

Digital Speaker Processor

USER'S MANUAL

Digital speaker processor

Attention

Thank you for purchasing our digital speaker processor. This product is built on the basis of excellent quality, excellent product quality in the frequency division, equalization and signal processing market in a leading position.

Before using the machine, please read through the operation manual so that you can master how to use the equipment correctly. After you have read the manual, please keep it properly for future reference. Please note: the machine is electrical products, non-professional maintenance technicians, do not disassemble the machine without authorization, so as to avoid the risk of electric shock (shock). In case of failure, please contact your distributor or manufacturer.

Function Introduction

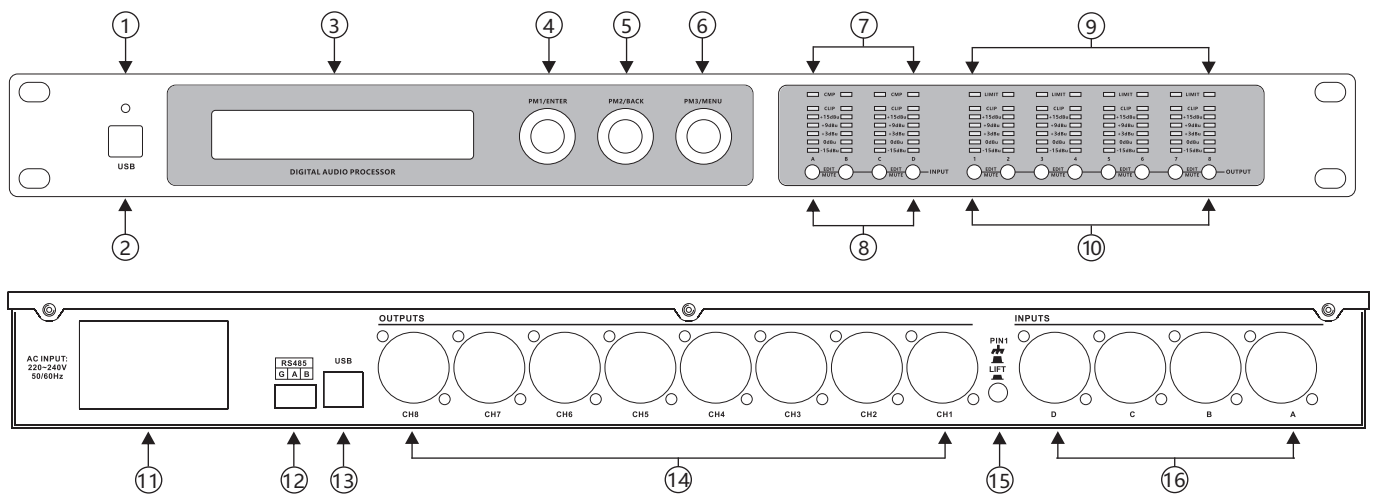
The processor adopts the most advanced DSP technology, using 24bit, 48K A/D, D/A converter, with 128k sampling rate. Digital processing includes gain, phase reversal, noise gate, equalizer, slope filter, dynamic filter, frequency division, delay, compression, clipping, and signal routing functions, all through a high-performance DSP processor. Balanced output and RF protection are used for all inputs and outputs, while the XLR connector is used.

Factory Configuration

As part of our quality control system, each product is carefully inspected before leaving the factory to make sure there are no defects in its appearance. After opening the package, please check for any physical damage. Please keep the transport wooden cases and all the packing materials, as they are specially designed for this product. If the equipment needs to be repacked for transportation, the use of these materials and wooden cases will minimize the possibility of damage during transportation. In the event of damage, please notify your dealer immediately and issue a written statement of all damage. If the carrier is not notified in time and if the carrier is unable to inspect the shipping cases and packing materials, you will lose all claims against the common carrier.

Digital audio processor	1pcs
Power line	1pcs
Computer cable	1pcs
Data disc/usb flash disk	1pcs
Product manual book	1pcs
Product qualified certificate	1pcs

Panel Introduction



1. USB connection indicator light, which is on when connecting USB interface to PC control terminal.
2. Front panel USB interface -- can be connected to the computer special software to adjust the parameters of the device.
3. LCD screen -- displays menu options and various parameter information.
4. PM1/Enter—parameter selection and confirmation key. Select the required parameters by rotation and press the switch to enter the parameters menu.
5. PM2/Back—parameter adjustment and return key. Adjust the parameter value by rotating, press the switch to return to the upper menu and exit.
6. PM3/Menu—parameter adjustment and Menu key. By rotating to adjust the parameter value, pressing the switch is to enter the function menu.
7. Input level indicates status lamp. -15dBu to +15dBu is the normal signal indicator, CLIP is the peak indicator, and CMP is the compressor starting indicator.
8. Enter mute and parameter editing button -- press this button, and the green LED indicator of the corresponding channel will be lit, indicating the parameter editing menu of the channel. Parameters can be adjusted through the display screen and three encoders. Press this button for a long time (about two seconds), and the red indicator of the channel will be lit, indicating that the mute function of the channel is started.
9. Output level indicates status lamp. -15dBu to +15dBu is the normal signal indicator, CLIP is the peak indicator, and LIMIT is the starting indicator of the voltage limiter.
10. Output mute and parameter editing button -- press this button, and the green LED indicator of the corresponding channel will be lit, indicating the parameter editing menu of the channel. Parameters can be adjusted through the display screen and three encoders. Press this button for a long time (about two seconds), and the red indicator of the channel will be lit, indicating that the mute function of the channel is started.
11. AC power input standard IEC plug and power main switch, can use AC 220V to 240V@ 50 and 60 Hz voltage, with voltage regulation and power failure protection functions.
12. RS485 interface is used to connect PC control terminal or central control platform.
13. Rear panel USB interface -- can be connected to the computer special software to adjust the parameters of the device, the front and rear USB interface can only be used at the same time.
14. Eight-channel output signal XLR balanced interface.
15. The chassis ground switch is pressed to indicate the connection between the ground wire and the chassis; otherwise, it is disconnected.
16. Four-channel input signal XLR balanced interface.

Parameter Settings

1. Mute

Press the button of the corresponding channel for a long time (about two seconds), and the red indicator of the channel will be lit, indicating that the mute function of the channel is started. Input/output no audio output. To cancel the mute, press the button of the corresponding channel for a long time (about two seconds), and the red light of the channel will go out, indicating that the mute is cancelled.

2. Edit the channel name

Press the corresponding input IN A, B, C, D/ output channel OUT 1, 2, 3, 4, 5, 6, 7, 8, then press Enter key, edit the name through PM2, and press Back to return.

```
In-A:   InA   Name
      ->Name = InA
```

```
Out-1:  Out1  Name
      ->Name = Out1
```

3. Noise door

Press the corresponding input channel and rotate PM1 to the following interface.

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

Press Enter to adjust the parameters through the three encoders. Including straight through switch (By) (note: On is to close the noise gate, Off is to open the noise gate), threshold value (Thr), release time (Rel), start control time (Atk), and press Back to return.

```
In-A: Name N.Gate
      ->By=On Thr=-80.0dBu
```

```
In-A: Name N.Gate
      ->Rel=50ms Atk=3ms
```

4. Gain

Press the corresponding input/output channel, rotate PM1 to the following interface, press Enter, adjust the parameters through PM2 and PM3, and press Back to return.

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

```
Out-1  Out1  Gain
      -> Gain = 0.0dB
```

5. Phase

Press the corresponding input/output channel, rotate PM1 to the following interface, press Enter, adjust the phase through PM2 or PM3, positive phase(Normal), inverse phase(Invert), and press Back to return.

```
In-A   InA   Delay
      -> Delay = 420.9984ms
```

```
Out-1  Out1  Delay
      -> Delay = 128.9984ms
```

6. Delay

Press the corresponding input/output channel, rotate PM1 to the following interface, press Enter key, adjust the delay time (ms) or distance (m) through PM2 and PM3, and press Back to return.

```
In-A   InA   Phase
      ->Phase = Norma
```

```
Out-1:  Out1  Phase
      ->Phase = Normal
```

Parameter Settings

7. Input channel compressor/output channel limiter

Press the corresponding input/output channel, rotate PM1 to the following interface, and press Enter to adjust the parameters through PM2 and PM3. Bypass switch (note: On is to close the compressor, Off is to open the compressor)

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

```
Out-1  Out1  Limiter
->Bypass = On
```

Continue to rotate PM1 to adjust the start Threshold.

```
In-A   InA   RMS Cmp
->Threshold = +16.0dBu
```

```
Out-1  Out1  RMS Cmp
->Threshold = +16.0dBu
```

Continue to rotate PM1 to adjust the compression Ratio and the compression inflection point (Knee).

```
In-A   InA   RMS Cmp
->Ratio =32:1 Knee =0%
```

```
Out-1  Out1  RMS Cmp
->Rel =1.1sec Atk =6ms
```

Continue to rotate PM1 to adjust the compressor's release time (Rel) (in seconds) and start time (Atk) (in milliseconds). Press Back to return.

```
In-A   InA   RMS Cmp
->Rel =1.1sec Atk =10ms
```

Continue rotating PM1 to adjust the compressor to Make-up=0.0dB.

```
In-A   InA   RMS Cmp
-> Make-up: 0.0dB
```

8. Parametric equilibrium

Press the corresponding input/output channel, rotate PM1 to the following interface, and press Enter key. Through PM2 to adjust switch(Bypass) (Note: On indicates to turn Off all EQ of the channel, and OFF indicates to turn on all EQ of the channel). Input segments PEQ-01 to PEQ-30, and output segments PEQ-01 to PEQ-07.

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

Press Back to return, continue to rotate PM1 to the following interface, and press Enter to adjust whether this section EQ is turned On by PM2 (Byp=On is straight through, Byp=Off is turned On), and PM3 to adjust the EQ type. The first and last section EQ can be set to the Peaking_EQ/ Hi-Shelv Q/ Lo-Shelv Q type, while the other sections EQ can only be adjusted to the Peaking EQ type.

```
In-A   InA   EQ-01
->Byp=Off Type=Peaking_Eq
```

```
Out-1  Out1  EQ-01
->Byp=Off Type=Peaking_Eq
```

Parameter Settings

Continue to rotate PM1 to the following interface and adjust EQ frequency points through PM2 and PM3.

```
In-A   InA   EQ-01
->Freq = 20Hz
```

```
Out-1  Out1  EQ-01
->Freq = 500Hz
```

Continue rotating PM1 to the following interface to adjust EQ gain and Q values by PM2 and PM3. Press Back to return when finished, and adjust other EQS according to this method.

```
In-A   InA   EQ-01
->Gain=0.0dB Q=1.4
```

```
Out-1  Out1  EQ-01
->Gain=0.0dB Q=1.4
```

9. Select the input source of the output channel

Press the corresponding output channel, rotate PM1 to the following interface, press Enter, rotate PM2 to select the sound source of the output channel. The sound sources are IN A/IN B/IN C/IN D. Press Enter key to adjust the volume of input source and open/close channel input source. Press Back to exit after adjustment.

```
Out-1  Out1  Routing
A:0dB B:0dB C:0dB D:0dB
```

10. Frequency division

Press the corresponding output channel, rotate PM1 to the following interface, press Enter, PM1 and PM2 can adjust the frequency points of the high-pass filter, and PM3 can adjust the slope of the high-pass filter, the higher of the value, and the slope also higher, the low-frequency will be cutting more, Bypass is the through state. Press Back to exit.

```
Out-1  Out1  HPF
F = 20Hz Bypass
```

Continue to rotate PM1 to the following interface, press Enter, PM1 and PM2 can adjust the frequency points of the low-pass filter, PM3 can adjust the slope of the low-pass filter, the higher of the value, and the slope also higher, the high-frequency will be cutting more, Bypass is the direct state.

```
Out-1  Out1  LPF
F = 2000Hz Bypas
```

Function Menu

1. System Utilities

Press the MENU key to enter the system application setting interface:

```
UTILITY MENU
System Utilities
```

At this point, press Enter key, and Enter the sub-menu of system application, and then use three encoders and keys to achieve the purpose of setting parameters. Submenu features include the following types:

A. Delay Units setting. Enter the menu to change the expression unit of delay device, Time(ms) represents the time millisecond, Distance(m) represents the distance meter.

```
SYSTEM UTILITY
Delay Units
```

B. Restore Default Setting. Enter the menu to restore factory default Settings.

```
SYSTEM UTILITY
Set Default Value
```

C. User name Display (Firmware Version).

```
SYSTEM UTILITY
Firmware Version
```

2. Preset setting (Program Utilities)

Press the MENU key and rotate PM1 to enter the preset setting interface:

```
UTILITY MENU
Program Utilities
```

At this point, press Enter to Enter the submenu of preset Settings, and then use three encoders and buttons to achieve the purpose of setting parameters. Submenu features include the following types :

A. Recall A Preset. If you enter the submenu, you can call the preset saved by the user. If the user has not saved the preset, it will show that it cannot be retrieved.

```
PROGRAM UTILITY
Recall a Preset
```

Function Menu

B. Save a Preset. Enter the submenu to save the current parameters to the preset, you can also edit the preset name, easy access. A total of 48 presets can be saved.

```
PROGRAM UTILITY
Save a Preset
```

C. Delete a Preset. You can delete 48 presets by entering the submenu.

```
PROGRAM UTILITY
Delete a Preset
```

3. Interface Setting

Press the MENU key and rotate PM1 to enter the interface setting interface:

```
UTILITY MENU
Interface Utilities
```

Press Enter key into the sub-menu of interface Settings. You can select RS485 in online mode and select the corresponding ID(01-32). PM2 adjustable ID: 01-32, and press PM2 to return.

```
Interface Setup
Configure Rs485 ID=01
```

4. Security Utilities

Press the MENU key to enter the safety setting interface:

```
UTILITY MENU
Security Utilities
```

At this point, press Enter to Enter the sub-menu of system application, and then use three encoders and keys to achieve the purpose of setting parameters. Submenu features include the following types:

A. Show Parameter. Be shown indicates that when the device is locked, the parameters are displayed, but cannot be adjusted; No be shown indicates that when the device is locked, the parameters are not shown.

```
SECURITY UTILITY
Show Parameter
```

Function Menu

B. Lock Unit. If the device is not locked, all parameters can be edited. If the machine is locked (the Lock Interface is set ON), all parameters cannot be modified.

```
SECURITY UTILITY
-- Lock Unit --
```

C. Change Password. Press Enter key to Enter the menu, Enter the initial password is 000000, press Enter to adjust PM2 to select a digit number, PM3 to select a 6-digit letter or digit, press Enter to enter the confirmed 6-digit password, and press Enter to change the system password Settings.

```
SECURITY UTILITY
Change Password
```

D. Lock With Password. Press Enter key to prompt you to Enter a 6-digit password. Press Enter to complete the operation.

```
SECURITY UTILITY
Lock With Password
```

5.factory data reset

If the password is lost or otherwise, the user can restore the machine to its original factory state by restoring the factory Settings.

Note: restoring factory Settings means that all saved parameters will be lost!

The specific operation is as follows: under the shutdown state of the processor, press and hold the panel Enter+Back+Menu button at the same time, and then turn on the computer until the display screen shows the following interface, and you can release the button, And the system restores factory Settings

```
Please Wait.....
Memory Reset
```

Technical Parameters

Input: four - channel electronic balance

Impedance: > 10 k ohms

Maximum input level: +12dBu

Output: six - channel electronic balance

Impedance: < 80 ohms

Maximum output level: +18dBu

Frequency response: ± 0.5 dB 20Hz-20KHz

S/N: > 100 dBA

THD + N: < 0.005%

Intelligent fan accelerates temperature to control the inside of device.

Maximum delay of each input: 420.9984mS

Maximum delay of each output: 128.9984mS

Input gain: +12dB to -18dB, step interval 0.1dB

Output gain: +12dB ~ -18dB, step 0.1dB

Parametric equalizer: input 30 segments, output 7 segments

High pass (low cut) and low pass (high cut) filters

Frequency range: 20Hz ~ 20KHz, 1/36 octave

Filter slope: -6dB, -12dB, -18dB, -24dB, -36dB, -48dB.

Type selection: Butterworth, Linkwitz-Riley, Bessel 12dB Variable Q value.

Input Noise gate

Threshold value: -80dBu~-50dBu

Startup time : 10ms~1.0sec

Release time : 1ms~1.0sec

Input compressor, output limiter

Threshold value : -14dB to 16dB, and the adjustment step is 0.2dB.

Ratio output value: 2:1~32:1, inflection point: 0%~100%

Startup time ranges from 0.1 to 3.0sec/ output (5.0sec).

Release time (5ms to 200ms/1ms to 900ms) Input/output channel.

Connector

Input: 3-pin XLR female socket

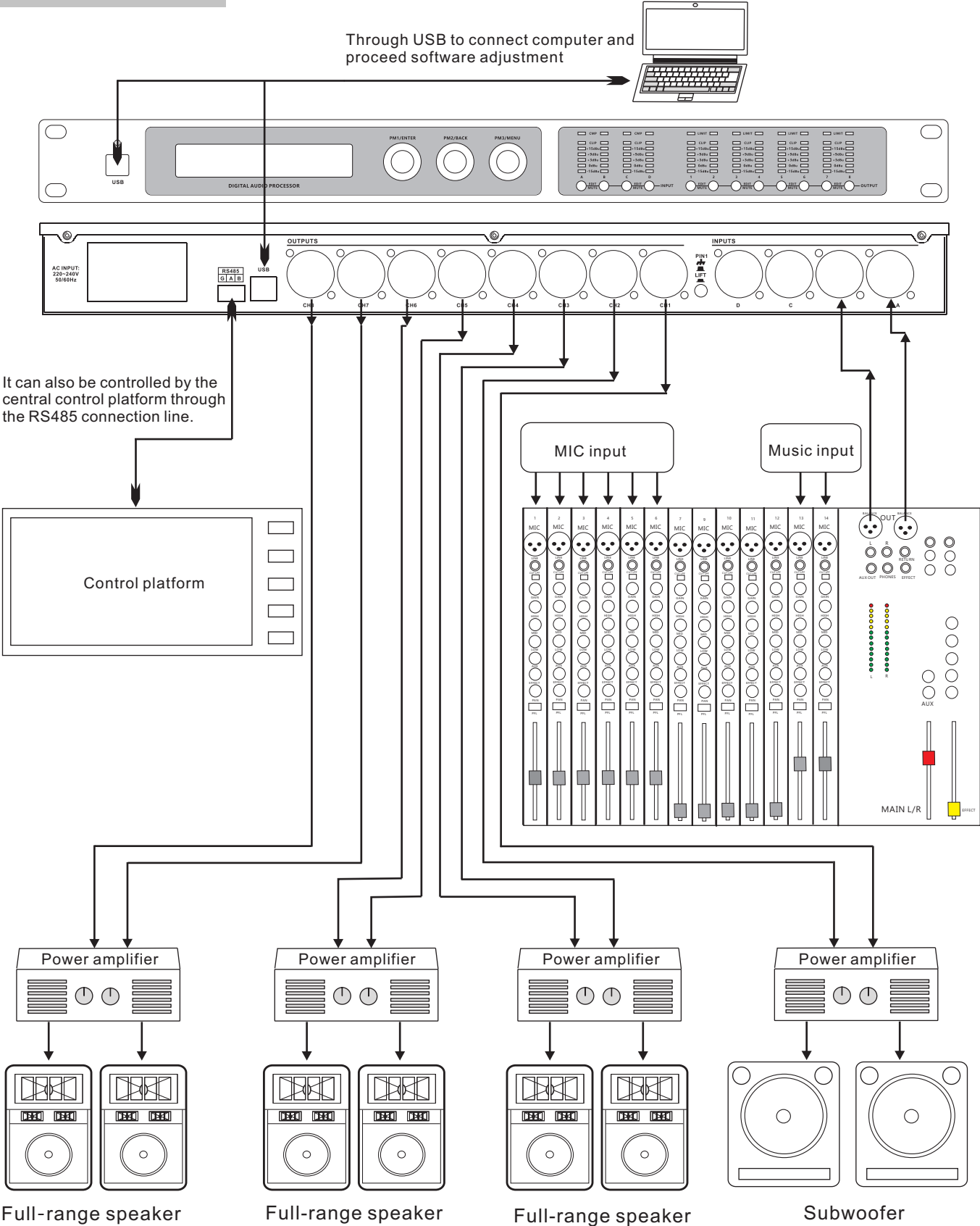
Output: 3-pin XLR male socket

Communication port: RS485 USB

Power supply: AC220V~240V @ 50/60Hz

Power consumption: < 50 watts

Audio Connection



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DIGITAL SPEAKER PROCESSOR

