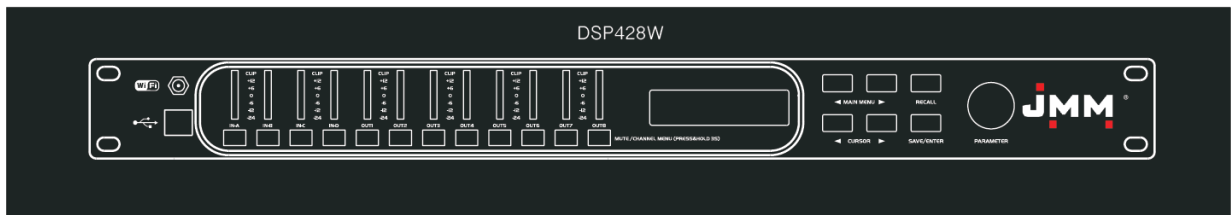




Owner's Manual

V.2 INTERNAL WI-FI



DIGITAL LOUDSPEAKER MANAGEMENT SYSTEM

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.

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.

4. To reduce the risk of injury, close supervision is necessary when the product is used near children.
5. 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.
6. 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.
7. This product should be located to a location or position does not interfere with its proper ventilation.
8. This product should be located away from heat sources such as radiators, heat registers or other products that produce heat.
9. The product should be connected to a power supply only of the type described on the operation instructions or as marked on the product.
10. 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.
11. Care should be taken so that object do not fall and liquid are not spilled into the enclosure through opening.
12. The product should be serviced by qualified service person when:
 - a) The power-supply cord or the plug has been damaged;

- b) Objects have been fallen, or liquid has been spilled into the product;
- c) The product has been exposed to rain;
- d) The product does not appear to operate normally or exhibits a marked change in performance;
- e) The product has been dropped or the enclosure damaged.

13. 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.

14. 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.

15. 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.

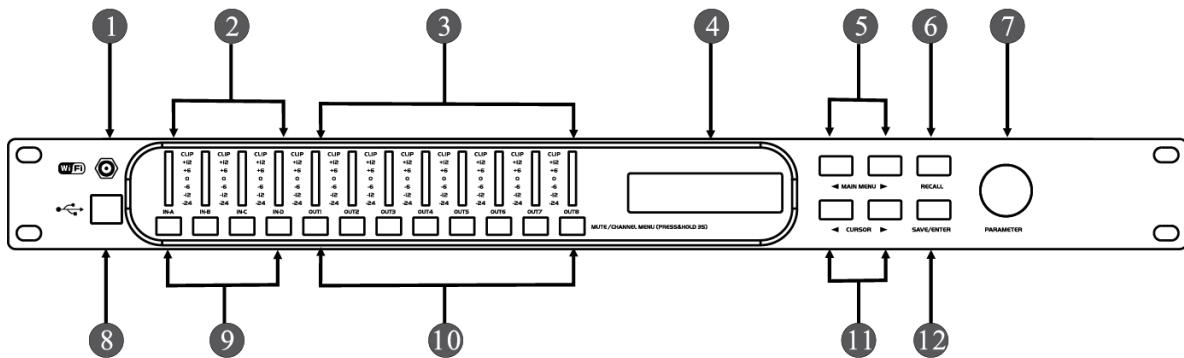


Only use it below the attitude of 2000ms for safety application.



Only use it in nontropical climate condition for safety application.

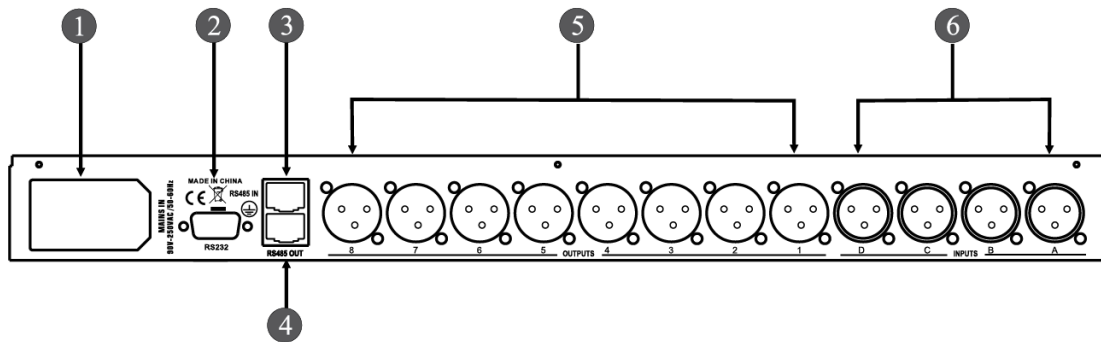
Front Panel



- | | |
|---|---|
| <ul style="list-style-type: none"> 1 WIFI Adapter Interface 2 7-Segments LED Input Level Indicator 3 7-Segments LED Output Level Indicator 4 132×32 Dot-Matrix LCD 5 MAIN MENU Navigation Buttons 6 RECALL Button | <ul style="list-style-type: none"> 7 PARAMETER Adjustment Rotary Encoder 8 USB Interface 9 Input MENU / MUTE Buttons and the Related LEDs 10 Output MENU / MUTE Buttons and the Related LEDs 11 CURSOR Navigation Buttons 12 SAVE / ENTER Buttons |
|---|---|

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

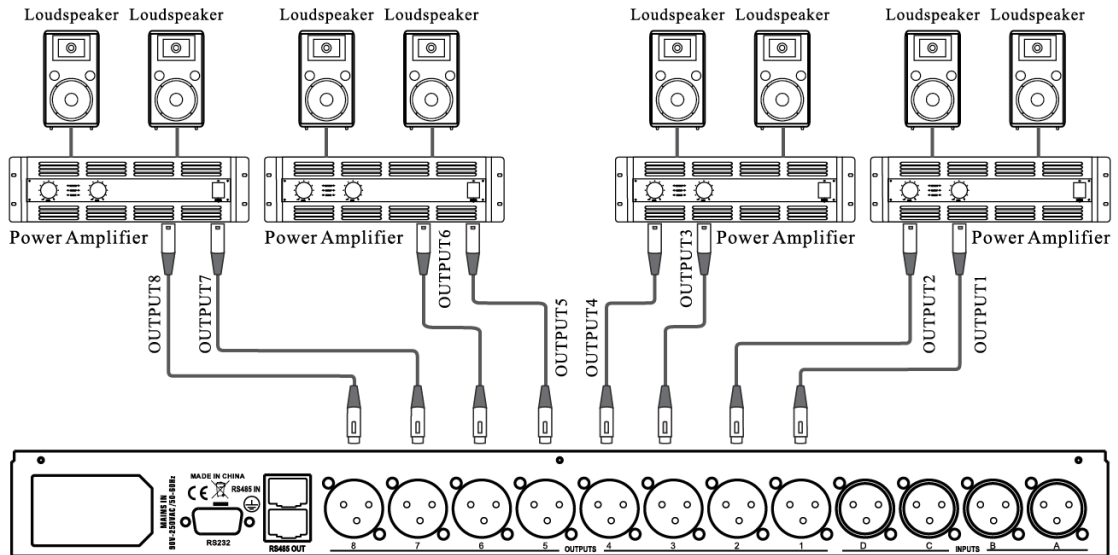
Rear Panel



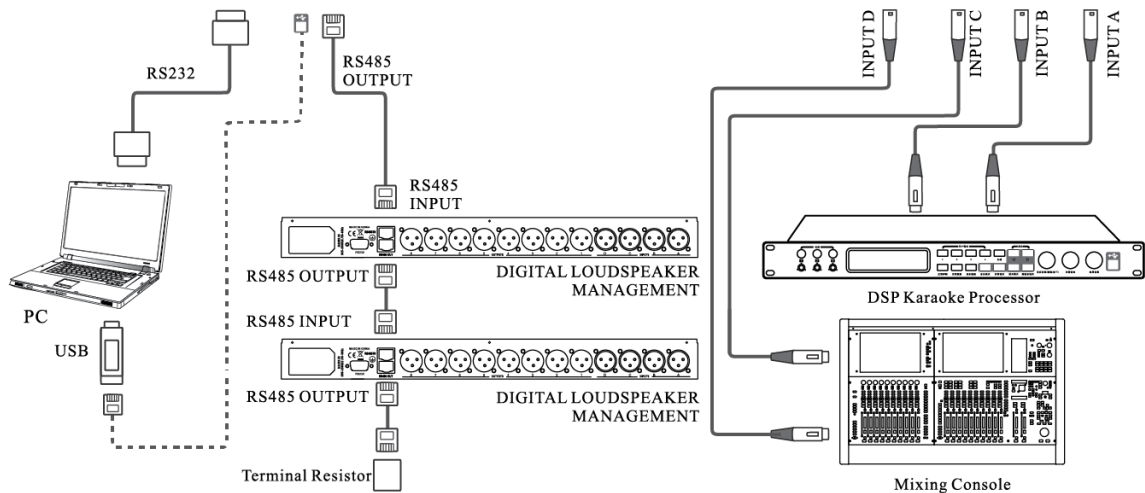
- | | |
|------------------------------|------------------------------------|
| ① Mains Input & Fuse Box | ④ RS485 Output |
| ② RS232 PC Control Interface | ⑤ 8 / 6 / 4 Channel Output Sockets |
| ③ RS485 Input | ⑥ 4 / 2 Channel Input Sockets |

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

System Connection Diagram



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



Features

- 24-bit DSP technology, high performance AKMAD/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 to +12dB and the minimum step 0.1dB .
- 9 bands PEQ for each input / output, each band PEQ has Parametric, L-Shelf 6dB , L-Shelf 12dB , High-Shelf 6dB, High-Shelf 12dB. Each PEQ has Phase shifter setting with the range 0° to 178° .
- PEQ frequency range: 19.7Hz to 21.9Hz, Gain range: -30dB to +15dB , bandwidth: 0.017 to 4.750 Octave.
- 31 bands GEQ for each input / output, 1/3-Octave ISO Spacing From 19.7 Hz to 21.9 kHz. Gain range: -30dB to +15dB.
- 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 2000.02ms delay for each input/output channel with delay bypass switch.
- The compressor in each input / output can be adjusted the Threshold, Ratio, Attack-time, Release-time and knees.
- Phase invert 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, RS232, RS485 or WIFI can be connected with PC.
- Multi processor networking function. One computer can be connected to 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.

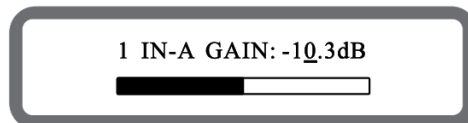
3.2 Various Operations for Channel Parameter Set

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.



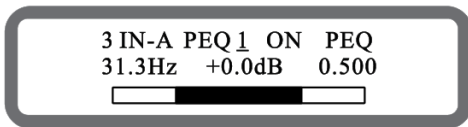
3.2.3 Input / Output Delay Set

- 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.



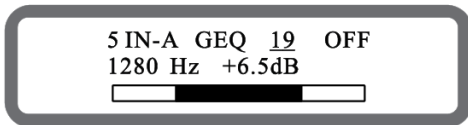
3.2.4 Input / Output PEQ Set

- 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.



3.2.5 Input / Output GEQ Set

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



3.2.6 Input / Output EQ Bypass Set

- Press MAIN MENU ◀ or ▶ to switch to ALL BYPASS settings page.
- Press CURSOR ◀ or ▶ to move the cursor position.
- Switch between PEQ ALL-BYPASS and GEQ BYPASS.
- Rotate the Rotary Encoder to adjust the parameters at the cursor position.



3.2.7 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.

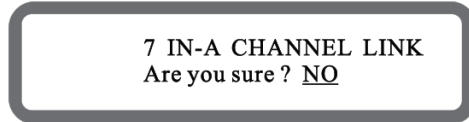
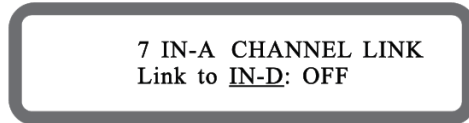


3.2.8 Input / Output LINK Set

- 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.

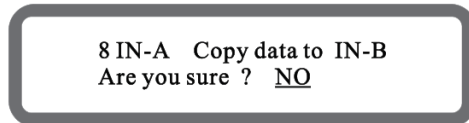
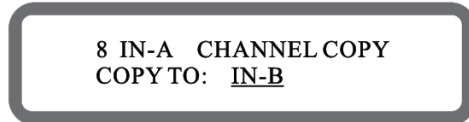
Note: Yes is chosen as link set, the source channel parameters will be copied to the target channel.



3.2.9 Data COPY of Input / Output Channel

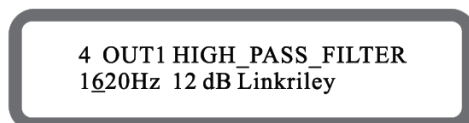
- Press MAIN MENU ◀ or ▶ to switch to COPY settings page.
- Rotate the Rotary Encoder to change the target channel.
- Press SAVE / ENTER into COPY confirmation dialogs.
- Default is NO, no copy operation. Switch between YES and NO with the Rotary Encoder.
- Press SAVE / ENTER again to confirm the copy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

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



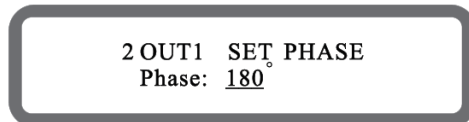
3.2.10 Output HIGH/LOW PASS FILTER Set

- 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.



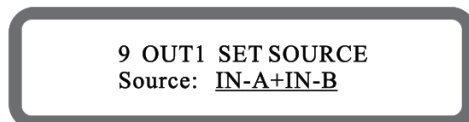
3.2.11 Output PHASE Set

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



3.2.12 SOURCE Set

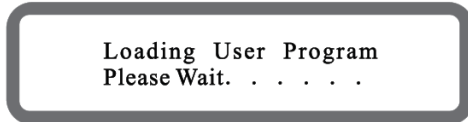
- Press MAIN MENU ◀ or ▶ to switch to SOURCE settings page.
- Rotate the Rotary Encoder to change SOURCE parameter.



3.3 Program Management and Configuration Setting

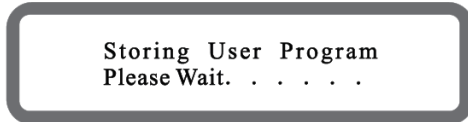
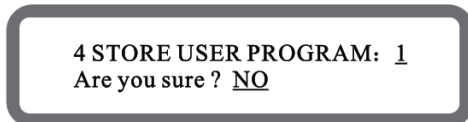
3.3.1 Recall an User Program

- 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.



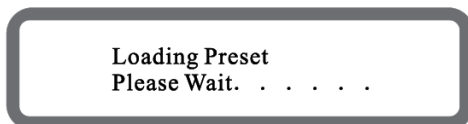
3.3.2 Store an User Program

- 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.



3.3.3 Recall a Preset Program

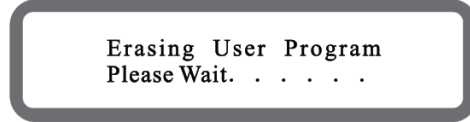
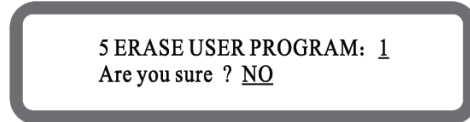
- Press RECALL to return to the root menu if entered channel menu, or skip this step.
- Then press MAIN MENU ◀ or ▶ till the menu (LOAD PRESET PROGRAM) as the below picture displays.
- Rotate the Rotary Encoder to change the preset program number.
- Press SAVE / ENTER to finish the operation of recall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



3.3.4 Erase an User Program

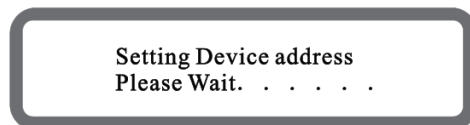
- Press RECALL to return to the root menu if entered channel menu, or skip this step.
- Then press MAIN MENU ◀ or ▶ till the menu(ERASE USER PROGRAM) as the follow picture displays.

- Rotate the Rotary Encoder to change the preset program number.
- Press SAVE / ENTER to finish the operation of erasing user program.



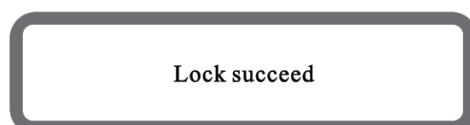
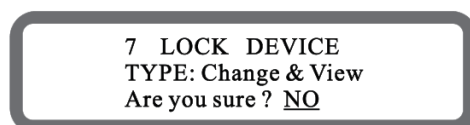
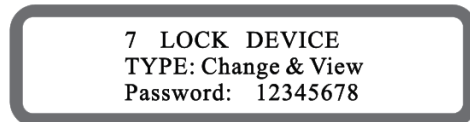
3.3.5 Device Address Setting

- 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.



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.



3.3.8 Lock / Unlock the Buttons & Encoder

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

3.3.9 Set WIFI Mode

- Press RECALL to return to program management and function set menu at the channel parameter set display. Then press MAIN MENU < or > till the menu (WIFI MODE) as the lower left picture displays.
- Press MAIN MENU < or > till the menu (WIFI MODE) as the lower left picture displays at the program management and function set menu.
- Rotate the encoder to change the WIFI Mode.
- Press SAVE/ENTER, complete change the WIFI Mode.



- The Master Mode will turn on the WIFI and change the device as Master device, we can connect other Slave device(s) by RS485 port at this Mode, all connected device can be controlled by IPAD APP or PC Software.
- The Slave Mode will turn off the WIFI and change the device as Slave device(s), all Slave device(s) can be controlled only by USB port or by RS485 use Slave Mode.

3.3.9 Reset WIFI

- Press RECALL to return to program management and function set menu by parameter set display. Then press MAIN MENU < or > till the menu (RESET WIFI) as the below picture shows.
- Press MAIN MENU < or > till the menu (RESET WIFI) as the lower left picture displays at the program management and function set menu.
- Press SAVE/ENTER, complete reset the WIFI.



3.4 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 Language	Chinese / English	-
Set Device Address	1 ~ 32	1
Lock / Unlock Device	Type: Change, Change&View, Change & Mute, Everything Password: ASCII Charater	-

3.5 Channel's Parameter Range

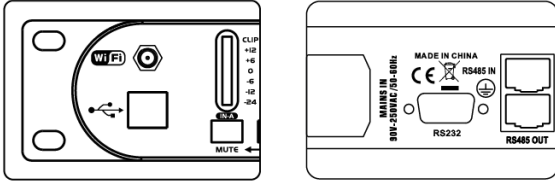
Items	Range	Steps
Gain	-40dB ~ +12dB	1dB/0.1dB
Delay	ON/OFF, 0ms~2000.02ms	105/10.5/1.05/ 0.105/0.021(ms)
PEQ Bands	1 ~ 9	-
PEQ Bypass	ON/OFF	-
PEQ Type	PEQ, Low-Shelf 6dB, Low-Shelf 12dB, High- Shelf 6dB, High-Shelf 12dB, Phase-Shifter	-
PEQ Frequency	19.7Hz ~ 21.9kHz	Coarse/Fine
PEQ Gain	-30dB ~ +15dB	1dB/0.1dB
PEQ Bandwidth	0.017 ~ 4.750 Oct	-
Phase-Shifter	0°~178°	1°
GEQ Bands	1 ~ 31	-
GEQ Bypass	ON/OFF	-
GEQ 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	1ms
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°	-

4 Software Installation

Put the CD enclosed in the computer, open the file SETUP.EXE in the CD to launch the software. Set-up window will pop-up, click the NEXT button and do it step by step till the installation is completed.

5 PC Online Operation

5.1 Single Processor Communication Link with PC: Multi-types as USB, RS232, WIFI etc.

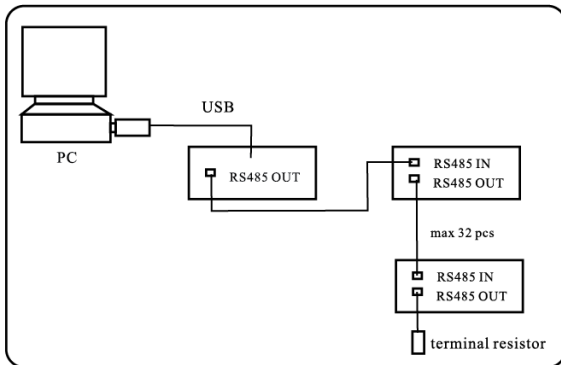
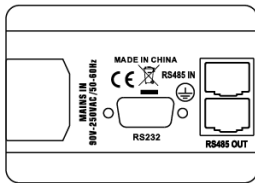


Note: The ID of User Interface should be the same as the processor in order to the succeed online.

5.2 Multi Processors Communication Link with PC: RS485

- Use USB to connect PC interface of the first device. The first processor must be Master Mode, the other must be Slave Mode.
- 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. Only main controlling processor must be Master mode in all. processors.



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

5.4 WIFI Online Operation

5.4.1 Connect Mode:

Select one as master device, WIFI mode set to Master Mode, the other devices select as Salve Mode.

Connect RS485 Input Port on Salve device to Output Port on Master device.

The rest devices will be connected the same method until all device are in the Network.

5.4.2 Operation on IPAD:

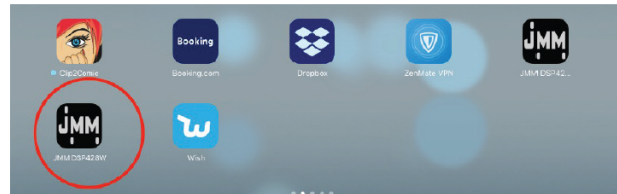
Turn on IPAD WIFI to connect the Master Devie to the correspond wireless network, then open APP to control the unit on IPAD.

The default network name for master device is 428E.

5.4.3 Download APP from Apple Store

1.Install App : in App Store on IPAD.

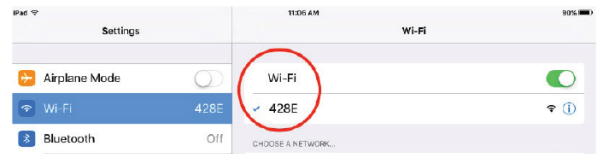
JMM-DSP428W_1.3
 Engineer full operation
 or
 JMM_DSP428W_Client_1.3
 Client volumes and mutes only



2. WIFI Connection :

- 1.Turn on the power, select WIFI mode on the control panel .
- 2.Set on iPad ->Wi-Fi->Connect WIFI Search 428E WIFI network(Default WIFI SSID is 428E, the password is "00000000"), and connect to the network.

P.S. : Stable WIFI singal distance is within 30 meters.



3.App Control

- (1) Search the current access network device.
- (2) Select online device.
- (3) Switch to the operated device(s).



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
Antennas	1

Options

Name	Quantity
Cat 5e Twisted-pair Cable	Several

Reset the Device

1. Function:

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

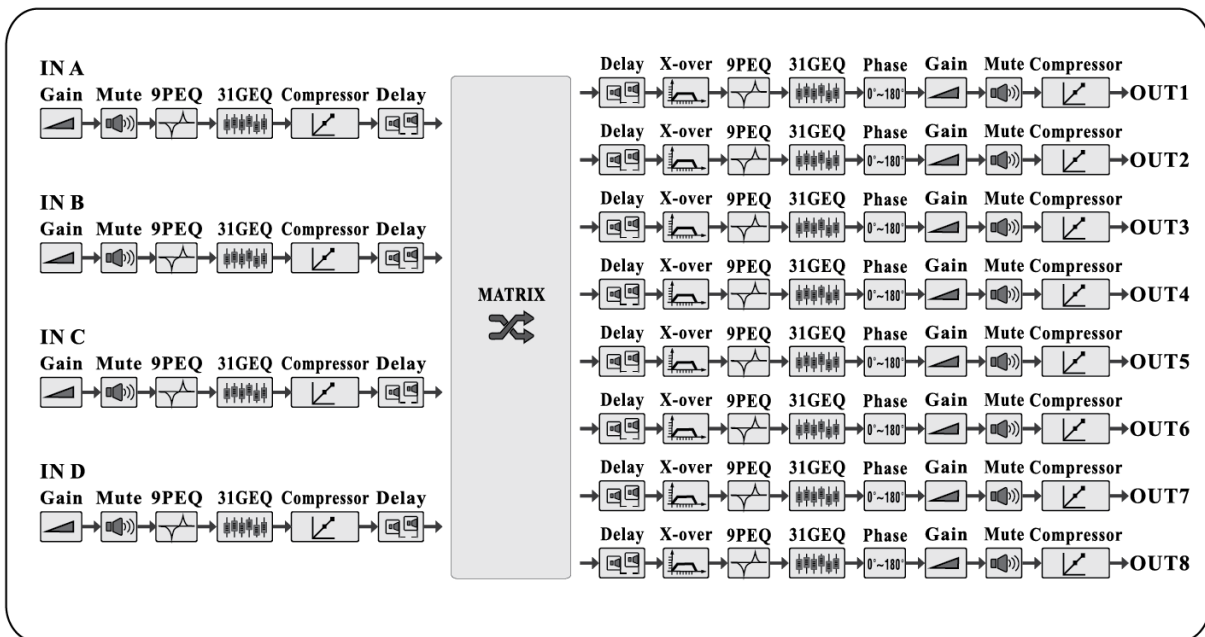
WARNING - Any user program, device address and lock setting that your have created will be lost.

2. Operation:

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



Signal Processing Flow Diagram



Specifications

Number of Input Channel	4 / 2
Number of Output Channel	8 / 6 / 4
Input Impedance	8 k Ω
Maximum Input Level	+20 dBu
Input CMRR	> 55 dB
Input Sockets	XLR-3Pin Female Connector
Sampling Frequency	48 kHz
Output Impedance	150 Ω
Maximum Output Level	+20 dBu
Output Sockets	XLR-3Pin Male Connector
Input / Output Gain	-40dB ~ +12dB
Input / Output Delay	0ms ~ 2000.02 ms
Input / Output PEQ Bands	9
Input / Output PEQ Type	PEQ, 6dB / 12 dB Low-Shelf, 6dB / 12 dB High-Shelf, Phase Shifter
Input / Output PEQ Frequency	19.7 Hz ~ 21.9 kHz
Input / Output PEQ Gain	-30 dB ~ +15 dB
Input / Output PEQ Bandwidth	0.017 ~ 4.750 Oct
Input / Output GEQ Bands	31
Input / Output GEQ Frequency	1/3-Octave ISO Spacing From 19.7 Hz to 21.9 kHz
Input / Output GEQ Gain	-30 dB ~ +15 dB
Input / Output Compressor Threshold	-20 dB ~ +20 dB
Input / Output Compressor Ratio	1.2, 1.5, 2, 3, 4, 6, 10, 20, 40, 128
Input / Output Compressor Attack-Time	0 ms ~ 100ms
Input / Output Compressor Release-Time	50 ms ~ 1000 ms
Output High / Low-Pass Filter Frequency	19.7 Hz ~ 21.9 kHz
Output High / Low-Pass Filter Type	Bessel, Butterworth, Linkwitz-Riley
Output High / Low-Pass Filter Slope	12dB/Oct, 24dB/Oct, 36dB/Oct, 48dB/Oct
Frequency Response	20 Hz ~ 20 kHz \pm 0.1dB
Dynamic Range	> 112 dB (A-Weighting)
Crosstalk	< 95 dB
THD+N	< 0.004% (1kHz, 1Vrms)
Mains Input Voltage & Frequency	90 V-250 Vac, 50/60 Hz
Fuse Size	T1AL, AC250 V
Power Rating	30 W
Dimensions	482 \times 218 \times 45 (mm)
Net Weight	3.6 kg

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