User's Manual

DIGITAL PROCESSOR
AUDIO MATRIX PROCESSOR
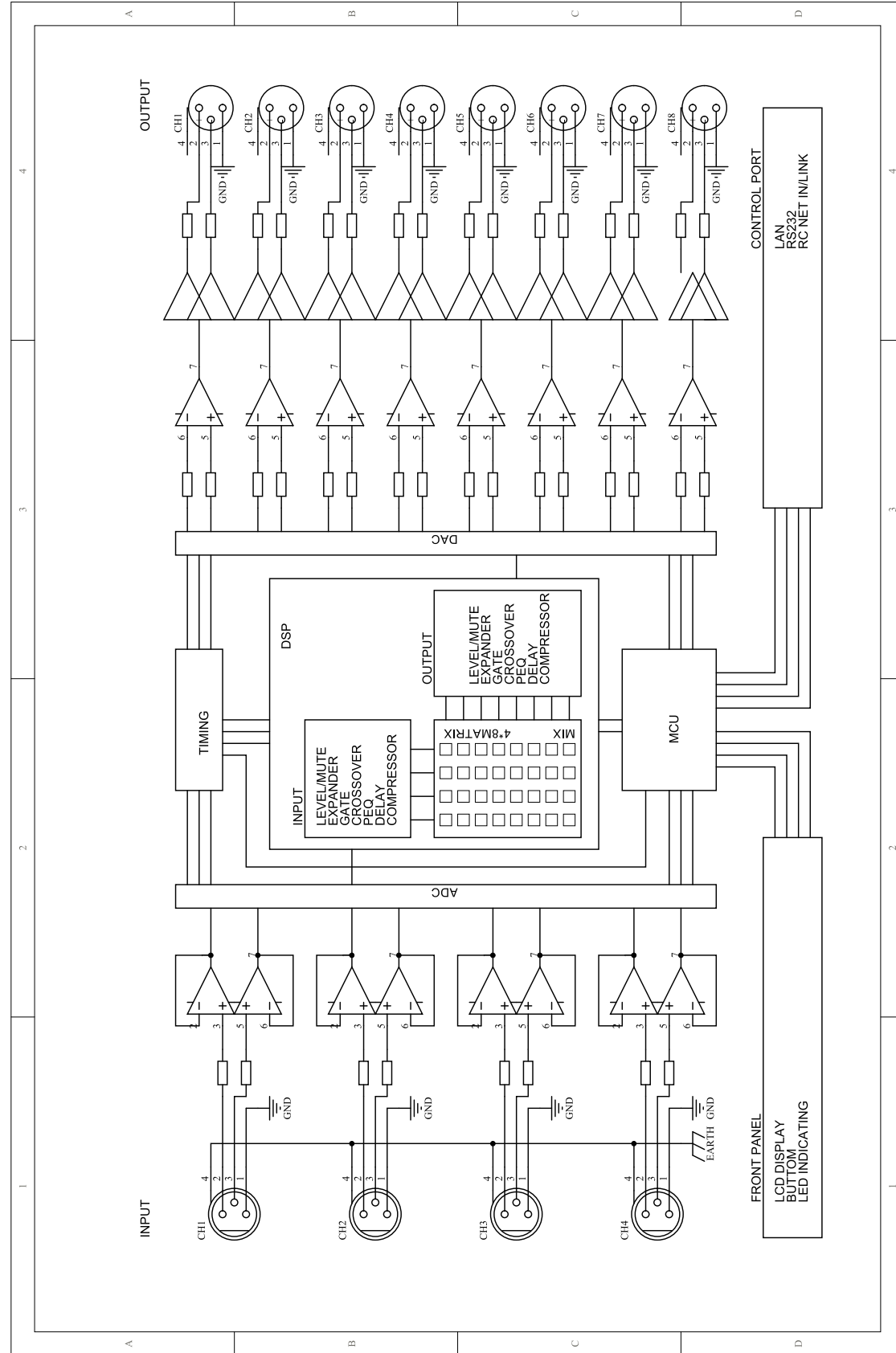
Important Safety Instructions

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

TO REDUCE THE RISK OF ELECTRIC SHOCK PLEASE DO NOT REMOVE THE COVER OR THE BACK PANEL OF THIS EQUIPMENT.
THERE ARE NO PARTS NEEDED BY USER INSIDE THE EQUIPMENT. FOR SERVICE, PLEASE CONTACT QUALIFIED SERVICE CENTERS.

This symbol, wherever used, alerts you to the resence of un-insulated and dangerous voltages in the product enclosure. These are voltages that may be sufficient to constitute the risk of electric shock or death.

This symbol, wherever used, alerts you to important operating and maintenance instructions. Please read.

Protective Ground Terminal

AC mains (Alternating Current)

Hazardous Live Terminal

ON: Denotes the product is turned on.

OFF: Denotes the product is turned off.

CAUTION
Describes precautions that should be observed to prevent damage to the product.

1. Read this Manual carefully before operation.

2. Keep this Manual in a safe place.

3. Be aware of all wamings reported with this symbol.

4. Keep this Equipment away from water and moisture.

5. Clean it only with dry doth. Do not use solvent or other chemicals.

6. Do not damp or cover any cooling opening. Install the equipment only in accordance with the Manufactu-rer's instructions.

7. Power Cords are designed for your safety. Do not remove Ground connections! If the plug does not fit your AC outlet, seek advice from a qualified electri-cian. Protect the power cord and plug from any physical stress to avoid risk of electric shock. Do ot place heavy objects on the power. This could cause electric shodk or fire.

8. Unplug this equipment when unused for long periods of time or during a storm.

9. Refer all service to qualified service personnel only. Do not perform any servicing other than those instruc-tions contained within the User's Manual.

10. To prevent fire and damage to the product, use only the recommended fuse type as indicated in this manual. Do not short-circuit the fuse holder.

WARNING
To reduce the risk of electric shock and fire, do not expose this equipment to moisture or rain.

Dispose of this product should not be placed in municipal waste and should be separate collection.

Before replacing the fuse, make sure that the product is OFF and disconnected from the AC outlet.

11. Move this Equipment only with a cart, stand, tripod, or bracket, specified by the manufacturer, or sold with the Equipment. When a cart is used, use caution when moving the cart/equipment combination to avoid possible injury from tip-over.

12. Permanent hearing loss may be caused by exposure to extremely high noise levels. The US. Government's Occupational Safety and Health Administration (OSHA) has specified the permissible exposure to noise level. These are shown in the following chart:

Hours x day	SPL	Example
8	90	Small gig
6	92	Train
4	95	Subway train
3	97	High level desktop monitors
2	100	Classic music concert
1.5	102	
1	105	
0.5	110	
0.25 or less	115	Rock Concert

According to OSHA, an exposure to high SPL in excess of these limits may result in the loss of heat. To avoid the potential damage of heat, it is recommended that Personnel exposed to equipment capable of generating high SPL use hearing protection while such equipment is under operation.

The apparatus shall be connected to a mains socket outlet with a protective earthing connection.

The mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

Notes

11 Block Diagram

Table of Contents

Introduction

The product is an audio matrix processor, with 4 input and 8 output channels, with high-definition LCD to display current status at real time, with network port to expand network devices. It is available for large-scale place, such as theater, broadcast hall, gymnasium and conference center and so on.

Our Professional Audio Products are designed and tested by a highly qualified engineering team with more than 20 years of experience. Great pride & care is placed in delivering products with excellent performance, specifications and dependa ble reliability. Also great emphasis is placed in creating and bringing to market products that can fill multiple applications and also offer customers exceptional values.

Features

- All input channels are equipped with GATE/EXP/CROSSOVER/PEQ/DELAY/COMPRESSOR function.
- All input channels are equipped with Gain/Crossover/PHASE/PEQ/DELAY/COMPRESSOR function.
- 4 in / 8 out audio matrix processor.
- Input and output channels support 4 * 8 matrix combination settings.
- Match with PC and App operation software, which is convenient for user.
- User can on-line update DSP and MCU Firmware via internet.

Usefull Data

Please write your serial number here for future reference.

Serial Number:

Date of Purchase:

Purchased at:

Technical information

Input	Electronically balanced
Frequency Response to Main Output	20Hz~20KHz at 0dBu +1/-3dB
Distortion(THD&N) to Main Output	<0.01% at 0dBu 1KHz
Maximum Input Level	+20dBu
Outputs	
Maximum Output Level	+20dBu
SNR(Signal to Noise Ratio)	108dB
System Crosstalk	
Input to Output	-90dBu
Adjacent Channels	-90dBu
Noise Gate	
Threshold Range	-80dBu - +20dB
Attack time	10mS ~ 150mS
Relesae time	10mS~1S
Ratio	1.0:1 to 10:1
Compressor	
Threshold Range	-30dBu -+20dB
Attack time	10mS ~ 150mS
Relesae time	10mS~1S
Ratio	1:1 to 10:1
Gain	0dBu - +24dB
EQ	
Low (LowPass or LowShelf)	19.7Hz~20.1KHz +/- 18dB
Low Mid	19.7Hz~20.1KHz +/- 18dB
High Mid	19.7Hz~20.1KHz +/- 18dB
High(HighPass or HighShelf)	19.7Hz~20.1KHz +/- 18dB
Impedances	10Kohm
operating free-air temperature range	0~45℃
Power Supply	100-240V~ 50/60Hz
	T1.6AL
	30Wmax

Hookup Diagram

REMOTE CONTROL
THROUGH PC

VOCAL MICS   GUITAR   KEYBOARDS   DRUM

DI BOX
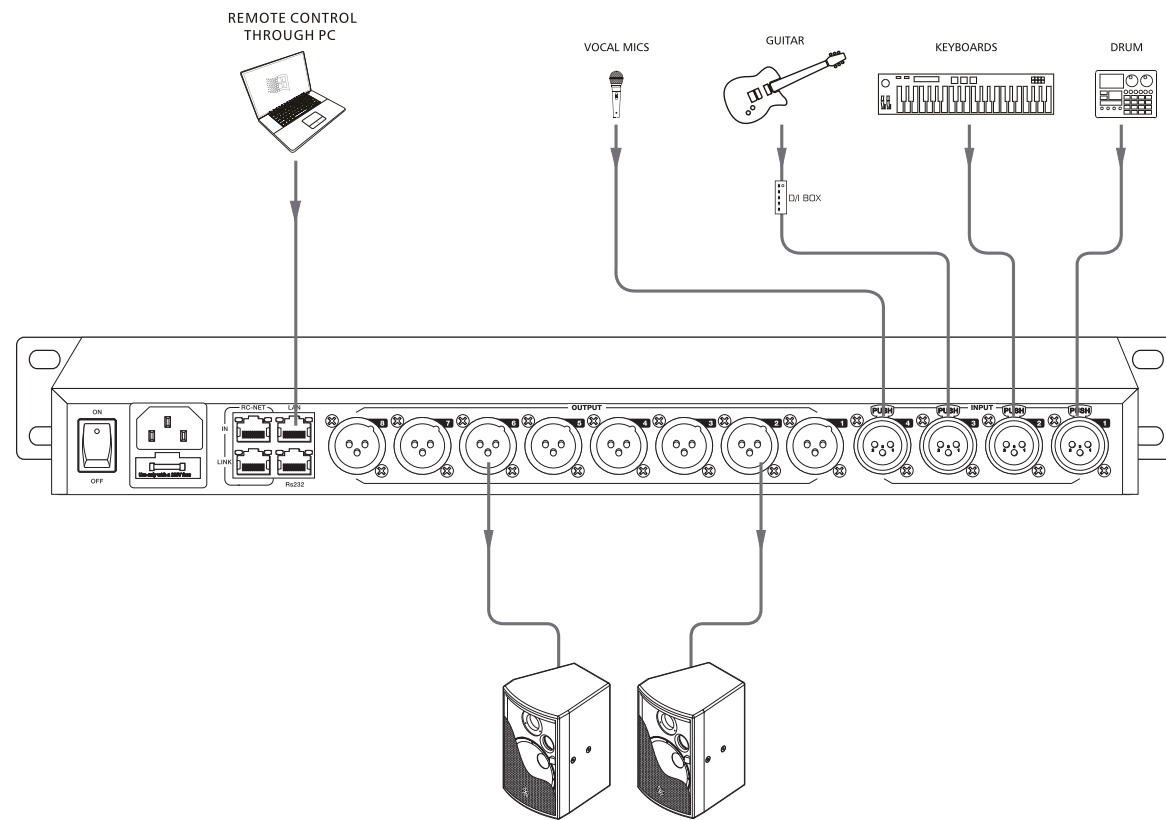
Connections Operations and LED Indicatiors
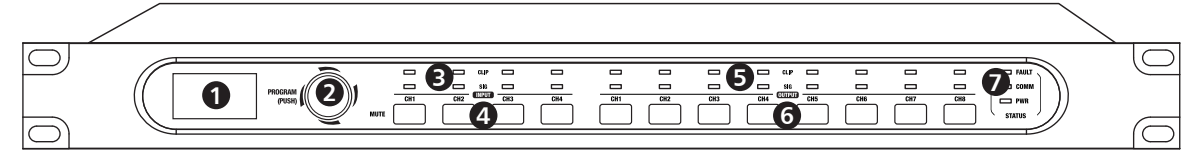
1. Display
Multi-functional OLED graphics display for information such as preset and audio signal level. It also show menu item to view system setting as required

2. MENU
Combined push-and-turn dial to access the edit menu and select and edit individual menu items.

3. Input Signal LED indicating
Indicate input connection status. When you connect this device to other host, the LEDs indicate corresponding Channel port connection status at back panel.

LEDs indicate as below:
-CLIP(RED). It means current CH input signal overload, the led lights up when the signal >15dB.
-SIG(GREEN). It means some signal input from current CH port, the led lights up when the signal >-30dB.

4. Input Channel MUTE Button
Press CH1-4 buttons, the corresponding background LED light, which means to mute signal from selected channels.

5. Output Signal Indicating LED
Indicate output connection status. When you connect this device to other hosts, LEDs here indicate corresponding XLR port connection status at back panel.

LEDs indicate as below:
- CLIP(RED). It means current XLR output signal overload, the led lights up when the signal >15dB.
- SIG(GREEN). It means some signal output from current XLR port, the led lights up when the signal >-30dB.

6. Output Channel Select Button
Press CH1-8 buttons, the corresponding background LED light, which means to mute signal can output from selected channels.

7. Status LED Indication
LED indicating as below:
- COMM.(GREEN). Power on the product and connect it with PC by router, then open the product software control page on PC, it lights if communication is common; while it turns off if communication is fault.

- FAULT(RED). It lights when DSP runs fault, you can see fault information on LCD screen, see details in section 1 about LCD Screen. At this time please check your device configuration.

- PWR(BLUE). It means the power on.

Rear Panel

Rear Panel
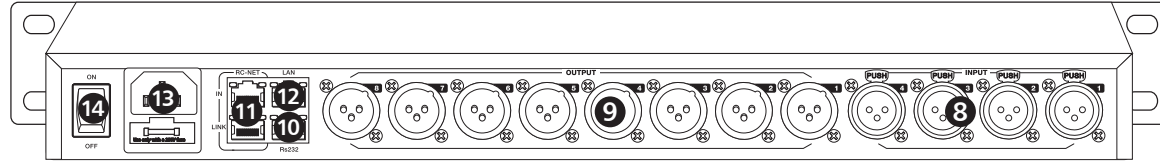
8. CH Input Port1~4
3 poles XLR input. These ports are used for connecting input device of analog microphone or line input devices.

9. XLR Output Port 1~8
These ports are used for connecting analog line output device, such as Amplifier and Speaker.

10. RS-232 Input Port
It can connect other device via RS232 data line, the product can be controlled by this device's action. Such as selecting two audio channel or mute whole system by device connected to this port.
The used baud rate is 9600.
Below table lists the whole command of RS-232:

Volume Control:

| N0.	Start Byte0 (1Byte)	Start Byte1 (1Byte)	Start Byte2 (1Byte)	Length (1 Byte)	Command (1 Byte)	Channel (1Byte)	Value (N Bytes))	End Byte2 (1Byte)	function
1	0x01	0x20	0x03	0x08	0x04	CH1:0x01 / CH2:0x02 CH3:0x03 / CH4:0x04	0x00	0x40	Get Input channel Status Command
2	0x01	0x20	0x03	0x0a	0x04	CH1:0x01 / CH2:0x02 CH3:0x03 / CH4:0x04	Byte1: Volume Value 0~160 Byte2: Phase Value 0 - Normal, 1 - Invert Byte2: Mute Value 0 - OFF, 1 - ON	0x40	Input channel Status (output from device)
3	0x01	0x20	0x03	0x08	0x08	CH1:0x01 / CH2:0x02 CH3:0x03 / CH4:0x04 CH5:0x05 / CH6:0x06 CH7:0x07 / CH8:0x08	0x00	0x40	Get Output channel Status Command
4	0x01	0x20	0x03	0x0a	0x08	CH1:0x01 / CH2:0x02 CH3:0x03 / CH4:0x04 CH5:0x05 / CH6:0x06 CH7:0x07 / CH8:0x08	Byte1: Volume Value 0~160 Byte2: Phase Value 0 - Normal, 1 - Invert Byte2: Mute Value 0 - OFF, 1 - ON	0x40	Output channel Status (output from device)
6	0x01	0x20	0x03	0x08	0x15	CH1:0x01 / CH2:0x02 CH3:0x03 / CH4:0x04	0x00	0x40	Change Input channel Volume UP
7	0x01	0x20	0x03	0x08	0x16	CH1:0x01 / CH2:0x02 CH3:0x03 / CH4:0x04	0x00	0x40	Change Input channel Volume Down
8	0x01	0x20	0x03	0x08	0x17	CH1:0x01 / CH2:0x02 CH3:0x03 / CH4:0x04 CH5:0x05 / CH6:0x06 CH7:0x07 / CH8:0x08	0x00	0x40	Change Output channel Volume UP
9	0x01	0x20	0x03	0x08	0x18	CH1:0x01 / CH2:0x02 CH3:0x03 / CH4:0x04 CH5:0x05 / CH6:0x06 CH7:0x07 / CH8:0x08	0x00	0x40	Change Output channel Volume Down
10	0x01	0x20	0x03	0x08	0x03	CH1:0x01 / CH2:0x02 CH3:0x03 / CH4:0x04	Mute: 0x01 Mute Cancel :0x00	0x40	Change Input channel Mute
11	0x01	0x20	0x03	0x08	0x07	CH1:0x01 / CH2:0x02 CH3:0x03 / CH4:0x04 CH5:0x05 / CH6:0x06 CH7:0x07 / CH8:0x08	Mute: 0x01 Mute Cancel :0x00	0x40	Change Output channel Mute
12	0x01	0x20	0x03	0x08	0x01	CH1:0x01 / CH2:0x02 CH3:0x03 / CH4:0x04	Value Range: 0~190	0x40	Change Input channel Volume
13	0x01	0x20	0x03	0x08	0x05	CH1:0x01 / CH2:0x02 CH3:0x03 / CH4:0x04 CH5:0x05 / CH6:0x06 CH7:0x07 / CH8:0x08	Value Range: 0~190	0x40	Change Output channel Volume
						BuadRate: 9600,n,1			

Web Configuration of LAN Module

Web Configuration of LAN Module

1. Search IP address of LAN Port by PC software.
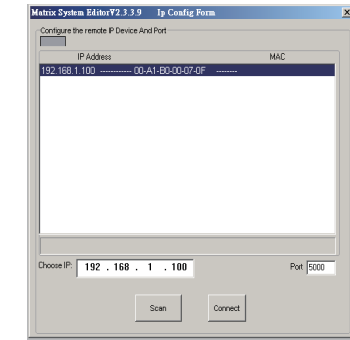
2. Open the browser on PC , input IP that searched in above step to enter the configuration web site.

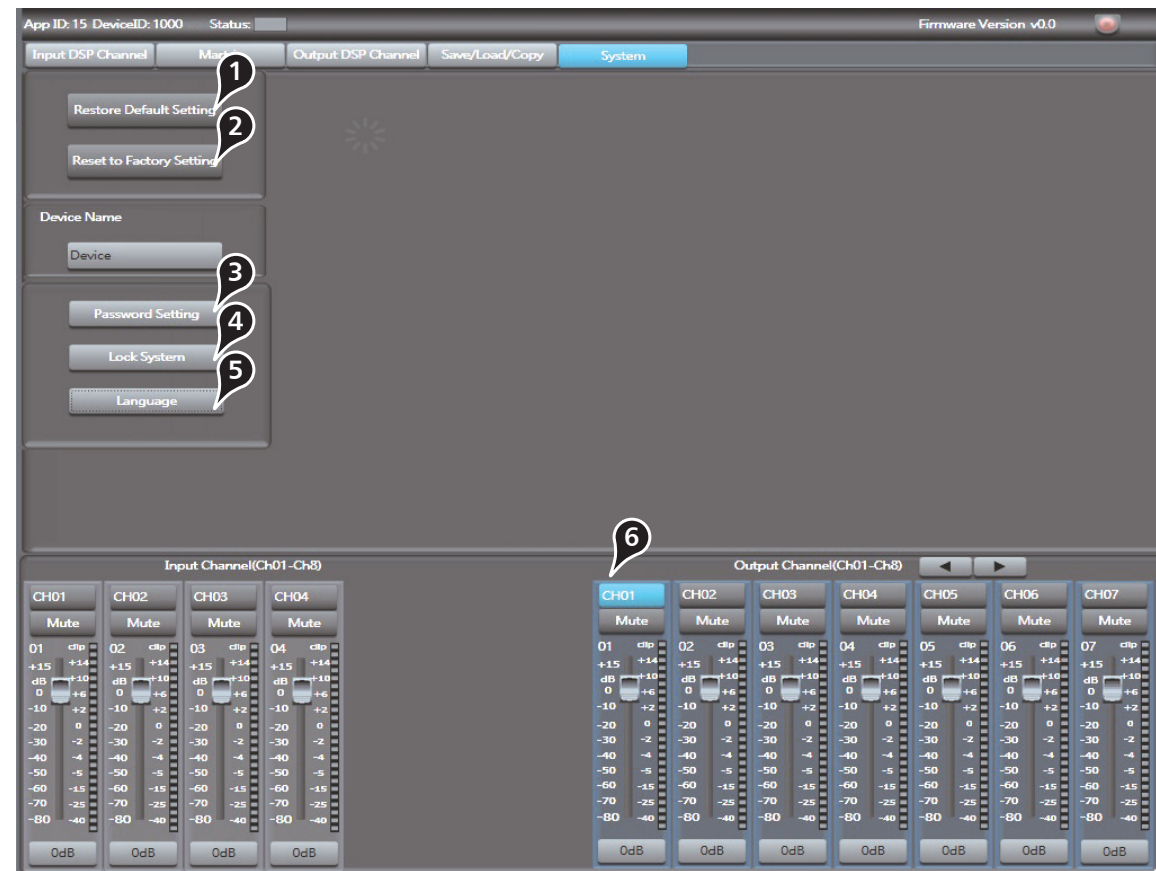Device IP — Default password:system
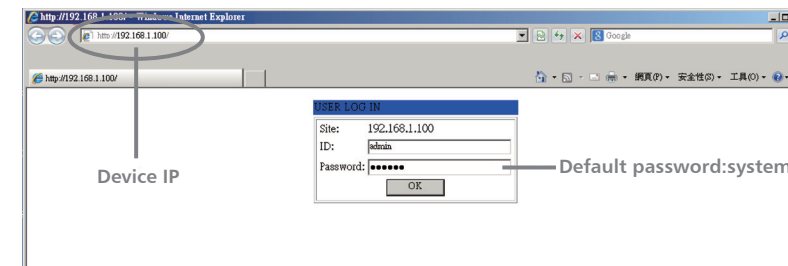
Below pictures show the configuration and review for port number and Baud rate.

3. Please DO NOT change the Baud rate and TCP PORT, while you can change any other parameters. Then click "Update" and restart device.

TCP Mode page — Change confirm

Current uart page — Change confirm

DSP Control
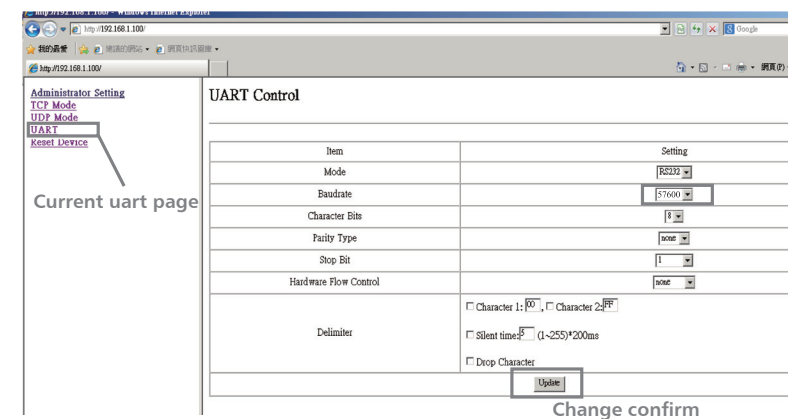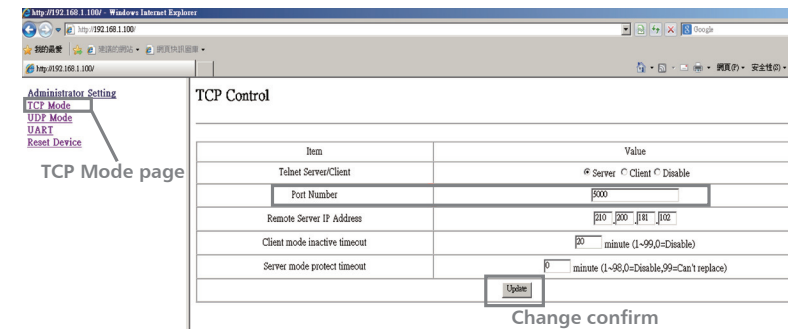
7. System

1).Restore default settings
Click this button to restore all settings.

2).Reset to factory settings
Click this button to reset all setting parameters to default.

3).Change device name
Click this button to change current device name in the dialog that pops-up.

4).Password setting
Click this button to set password.

5).Lock system
Click this button to lock system.

6).Input/Output Channel Parameter Control
Please refer to section 3 Input DSP Channel for details about this area.

Rear Panel

PIN Function

Function	RJ-45							
	Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8
RS232	NC	NC	NC	RXD	TXD	NC	NC	GND

System Setting:

N0.	Start Byte0 (1Byte)	Start Byte1 (1Byte)	Start Byte2 (1Byte)	Length (1 Byte)	Command (1 Byte)	Value (N Byte)	End Byte (1Byte)	function
1	0x01	0x20	0x03	0x16	0x0D	Byte 1-16 :16 Chars Device Name (ASCILL Code)	0x40	Write device name
2	0x01	0x20	0x03	0x07	0x0E	0x00	0x40	Get Device information Command
3	0x01	0x20	0x03	0x17	0x0E	Byte 1-16 : 16 Chars Device Name (ASCILL Code) Byte 17 : Firmware Version	0x40	Get Device information (Output from device)
4	0x01	0x20	0x03	0x07	0x0F	Preset Number: Byte 1: 0-24	0x40	Recall Preset
				BuadRate: 9600,n,1				

Routing:

N0.	Start Byte0 (1Byte)	Start Byte1 (1Byte)	Start Byte2 (1Byte)	Length (1 Byte)	Command (1 Byte)	Select Output Bus Channel (1Byte)	Select Routing Input Channel (1 Byte)	Value (1 Byte)	End Byte (1Byte)	function
1	0x01	0x20	0x03	0x09	0x09	Analog Output1 Mixer:0x01 Analog Output2 Mixer:0x02 Analog Output3 Mixer:0x03 Analog Output4 Mixer:0x04 Analog Output5 Mixer:0x05 Analog Output6 Mixer:0x06 Analog Output7 Mixer:0x07 Analog Output8 Mixer:0x08	Analog Input1:0x01 Analog Input2:0x02 Analog Input3:0x03 Analog Input4:0x04	ON : 0x01 OFF: 0x00	0x40	Routing Input to Outputs
				BuadRate: 9600,n,1						

Get Output Channel Mixer Status:

N0.	Start Byte0 (1Byte)	Start Byte1 (1Byte)	Start Byte2 (1Byte)	Length (1 Byte)	Command (1 Byte)	Output Bus Channel (1Byte)	Input Channel to Output Bus Status (16 Bytes)	End Byte (1Byte)	function
1	0x01	0x20	0x03	0x08	0x0a	Analog Output1 Mixer:0x01 Analog Output2 Mixer:0x02 Analog Output3 Mixer:0x03 Analog Output4 Mixer:0x04 Analog Output5 Mixer:0x05 Analog Output6 Mixer:0x06 Analog Output7 Mixer:0x07 Analog Output8 Mixer:0x08	0x00	0x40	Get output channel Mixer Status Command
1	0x01	0x20	0x03	0x17	0x0a	Analog Output1 Mixer:0x01 Analog Output2 Mixer:0x02 Analog Output3 Mixer:0x03 Analog Output4 Mixer:0x04 Analog Output5 Mixer:0x05 Analog Output6 Mixer:0x06 Analog Output7 Mixer:0x07 Analog Output8 Mixer:0x08	Byte1: Analog Input1 To Output Bus Status Byte2: Analog Input2 To Output Bus Status Byte3: Analog Input3 To Output Bus Status Byte4: Analog Input4 To Output Bus Status Byte5: NC. Byte10: NC. Byte15: NC. Byte6: NC. Byte11: NC. Byte16: NC. Byte7: NC. Byte12: NC. Byte8: NC. Byte13: NC. Byte9: NC. Byte14: NC. Status : 0 ==OFF , 1==ON	0x40	Get output channel Mixer Status
				BuadRate: 9600,n,1					

11. RC-NET Input/Link Port
Control signal can transmit through this network port.
RC-Net is based on RS-485 transport protocol, which owns function of RS485 data exchange, to realize large-scale real data transmit.

12. LAN Network Control Port
The product can connect with Ethernet switch via this port. On LAN network control port, you can see two LEDs, they are connection status indicator (green) and signal transmit indicator(yellow).
-- If the yellow LED goes out, means no signal transmits; while if yellow LED is on, but green one goes out, means the device detects network, but no connection.
-- If green LED is on ,means network connects well.

13. Power Inlet
Connect AC voltage, 100-240VAC, 50-60Hz.

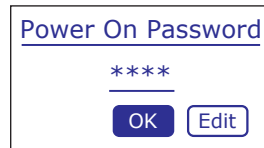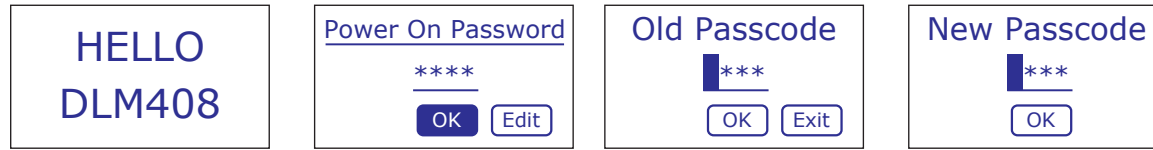### 14. Power Switch
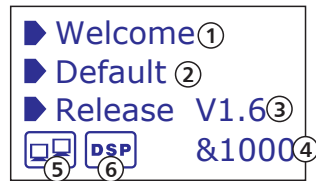Press it to turn on/off the device.

Opearation

1. BOOT PASSWORD INTERFACE

Combined push-and-turn dial to access the edit menu and select and edit individual menu items. When turn on the power Amplifier, Firstly greeting words "HELLO DLM408" will appear and then input password interface, will be shown on main display, dial the knob to key in four-digit password, then point the knob to OK and press down the knob to enter Default interface. Please note "0000" as initial passwords, if you forget updated passwords, please use super passwords "8888" to boot.

Regarding how to modify boot passwords, Firstly click " Edit" box, key in the original password "0000", then click OK, then enter new passwords, finally it returns to the boot interface, At this time please follow instruction displayed on interface, enter new passwords, point the knob to OK position, press the knob to enter Default interface.

| HELLO DLM408 | Power On Password **** OK Edit | Old Passcode *** OK Exit | New Passcode *** OK |

| Power On Password **** OK Edit |

2. DEFAULT INTERFACE DISPLAY

▶ Welcome①
▶ Default ②
▶ Release V1.6③
🖥⑤ DSP⑥ &1000④

(1) The equipment name
(2) Current preset
(3) Current release version
(4) Current ID, ID code can be obtained automatically once connected with device.
(5) Below image means none connection between your PC and the product, if connected well, the two devices inside box will flash alternately.
(6) Below image means successful DSP communication well, if fails, "DSP!" will be displayed.

MENU INTERFACE DISPLAY
In the default interface, toggle knob enter main MENU INTERFACE DISPLAY
Then the main display appears eleven submenus, Toggle the knob to select the appropriate function on this interface. you can select detailed function submenu and enter the corresponding function interface; if you click the " Exit" box, it will return to Default interface.

| EQ |
| EXIT |
| CHANNEL |
| SYSTEM |
| DELAY |
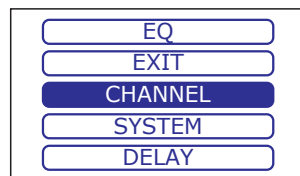
DSP Control

6. Save/Load/Copy
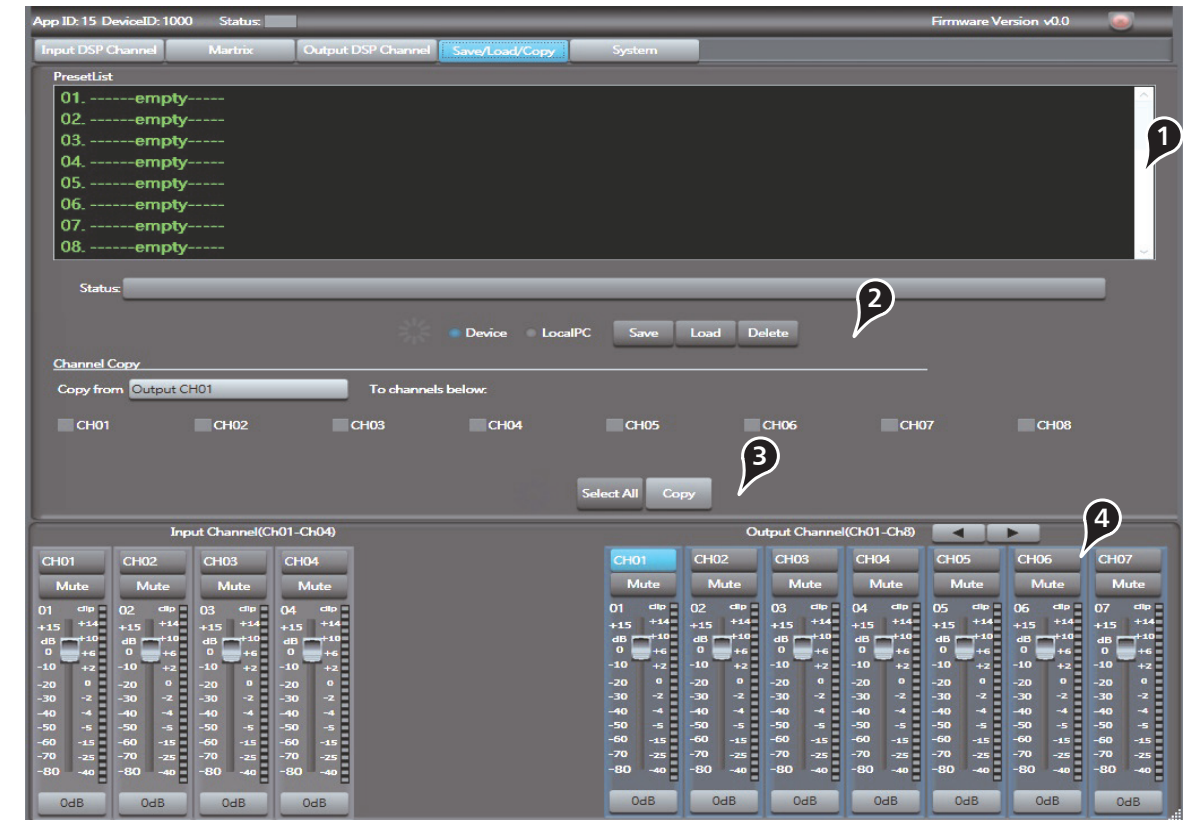
1). Preset List
The text area shows preset list that have been saved, select a preset, then click Load button to load the selected preset to corresponding control.

2). Save/Load/Delete/Recall
When use this function, please pay attention the switch of Device and Local PC first. If Device is selected, Save and Load buttons are not enabled, which means you can not save or load presets from Device to PC. While they are enabled if select Local PC.
-Save
In Local PC mode, select a preset in Preset List, then click Save button to save the selected preset from Local PC to the product.
-Load
In Local PC mode, select a preset in Preset List, then click Load button to load the selected preset from Local PC to the product.
-Delete
In Device mode, select a preset in Preset List, then click Delete button to delete the selected preset from the product.
-Recall
In Device mode, click Recall button to recall all the presets in Preset List.

3). Copy
Select a channel that you want to copy to other channels from item menu, such as CH01, then select Input Channel or Output channel, select the channels that you want to be copied or click SelectAll button to copy CH01 to these channels.

4). Input/Output Channel Parameter Control
Please refer to section 3 Input DSP Channel for details about this area.

DSP Control

5. Output DSP Channel
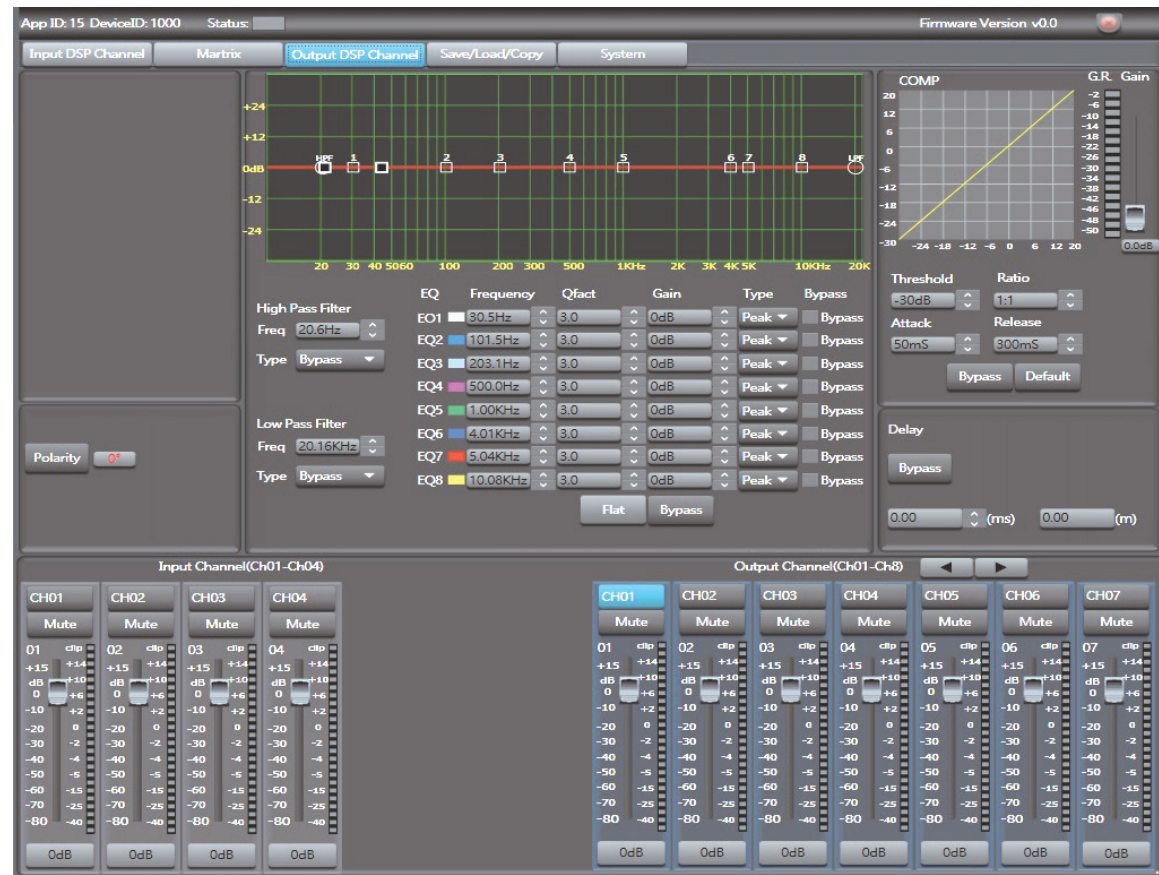
As you can see, compared with input DSP channel, this page only remove the Gate/EXP function, please refer to section 3 Input DSP Channel for details about its function.

Opearation

1. CHANNEL

Select "CHANNEL" submenu. Press and dial the knob to enter CHANNEL interface, At this time press the knob to enter channel option, select the I/O CHANNEL you want to set.Dial and press the knob to "Volume adjustment" item, then adjust /set volume and confirm (Minimum to -80dB by counter clockwise, up to+15dB by clockwise). Dial the knob to "MUTE" position by clockwise, then press it to enter MUTE mode. if clockwise to "0" position, then press the button to reverse the level by180 degrees. Dial the knob by clockwise to select exit and return to main interface. Dial the knob towards right to " EXIT" position and then press the knob to exit "CHANNEL" interface to main interface directly.
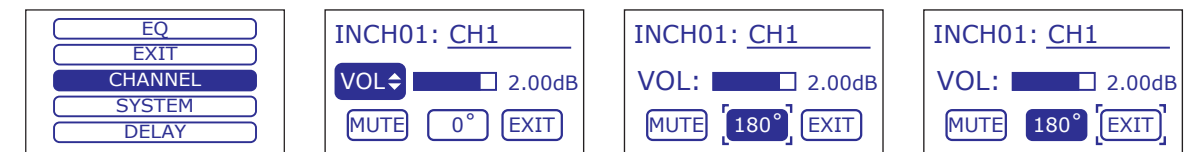

2. SYSTEM

Select "SYSTEM" menu from main interface. press the knob and enter SYSTEM interface, here you can check the version information for MCU, DSP, etc. If you want restore factory setting, Dial the knob and select menu "Default setting", then press the knob and select "YES", factory setting can be done, If "NO" selected, it will return to SYSTEM interface; If you want to go back the main menu directly, Dial the knob towards right and select "EXIT" and press the knob to exit SYSTEM interface and return to main interface.
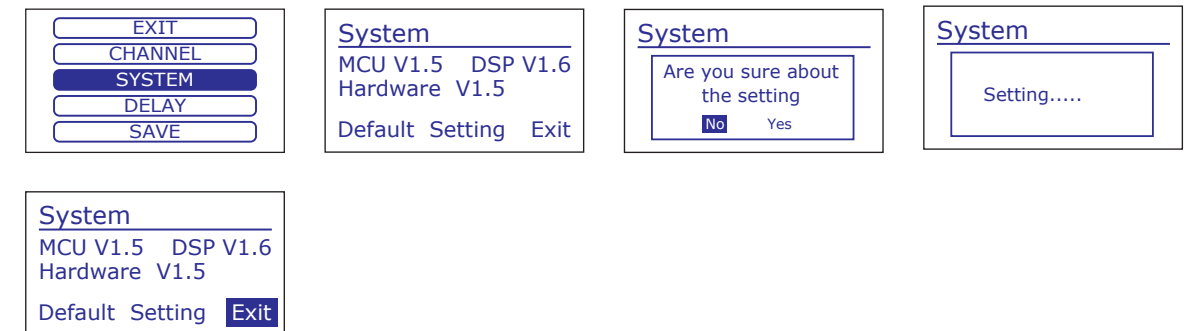
3.DELAY

Select " DELAY" from main menu, short press the knob to enter "DELAY" interface, press the knob to enter "delay channel" option, select the I/O channel you want to set, Dial and press the knob to "Delay" position and set delay adjustment(minimum to 0ms by counter clockwise, up to +1361.29ms by clockwise. Dial the knob by clockwise and select temperature setting, press the knob to set relevant temperature (minimum to 0 degree by counter clockwise, up to +1361.29 degree by clockwise). Dial the knob by clockwise to select exit and return to delay interface, Dial the knob towards right to " EXIT" position and then press the knob to exit "delay" interface to main interface directly.
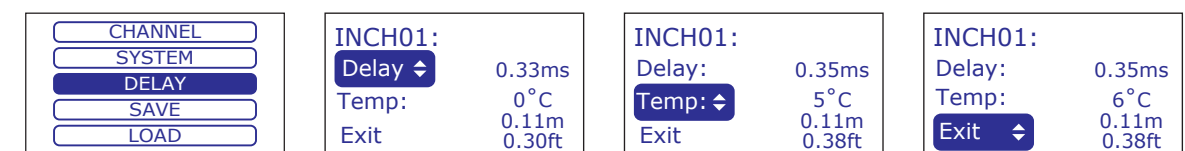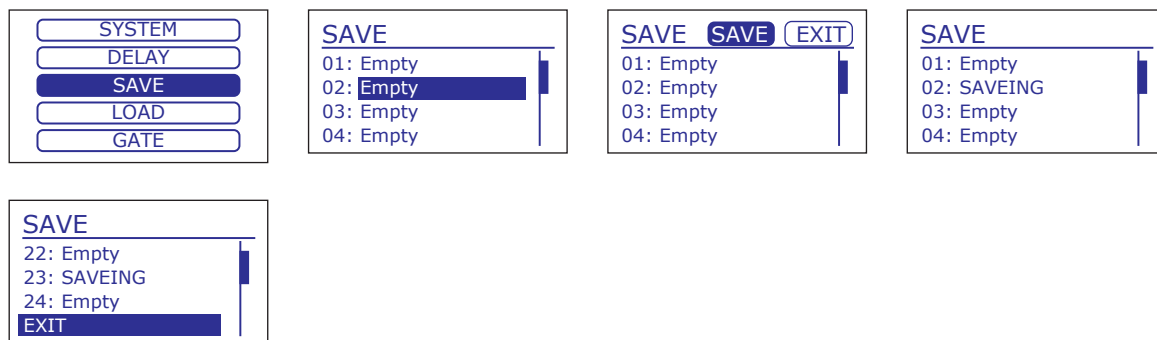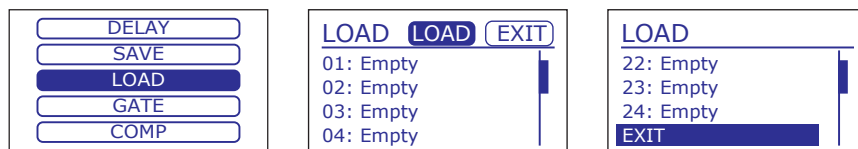
Opearation

4. SAVE
Select "SAVE" from main menu, press the knob to enter "SAVE" interface. At this time 24 presets will be shown, Each preset can be set by customer self, or set each preset with PC, Save the preset with name up to 16 characters. Dial the knob by clockwise to the last character character and confirm "save" by pressing the knob. clockwise knob to select "EXIT" and press the knob to go back to main interface. Dial the knob towards right to "EXIT" position and then press the knob to exit "SAVE" interface to main interface directly.

```
+------------------+   SAVE              SAVE  SAVE  EXIT    SAVE
|     SYSTEM       |   01: Empty         01: Empty            01: Empty
|     DELAY        |   02: Empty         02: Empty            02: SAVEING
|     SAVE         |   03: Empty         03: Empty            03: Empty
|     LOAD         |   04: Empty         04: Empty            04: Empty
|     GATE         |
+------------------+

  SAVE
  22: Empty
  23: SAVEING
  24: Empty
  EXIT
```

5. LOAD
The function is used to load relevant setting of "save". Select "LOAD" from main menu and press the knob to enter LOAD interface. Then dial the knob to a previous presets and press the knob to confirm, At this time "LOADING" will appear on screen. Return to LOAD interface once loading completed.
Dial the knob to select "EXIT" and then press the knob to return to the main interface. Dial the knob towards right to "EXIT" position and then press the knob to exit "SAVE" interface to main interface directly.

```
+------------------+   LOAD  LOAD  EXIT    LOAD
|     DELAY        |   01: Empty           22: Empty
|     SAVE         |   02: Empty           23: Empty
|     LOAD         |   03: Empty           24: Empty
|     GATE         |   04: Empty           EXIT
|     COMP         |
+------------------+
```

6. GATE
Select "GATE" option from main menu, then short press the knob to enter GATE interface. Press the knob to select gate you want, Dial and press the knob to "threshold" position and then set relevant value and finally press the knob to confirm. (Minimum -80dBu by Counter clockwise , Up to + 20dBu by clockwise). Dial the knob by clockwise to select "Attack" and press the knob to confirm (Minimum to 10ms by counter clockwise, up to150ms by clockwise). Dial the knob by clockwise to select "RELEASE" and press the knob to confirm. (Minimum to 10ms by counter clockwise , Up to 1s by clockwise) . Dial the knob by clockwise to select "Ratio" and press the knob to confirm. (Count clockwise to reach Minimum to 1.0 by counter clockwise , Up to10:1 by clockwise). Dial the knob to GATE position by clockwise, Default as "OFF", Dial to "ON" to change setting, Dial to "EXIT" position and press the knob to quit . Dial the knob towards right to "EXIT" position and press the knob to go back to main page directly.

DSP Control

4. MATRIX
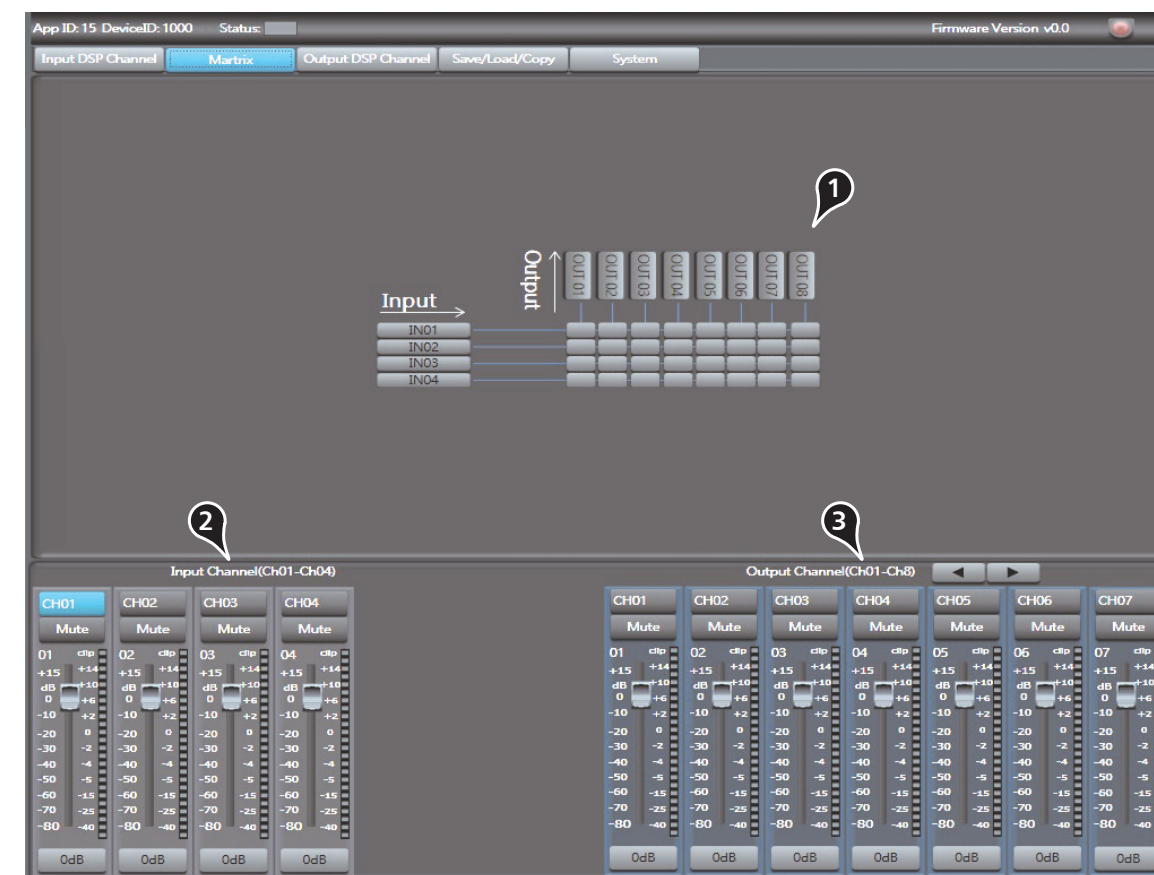
1). Assign of input and output channels
In this area, there are many small blocks, click one block, its background turns green, audio signal flow from left input channel to top output channel; while the signal won't go through any channel if it is not active. Below figure gives an example:

a. Click the block as a marked, its background turns green, means that signal input from channel Local 02 will be assigned to output channel Local 02. But the input channel Local 02 wouldn't be assigned to other output channels because there is no other block activates.
b&c. Click the block as b&c marked, their background turn green, means that signal input from channel Local 03 and Local 04 will be assigned to output channel Local 03. Other channels that inactive won't be assigned to any other output channel.
And so on...

2). Input Channel Parameter Control
Please refer to section 3 Input DSP Channel for details about this area.

3). Output Channel Parameter Control
Please refer to section 3 Input DSP Channel for details about this area.

DSP Control
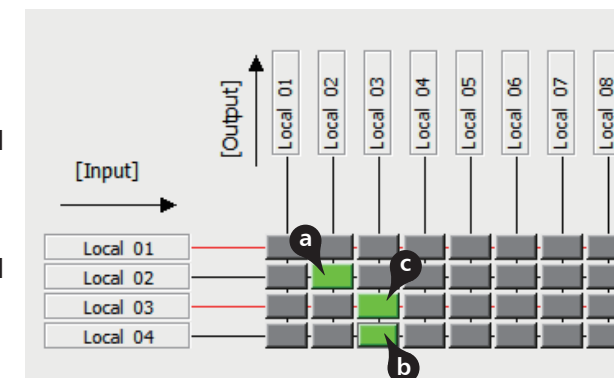
- Bypass
Click this button to bypass all signal to next block, if compressor bypass function is active the button will illuminate. If it is not active,signal will be processed at this block and then flow to next block.

- Flat COM
To flat all setting parameters to default.

- Delay
Delay here can engage and disengage the delay function for selected Channel. Move the slide below it to set delay time. Only if delay function is active can set the delay time. If Bypass beside it is enable, the parameter can not be adjusted.

5). Current input channel selection
Click channel button 1-4, corresponding background LED will light, which means current channel is selected, you can set parameters on this channel.

6). Input channel mute control
Click it, the background LED will light, which means it enable mute function on current channel.

7). Input channel Meter control
Select the block and slide it to adjust current channel's volume.

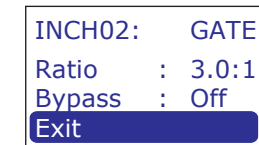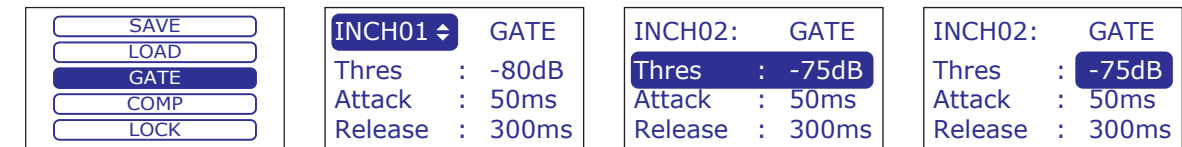**8). Input channel Meter dynamically indication**
Dynamically indicate current channel's input level meter.

9). Input channel Meter value display
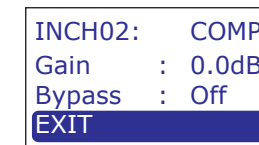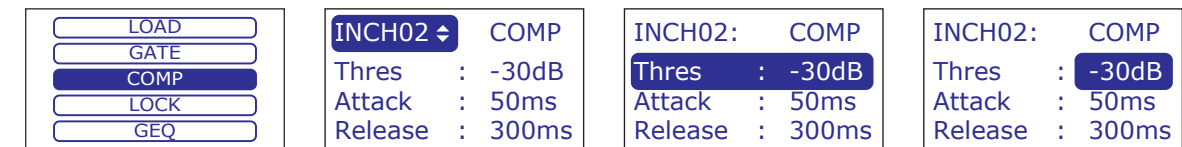The value will vary with slide moving.

10). Output channel control
Function in this area is similar to that to input channel. Please read carefully about input channel introduction.

Opearation

```
SAVE
LOAD
GATE
COMP
LOCK
```

```
INCH01 ⇕    GATE
Thres    :  -80dB
Attack   :  50ms
Release  :  300ms
```

```
INCH02:    GATE
Thres    :  -75dB
Attack   :  50ms
Release  :  300ms
```

```
INCH02:    GATE
Thres    :  -75dB
Attack   :  50ms
Release  :  300ms
```

```
INCH02:    GATE
Ratio    :  3.0:1
Bypass   :  Off
Exit
```
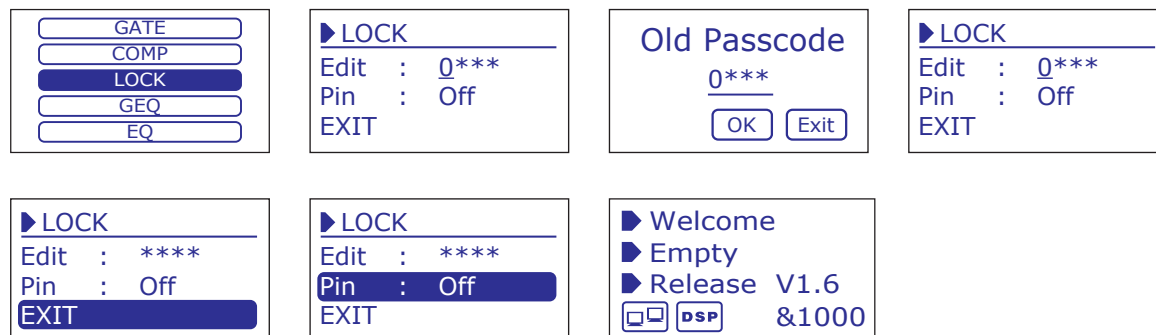
7. COMP
Select "COMP" option from main menu, short press the knob and enter COMP interface, press the knob to enter "compressed channel" item, select I./O compressed channel you want, press the knob to enter the channel and set it . Dial &press the knob to "threshold" point and set relevant value, then press the knob to confirm(Minimum to -30dBu by counter clockwise, up to + 20dBu by clockwise).
Dial the knob by clockwise to select " Attack" and press the knob to confirm(minimum to 10ms by counter clockwise, up to150ms by clockwise); Dial the knob by clockwise to select "RELEASE" and press the knob to confirm. (minimum to10ms by counter clockwise, up to 1s by clockwise). Dial the knob by clockwise to select "Ratio" and press the knob to confirm. (minimum to1.0 by counter clockwise, up to10:1 by clockwise). Clockwise knob to select Gain setting and press the knob to confirm(minimum to 0dB by counter clockwise, up to+ 20dB by clockwise). Clockwise knob to Bypass, Default as "OFF", Dial the knob to "ON" point to change current setting, I/O channels all restore to initial value "0" and jump back to COMP interface, dial the knob to exit. Dial to "EXIT" position and press the knob to quit COMP interface and return to main page directly.

```
LOAD
GATE
COMP
LOCK
GEQ
```

```
INCH02 ⇕    COMP
Thres    :  -30dB
Attack   :  50ms
Release  :  300ms
```

```
INCH02:    COMP
Thres    :  -30dB
Attack   :  50ms
Release  :  300ms
```

```
INCH02:    COMP
Thres    :  -30dB
Attack   :  50ms
Release  :  300ms
```

```
INCH02:    COMP
Gain     :  0.0dB
Bypass   :  Off
EXIT
```
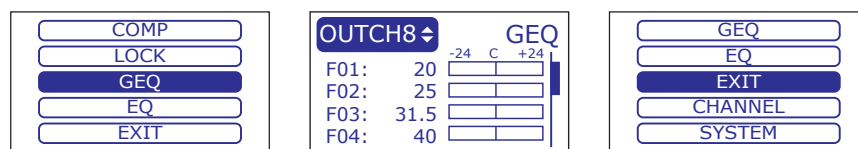
8. LOCK
Select "LOCK" option from main menu and then press the knob to enter "LOCK" interface. Dial the knob towards right and press the knob to select "Edit", How to change passwords: dial and press the knob to change passwords. Firstly key in correct current passwords, then go back to LOCK interface by dialing and pressing the knob. Key in new passwords with four characters (only can enter numbers and letters), it will jump back to "EXIT" position once completing input. press the knob to quit current interface, it means changing passwords successfully. Dial the knob to "PIN" position, press the knob to select "OFF", clockwise knob to lock system, enter locking-system interface, except knob other function of system will be disable, Timeout does not enter a password or click EXIT will jump to the lock system interface. Dial to "EXIT" position and press the knob to quit LOCK interface and return to main page directly.

Opearation

```
┌─────────────────┐   ▶LOCK              Old Passcode        ▶LOCK
│     GATE        │   ─────────────          0***            ─────────────
│     COMP        │   Edit  :  0***      ┌──┐  ┌────┐        Edit  :  0***
│     LOCK        │   Pin   :  Off       │OK│  │Exit│        Pin   :  Off
│     GEQ         │                      └──┘  └────┘
│      EQ         │   EXIT                                   EXIT
└─────────────────┘
```

```
▶LOCK             ▶LOCK             ▶ Welcome
─────────────     ─────────────     ▶ Empty
Edit  :  ****     Edit  :  ****     ▶ Release  V1.6
Pin   :  Off      Pin   :  Off      [□□] [DSP]    &1000
EXIT              EXIT
```

9. GEO

Select GEO from main menu, short press the knob to enter GEO interface and then select the output GEO interface you want to set (OUTPUT1-8), Press the knob to confirm once selection completed.

Dial the knob to "Frequency" point option (F01-F31), Press the knob to enter it (minimum to -24KHz by counter clockwise, up to +24KHz by clockwise). finally press the knob to confirm. Clockwise knob to "FLAT", default as "OFF", Dial and press the knob to "ON" and then you can change current setting. The output channels all return to the initial value of 0, and it jumps back to the GEO interface. If you want to exit, dial the knob to quit and press the knob to confirm. Dial the knob towards right to "EXIT" point and press the knob to go back to main interface directly.

```
┌─────────────────┐   OUTCH8↕    GEQ    ┌─────────────────┐
│     COMP        │                     │      GEQ        │
│     LOCK        │         -24  C  +24 │      EQ         │
│     GEQ         │   F01:  20          │     EXIT        │
│      EQ         │   F02:  25          │    CHANNEL      │
│     EXIT        │   F03:  31.5        │    SYSTEM       │
└─────────────────┘   F04:  40          └─────────────────┘
```

10. EQ

Select EQ option from main interface. Short press the knob to enter EQ interface, then select the I/O EQ channel you want. Enter the corresponding parameters by dialing & pressing the knob. Select corresponding parameter and click again, (only for the parameter from 01-LF, it will exit if clicking other parameter), then corresponding value of parameter can be adjusted, finally press the knob to exit once completed. Dial the knob towards right to "FREQ" point, then press the knob to set FREQ value (Minimum to-19.7Hz by count clockwise, up to +20.1KHz by clockwise). Press the knob to confirm once finished. Dial the knob towards right to set EQ parameter (Minimum to -18dB by count clockwise, up to +18dB by clockwise), press the knob to confirm once finished.

Dial the knob towards right to "GAIN" point, press the knob to input GAIN value (OUTPUT1-8) (Minimum to 0.4 by counter clockwise, up to 128 by clockwise), press the knob to confirm once finished. Dial the knob towards right to B point, it means to prohibit using EQ value in the column (these EQ values can be adjusted but never work, "Y" selected to open the function, "N" selected to close the function). press the knob to confirm upon finished. Dial the knob towards right to Bypass interface, default as "OFF", if necessary to change it, Dial the knob to "ON" point and then press down it. At this time The I/O channels all return to the initial value of 0, and the interface jumps back to the EQ interface. Dial the knob towards right to select Exit. And then press down to exit. it can return to main menu directly by Dialing to EXIT and pressing the knob as confirmation.

DSP Control

- Q
Click the control to set the Q for the Low/Low-mid/High-mid/High band separately. The Q is the ratio of the center frequency to the bandwidth. If the center frequency is constant, the bandwidth is inversely proportional to the Q, which means that if you raise the Q, the bandwidth will be narrowed. It can be adjusted from 0.4 to 128.

- Gain
Click the control to set the gain attenuation or boost at the center frequency for the Low/Low-mid/High-mid/High band separately. It can be set from -18 to +18 dB. When Gain is 0dB, center frequency and Q are all invalid.

- Type
To select current filter type of current EQ, option is Peak/L.Shelf/H.Shelf.

- EQ Bypass
Click this button to bypass all signal to next block, if EQ bypass function is active the button will illuminate. If it is not active,signal will be processed at this block and then flow to next block.

- Flat EQ
To flat all setting parameters to default.

4). Compressor
In this area, you can adjust parameter of compressor. Compressor will compress signal that higher than threshold with specified ratio, then output it. The curve in coordinate will change with parameter's change.

-Threshold
Click the control to set the compressor threshold for selected channel.
If amplitude of an audio signal exceeds a certain threshold, the compressor will reduce the level of this signal with specified ratio;
If amplitude of an audio signal is lower than this given threshold, compressor won't work, signal will flow to next block directly.
If setting ratio to "+∞", compressor will be limited.
Threshold can be set from -30dB to 20dB.

- Ratio
Click the control to set the compression ratio for selected channel. The ratio determines the amount of gain reduction. For example, a ratio of 4:1 means that if input level is 4 dB over the threshold, the output signal level will be 1 dB over the threshold. The ratio can be set from 10:1 to 1:1 until limit.

- Attack
Click the control to set the compressor's attack setting for selected channel. The attack setting is the period when the compressor is decreasing gain to reach the level that is determined by the ratio. You can set the attack from 10 to 150 milliseconds.

- Release
Click the control to set the compressor for selected channel. Release sets the length of time the compressor takes to return to its normal gain once the signal level drops below the threshold. Release can be set from 10 to 1,000 milliseconds.

DSP Control

- Attack
Click the control to set the interval time from selected channel's signal beyond threshold to open noise Gate, the time can be set from 10 to 150ms.
Signals that increase slowly need lower attack, because if set the attack value too high, it may cause "click" noise. Actually, all Gate may cause "click" noise when operation, but it can be avoid if set properly.

- Release
Click the control to set the amount of time for the gate to go from open to fully close. It can be set from 0.01 to 1 second.
Note: A fast release abruptly cuts off the sound once it has fallen below the threshold, A slower release smoothly changes from open to closed, much like a slow fade out. If the release time is too short, a click can be heard when re-open the gate .

- Bypass
Click Bypass, it will illuminate red, all input signals will bypass control of Threshold, Ratio, Attack and Release to flow to next block, these parameters can not be adjusted.

- Default
Click this button to flat all set parameters to be default.

- Polarity
Click this button to invert the phase of the selected channel's signal (to alter the phase by 180°).
If the phase reverse is active the button will illuminate. The Polarity control can be used to correct audio signals which are out of phase as well as to cancel/reinforce each other.

3). Equalizer
In this area, you can adjust parameter of Equalizer(EQ) , the curve in coordinate will change with parameter's change. EQ can compensate and correct frequency characteristic, through which to make its frequency response characteristic curve to be more smooth and straight. On the product, you can adjust 8 band EQ.

- High Pass Filter
This is a high-pass filter. It can pass higher frequencies. When set to its lowest position, the filter is off.
Type indicates the filter's type that you selected, different type means different shape and different filter frequency range.

- Low Pass Filter
This is a low-pass filter. It can pass lower frequencies. When set to its highest position, the filter is off.
Type indicates the filter's type that you selected, different type means different shape and different filter frequency range.

- EQ Frequency
Click the control to set the center frequency of the equalizer's
Low/Low-mid/High-mid/ High band separately. The center frequency is the middle of the pass-band between the lower and upper cutoff frequencies which define the limits of the band. The center frequency can be set from 19.7Hz to 20KHz.

Opearation

	LOCK
	GEQ
	EQ
	EXIT
	CHANNEL

EQ	FREQ	Q	GAIN
INCH01⇕			
01	30.5	3.00	0.0N
02	101.5	3.00	0.0N
03	203.1	3.00	0.0N

EQ	FREQ	Q	GAIN
INCH01:			
←	30.5	3.00	0.0N
02	101.5	3.00	0.0N
03	203.1	3.00	0.0N

EQ	FREQ	Q	GAIN
INCH01:			
←	30.5	**3.00**	0.0N
02	101.5	3.00	0.0N
03	203.1	3.00	0.0N

EQ	FREQ	Q	GAIN
INCH01:			
LF 20.1K	BPSS		
ALLBPSS			N
FLAT			

EQ	FREQ	Q	GAIN
INCH01:			
LF 20.1K	BPSS		
ALLBPSS			N
FLAT	YES		NO

EQ	FREQ	Q	GAIN
INCH01:			
ALLBPSS			N
FLAT			
EXIT			

	LOCK
	GEQ
	EQ
	EXIT
	CHANNEL

11. EXIT
Select "EXIT" submenu. Press and dial the knob to enter EXIT interface, At this time press the knob to return default interface.

|	GEQ
	EQ
	EXIT
	CHANNEL
	SYSTEM

▶ Welcome
▶ Default
▶ Release V1.6
⬚⬚ DSP   &1000

The product can connect with PC by internet port on router. After successfully connected, please click the file named SystemEditor on PC, you can see initial page as below picture shows, which can set connection of each device.
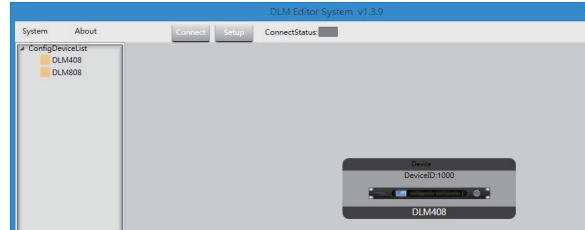
1. Configuration of IP Address

When connect the product with PC by internet port on router:
Before connect devices on software control page, please set IP address of the product and router first, below gives steps(pay attention that the toggle switch on the product rear panel should be at LAN side):

1). Click "Setup" control on top right corner, a search dialog will jump up, click "Scan" button, it will automatically search IP and MAC address in the system, as below picture shows. Then click "Apply" button to build communication. The "Status" control in top right corner indicates the communication status, which will light green if connect right, while off means fail to connect.
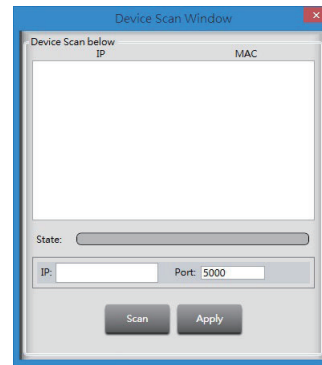
2). If fail to connect following above step, then please key the IP address in "Choose IP" text field, then click "Apply" button. After connecting successfully, you can see device information in the lower-left corner.
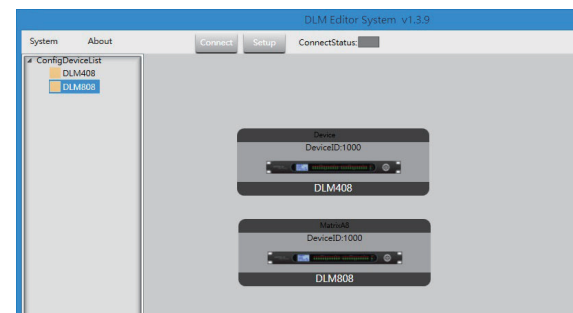
2. Configuration of Device Connection on Initial Page

Below picture shows you the connected status .

How to connect?
1). Add Device
Click the device under "Config DeviceList" and drag it to the middle area, then release mouse, the device will be added to this area.

2). Delete Device
Right-click the device, select "Delete Module" to delete it.

3). Configuration of Device ID
Right-click the device, select "Change DeviceID" , a dialog appears as below picture shows,input a new Device ID in the text field, then click "OK" button to change it.

After successfully connected devices, double click the product on this initial page to enter DSP control page, which will be introduced later.

---
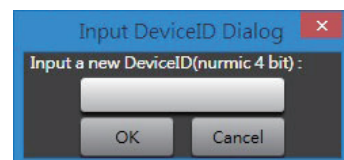
3. Input DSP Channel
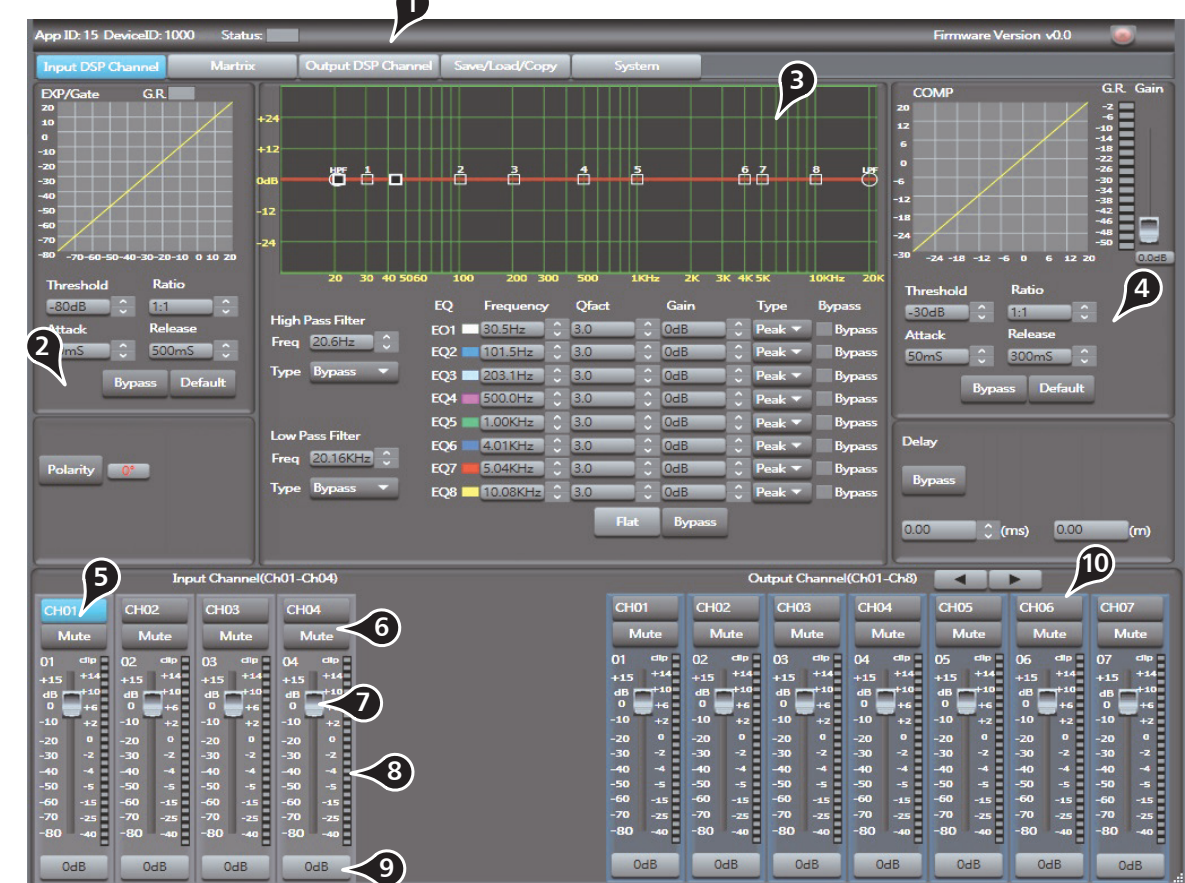
1). Device Data
After connecting PC with the product and communication right, here you can see information about current channel, device name, ID number etc. If Connect Status icon is green, means communication is right; While off means communication is fault.

2). Expander/Gate
In this area, you can adjust parameter of EXP/Gate , the curve in coordinate will change with parameter's change.
The Expander is used for adding input dynamic range according to user's demand.

- Threshold
Click the control to set Gate threshold of selected channel. This threshold value determines the open level of Gate. Actually, all input audio signal that higher than threshold value can go through, the range of threshold value is -80dB to 20dB.
If input signal is lower than threshold, the Expander can enlarge it with setting ratio, then output the signal.
If input signal is larger than threshold, output signal will be the same with input signal, which means ratio is 1:1.
If adjusting the ratio to max(∞), Expander will change to noise Gate.

- Ratio
Click the control to set ratio of input signal to output signal. That is the dynamic change value of Expander's input signal/dynamic change value of Expander's output signal.