 4, 5, 6, 7 and 8 buttons enters the Editing Menu for the Output Channels (see later for the Output Channel Editing details). The blue "EDIT" LED will now be ON.

- **DSP48 Menu and Sub-Menu Structures**

As stated above, the start-up default screen is the following factory preset:



From this point, sub-menus are accessed and exited using the UTILITY", "A/B/C/D", "1/2/3/4/5/6/7/8", "ENTER" and "ESC" buttons and all parameters and values are navigated by the "PM1", "PM2" and "PM3" encoders. Please refer to the following menu structures:

**MENU "UTILITY MENU" [Access by pushing the "UTILITY" button]**

**PM1 Encoder**

[to navigate between menus]

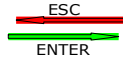
**PM2 or PM3 Encoder**

[to chose option, then ENTER to load it;  
(\* indicates the selected option)]

1 UTILITY MENU:.....  
<< System Utilities >>

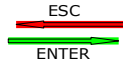


1.1 SYSTEM UTILITY:  
<< Input Source >>



Input Source  
Source = Analog input  
Source = Digital Input  
Source = Noise Gen

1.2 SYSTEM UTILITY:  
<< Noise Generator >>



Noise Generator  
Type = Pink  
Type = White  
Lev = 0dB  
:  
Lev:-40Db

1.3 SYSTEM UTILITY:  
<< Delay Units >>



Delay Units  
Unit = Time(ms)  
Unit = Distance (m)

1.4 SYSTEM UTILITY:  
<< Set Default Value >>



Set Default Value  
[Enter] to confirm

1.5 SYSTEM UTILITY:  
<< FirmwareVersion >>



Firmware Version  
Version = 3.0.2

2 UTILITY MENU:.....  
<< Program Utilities >>



2.1 PROGRAM UTILITY:  
<< Recall a Program >>



Recall a Program  
01 Empty Program  
:  
32 Empty Program

2.2 PROGRAM UTILITY:  
<< Save a Program >>



Save a Program  
01: Empty Program  
:  
32: Empty Program

2.3 PROGRAM UTILITY:  
<< Delete a Program >>



Delete a Program  
01: Empty Program  
:  
32: Empty Program

3 UTILITY MENU:.....  
<< Interface Utilities >>



3.1 INTERFACE UTILITY:  
Interface Setup



Interface Setup  
Source = USB  
Source = RS485  
Source = TCP/IP  
IP=192.168.000.01-- 254

ID=1,...,32  
DHCP=On/Off

Set IP address

4 UTILITY MENU:.....  
<< Security Utilities >>



4.1 SECURITY UTILITY:  
Show Parameter



Parameter will  
be shown  
not be shown

4.2 SECURITY UTILITY:  
Lock Unit



Lock Unit  
Lock: Off  
Lock: On

4.3 SECURITY UTILITY:  
Change Password



Change Password  
[                    ]

4.4 SECURITY UTILITY:  
Lock With Password



Enter Password  
[                    ]

**MENU "Input A/B/C/D" Input Channels Editing [Access by pushing the "A/B/C/D" button]**

**PM1 Encoder**

[to navigate between menus]

**PM1 Enc.**

[to chose values for the parameters, no need to confirm the chosen values, which are automatically loaded during the encoders use]

**PM2 Enc.**

**PM3 Enc.**

1. In- A/B/C/D [Name] Name  
Name = [Name]



-> Name = \_

*(For Editing the Device's Name, refer to the Details on the "Utility Menu Use" Section)*

2. In- A/B/C/D [Name] N.Gate  
Bypass=On



-> Bypass=On

PM1 N/A.

Byp=On/Off

Thr=-80.0dBu ... -50 dBu

Rel=10ms ... 1000ms

Atk=1ms ... 1000ms

3. In- A/B/C/D Gain  
Gain = + 0.0 dB



-> Gain = + 0.0 dB

PM1 N/A.

-18 dB  
:  
+12dB  
Step 1dB

0.1dB  
:  
0.9dB  
Step 0.1dB

4. In- A/B/C/D Delay  
Delay = 0.000 ms



-> Delay = 0.000 ms

PM1 N/A.

000.0000mS  
[1 ms steps]  
480.0000mS

000.0000mS  
[10.4 us steps]  
000.9984mS

5 In- A/B/C/D [Name] Phase  
Phase=Normal



-> Phase=Normal

PM1 N/A.

Phase= Normal/Invert

6. In- A/B/C/D [Name] RMS Cmp  
Bypass=On



-> Bypass=On

PM1 N/A.

Byp=On/Off

PM1 N/A.

Threshold=+20dBu ... -10dBu

PM1 N/A.

Ratio =2:1 ... 32:1

Knee=0% ... 100%

PM1 N/A.

Rel=0.1sec ... 3.0sec

Atk=5ms ... 200ms

PM1 N/A.

Make-up=-12dB ... +12dB

7. In- A/B/C/D [Name] EQ Byp  
Bypass=On



-> Bypass=On

PM1 N/A.

Byp=On/Off

8. In- A/B/C/D [Name] PEQ-XX(00 to 30)  
Byp=on Type=Peaking\_Eq



-> Byp=on Type=Peaking\_Eq

PM1 N/A.

Byp=On/Off

Type=Peaking\_Eq/ Hi Shelv

1/ Hi Shelv 2/ Hi Shelv Q/ Lo Shelv 1/ Lo Shelv 2/Lo Shelv Q/ Lo Pass 1/ Low-Pass 2/Low Pass Q/HighPass1/ HighPass2/HighPass Q/Band-Pass/ Notch Filt/All Pass 1/All Pass 2

Type=Peaking\_Eq

PM1 N/A.

Frequency=20Hz ... 20000Hz

PM1 N/A.

Gain=-15dB ... +15dB

Q=0.4 ... 128

Type= Hi -Shelv 1/ Hi -Shelv 2

PM1 N/A.

Frequency=20Hz ... 20000Hz

Type= Hi -Shelv Q	PM1 N/A. PM1 N/A.	Gain=-15dB ... +15dB Frequency=20Hz ... 20000Hz Gain=-15dB ... +15dB	Q=Fixed Q=0.1 ... 5.1
Type= Lo-Shelv 1/ Lo-Shelv 2	PM1 N/A. PM1 N/A.	Frequency=20Hz ... 20000Hz Gain=-15dB ... +15dB	Q=Fixed
Type= Lo-Shelv Q	PM1 N/A. PM1 N/A.	Frequency=20Hz ... 20000Hz Gain=-15dB ... +15dB	Q=0.1 ... 5.1
Type= Low Pass 1/ Low Pass 2	PM1 N/A.	Frequency=20Hz ... 20000Hz	
Type= Low Pass Q	PM1 N/A. PM1 N/A.	Frequency=20Hz ... 20000Hz Gain=-Fixed	Q=0.1 ... 5.1
Type= Hi ghPass1/ Hi ghPass2	PM1 N/A.	Frequency=20Hz ... 20000Hz	
Type= Hi ghPass Q	PM1 N/A. PM1 N/A.	Frequency=20Hz ... 20000Hz Gain=-Fixed	Q=0.1 ... 5.1
Type= Band-Pass	PM1 N/A. PM1 N/A.	Frequency=20Hz ... 20000Hz Gain=-15dB ... +15dB	Q=4 ... 104
Type= Notch Filt	PM1 N/A. PM1 N/A.	Frequency=20Hz ... 20000Hz Gain=Fixed	Q=4 ... 104
Type= All Pass 1	PM1 N/A.	Frequency=20Hz ... 20000Hz	
Type= All Pass 2	PM1 N/A. PM1 N/A.	Frequency=20Hz ... 20000Hz Gain=Fixed	Q=4 ... 104

**MENU "Output 1/2/3/4/5/6/7/8" Output Channels Editing [Access by pushing the "1/2/3/4/5/6/7/8" button]**

**PM1 Encoder**  
[to navigate between menus]

**PM1 Enc.**                      **PM2 Enc.**                      **PM3 Enc.**  
[to chose values for the parameters, no need to confirm the chosen values, which are automatically loaded during the encoders use]

1. Output[x] [Name] Name  
Name = [Name]

ENTER ↓ ↑ ESC  
-> Name = \_

(For Editing the Device's Name, refer to the *Details on the "Utility Menus Use"* Section)

2. Output[x] [Name] Routing  
A=On B=Off C=Off D=Off

ENTER ↓ ↑ ESC  
-> InA: Level=0dB On  
-> InB: Level=0dB Off  
-> InC: Level=0dB Off  
-> InD: Level=0dB Off

PM1 N/A	0 dB : -30dB	On/Off
PM1 N/A	0 dB : -30dB	On/Off
PM1 N/A	0 dB : -30Db	On/Off
PM1 N/A	0 dB : -30Db	On/Off

3. Output[x] [Name] Gain  
Gain = + 0.0 dB

ENTER ↓ ↑ ESC  
-> Gain = + 0.0 dB

PM1 N/A	-18 dB : +12dB Step 1dB	0.1dB : 0.9dB Step 0.1dB
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4. Output[x] [Name] Delay  
Delay = 0.000 ms

ENTER ↓ ↑ ESC  
-> Delay = 0.000 ms

PM1 N/A	000.0000mS [1 ms steps] 270.0000mS	000.0000mS [10.4 us steps] 000.9984Ms
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5. Output[x] [Name] Phase  
Phase=Normal

ENTER ↓ ↑ ESC  
-> Phase=Normal

PM1 N/A.	Phase= Normal/Invert
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6. Output[x] [Name] RMS Cmp  
Bypass=On

ENTER ↓ ↑ ESC  
-> Bypass=On

PM1 N/A.	Byp=On/Off
PM1 N/A.	Threshold=+20dBu ... -10dBu
PM1 N/A.	Ratio =2:1 ... 32:1                      Knee=0% ... 100%
PM1N/A.	Rel=0.1sec ... 3.0sec                      Atk=5ms ... 200ms
PM1 N/A.	Make-up=-12dB ... +12dB

7. Output[x] [Name] Limiter  
Bypass=On

ENTER ↓ ↑ ESC  
-> Bypass=On

PM1 N/A.	Bypass= On/Off
PM1 N/A.	Threshold=-10dBu ... 20 dBu
PM1 N/A.	Rel=0.1sec ... 5sec                      Atk=1ms ... 900ms

8. Output[x] [Name] HPF

20.0 Hz Bypass  
 ENTER ↓ ↑ ESC  
 -> 20.0 Hz Bypass

PM1 N/A

[Freq.] 20Hz  
 :  
 20kHz

[Type/Slope]

Bypass  
 :  
 LR -48 dB /Oct

Slope=Bypass/ BW -6 dB/Oct / BW -12 dB/Oct / LR -12 dB/Oct / BS -12 dB/Oct / BW -18 dB/Oct / BW -24 dB/Oct / LR -24 dB/Oct / BS -24 dB/Oct / BW -36 dB/Oct / LR-36 dB/Oct / BW -48 dB/Oct / LR-48 dB/Oct /

9. Output[x] [Name] LPF  
 20.0 Hz Bypass  
 ENTER ↓ ↑ ESC  
 -> 20.0 Hz Bypass

PM1 N/A

[Freq.] 20Hz  
 :  
 20kHz

[Type/Slope]

Bypass  
 :  
 LR -48dB/Oct

Slope=Bypass/ BW -6 dB/Oct / BW -12 dB/Oct / LR -12 dB/Oct / BS -12 dB/Oct / BW -18 dB/Oct / BW -24 dB/Oct / LR -24 dB/Oct / BS -24 dB/Oct / BW -36 dB/Oct / LR-36 dB/Oct / BW -48 dB/Oct / LR-48 dB/Oct /

10. Output[x] [Name] EQ Byp  
 Bypass=On

ENTER ↓ ↑ ESC  
 -> Bypass=On

PM1 N/A.

Byp=On/Off

11. Output[x] [Name] PEQ-XX(00 to 11)  
 Byp=on Type=Peaking\_Eq

ENTER ↓ ↑ ESC  
 -> Byp=on Type=Peaking\_Eq

PAR1 N/A.

Byp=On/Off

Type=Peaking\_Eq/ Hi -Shelv

1/ Hi -Shelv 2/ Hi -Shelv Q/ Lo-Shelv 1/ Lo-Shelv 2/ Hi -Shelv Q/ Low-Pass 1/ Low-Pass 2/ Low-Pass Q/High-Pass1/ High-Pass2/High-Pass Q/Band-Pass/ Notch Filt/All Pass 1/All Pass 2

Type=Peaking\_Eq

PM1 N/A.

Frequency=20Hz ... 20000Hz

Gain=-15dB ... +15dB

Q=0.4 ... 128

Type= Hi -Shelv 1/ Hi -Shelv 2

PM1 N/A.

Frequency=20Hz ... 20000Hz

Gain=-15dB ... +15dB

Q=Fixed

Type= Hi -Shelv Q

PM1 N/A.

Frequency=20Hz ... 20000Hz

Gain=-15dB ... +15dB

Q=0.1 ... 5.1

Type= Lo-Shelv 1/ Lo-Shelv 2

PM1 N/A.

Frequency=20Hz ... 20000Hz

Gain=-15dB ... +15dB

Q=Fixed

Type= Lo-Shelv Q

PM1 N/A.

Frequency=20Hz ... 20000Hz

Gain=-15dB ... +15dB

Q=0.1 ... 5.1

Type= Low-Pass 1/ Low-Pass 2

PM1 N/A.

Frequency=20Hz ... 20000Hz

Type= Low-Pass Q

PM1 N/A.

Frequency=20Hz ... 20000Hz

Gain=-Fixed

Q=0.1 ... 5.1

Type= High-Pass1/ High-Pass2

PM1 N/A.

Frequency=20Hz ... 20000Hz

Type= High-Pass Q

PM1 N/A.

Frequency=20Hz ... 20000Hz

Gain=-Fixed

Q=0.1 ... 5.1

Type= Band-Pass

PM1 N/A.

Frequency=20Hz ... 20000Hz

Gain=-15dB ... +15dB

Q=4 ... 104

Type= Notch Filt

PM1 N/A.

Frequency=20Hz ... 20000Hz

Gain=Fixed

Q=4 ... 104

Type= All Pass 1

PM1 N/A.

Frequency=20Hz ... 20000Hz

Type= All Pass 2

PM1 N/A.

Frequency=20Hz ... 20000Hz

Gain=Fixed

Q=4 ... 104



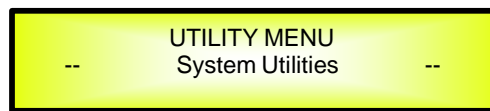
- **Menu "UTILITY" [access by pushing the "UTILITY" button]**

From the "Default Screen", it is possible access the "UTILITY" menu pushing the "UTILITY" button and the Sub-Menus pages can be selected just rotating clockwise and counter-clockwise the "PM1" encoder.

Once selected the sub-menu page, using the "ENTER" button can be accessed the Sub-Menus pages, again "scrollable" using the "PM1" encoder and accessible for the parameters' editing pushing again the "ENTER" button.

**Note:** In each sub-menu choice, the current selected or running choice is what shown on the LCD screen.

**System Utilities Sub-menu** – this sub-menu allows to access several operations related to the DSP48 Start Up and General Configuration:



**UTILITY MENU:**

From the "System Utilities Sub-menu", pushing "ENTER" and then using the "PM1" encoder for scrolling will give access to the following pages:

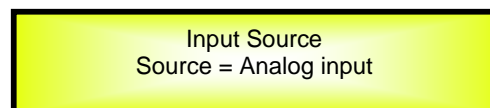
- **Input Source:** the DSP48 is equipped with 4 Analog Inputs (Balanced Female XLR) and 2 AES Digital Input (RCA connector).and noise generator  
The "Input Source" page allows you to select the desired Input type:



By pressing ENTER on Input Source and then rotating the "PM2" or "PM3" encoders, it is possible to select the Main Inputs for the DSP48, allowing the User to choose between Analog , AES Digital Input or Noise Generator.

The selection can be confirmed by pressing the "ENTER" button.

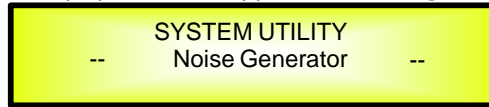
The following screen shows that the Analog Input has been selected:



**UTILITY MENU:**

**UTILITY MENU:**

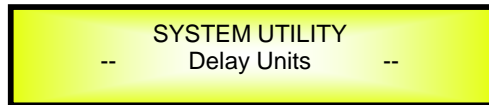
- **Noise Generator:** DSP48 equips with 2 types of noise generator: White Noise and Pink Noise.



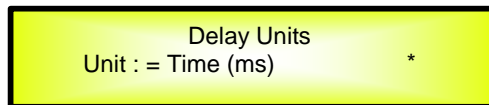
By pressing ENTER and rotating the "PM2" encoder, it is possible to select between those 2 choice: "Pink" or "White". By rotating the "PM3" encoder, it is possible to set the value of level of white noise generator and pink noise generator, with whose range from 0dB to -40dB. The following screen shows the selected pink noise with level of -20dB:



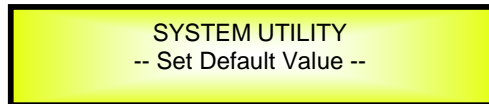
**Delay Units:** this page allows you to select the measurement unit to be used for the Delays: **Time** (in milliseconds "ms") or **Distance** (in meters "m"):



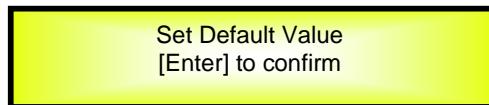
By pressing ENTER button and rotating the "PM2" or "PM3" encoder, it is possible to select the measurement unit to be used for the delay, which will be confirmed by pushing the ENTER button. The following screen shows the selected delay measurement is Time (milliseconds)



**Set Default Value:** All setting for DSP48 can be set to default value:



By pressing ENTER button, will show up the following screen of an interface to confirm to set the default value:



By pressing ENTER button one more time, will show up the following screen:



Wait around 3 sec for the processor set to the default value.

- **Firmware Version:** this page allows you to confirm the Firmware Version running on the DSP48:



The correct Firmware Version is "V3.0.2"

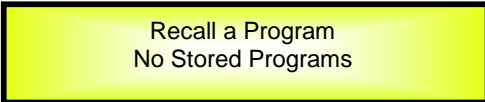
**Program Utilities Sub-menu** – this sub-menu allows you to access several options related to the DSP48 operating mode and to manage the presets stored and recallable within the Unit:



- **Recall a Program:** this page allows the Loading of a preset program by pressing the "ENTER" button. You can store up to 32 presets in the DSP48 memory:



By pressing "ENTER" button and rotating the "PM1" encoders, it is possible to scroll through all current available presets.  
If NO USER PRESETS are stored yet, the screen will show the following:



If presets have previously been stored by the user, anyone of them can be recalled:



By using the "PM1" encoder it is possible to scroll through the stored presets. Once the

desired preset appears on the screen, select it by pressing the "ENTER" button and this will force the DSP48 to begin to load this selected preset and the following transitory screen will appear:

A rectangular box with a black border and a light yellow background. The text inside is centered and reads: "Loading New Program ....." on the first line and "01: PRESET 1" on the second line.

Loading New Program .....  
01: PRESET 1

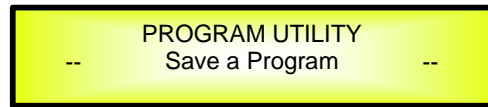
Once loaded the DSP48 will exit to the "Recall a Program" screen automatically and the above screen will disappear:

A rectangular box with a black border and a light yellow background. The text inside is centered and reads: "PROGRAM UTILITY" on the first line, "Recall a Program" on the second line, and a hyphen "-" on each side of the second line.

PROGRAM UTILITY  
- Recall a Program -

**Note:** at any time it is possible to quit the recalling action by pressing the "ESC" button.

- **Save a Program:** this page allows you to store a new preset in the DSP48's memory:



By pressing the ENTER button and rotating the "PM1" encoder, it is possible to scroll through the previously saved presets or the available empty locations (identified by "Empty Program"). If no user presets are stored, the "Save a Program" screen will show empty memory locations for all 1-32 presets as shown in the example below for location 10:

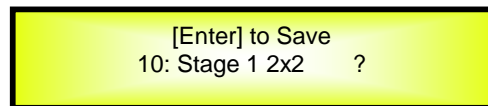


When storing an edited configuration for the DSP48, select the location for a preset from the **32 available** by using the "PM1" encoders. Once the desired location appears on the screen press "ENTER" button again to reach the "**Set Program Name**" page. In this page the User can set a Preset Name by using the "PM3" encoder to choose a character and the "PM2" encoder to move between the available locations for the character's positioning.

The following is an example of a screen while entering the preset name "Stage 1 2x2" in location 10:



To store the Preset Name press the "ENTER" button again. The above action will take you to the "**Enter to Save**" page showing the selected location for the preset and the final edited name:



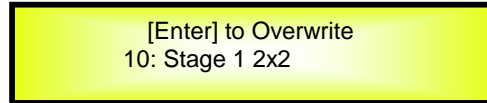
Pressing "ENTER" again, will store the preset in the selected location with the chosen name and the following transitory screen will appear on the LCD:



Once the preset is stored, the above screen will disappear returning to the following screen:



If during the Preset Storing process you want to overwrite an existing memory location select this location in the "**Save a Program**" page, then press ENTER button and you will be asked if you want to overwrite this preset with the following "**[ENTER] to Overwrite**" screen displaying the currently stored preset and location:



[Enter] to Overwrite  
10: Stage 1 2x2

If you wish to proceed press "ENTER" again and the DSP48 will go ahead with the "**Set Program Name**" page and the subsequent overwrite on completion of the previously described storing process..

**Note:** at any time it is possible to quit the storing action by pressing the "ESC" button.

- **Delete a Program:** this page allows you to delete a preset already stored in the DSP48 memory:



PROGRAM UTILITY  
-- Delete a Program --

By pressing the ENTER button and rotating the "PM1" encoder, it is possible to scroll through the previously saved presets and the available empty locations (identified by "Program empty").

If no user presets are stored, the "Delete a Program" screen will show empty memory locations for all 1-32 presets as shown in the example below for location 10:



Delete a Program  
10: Program empty

If Presets are available they will be shown in the "Delete a Program" page as follows:



Delete a Program  
10: Stage 1 2x2

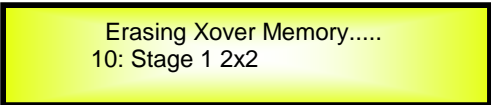
By using the "PM1" encoder it is possible to select a preset to be deleted.

Pressing the "ENTER" button on a selected preset will bring up the "**[Enter] to Delete.**" page showing the selected preset.

For example, if we want to delete the preset 10, "Stage 1 2x2", the screen will be the following:



Confirming the deletion by pressing "ENTER" again, will force the DSP48 to erase the selected preset and the following transitory screen will appear:



Once the preset is deleted, the above screen will disappear returning to the following screen:



**Note:** At any time it is possible to quit the deleting action by pressing the "ESC" button.

**Interface Utilities Sub-menu** – this sub-menu allows you to define the remote control interface [USB, RS485 or TCP/IP] to be used for controlling the DSP48:

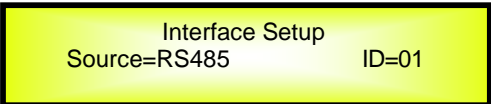


From "Interface Utilities", press "ENTER" button to access the Interface Setup.

- **Interface Setup:** this screen allows you to choose the communication source for the DSP48.



If select RS485, connect more than one unit under the RS485 mode. By using "PM3" encoder, user can set the ID number from 1 to 32, to assign to the units connected, and confirm by pressing "ENTER" button.

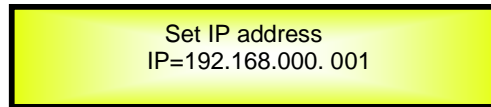


If select TCP/IP, select the DHCP status by using "PM3" encoder, with choice of "ON" or "OFF".

The following screen displaying the currently selected interface as TCP/IP:

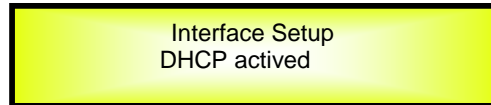


When you select TCP/IP, but the DHCP is "OFF", by pushing "ENTER" button again to set the IP address of the unit.



By rotating "PM3" encoder, user can select the IP value, and by scrolling "PM2" to move between available space, user can edit the IP value position.

If select TCP/IP, and the DHCP is "ON", press "ENTER" button one more time, the unit will notify that the DHCP is already activated, shown as the following screen display:



IP address of the unit need to get from the router connected to the network the unit already in.

**Security Sub-menu** – this sub-menu allows the User to set the parameters shown, lock the DSP48 and set a Password therefore limiting the unit's functions and controls to those who have only access to the appropriate Password.



Press "ENTER" button and then use the "PM1" encoder to scroll between options.

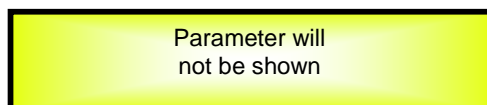
- **Show Parameter:** Pressing "ENTER" button from the above menu will access the "Show Parameter" Sub Menu



Press ENTER button again and use the PM2 or PM3 encoders to select between "be shown" or "not be shown" options.

Choosing the "be shown" option means that once the unit is locked, you cannot access parameter editing features, but they will be displayed on the LCD screen.

Choosing the "not be shown" option means that once the unit is locked, the parameters will not be shown at all. With this option, when trying to access a parameter, the following screen message will appear:





- **Lock Unit:** this sub-menu allows the user to lock the device so no parameters can be edited or modified.



When the Unit is in an unlocked condition, all parameters will be available for editing. When you select On, all parameters will be locked and are not available for editing.

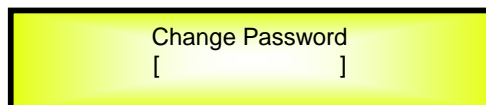


When you select lock from the menu, the unit will be locked and the lock menu automatically exited. The screen will revert to the "Default" showing the current XOVER configuration and the preset selected and beside the preset's name a "keylock" icon indicating that the DSP48 is locked.

- **Change Password:** from the "Change Password" sub-menu:



Press "ENTER" to access the "**Change Password**" page:



Use the PM2 encoder to move between available locations, and the PM3 encoder to choose a character. The current position of the cursor for the characters to be entered is shown by a "blinking underscore".



Input the original password "000000" for the DSP48, and press "ENTER" button, will access to the "**New Password**" Page. Use the PM2 encoder to move between available locations, and rotate the PM3 encoder to edit a 6-position new password. The following screen is the example with the new password after edition is "111111"

New Password  
[111111]

Press the ENTER button again, will access the "**Confirm password**" page, use the "PM2" encoder to move between available locations and rotate "PM3" encoder to choose a character, input the new password edited just now.  
The following screen is the example with typing in new password "111111" edited just now.

Confirm Password  
[111111]

Press the ENTER button one more time, the new password will be set successfully.

- **Lock With Password:** from the "Lock With Password" sub-menu:

There's limitation to the editing function if the DSP48 is locked with password. All functions for this unit are banned, including MUTE A/B/C/D and MUTE 1/2/3/4/5/6/7/8 buttons.

SECURITY UTILITY  
-- Lock With Password --

Press "ENTER" to gain access to the "**Enter Password**" screen:

Enter Password  
[            ]

Use the "PM2" encoder to move between available locations, and rotate "PM3" encoder to select characters. If the password of this DSP48 never modified, input the default password "000000", the unit will be locked. In this case, default screen will show a "Key" icon, user cannot enter into the sub-menu, unless he holds the password.

- **Menu "Input A/B/C/D" Input Channels Editing [access by pushing the "A/B/C/D" buttons]**

From the "Default Screen", it is possible to access the "Input A/B/C/D" menu by pushing the "A" or "B" or "C" or "D" button. Once the button is pressed, the related blue "EDIT" LED will turn ON. The Sub-Menu pages can now be scrolled through by rotating clockwise and counter-clockwise the "PM1" encoder.

For parameter editing it is necessary to press "ENTER" button and an arrow will appear on the left of the screen "->". Then use the "PM2" and "PM3" encoders for editing and setting the parameter values. On some parameters that have three independent values, you will also need to use the PM1 encoder, eg filter parameter settings.

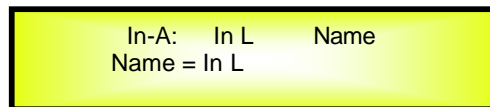
**Note:** All options can be done using the "PM1", "PM2", and "PM3" encoders and the current shown value of the selected option is AUTOMATICALLY loaded during the encoders' use and stored as the current value once leaving the page.

**Remark 1:** Select parameters the user desire by using 3 encoders. Once the user leaves this page, the above mentioned parameters would be saved to the DSP48 systems automatically.

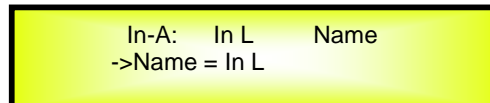
**Remark 2:** Exit this page by pressing "ESC" button.

### **Audio Signal Input (A/B/C/D)**

**Name page** – from this screen, it is possible to assign input channel a name with 6 characters For example, name the Input A as "In L" in the Name Page:



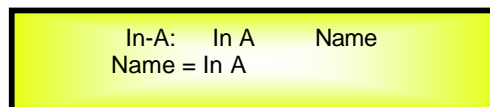
By pressing ENTER in the Name page, user can edit the name, and there will be an arrow, as the following screen shows:



The first character will flash.

Select character from these 6 positions by rotating "PM2" encoder and choose the desired characters by rotating "PM3" encoder. Once the new name is defined, for example, "In A", confirm this new name by pressing ENTER... A new name will display on the screen, after replaced the old one.

The following screen is shown with the new name "In A", by replacing the previous one "In L"



**N.Gate page**– from this page, it is possible to set the Input Channels Noise Gate. Noise gate can be set as "ON" or "OFF" status. The following screen is the selected "ON" status:

```
In-A:   Name   N.Gate
Bypass = On
```

By pressing ENTER button in this page, an arrow “->” will show up on the left of the screen, and enter into the setting interface 1 of the noise gate:

```
In-A   In-A   N.Gate
->Byp=On Thr=-80.0dBu
```

By using the “PM2” encoder, it is possible to set the noise gate as “ON” or “OFF”. By using the “PM3” encoder, it is possible to select its attack threshold from -80dBu to -50dBu.

By rotating “PM1” encoder, user can enter into the setting interface 2 of the noise gate:

```
In-A   In-A   N.Gate
->Rel=10ms Atk=3ms
```

By using “PM2” encoder, user can set noise gate release time: from 10ms to 1000ms, and using “PM3” encoder to set noise gate attack time: from 1ms to 1000ms.

**Gain page** – from this screen it is possible to set the Input Channels Level from -18dB to +12dB, press “ENTER” button, an arrow will appear on the left of the screen “->” then use the “PM2” or “PM3” to set parameters.

The value set on this screen will only affect the input level of the selected Channel A.

The following is an example screen for the “Gain” page that has set the Gain of Input Channel A to +0.0dB:

```
In-A   In-A   Gain
-> Gain = + 0.0dB
```

**Delay page** – from this page it is possible to set the Input Channels Delay Time from 000.0000mS up to 480.9984mS, by steps of 1mS or 10.4uS.

To set the Delay time press ENTER, an arrow will appear on the left of the screen “->”. then use the “PM2” encoder to set the Delay Time in steps of 1mS and the “PM3” for setting the “fine” Delay Time in steps of 10.4 microseconds.

The following is an example screen for the “Delay” page where the Delay Time of Input Channel A is set to 160.1872mS:

```
In-A   In-A   Delay
-> Delay = 160.1872mS
```

**Phase page**– from this page, it is possible to set input channels phase as “Normal” or “Invert”. The following is an example screen of “Normal” Phase:

```
In-A   In-A   Phase
Phase = Normal
```

By pressing ENTER button in this page, an arrow will appear on the left of the screen “->”. then use the “PM2” or “PM3” encoder for setting “Normal” or “Invert” Phase.

**RMS Cmp page**– from this page, it is possible to set RMS Compressor for input channels. RMS Compressor can be set as “ON” or “OFF” status. The following is an example screen of “ON” status:

```
In-A:   In-A   RMS Cmp
      Bypass = On
```

By pressing ENTER in this page, an arrow will appear on the left of the screen “->”. Then enter into the setting interface 1 of RMS Compressor.

```
In-A   In-A   RMS Cmp
->Bypass =   On
```

RMS compressor status can be set as “ON” or “OFF” by using “PM2” or “PM3” encoder.

By rotating “PM1” encoder, user can enter into setting interface 2 of RMS Compressor:

```
In-A   In-A   RMS Cmp
->Threshold = +20.0dBu
```

RMS Compressor attack threshold can be set with “PM2” or “PM3” encoder, with its range from -10dBu to +20dBu.

By rotating “PM1” encoder one more time, user can enter setting interface 3 of RMS Compressor:

```
InputA:  Name   RMS Cmp
      ->Ratio =32:1 Knee =0%
```

RMS Compressor ratio can be set by “PM2” encoder, with its range from 2:1 ~ 32:1. RMS Compressor knee can be set by “PM3” encoder, with its range from 0% ~ 100%.

By rotating “PM1” encoder once again, user can enter setting interface 4 of RMS Compressor:

```
In-A   In-A   RMS Cmp
      ->Rel =0.1sec Atk =5ms
```

RMS Compressor release time can be set by “PM2” encoder, with its selectable range from 0.1s ~ 3s, and its attack time can be set by “PM3” encoder from 5ms ~ 200ms.

By rotating “PM1” encoder, user can enter setting interface 5 of RMS Compressor:

```
In-A   In-A   RMS Cmp
      ->Make-up = 0.0dB
```

By using “PM2” and “PM3” encoder, user can set RMS Compressor make up, from -12dBu to

+12dBu.

**EQ Byp page** – in this page, it is possible to set EQ Bypass of input channels, with its selectable status of "ON" and "OFF". Following is the example screen as Bypass ON:

```
In-A   In-A   EQ Byp
Bypass = On
```

By pressing "ENTER" button in this page, an arrow will appear on the left of the screen "->", then enter setting interface of EQ Bypass:

```
In-A   In-A   EQ Byp
->Bypass=On
```

By using "PM2" or "PM3" encoder, user can set the EQ Bypass as "ON" or "OFF".

**PEQ-[xx] (01to30) page** – In this page, it is possible to set 30 available parametric equalization filters for input channels, with each parametric equalization filters can be selected as BELL, Shevling, High-Pass, Low-Pass, Band-Pass, Notch filter and Allpass.

```
In-A   In-A   PEQ-01
Byp=Off Type=Peaking_Eq
```

When EQ Bypass is set as "OFF", by pressing ENTER in any parametric equalization page, an arrow will appear on the left of the screen "->", then enter setting interface 1 of parametric equalization filter:

```
In-A   In-A   PEQ-01
->Byp=Off Type=Peaking_Eq
```

By using "PM2" encoder, it is possible to set the flat on or off for the current parametric equalization filter. By using "PM3" encoder, user can set the current parametric equalization filter's type, selectable as **Peaking\_Eq/ Hi -Shelv 1/ Hi -Shelv 2/ Hi -Shelv Q/ Lo-Shelv 1/ Lo-Shelv 2/Lo-Shelv Q/ Low-Pass 1/ Low-Pass 2/Low-Pass Q/High-Pass1/ High-Pass2/High-Pass Q/Band-Pass/ Notch Filt/ All Pass 1/ All Pass 2**

When the parametric equalization filter is selected as Peaking Eq, by rotaing "PM1" encoder again, user can enter the setting interface 2 of current input parametric equalization filter:

```
In-A   In-A   PEQ-01
->Frequency = 20Hz
```

By using "PM2" or "PM3" encoder, it is possible to set current input PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotaing "PM1" encoder again, user can enter the setting interface 3 of current input parametric equalization filter:

In-A	In-A	PEQ-01
->Gain=0.0dB		Q=0.40

By using "PM2" encoder, user can set the gain of current parametric equalization filter from -15dB to +15dB, and by using "PM3" encoder, it is possible to set the Q factor of current parametric equalization filter from 0.4 to 128.

When the parametric equalization filter is selected as Hi-Shelv 1/ Hi-Shelv 2/ Lo-Shelv 1/ Lo-Shelv 2, by rotating "PM1" encoder again, user can enter the setting interface 4 of current input parametric equalization filter:

In-A	In-A	PEQ-01
->Frequency = 20Hz		

By using "PM2" or "PM3" encoder, it is possible to set current input PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotating "PM1" encoder again, user can enter the setting interface 5 of current input parametric equalization filter:

In-A	In-A	PEQ-01
->Gain=0.0dB		Q=Fixed

By using "PM2" or "PM3" encoder, user can set the gain of current parametric equalization filter from -15dB to +15dB.

When the parametric equalization filter is selected as Hi-Shelv Q/ Lo-Shelv Q, by rotating "PM1" encoder, user can enter the setting interface 6 of current input parametric equalization filter:

In-A	In-A	PEQ-01
->Frequency = 20Hz		

By using "PM2" or "PM3" encoder, it is possible to set current input PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotating "PM1" encoder again, user can enter the setting interface 7 of current input parametric equalization filter:

In-A	In-A	PEQ-01
->Gain=0.0dB		Q=0.1

By using "PM2" encoder, user can set the gain of current parametric equalization filter from -15dB to +15dB, and by using "PM3" encoder, it is possible to set the Q factor of current parametric equalization filter from 0.1 to 5.1.

When the parametric equalization filter is selected as Low-Pass 1/ Low-Pass 2/ High-Pass 1/ High-Pass 2, by rotating "PM1" encoder, user can enter the setting interface 8 of current input parametric equalization filter:

In-A In-A PEQ-01  
->Frequency = 20Hz

By using "PM2" or "PM3" encoder, it is possible to set current input PEQ filter's frequency from the range of 20Hz to 20kHz.

When the parametric equalization filter is selected as Low-Pass Q/ High-Pass Q, by rotating "PM1" encoder, user can enter the setting interface 9 of current input parametric equalization filter:

In-A In-A PEQ-01  
->Frequency = 20Hz

By using "PM2" or "PM3" encoder, it is possible to set current input PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotating "PM1" encoder again, user can enter the setting interface 10 of current input parametric equalization filter:

In-A In-A PEQ-01  
->Gain=Fixed Q=0.1

By using "PM2" or "PM3" encoder, it is possible to set the Q factor of current parametric equalization filter from 0.1 to 5.1.

When the parametric equalization filter is selected as Band-Pass, by rotating "PM1" encoder, user can enter the setting interface 11 of current input parametric equalization filter:

In-A In-A PEQ-01  
->Frequency = 20Hz

By using "PM2" or "PM3" encoder, it is possible to set current input PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotating "PM1" encoder again, user can enter the setting interface 12 of current input parametric equalization filter:

In-A In-A PEQ-01  
->Gain=0.0dB Q=4

By using "PM2" encoder, user can set the gain of current parametric equalization filter from -15dB to +15dB, and by using "PM3" encoder, it is possible to set the Q factor of current parametric equalization filter from 4 to 104.

When the parametric equalization filter is selected as Notch Filt, by rotating "PM1" encoder, user can enter the setting interface 13 of current input parametric equalization filter:

In-A In-A PEQ-01  
->Frequency = 20Hz



By using "PM2" or "PM3" encoder, it is possible to set current input PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotating "PM1" encoder again, user can enter the setting interface 14 of current input parametric equalization filter:

In-A	In-A	PEQ-01
->Gain=Fixed		Q=4

By using "PM2" or "PM3" encoder, it is possible to set the Q factor of current parametric equalization filter from 4 to 104.

When the parametric equalization filter is selected as All Pass 1, by rotating "PM1" encoder, user can enter the setting interface 15 of current input parametric equalization filter:

In-A	In-A	PEQ-01
->Frequency = 20Hz		

By using "PM2" or "PM3" encoder, it is possible to set current input PEQ filter's frequency from the range of 20Hz to 20kHz.

When the parametric equalization filter is selected as All Pass 2, by rotating "PM1" encoder, user can enter the setting interface 16 of current input parametric equalization filter:

In-A	In-A	PEQ-01
->Frequency = 20Hz		

By using "PM2" or "PM3" encoder, it is possible to set current input PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotating "PM1" encoder again, user can enter the setting interface 17 of current input parametric equalization filter:

In-A	In-A	PEQ-01
->Gain=Fixed		Q=4

By using "PM2" or "PM3" encoder, it is possible to set the Q factor of current parametric equalization filter from 4 to 104.

**Note 1:** If selected the desired options by using 3 encoders, the option would be set as a current one for the unit automatically, and will be stored in the DSP48 system when you exit the page.

**Note 2:** By pressing "ESC" button, you can exit the page any time.

- **Menu "Output 1/2/3/4/5/6/7/8" Output Channels Editing [access by pushing the "1/2/3/4/5/6/7/8" buttons]**

From the "Default Screen", it is possible to access the "Output 1/2/3/4/5/6/7/8" menu by pressing the "1" or "2" or "3" or "4" or "5" or "6" or "7" or "8" button. Once pressed, the related blue "EDIT" LED will turn ON.

The Sub-Menus pages can now be scrolled through by rotating clockwise and counter-clockwise the "PM1" encoder.

For parameter editing it is necessary to press ENTER and an arrow will appear on the left of the screen "->". Then use the "PM2" and "PM3" encoders for selecting and setting the parameter values. On some parameters that have three independent values, you will also need to use the PM1 encoder, for example for the filter's parameter setting.

**Note:** All parameter editing can be done using the "PM1", "PM2", and "PM3" encoders and the current shown value of the selected option is AUTOMATICALLY loaded during the encoders' use and stored as the current value once leaving the page.

### **Audio Signal Output (1/2/3/4/5/6/7/8)**

**Name page** – from this screen, it is possible to assign output channel a name with 6 characters. For example, name the Output 1 as "Low" in the Name Page:

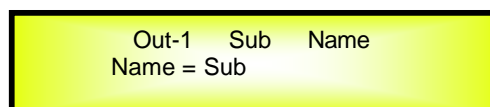


By pressing ENTER in the Name page, user can edit the name, and there will be an arrow, as the following screen shows:



The first character will flash.

Select character from these 6 positions by using "PM2" encoder and choose the desired characters by rotating "PM3" encoder. Once the new name is defined, for example, "Sub", confirm this new name by pressing ENTER... A new name will display on the screen, after replaced the old one. The following screen is shown with the new name "Sub", by replacing the previous one "Low"



**Routing page** – in this page, it is possible to assign input "A/B/C/D" to any output channel:



By pressing "ENTER" button, an arrow will appear on the left of the screen "->". By using "PM1" encoder, user can set the input value for INPUT A/B/C/D. By using the "PM2" encoder, user can choose level of INPUT A to any output channel, from -30dB to 0dB. By using "PM3" encoder, user can choose "ON" or "OFF" the INPUT A to any output channel.



**Gain page** – from this screen it is possible to set the Output Channels Level from -18dB to +12dB, press "ENTER" button an arrow will appear on the left of the screen "->" then use the "PM2" or "PM3" to set parameters.

The value set on this screen will only affect the output level of the selected Channel 1/2/3/4/5/6/7/8.

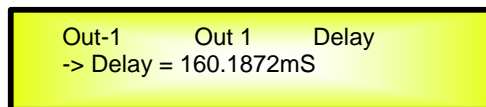
The following is an example screen for the "Gain" page that has set the Gain of Output Channel 1 to +0.0dB:



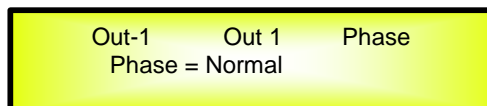
**Delay page** – from this page it is possible to set the Output Channels Delay Time from 000.0000mS up to 848.9984mS, by steps of 1mS or 10.4us.

To set the Delay time press "ENTER" button, an arrow will appear on the left of the screen "->". then use the "PM2" encoder to set the Delay Time in steps of 1mS and the "PM3" for setting the "fine" Delay Time in steps of 10.4 microseconds.

The following is an example screen for the "Delay" page where the Delay Time of Output Channel 1 is set to 160.1872mS:

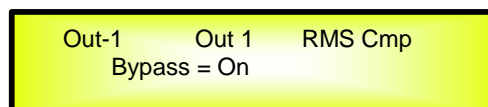


**Phase page**– from this page, it is possible to set output channels phase as "Normal" or "Invert". The following is an example screen of "Normal" Phase:

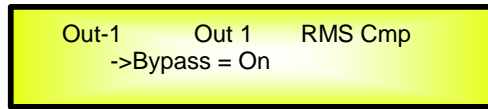


By pressing "ENTER" button in this page, an arrow will appear on the left of the screen "->". then use the "PM2" or "PM3" encoder for setting "Normal" or "Invert" Phase.

**RMS Cmp page** – from this page it is possible to set the Output Channels RMS Compressor. RMS Compressor can be set as "ON" or "OFF". The following is an example screen for the RMS Compressor page where it is ON:

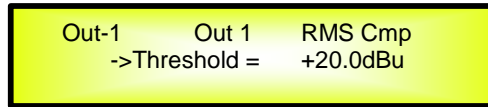


By pressing ENTER in this page, an arrow will appear on the left of the screen “->”, then enter into the setting interface 1 of RMS Comp:



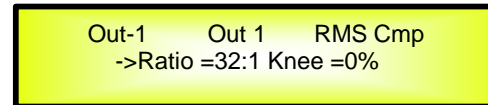
By using “PM2” or “PM3” encoder, it is possible to set the RMS Comp as “ON” or “OFF”.

By rotating “PM1” encoder, will enter into the setting interface 2 of RMS Comp.



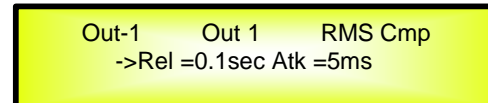
By using “PM2” and “PM3” encoder, user can set limiter attack threshold, with its range from -10dBu to +20dBu.

By rotating “PM1” encoder again, it will enter setting interface 3 of RMS Comp.:



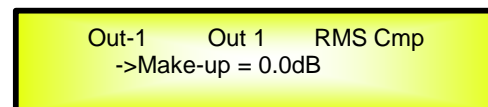
User can set RMS Cmp’s ratio by using “PM2” encoder from 2:1~32:1. With “PM3” encoder, it is possible to set RMS Cmp’s knee from 0% ~ 100%.

By rotating “PM1” encoder, will enter into the setting interface 4 of RMS Comp.:



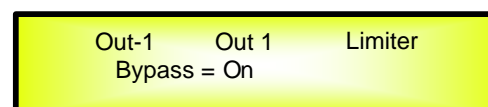
User can set RMS Cmp’s release time from 0.1 sec to 3 sec by using “PM2” encoder, and set its attack time by using “PM3” from 5ms to 200ms.

By rotating “PM1” encoder, will enter into the setting interface 5 of RMS Comp.:



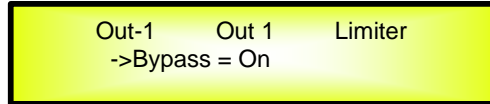
By using “PM2” and “PM3” encoders, user can set the RMS Cmp’s make up from -12dBu to +12dBu.

**Limiter page** – from this page it is possible to set the Output Channels Limiter. Limiter can be set as “ON” or “OFF”. The following is an example screen for the Limiter page where it is ON:



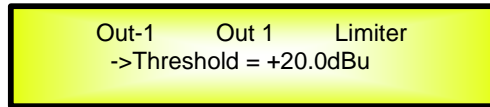
By pressing ENTER in this page, an arrow will appear on the left of the screen “->”, then enter

into the setting interface 1 of limiter:



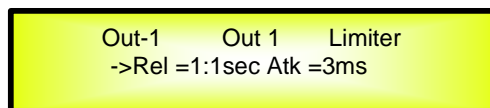
By using "PM2" or "PM3" encoder, it is possible to set the limiter as "ON" or "OFF".

By rotating "PM1" encoder, will enter into the setting interface 2 of limiter:



By using "PM2" and "PM3" encoder, user can set limiter attack threshold, with its range from -10dBu to +20dBu.

By rotating "PM1" encoder again, it will enter setting interface 3 of limiter:

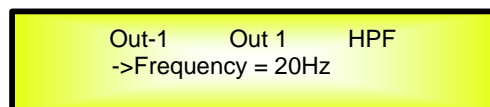


User can set limiter's release time from 0.1 sec to 5 sec by using "PM2" encoder, and set its attack time by using "PM3" from 1ms to 900ms.

**HPF page** – in this page, it is possible to set the High-Pass filter of output channels:

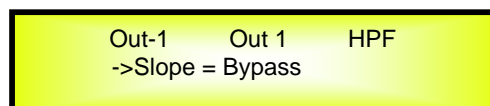


By pressing ENTER button in this page, an arrow will appear on the left of the screen "->", then enter into the setting interface 1 of High-Pass filter:



By using "PM2" or "PM3" encoder, it is possible to set output channels' High-Pass filter frequency from 20Hz to 20kHz.

By rotating "PM1" encoder, it will enter setting interface 2 of High-Pass filter:



By using "PM2" or "PM3" encoder, it is possible to set the High-Pass filter's shape and order of the output High-Pass filter. Following is the available shape and order of the High-Pass filter: **Bypass/ BW -6 dB/Oct / BW -12 dB/Oct / LR -12 dB/Oct / BS -12 dB/Oct / BW -18 dB/Oct / BW -24 dB/Oct / LR -24 dB/Oct / BS -24 dB/Oct / BW -36 dB/Oct / LR-36 dB/Oct / BW -48 dB/Oct / LR-48 dB/Oct /**

**LPF page** – in this page, it is possible to set the Low-Pass filter of output channels:

```
Out-1    Out 1    LPF
F= 20Hz    Bypass
```

By pressing ENTER in this page, an arrow will appear on the left of the screen “->”, then enter into the setting interface 1 of Low-Pass filter:

```
Out-1    Out 1    LPF
->Frequency = 20Hz
```

By using “PM2” or “PM3” encoder, it is possible to set output channels’ Low-Pass filter frequency from 20Hz to 20kHz.

By rotating “PM1” encoder, it will enter setting interface 2 of Low-Pass filter:

```
Out-1    Out 1    LPF
->Slope = Bypass
```

By using “PM2” or “PM3” encoder, it is possible to set the Low-Pass filter’s shape and order of the output Low-Pass filter. Following is the available shape and order of the Low-Pass filter: **Bypass/ BW -6 dB/Oct / BW -12 dB/Oct / LR -12 dB/Oct / BS -12 dB/Oct / BW -18 dB/Oct / BW -24 dB/Oct / LR -24 dB/Oct / BS -24 dB/Oct / BW -36 dB/Oct / LR-36 dB/Oct / BW -48 dB/Oct / LR-48 dB/Oct /**

**EQ Byp page** – in this page, it is possible to set EQ Bypass of output channels, with its selectable status of “ON” and “OFF”. Following is the example screen as Bypass ON:

```
Out-1    Out 1    EQ Byp
Bypass = On
```

By pressing ENTER in this page, an arrow will appear on the left of the screen “->”, then enter setting interface of EQ Bypass:

```
Out-1    Out 1    EQ Byp
->Bypass=On
```

By using “PM2” or “PM3” encoder, user can set the EQ Bypass as “ON” or “OFF”.

**PEQ-[xx] (01to11) page** – In this page, it is possible to set 11 available parametric equalization filters for output channels, with each parametric equalization filters can be selected as BELL, Shevling, High-Pass, Low-Pass, Band-Pass, Notch filter and All Pass Filter.

```
Out-1    Out 1    PEQ-01
Byp=Off Type=Peaking_Eq
```

When EQ Bypass is set as "OFF", by pressing ENTER button in any parametric equalization page, an arrow will appear on the left of the screen "->", then enter setting interface 1 of parametric equalization filter:

```
Out-1    Out 1    PEQ-01
->Byp=Off Type=Peaking_Eq
```

By using "PM2" encoder, it is possible to set the flat on or off for the current parametric equalization filter. By using "PM3" encoder, user can set the current parametric equalization filter's type, selectable as **Peaking\_Eq/ Hi -Shelv 1/ Hi -Shelv 2/ Hi -Shelv Q/ Lo-Shelv 1/ Lo-Shelv 2/Lo-Shelv Q/ Low-Pass 1/ Low-Pass 2/Low-Pass Q/High-Pass1/ High-Pass2/High-Pass Q/Band-Pass/ Notch Filt/ All Pass 1/ All Pass 2**

When the parametric equalization filter type is selected as Peaking\_Eq, by rotaing "PM1" encoder again, user can enter the setting interface 2 of current output parametric equalization filter:

```
Out-1    Out 1    PEQ-01
->Frequency = 20Hz
```

By using "PM2" or "PM3" encoder, it is possible to set current output PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotaing "PM1" encoder again, user can enter the setting interface 3 of current input parametric equalization filter:

```
Out-1    Out 1    PEQ-01
->Gain=0.0dB    Q=0.40
```

By using "PM2" encoder, user can set the gain of current parametric equalization filter from -15dB to +15dB, and by using "PM3" encoder, it is possible to set the Q factor of current parametric equalization filter from 0.4 to 128.

When the parametric equalization filter type is selected as Hi-Shelv 1/ Hi-Shelv 2/ Lo-Shelv 1/ Lo-Shelv 2, by rotaing "PM1" encoder again, user can enter the setting interface 4 of current output parametric equalization filter:

```
Out-1    Out 1    PEQ-01
->Frequency = 20Hz
```

By using "PM2" or "PM3" encoder, it is possible to set current output PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotaing "PM1" encoder again, user can enter the setting interface 5 of current input parametric equalization filter:

```
Out-1    Out 1    PEQ-01
->Gain=0.0dB    Q=Fixed
```

By using "PM2" or "PM3" encoder, user can set the gain of current parametric equalization filter

from -15dB to +15dB.

When the parametric equalization filter type is selected as Hi-Shelv Q/ Lo-Shelv Q, by rotating "PM1" encoder again, user can enter the setting interface 6 of current output parametric equalization filter:

Out-1	Out 1	PEQ-01
->Frequency = 20Hz		

By using "PM2" or "PM3" encoder, it is possible to set current output PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotating "PM1" encoder again, user can enter the setting interface 7 of current input parametric equalization filter:

Out-1	Out 1	PEQ-01
->Gain=0.0dB		Q=0.1

By using "PM2" encoder, user can set the gain of current parametric equalization filter from -15dB to +15dB, and by using "PM3" encoder, it is possible to set the Q factor of current parametric equalization filter from 0.1 to 5.1.

When the parametric equalization filter type is selected as Low-Pass 1/ Low-Pass 2/ High-Pass 1/ High-Pass 2, by rotating "PM1" encoder again, user can enter the setting interface 8 of current output parametric equalization filter:

Out-1	Out 1	PEQ-01
->Frequency = 20Hz		

By using "PM2" or "PM3" encoder, it is possible to set current output PEQ filter's frequency from the range of 20Hz to 20kHz.

When the parametric equalization filter type is selected as Low-Pass Q/ High-Pass Q, by rotating "PM1" encoder again, user can enter the setting interface 9 of current output parametric equalization filter:

Out-1	Out 1	PEQ-01
->Frequency = 20Hz		

By using "PM2" or "PM3" encoder, it is possible to set current output PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotating "PM1" encoder again, user can enter the setting interface 10 of current input parametric equalization filter:

Out-1	Out 1	PEQ-01
->Gain=Fixed		Q=0.1

By using "PM2" or "PM3" encoder, it is possible to set the Q factor of current parametric equalization filter from 0.1 to 5.1.



When the parametric equalization filter type is selected as Band-Pass Q, by rotating "PM1" encoder, user can enter the setting interface 11 of current output parametric equalization filter:

Out-1	Out 1	PEQ-01
->Frequency = 20Hz		

By using "PM2" or "PM3" encoder, it is possible to set current output PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotating "PM1" encoder again, user can enter the setting interface 12 of current input parametric equalization filter:

Out-1	Out 1	PEQ-01
->Gain=0.0dB		Q=4

By using "PM2", it is possible to set the gain of current parametric equalization filter from -15dB to +15dB. By using "PM3" encoder, it is possible to set the Q factor of current parametric equalization filter from 4 to 104.

When the parametric equalization filter type is selected as Notch Filt, by rotating "PM1" encoder, user can enter the setting interface 13 of current output parametric equalization filter:

Out-1	Out 1	PEQ-01
->Frequency = 20Hz		

By using "PM2" or "PM3" encoder, it is possible to set current output PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotating "PM1" encoder again, user can enter the setting interface 14 of current input parametric equalization filter:

Out-1	Out 1	PEQ-01
->Gain=Fixed		Q=4

By using "PM2" or "PM3" encoder, it is possible to set the Q factor of current parametric equalization filter from 4 to 104.

When the parametric equalization filter is selected as All Pass 1, by rotating "PM1" encoder, user can enter the setting interface 15 of current input parametric equalization filter:

Out-1	Out 1	PEQ-01
->Frequency = 20Hz		

By using "PM2" or "PM3" encoder, it is possible to set current input PEQ filter's frequency from the range of 20Hz to 20kHz.

When the parametric equalization filter is selected as All Pass 2, by rotating "PM1" encoder, user can enter the setting interface 16 of current input parametric equalization filter:

Out-1      Out 1      PEQ-01  
->Frequency = 20Hz

By using "PM2" or "PM3" encoder, it is possible to set current input PEQ filter's frequency from the range of 20Hz to 20kHz.

By rotating "PM1" encoder again, user can enter the setting interface 17 of current input parametric equalization filter:

Out-1      Out 1      PEQ-01  
->Gain=Fixed      Q=4

By using "PM2" or "PM3" encoder, it is possible to set the Q factor of current parametric equalization filter from 4 to 104.

**Note 1:** After selected the desired choice with 3 encoders, the choice would be set as the current one for the unit automatically, and would be stored in the DSP48 system when user quits this page.

**Note 2:** By pressing "ESC" to quit this page.

- **Input and Output Channels Last Edited Parameter Return Function**

Once you have escaped out of parameter editing within the individual Input or Output channels the DSP48 will remember this last editing action on that Channel. When you return for your next editing action pressing the EDIT button on that channel will immediately return you to the screen related to this last editing action.

This function makes fine tuning or modifying easier when it is necessary to make a number of adjustments to the same parameter in a short time sequence.

- **Input Channels and output Channels LINK Function**

The DSP48 is able to perform a unique LINK MODE between Input Channels as well as a link between Output Channels to enable quick and immediate editing (you cannot link output to input channels).

To link channels when editing, you will need to select a "Master" channel that will be the one to be edited and have it's parameters displayed on the LCD screen. You can then select and link other channels (Slaves) that you wish to apply the same changes to.

To enter a link mode session, select the Master channel Edit mode, then link the Slaves by pressing their related Edit buttons.

All Linked channels will be selected ready for adjustment when their "Blue" LED is lit in the Editing mode.

Now all Slave channels and only those selected will modify their parameters accordingly as you edit the Master channel.

All other existing parameters will stay the same within the Slave Channels unless edited by this link with the Master channel.

**Note:** The LINK function is NOT a COPY function.

If we want to edit the limiter of the Output channels 1/3/5, we can enter the editing mode of Output Channel 1 by pressing the related Edit button and turning on the Blue LED below the Output Channel 1 LED meters. This assigns the "role" of Master and displays this channel's parameters on the LCD:

Output1: Name Limiter ->Rel =1:1sec Atk =3ms
---

Then press the Edit button of Output Channels 1/3/5, turning on their related "Blue" LED's. Now all parameters edited on Output Channel 1, will also be applied to channels 3 and 5.

If we want to remove one of the linked channels from the Link, press the related Edit button.

Exiting the editing of the Master channel during a Link session will automatically terminate that session. The Link will also be automatically terminated if, during the editing of Output Channels you jump across to begin editing an Input channel or vice versa.

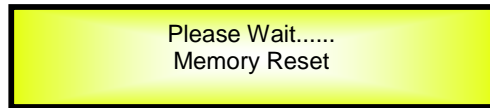
- **Factory Reset**

In the event of the password being lost or any other reason the user may require the unit to be reset to the original factory settings, a "Factory Reset" that will clear all settings of the DSP48 and return the device to the original factory setting, is available to the user.

**Note:** Continuing with this process will mean the DSP48 will re-initialize to the original factory settings and any previously stored information and changed parameters will be permanently lost.

– **Use the following procedure to perform the factory reset:**

1. While the DSP48 is switched OFF, simultaneously press the ENTER+ESC+UTILITY buttons on the front panel.
2. Maintain pressure on all three buttons as you turn the power switch to On and the following LCD screen appears on the DSP48:



3. Release the buttons and wait for the DSP48 to re-initialize.

Once completed, the DSP48 will resume regular operation as though it was a new unit from the factory and no previously programmed parameters will be available for use.

## Guidence of Connecting DSP48 with Unit through TCP/IP

Connection Premier Condition:

DSP48 and PC already installed the DSP48 PC software

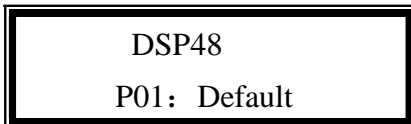
Finished product of reticle, follow standard of 568A or 568B, suggest use 568B.

Note: This unit has 3 choice to connect to the PC: USB, RS485 and TCP/IP. The default of DSP48 is USB connection.

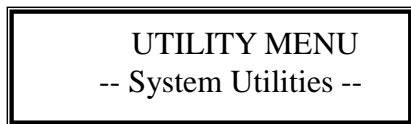
Connection Procedure:

1. Set the way of connecting DSP48 and PC.

1.1 Power on DSP48, wait its LCD display as the following.



Click the "UTILITY" button, showing the first class content of the primary menu; please refer to the following picture:



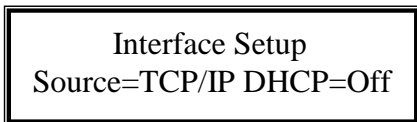
Rotate "PM1" encoder to change the primary menu as the following content:



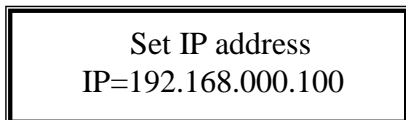
1.2 push "ENTER" button, LCD shows as the below display, reflecting the way how unit is connected with computer



Rotate "PM2" and "PM3" encoder to change the interface as to the following display:



push "ENTER" button to show the current IP address of DSP48, as the following display:



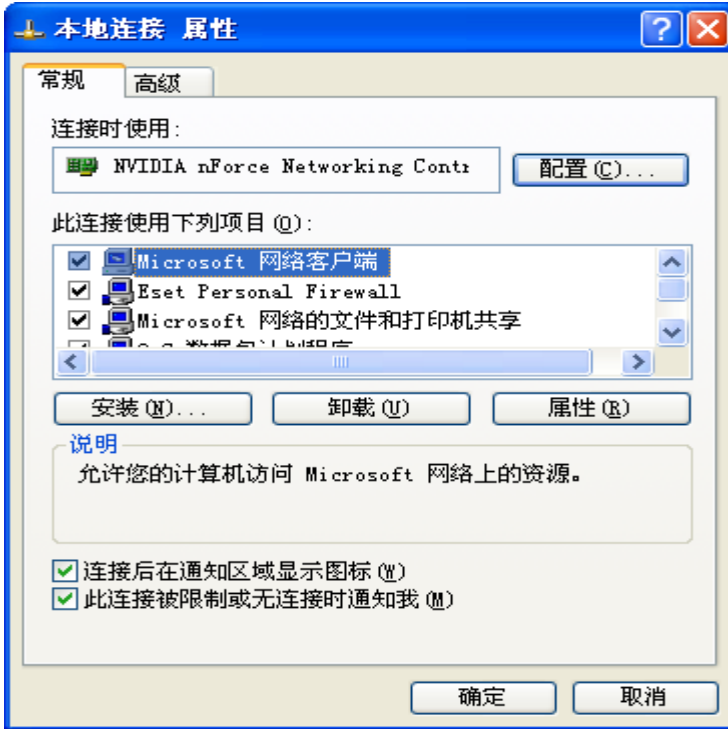
Rotate "PM2" encoder to edit the IP value. By using "PM3" encoder can change the IP address for this unit.

**NOTE:** Only when DHCP is off can user set the IP address of the unit. If DHCP is ON, need to push the "ENTER" button until the unit notify that the DHCP is activated, that the IP address of DSP48

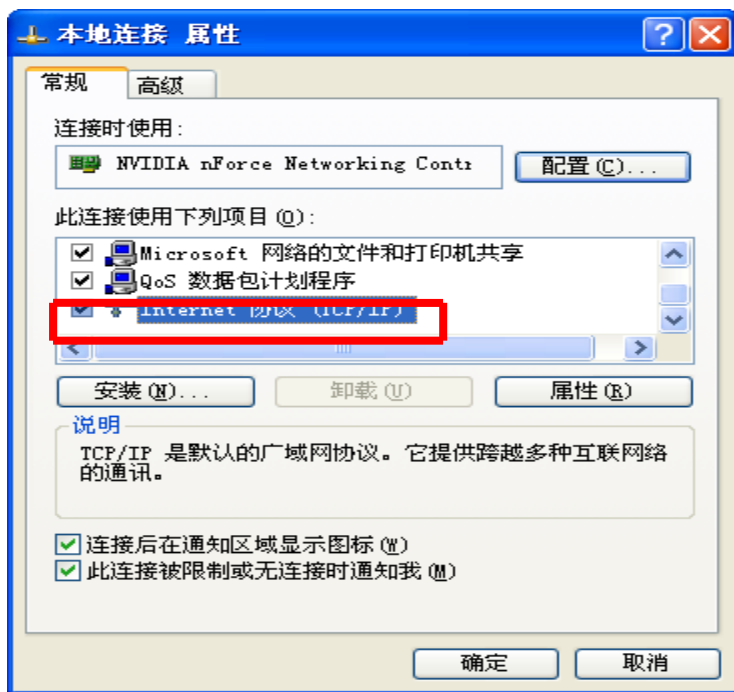
need to capture from the router in its connected network.

2. Set the connection condition of PC (take XP for example)

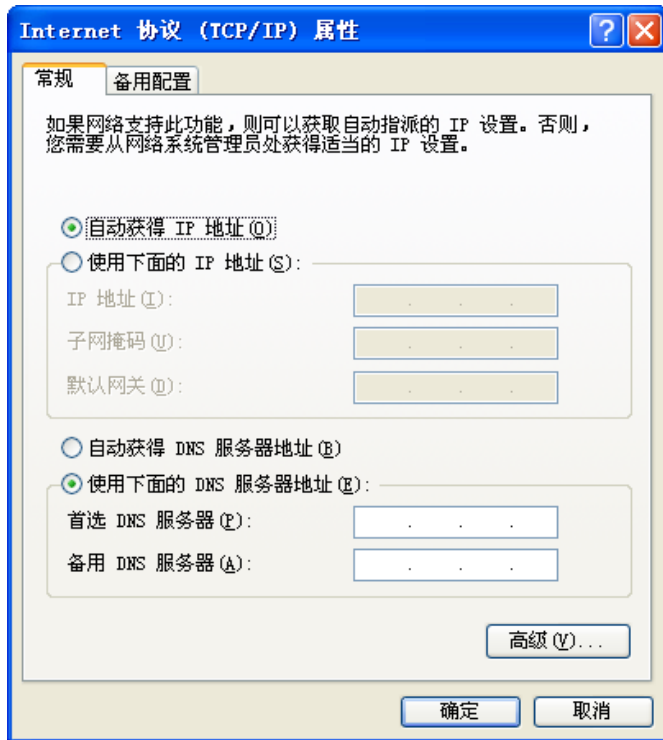
Enter the PC's "controlling Pannel" → "network coonect" → "local", open the dialogue box of " Local attribute", please refer to the following picture:



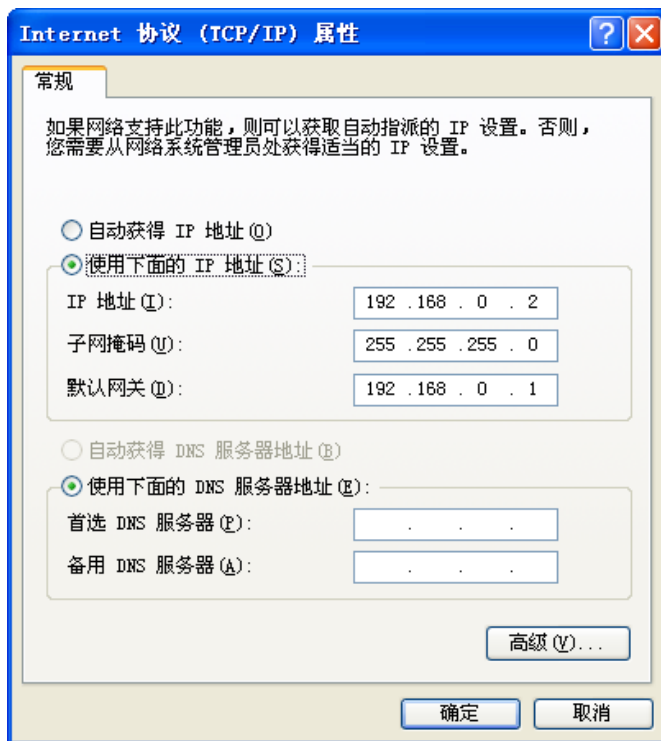
Select "Internet Protocol (TCP/IP)" in " use the following subjects under this connection(0)", and click the attribute bottom, marked in the red envelop in below image:



Open the dialogue box of “Internet agreement (TCP/IP) attribute” as the following Fig 1,  
Fig: 1



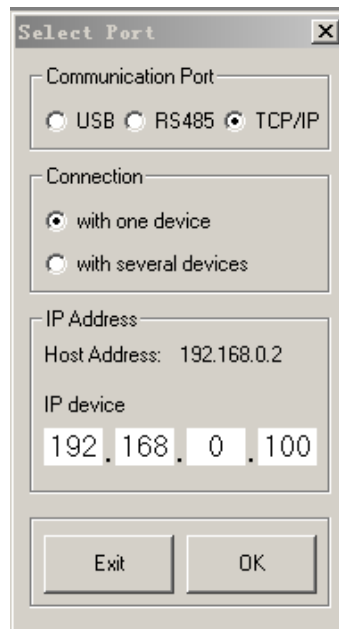
Change its value as what Fig 2 shows:  
Fig:2

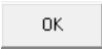


### 3. Connect DSP48 with computer

Power on DSP48, use reticle to connect DSP48 with PC. Initiate the PC software, set “communication port” to “TCP/IP” in the dialogue box. Then set “connection” to “with one device” (if there are more than one units, set it as “with several devices”).

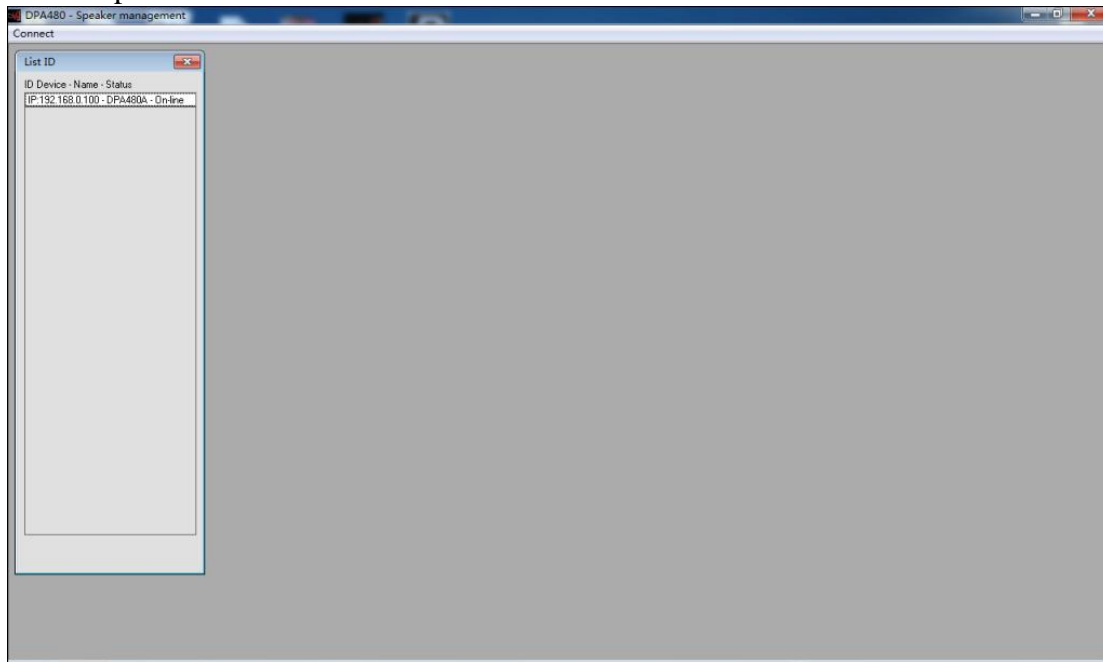
Later set the “IP address” display the set PC IP: “Host Address: 192.168.0.2”. Set the “IP device” same as the IP address of the DSP48. Note that in the example, the IP address of DSP48 is set as 192.168.0.100, so the “IP address” shall be set as 192.168.0.100, please refer to the following picture:



Click the  in the above image, will show the following interface, which means that the DSP48 already connected to the PC via reticle, the connection between this unit and the PC by



TCP/IP completes.



- **DSP48 Technical Specifications**

The DSP48 is based on a powerful analog and digital DSP platform having the following specifications



Analog Input Signal:	ChA/ChB/ChC/ChD	Bal. Female XLR
Maximum Input Level:	+20dBu	
Analog Output Signal:	Ch1/Ch2/Ch3/Ch4/Ch5/Ch6/Ch7/Ch8	Bal. Male XLR
Maximum Output Level:	+20dBu	
Sampling Frequency:	96kHz	
S/N:	110dB	
THD+N:	0.005%	
Frequency Response (Bypass):	20Hz – 20kHz	(+/- 1 dB)
Power Supply:	Switching Power Supply	
Remote Control:	USB, RS485, TCP/IP	