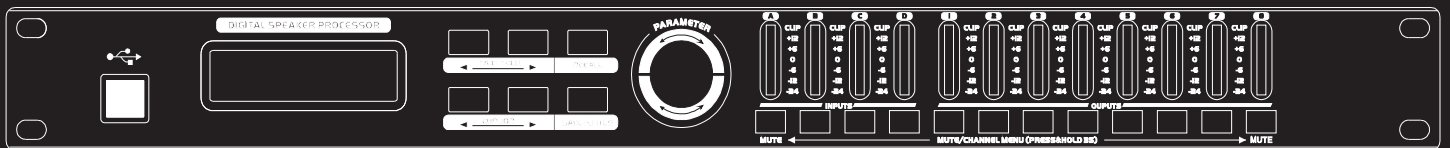


DIGITAL LOUDSPEAKER MANAGEMENT



USER MANUAL

For more product information, please refer to installation CD enclosed

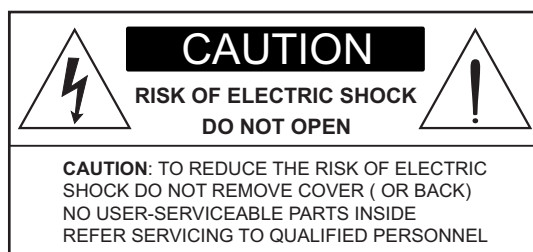
IMPORTANT SAFETY INSTRUCTION

Please read the basic protective measure as below before using.

1. Please read all the safety instruction before using the product.
2. This product must be earthed. If it should be malfunctioned or breaking down, grounding provides a path of least resistance for electric current to reduce risk of electric shock.
3. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and earthed in accordance with all local codes and ordinance.
4. **DANGER - Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Consult with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product - if it does not fit the outlet, have a proper outlet installed by a qualified electrician.**
5. To reduce the risk of injury, close supervision is necessary when the product is used near children.
6. Do not use this product near water-for example, near a bathtub, washbowl, kitchen sink, in wet basement or near a swimming pool or the lake.
7. Whether used this product alone or connected to the power amplifier, speaker or headset, excessive volume may cause permanent hearing loss. Don't use for a long time in large or any volume may cause discomfort. If you feel any hearing loss or tinnitus, Please seek medical advice.
8. This product should be located to a location or position does not interfere with its proper ventilation.
9. This product should be located away from heat sources such as radiators, heat registers or other products that produce heat.
10. The product should be connected to a power supply only of the type described on the operation instructions or as marked on the product.
11. The power-supply cord of the product should be unplugged from the outlet when left unused for a long period of time. When unplugging the power-supply cord, do not pull on the cord, but grasp it by the plug.
12. Care should be taken so that object do not fall and liquid are not spilled into the enclosure through opening.
13. The product should be serviced by qualified service person when:
 - a) The power-supply cord or the plug has been damaged; or
 - b) Objects have been fallen, or liquid has been spilled into the

product; or

- c) The product has been exposed to rain; or
 - d) The product does not appear to operate normally or exhibits a marked change in performance; or
 - e) The product has been dropped or the enclosure damaged.
14. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.
 15. **WARNING - Do not place objects on the product's power cord or place it in a position where anyone could trip over, walk on or roll anything over it. Do not allow the product to rest on or to be installed over power cords of any type. Improper installations of this type create the possibility of fire hazard and/or personal injury.**
 16. The power-supply cord should be unplugged from the outlet when the products is completely power off from the electric power sources and electric networks .



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operation and maintenance (servicing) instruction in the literature accompanying the appliance.

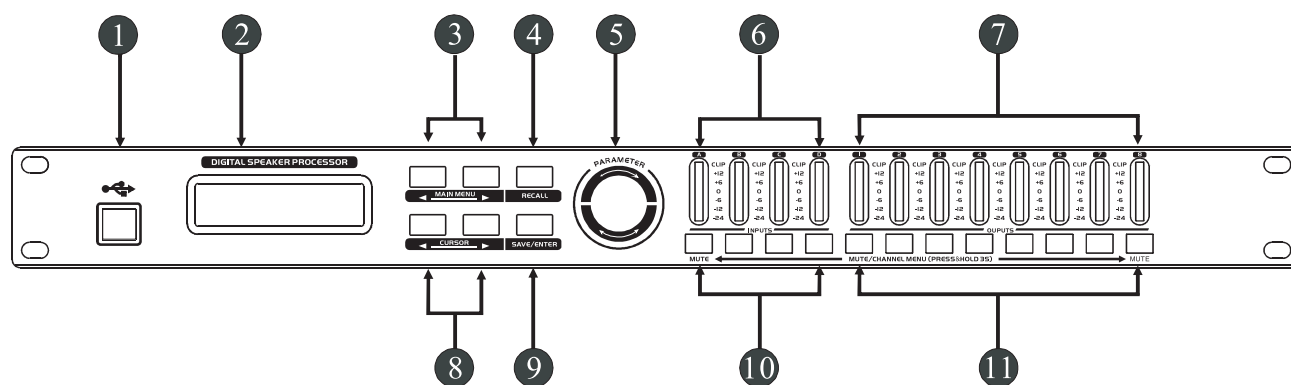


Only use it below the attitude of 2000ms for safety application.



Only use it in nontropical climate condition for safety application.

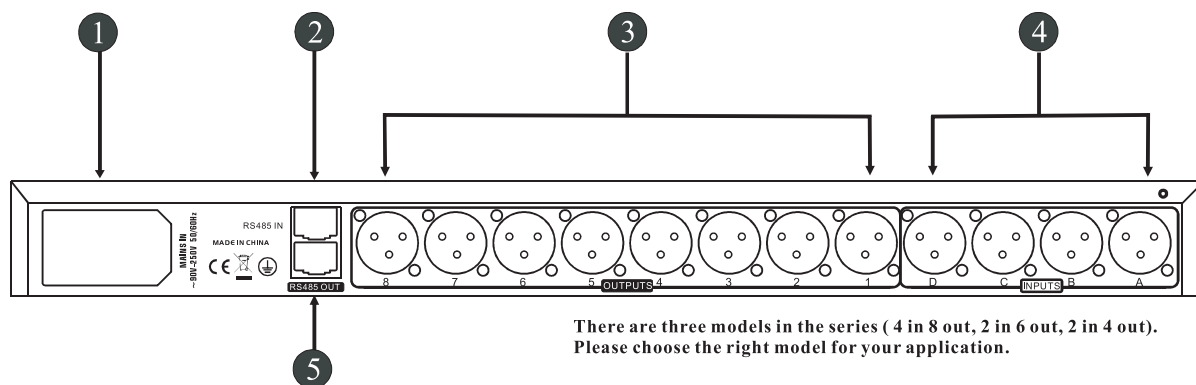
Front Panel



- 1 USB Interface
- 2 132×32 Dot-Matrix LCD
- 3 MAIN MENU Navigation Buttons
- 4 RECALL Button
- 5 PARAMETER Adjustment Rotary Encoder
- 6 7-Segments LED Input Level Indicator
- 7 7-Segments LED Output Level Indicator
- 8 CURSOR Navigation Buttons
- 9 SAVE / ENTER Buttons
- 10 Input MENU / MUTE Buttons and the Related LEDs
- 11 Output MENU / MUTE Buttons and the Related LEDs

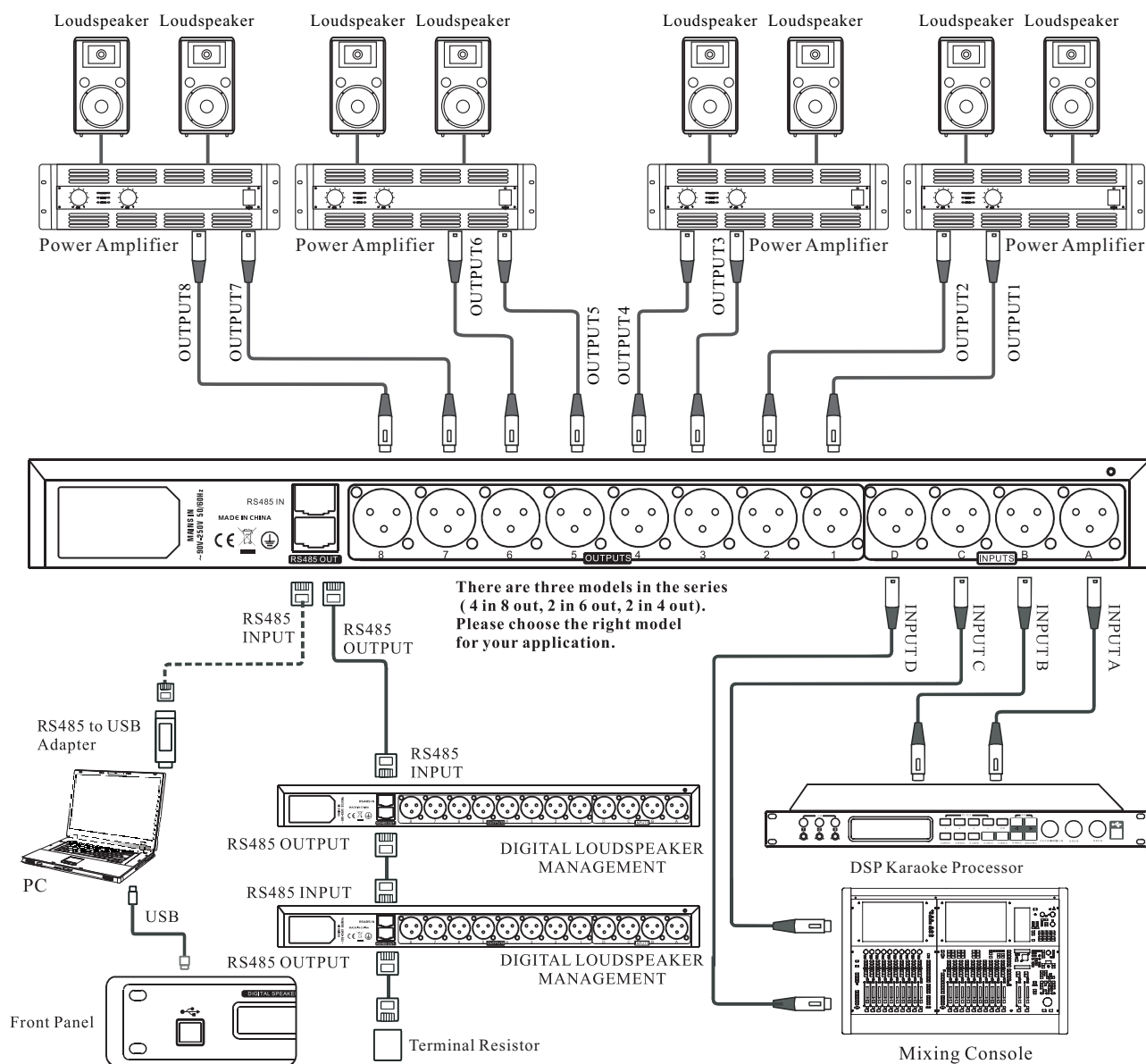
There are three models in the series (4 in 8 out, 2 in 6 out, 2 in 4 out). Please choose the right model for your application.

Rear Panel



- | | | | |
|---|----------------------------------|---|-----------------------------|
| 1 | Mains Input & Fuse Box | 4 | 4 / 2 Channel Input Sockets |
| 2 | RS485 Input | 5 | RS485 Output |
| 3 | 8 / 6 / 4 Channel Output Sockets | | |

System Connection Diagram



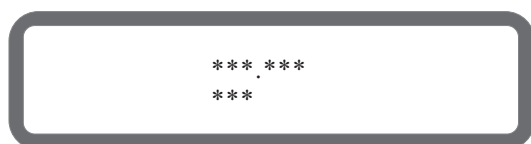
Features

- 24-bit DSP technology, high performance AD/DA, simple operation and excellent performance.
- 4 in 8 out (2 in 6 out, 2 in 4 out) multi-kinds of crossover mode for flexible configuration.
- Input/output volume control with the range -40dB - +12dB and the minimum step 0.1dB .
- 7 band PEQ for each input and output, each band PEQ has various EQ choice as Parametric, L-Shelf 6dB, L-shelf 12dB, High-Shelf 6 dB, High-Shelf 12dB.
- PEQ frequency range: 19.7Hz to 21.9Hz, Gain range: -30dB to +15dB , bandwidth: 0.017to 4.750 octave.
- Output high-pass and low-pass filter, each filter has multi-kinds of slopes and types. Filter slope: 12dB/Oct 24dB/Oct 36dB/Oct 48dB/Oct. Filter type: Butterworth, Bessel, Linkwitz-Riley.
- The maximum 1000.00ms delay for each input/output channel with delay switch.
- The compressor in each input / output can be adjusted the Threshold, Ratio, Attack-time, Release-time and knees.
- Phase reversal function is set in each input / output channel.
- Channel setting copy function makes the adjusting much easier.
- Multi channel parameters can be set simultaneously via Multi-channel linking function .
- Friendly and intuitive online interface. USB, RS485 can be connected with PC.
- Multi processor network function. One computer can be connected with 3 kinds of processors (4 in 8 out, 2 in 6 out, 2 in 4 out) with the maximum 32 pcs for each model.
- 132*32 Dot-matrix LCD, 7 segments input/output level indicator LED.
- Mute LED indicator , button LED indicator.
- Wide voltage design: From 90V to 250Vac, 50/60Hz.

Operation

1 Power on

- 1.1 Plug in the power cable, turn on the power switch on the panel, then the LCD shows the brand, model and version.



- 1.2 When the loading is completed, the LCD shows the current program number, name and the processor ID.



2 Front Panel Buttons and the Function

2.1 MUTE

2.1.1 Press the MUTE

Function: Switch between the state of mute or not for each channel.

Operation: Press MUTE within 2 second and then release it. The status of mute or not is switchable for each channel.

2.1.2 Press and Hold the MUTE

Function: Enter in the parameter setting menu of some channel.

Operation: Press and hold the MUTE (about 3 seconds) of some channel till the settings page displayed on LCD. Then release it. The settings menu of this channel has been entered.

2.2 PARAMETER Encoder

2.2.1 Rotate the Encoder

Function: Change the value or options of parameters. Rotate clockwise to increase the value. Rotate anticlockwise to decrease the value.

Operation: Rotate the encoder clockwise or anticlockwise.

2.2.2 Push the Encoder

Function: Lock and unlock. Push it for lock all buttons and encoder, push again to unlock.

Operation: Push the encoder and release it.

2.3 MAIN MENU ◀ and ▶

Function: A) Switch to different settings page of the same channel at the channel parameter set menu.
B) Switch to different menus at program management and configuration setting.

Operation: Press it and then release it.

2.4 CURSOR ◀ and ▶

Function: Move the Cursor position to change the parameter at the Cursor.

Operation: Press the button and then release.

2.5 RECALL

Function: A) Enter into user program menu.
B) Return to the root menu.

Operation: Press the button and then release.

2.6 SAVE / ENTER

Function: A) Enter in the menu of saving user program.
B) Enter in the next submenu or confirm the function.

Operation: Press the button and then release.

3 Front Panel Menu Operation

3.1 Common Operation for Channel Parameter Set

- Press and hold the MUTE (about 3 seconds) of some channel and enter into the parameter settings menu of this channel.
- Press button MAIN MENU ◀ or ▶ to switch between different pages in this channel.
- Press CURSOR ◀ or ▶ to move cursor position, and then rotate the Rotary Encoder to adjust the value.

3.2 Various Operations for Channel Parameter Set

3.2.1 Input / Output Mute Set

- Press MUTE button to your designated channel within 2 seconds and release it. Mute status will be reversed when press the button each time.
- The LED in the MUTE button will bright in red when the channel is mute, vice versa.

3.2.2 Input / Output Gain Set

- Press MAIN MENU ◀ or ▶ to switch to GAIN settings page.
- Rotate the Rotary Encoder to change the value.
- Can also press CURSOR ◀ or ▶ to change the cursor's position below the value, in order to switch to other step, such as 0.1dB or 1dB.



3.2.3 Input / Output Delay Set

- Press MAIN MENU ◀ or ▶ to switch to DELAY settings page.
- Rotate the Rotary Encoder to change the parameters with the step of 0.021ms.
- Can also press CURSOR ◀ or ▶ to change the cursor's position below the value, in order to switch to other step, such as 105ms, 10.5ms, 1.05ms, 0.105ms, 0.021ms, or adjust the Delay switch.

2 IN-A DELAY: 933.35mS
321.47m
2241.21ft
ON

3.2.4 Input / Output PEQ Set

- Press MAIN MENU ◀ or ▶ to switch to PEQ settings page.
- Press CURSOR ◀ or ▶ to move the cursor position.
- Rotate the Rotary Encoder to adjust the parameters at the cursor position.
- The Frequency, Gain of PEQ can be adjusted coarse or fine at the cursor position.

3 IN-A PEQ 1 ON PEQ
31.3Hz +0.0dB 0.500
A11: ON

3.2.5 Input / Output Compressor Set

- Press MAIN MENU ◀ or ▶ to switch to COMPRESS settings page.
- Press CURSOR ◀ or ▶ to move the cursor position.
- Rotate the Rotary Encoder to adjust the parameters at the cursor position.

4 IN-A COMPRESS OFF
+3.5dBu 4:1 AT: 25mS
RT: 200mS

3.2.6 Input / Output LINK Set

- Press MAIN MENU ◀ or ▶ to switch to LINK settings page.
- Press CURSOR ◀ or ▶ to move the Cursor position.
- Rotate the Rotary Encoder to adjust the parameters at the cursor position.
- Press SAVE/ENTER into the link confirmation dialogs.
- Default is NO, no link setting. Switch between YES and NO with the Rotary Encoder.
- Press SAVE/ENTER again to confirm the link setting.

Note: Yes is chosen as link set, the source channel parameters will be copied to the target channel.

5 IN-A CHANNEL LINK
Link to IN-D: OFF

5 IN-A CHANNEL LINK
Are you sure ? NO

3.2.7 Data COPY of Input / Output Channel

- Press MAIN MENU ◀ or ▶ to switch to COPY settings page.
- Rotate the Rotary Encoder to change the target channel.
- Press SAVE / ENTER into COPY confirmation dialogs.
- Default is NO, no copy operation. Switch between YES and NO with the Rotary Encoder.
- Press SAVE / ENTER again to confirm the copy operation.

Note: At the COPY set, the source channel parameters will be copied to the target channel.

6 IN-A CHANNEL COPY
COPY TO: IN-B

6 IN-A Copy data to IN-B
Are you sure ? NO

3.2.8 Output HIGH/LOW PASS FILTER Set

- Press MAIN MENU ◀ or ▶ to switch to HIGH/LOW - PASS Filter settings page.
- Press CURSOR ◀ or ▶ to move the cursor.
- Rotate the Rotary Encoder to adjust the parameters at the cursor position.
- The frequency of HIGH/LOW - PASS Filter can be adjusted coarse or fine at the cursor position.

4 OUT1 HIGH_PASS_FILTER
1620Hz 12 dB Linkriley

3.2.9 Output PHASE Set

- Press MAIN MENU ◀ or ▶ to switch to PHASE settings page.
- Rotate the Rotary Encoder to change PHASE parameter.

2 OUT1 SET PHASE
Phase: 180

3.2.10 SOURCE Set

- Press MAIN MENU ◀ or ▶ to switch to SOURCE settings page.
- Rotate the Rotary Encoder to change SOURCE parameter.

7 OUT1 SET SOURCE
Source: IN-A+IN-B

3.3 Program Management and Configuration Setting

3.3.1 Recall an User Program

- Continuously press RECALL till the menu (LOAD USER PROGRAM) as the below picture displays.
- Rotate the Rotary Encoder to change the program number.
- Press SAVE/ENTER to finish the recall operation.

**3 LOAD USER PROGRAM: 1
MEMORY**

**Loading User Program
Please Wait.**

3.3.2 Store an User Program

- Press RECALL to return to the root menu if entered channel menu, or skip this step.
- Then press SAVE / ENTER till the menu (STORE USER PROGRAM) as the below picture displays.
- Press CURSOR ◀ or ▶ to move the cursor.
- Rotate the Rotary Encoder to change program number and program name.
- Press SAVE/ENTER to finish the storing operation.

**4 STORE USER PROGRAM: 1
MEMORY**

**4 STORE USER PROGRAM: 1
Are you sure ? NO**

**Storing User Program
Please Wait.**

3.3.3 Recall a Preset Program

- Press RECALL to return to the root menu if entered channel menu, or skip this step.
- Then press MAIN MENU ◀ or ▶ till the menu (LOAD PRESET PROGRAM) as the below picture displays.
- Rotate the Rotary Encoder to change the preset program number.
- Press SAVE / ENTER to finish the operation of recall preset.

**2 LOAD PRESET PROGRAM: 1
4x2Way Crossover**

**Loading Preset
Please Wait.**

3.3.4 Erase an User Program

- Press RECALL to return to the root menu if entered channel menu, or skip this step.
- Then press MAIN MENU ◀ or ▶ till the menu (ERASE USER PROGRAM) as the follow picture displays.
- Rotate the Rotary Encoder to change the preset program number.
- Press SAVE / ENTER to finish the operation of erasing user program.

**5 ERASE USER PROGRAM: 1
MEMORY**

**5 ERASE USER PROGRAM: 1
Are you sure ? NO**

**Erasing User Program
Please Wait.**

3.3.5 Device Address Setting

- Press RECALL to return to the root menu if entered channel menu, or skip this step.
- Then press MAIN MENU ◀ or ▶ till the menu (SET DEVICE ADDRESS) as the below picture displays.
- Rotate the Rotary Encoder to change the device address.
- Press SAVE / ENTER to finish the operation of device address setting.

**6 SET DEVICE ADDRESS
DEVICE ID: 1**

**Setting Device address
Please Wait.**

3.3.6 Lock / Unlock the Device

- Press RECALL to return to the root menu if entered channel menu, or skip this step.
- Then press MAIN MENU ◀ or ▶ till the menu (LOCK DEVICE) as the below picture displays.
- Press CURSOR ◀ or ▶ to move cursor.
- Rotate the Rotary Encoder to change the lock type and password.
- Press SAVE/ENTER to finish the lock operation.

**7 LOCK DEVICE
TYPE: Change & View
Password: 12345678**

8 LOCK DEVICE
TYPE: Change & View
Are you sure ? NO

Lock succeed

3.3.7 Lock / Unlock the Buttons & Encoder

- ✱ Push the Rotary Encoder to lock all Buttons and Rotary Encoder.
- ✱ Push Rotary Encoder again to unlock.

3.4 Channel's Parameter Range

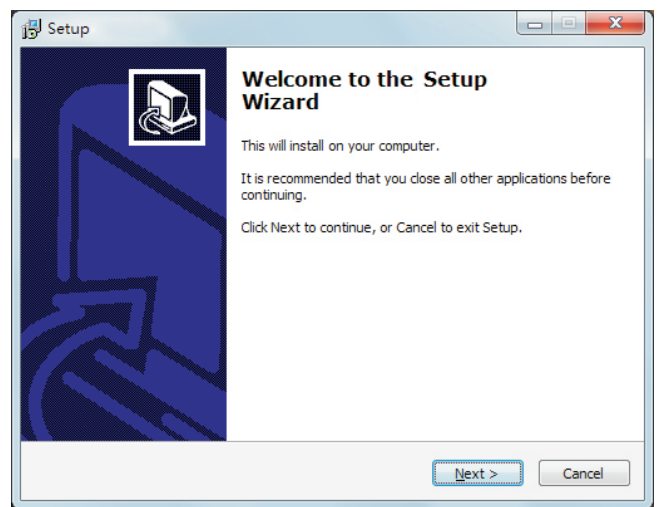
Items	Range	Steps
Gain	-40dB ~ +12dB	1dB/0.1dB
Delay	ON/OFF, 0ms~1000.00ms	105/10.5/1.05/ 0.105/0.021(ms)
PEQ Bands	1 ~ 7	-
PEQ Bypass	ON/OFF	-
PEQ Type	PEQ, Low-Shelf 6dB, Low-Shelf 12dB, High- Shelf 6dB, High-Shelf 12dB, Phase-Shifter	-
PEQ Frequency	19.7Hz ~ 21.9kHz	Coarse/Fine
PEQ Gain	-30dB ~ +15dB	1dB/0.1dB
Compressor's Knee	Off/Hard knee/Soft knee 1/Soft knee 2/Soft knee 3/Soft knee 4/Soft knee 5	-
Compressor's Threshold	-20dB ~ +20dB	0.5dB
Compressor's Ratio	1.2, 1.5, 2, 3, 4, 6, 10, 20, 40, 128	-
Compressor's Attack-Time	0 ms ~100ms	1 ms
Compressor's Release-Time	50 ms ~1000ms	50ms
High/Low-Pass Filter Frequency	19.7Hz~21.9kHz	Coarse/Fine
High/Low-Pass Filter Solpe	Flat, 12dB Bessel, 12dB Butterworth, 12dB Linkwitz-Riley, 24dB Bessel, 24dB Butterworth, 24dB Linkwitz-Riley, 36dB Bessel, 36dB Butterworth, 36dB Linkwitz-Riley, 48dB Bessel, 48dB Butterworth, 48dB Linkwitz-Riley	-
Phase Inverter	0°/180°	-

3.5 Parameter Range of Program Management and Configuration Setting

Items	Range	Steps
Load User Program	1 ~ 30	1
Store User Program	Program Number: 1 ~ 30 Program Name: ASCII Charater	1
Load Preset Program	1 ~ 10	1
Erase User Program	1 ~ 30	1
Set Device Address	1 ~ 32	1
Lock / Unlock Device	Type: Change, Change&View, Change & Mute, Password: ASCII Charater	-

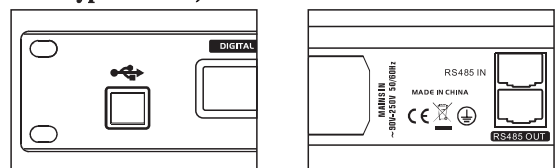
4 Software Installation

Puts the CD of accessories to the CD-ROM of computer, open the file SETUP.EXE in the CD to launch the software. When loading menu is showed, click the NEXT step by step till the installation is completed.



5 PC Online Operation

5.1 One Processor Communication Link with PC: Multi-types as USB, RS485 etc.



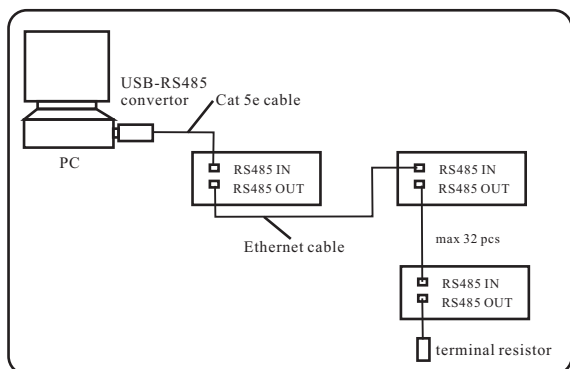
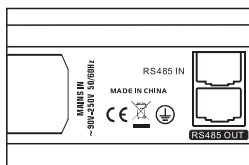
Note: The ID of User Interface should be set to the same with the processor in order to the succeed online.

5.2 Multi Processors Communication Link with PC: RS485

- ✱ Use USB-RS485 convertor and Cat 5e cable to connect PC with RS485-IN interface of the first device.
- ✱ Use Cat 5e cable to connect RS485-OUT interface of the first device with RS485-IN interface of the second device.
- ✱ Use Cat 5e cable to connect RS485-OUT interface of the second device with RS485-IN interface of the third device.
- ✱ As step 3, use Cat 5e cable to connect multi devices. One PC can be connected with three models of device (4 in 8 out, 2 in 6 out, 2 in 4 out) . The maximum number of connections are 32 processors.
- ✱ Finally, RS485-OUT of the last device is connected with the terminal resistor via Cat 5e cable.

Note: 1 For the same model processor, each device ID should be set differently.

2 USB-RS485 convertor and the terminal resistor are the optional accessories.



5.3 About the UI Operation, please refer to UI software manual.

6 Reset the Device

Function: This operation will reset the device to factory default settings, can also repair the issue caused by improper operation.

WARNING - Any user program, device address and lock setting that your have created will be lost.

Operation: Press and hold the button SAVE / ENTER, then turn on the power switch on the rear panel till LCD displays the following.

**Resetting User Program
Please Wait...**

7 Troubleshooting

Issues	Troubleshooting Methods
No display on LCD screen and LCD lights.	1 Check if the power cable is plugged in. 2 Check if the fuse is burned. 3 Make sure that the power switch is ON.
Single processor can not be connected with PC for Online control.	1 Check if the communication cable is connected correctly 2 Close the software and connect the communication cable again, then open the software.
Multi processors can not be connected with PC for Online control.	1 Check if the communication cable is connected correctly 2 Check if the ID addresses of the same model processors are setting differently. 3 Close the software and reconnect PC with the first processor RS485 IN. Open the software again.
No signal output at the output channel	1 Check if the communication cable is connected correctly 2 Check if MUTE LED is on. Disable the mute function.

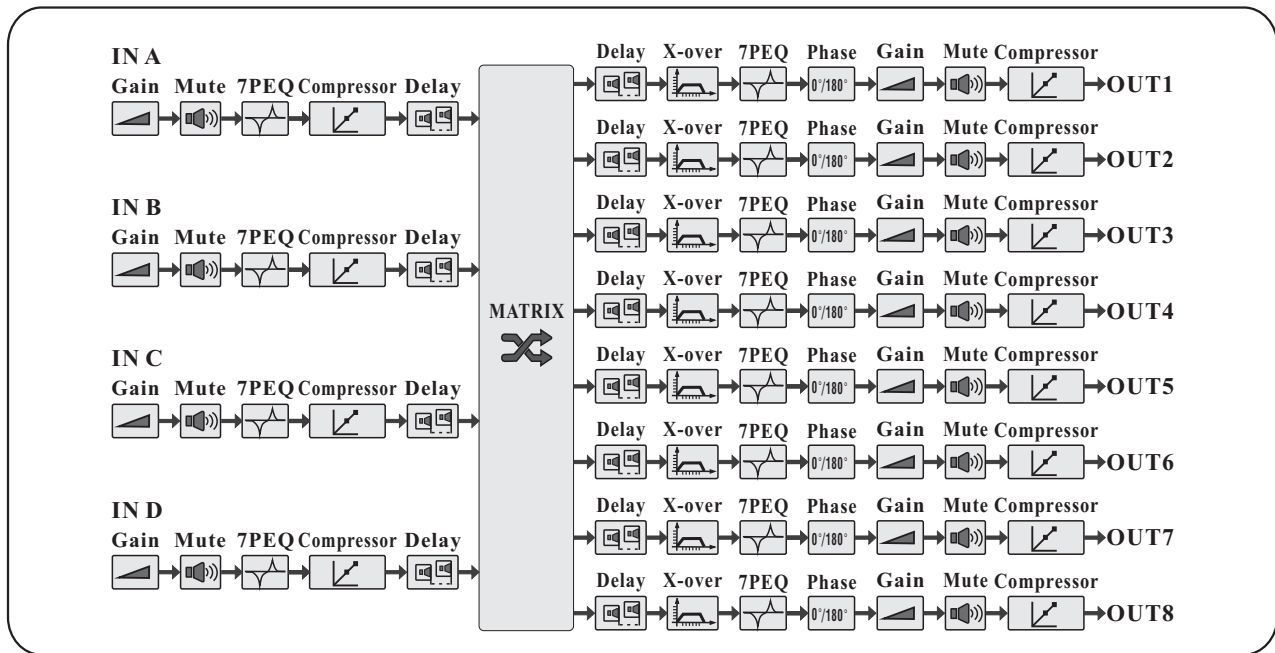
Accessories

Name	Quantity
Software CD	1
USB Online Cable	1
User Manual	1

Options

Name	Quantity
USB-RS485 Converter	1
Terminal Resistor	1
Cat 5e Twisted-pair Cable	Several

Signal Flow Chart



Specifications

Number of Input Channel	4 / 2
Number of Output Channel	8 / 6 / 4
Input Impedance	10 kΩ
Output Impedance	50 Ω
Maximum Input Level	19dBu
Maximum Output Level	19dBu
Sampling Frequency	48 kHz
Input Gain	-40 dB ~ +12 dB, steps 0.1 dB
Output Gain	-40 dB ~ +12 dB, steps 0.1 dB
Input Delay	1s steps 21us
Output Delay	1s steps 21us
Input EQ Number	7 Bands
Output EQ Number	7 Bands
Input / Output EQ Gain	-30 dB ~ +15 dB, steps 0.1 dB
Input / Output EQ Type	PEQ, Low-Shelf 6 dB/12 dB, High shelf 6 dB/12 dB
Input / Output EQ Frequency	19.7 Hz ~ 21.9 kHz
Input / Output EQ Bandwidth	0.017 ~ 4.750 Oct
High / Low-Pass Filter Frequency	19.7 Hz ~ 21.9 kHz
High / Low-Pass Filter Type	Bessel, Butterworth, Linkwitz-Riley
High / Low-Pass Filter Slope	12 dB/Oct, 24dB/Oct, 36dB/Oct, 48dB/Oct
Compressor Threshold	-20 dBu ~ +20 dBu, steps 0.5dBu
Compressor Ratio	1.2, 1.5, 2, 3, 4, 6, 10, 20, 40, 128
Input / Output Compressor Attack-Time	1 ms ~ 100 ms, steps 1ms
Input / Output Compressor Release-Time	50 ms ~ 1000 ms, steps 50 ms
Dynamic Range	116dB A-Weighted
Frequency Response	20 Hz ~ 20 kHz (±0.5 dB)
CMRR	> 50 dB (30 Hz ~ 20 kHz)
Crosstalk	< -100dB
THD+N	0.003% (1 kHz, +4 dBu)
Maximum Number of User Presets	30
Mains Input Voltage & Frequency	90 V-250 Vac, 50/60 Hz
Fuse Size	T1AL, AC250 V
Net Weight	2.0 kg
Dimensions	482×158×45 (mm)

The above design and specifications are subject to change without prior notice for product improvement.