Illustration

Thank you for purchasing our product. Please read this manual to be familiar with the product.

Note: this manual is written to provide all the relevant information for the series of models. Due to the different signal configurations, the actual product configuration may differ from the instructions.

V4.0

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this product near water.
6. Clean only with dry cloth.
7. Do not block ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators,heat registers,stoves,or other products(including amplifiers)that produce heat.
9. Do not defeat the safety purpose of the grounding-type plug.A grounding type plug has two blades and a third grounding prong.The third prong is provided plug does not fit into your outlet,consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched,particularly at plugs,convenience receptacles and the point where they exit from the product.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with equipment rack,stand or table designed to provide adequate mechanical strength,heat dissipation and securement to the building structure.
13. Unplug this product during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel.Servicing is required when the product has been damaged in any way,such as power-supply cord or plug is damaged,liquid has been spilled or objects have fallen into the product,the product has been exposed to rain or moisture,does not operate normally,or has been dropped.

Explanation of Graphical Symbols:

Lightning Bolt:Hazardous Live voltages present when this unit is in operation.Do not touch terminals marked with this symbol while the unit is connected to live power.

Exclamation Point: Replace components(i.e. fuses)only with the values specified by the manufacturer. Failure to do so will compromise safe operation of this unit.

Hazardous Moving Fan Blades: Remove power before servicing and keep away from moving fan blades.

WARNING - To reduce the risk of fire or electric shock, do not expose these products to rain or moisture. These products must not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on these products.

WARNING - MAINS Powered Products employ Safety Grounding and must be connected to a MAINS socket that is properly grounded to provide a protective earthing connection.

CAUTION - Unless you are a professional technician, you can not perform any service that is not included in the operating instructions. Before opening the product, the professional must first disconnect the mains power.

CAUTION -Any installation and removal procedures for physical equipment are only applicable to professional technicians and must comply with all local regulations.

Table of Content

I.Device Architecture

This series includes two major products products: one is those without Network audio transmission function, namely Clear k4(4-In,4-Out), Cleark8(8-In,8-Out), Clear k12(12-In,8-Out) and Clear k16(16-In,12-Out) which have different number of input and out interface ;another one is those with Network audio transmission function, namely Clear D8(8-In,8-Out), Clear D12(12-In,8-Out) , Clear D16(16-In,12-Out) and Clear D16A(16-In,16-Out)--（No USB function）. This series could be applied in conference room multimedia classroom,concert hall and command center etc..

Note: take Clear D16(16-In,12-Out) as example

The front panel of device：
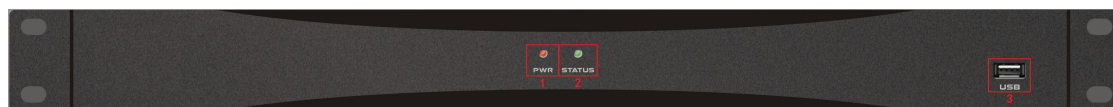
① Power indicator: after the power supply is switched on, light indicates power status;

② Status indicator: the system will run normally if the indicator is flickering and the indicator will be ON for a long time during upgrading;

③ USB: USB interface, support USB disk MP3 playback and recording.

The rear panel of device:

① AC220V: power plug, supporting AC 220V power supply, 50Hz

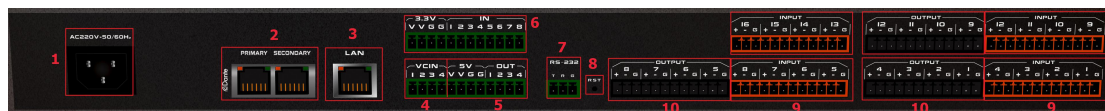② Dante PRIMARY/SECONDARY: network audio transmission interface.

③ LAN: network interface, connect PC, on-line editing and command receiving and sending control;

④ VCIN: Corresponding to the GPIO configuration interface input 1 ~ 4 interface, can be configured for analog or logic control, configured for analog access to the wall panel for analog voltage volume control, configured as logic when the general I / O port;

⑤ GPIO OUT: Corresponding to the GPIO configuration interface output 1 ~ 4 interface, logic control, connect the external control circuit

⑥ GPIO IN: Corresponding to the GPIO configuration interface input 5 ~ 12 interface, logic control, connect the external control circuit

⑦ RS232: communication interface, to connect the external central control equipment / support camera tracking;

⑧ RESET: Restore the factory setting button. Method: hold down the RESET button when power is off, and then power up. After 15 seconds of starting the processor, the STA indicator on the panel flashes for 5 times, and RESET successfully;

⑨ INPUT: Analog audio MIC \ LINE input interface,balanced phoenix interface;

⑩ OUTPUT: Analog audio output interface, balanced phoenix interface.

II. Software Instructons

This software: supports win7, win10 or higher version operation system. Before installation, please make sure you have already DoNet the Framework3.5 or higher version. Then, in the IP address of PC, there is at least an address fallen into the same network segment as the device IP address (the default IP address of device factory is 192.168.10.10). Otherwise, the device can be queried only and cannot be normally connected. If the PC is not provided with IP address fallen into the same network segment as the device, please refer to the correct setting in the notes for using the device for the first time in FAQ hereinafter.

After the PC software is properly installed, the starting interface is as shown in Figure 1
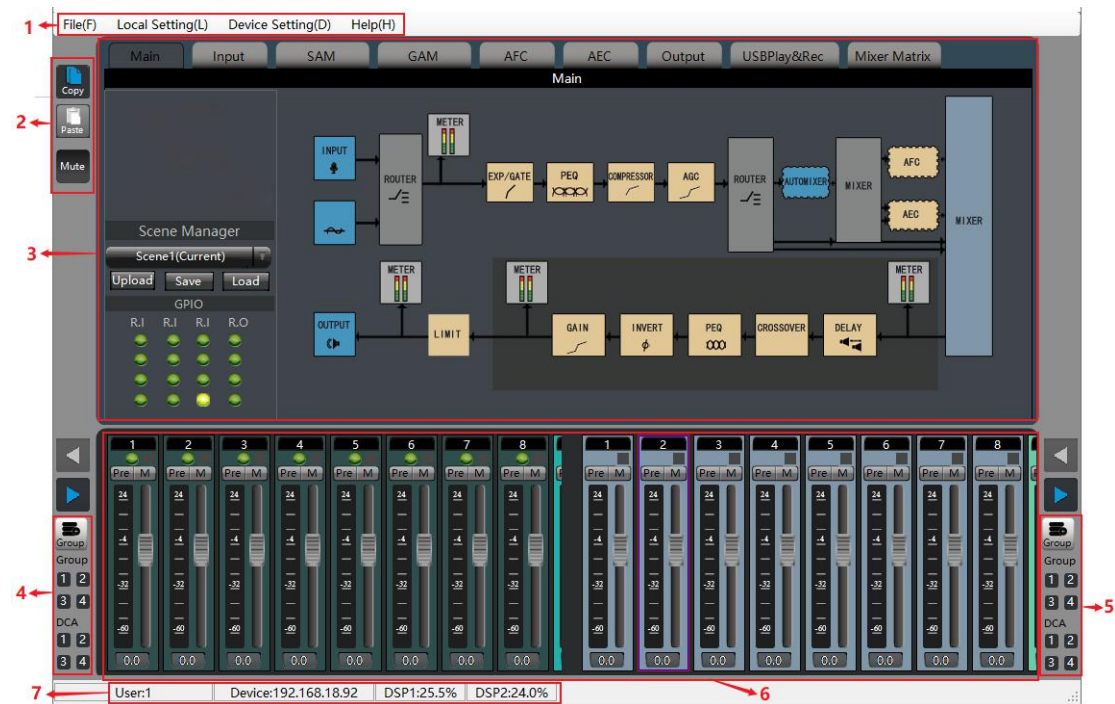
Figure 1

- Menu bar and tool bar: the menu bar contains various function menus of the software, and the tool bar displays function menus in common use.

- Copy / paste: parameter copy between channels or parameter copy between same functional module. The interface choice box is red, indicating that the module can conduct copy / paste operations.

- Channel parameter control area: indicating parameters of various functional modules of each channel. The choice box is red, indicating that the module can conduct copy / paste operations.

-    Input channel grouping setting/control area: This group contains two grouping types, Group and DCA, each type consisting of 4 groups.

For example: set the Group group. Click button 1 under Group, and a check box will appear in the upper right corner of the input channel. Check the channel that needs to be added to Group1. The setting is completed. When controlling Group1 grouping, press the "Group" button. In the pop-up dialog box, the grouping channel of Group and DCA will be displayed at the same time. Adjusting the mute and fader of Group1 channel can simultaneously control all input channels that have been set to join Group1 at the same time.

-    Output channel grouping setting/control area: The function is the same as above.

-    Input / output channel control area: to display the electrical level and gain of each channel, select any channel, and the corresponding specific parameters will be displayed in Module 3; part of the hidden channel can be switched with   ;When the channel choice box is red, the channel can conduct copy / paste operations. When the channel choice box is blue, the parameters of the current channel are displayed in Module (3) .

-    Status bar: to display the current DSP occupancy factor, login status and connection status of the connecting machine.

2.1 Menu Bar and Toolbar

2.1.1 File

- New: Create a new editing file. The parameters are configured in the factory.
- Open: Load a saved scene.
- Save as: Save the current configuration to the local disk..
- Chinese/English: To switch the Language interface
- Exit: Close the software.

2.1.2 Local Settings

1) RC panel configuration

Enter the RC panel configuration interface. Click the 🔵 button. For details, please refer to the help document.

2) Dante control
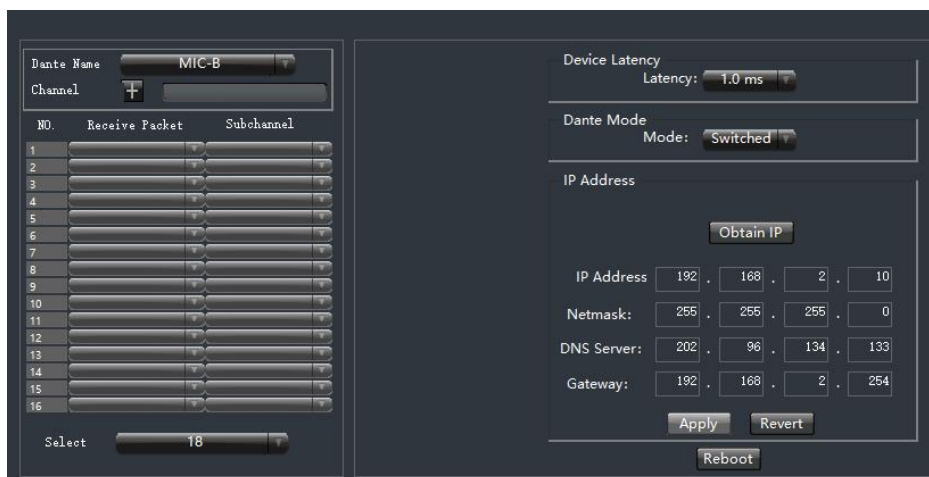
  A. **Dante setting**
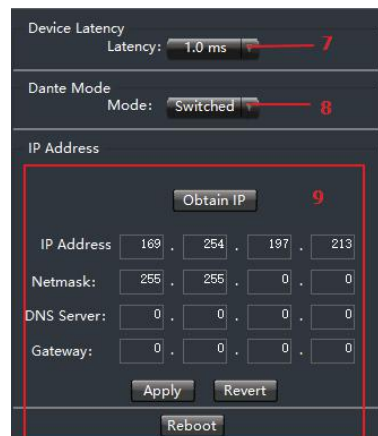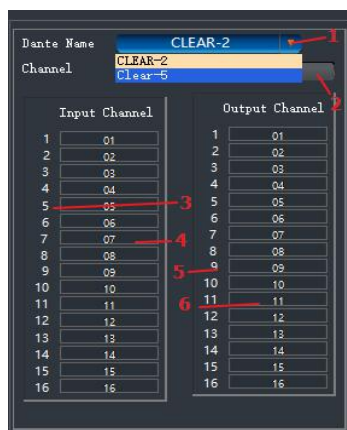
Figure 2

1. **Dante name:** click the drop-down list box corresponding to Dante name of the receiving party, Dante equipment of the receiving party can be selected.

2. **Dante name modification column:** modify the currently selected Dante device name.Click the channel named extension button .Figure 2 (left) shows the information of the input and output channels of Dante devices.

3. **Dante input channle number:** cannot be modified.

4. **Dante input channle name:** can be modified.

5. **Dante output channle number:** cannot be modified.

6. **Dante output channle name:** can be modifide.

7. **Device delay:** Dante device delay setting of the receiver.click the corresponding drop-down arrow to select the delay parameter, which contains 5 delay parameters.which are 0.25ms, 0.5ms, 1ms, 2ms and 5ms respectively.

8. **Dante mode:** mode selection of Dante device of receiving part. click the corresponding drop-down arrow to select the type of Dante mode, which contains two modes, which are Switched and Redundant respectively.

9. **IP address:** Set and get the IP address of Dante device of the receiver.There are two ways to set the IP address of Dante device, namely, to obtain the IP automatically and to enter it manually.

Note: after selecting the Settings of any IP, the [restart] button must be clicked immediately, so that the IP of Dante device can be saved and effective.

B. **Dante receiving setting**

Set up each Dante input channel of Dante device selected in Dante's name, and

receive signals from the output channel of Dante device specified.

Figure 3

1. **Dante input channle:** Dante receiving party input channle of Dantenumber,cannot

be modified.

2. **Receive network packets ：** Click the drop-down box to display all searchable online Dante devices in the current network. By selecting this Dante name, you can establish the connection that send and receive

3. **Subchannel:** click the drop-down box to display all the output channels of the Dante device, and finally determine the connection of the specific channel.

4. **Network card selection:** Network card options for Dante devices in netword..

Note: Dante's sending setting is shown in chapter 2.8.1

3) Version selection

View the functions of this series of products, you can switch to the corresponding software interface.

4) Channel setting
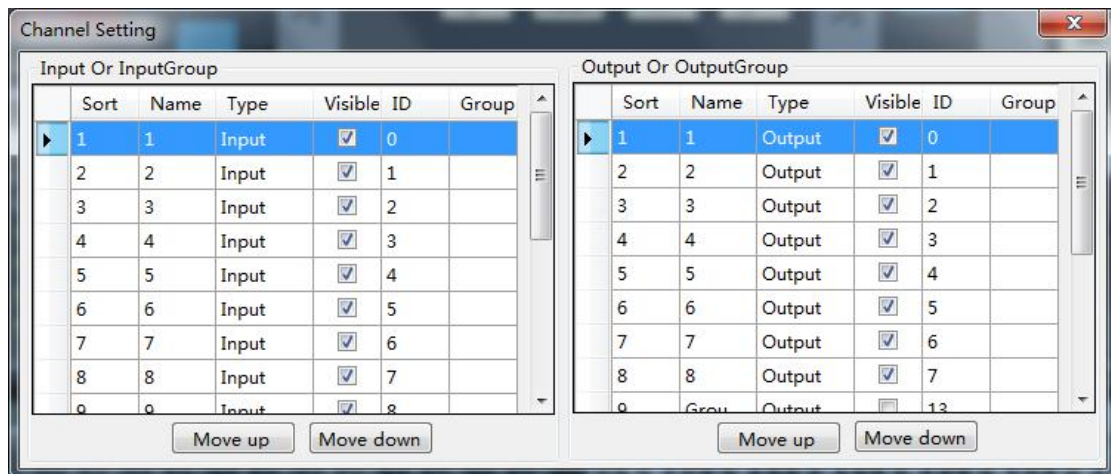
Conduct sorting, grouping and hiding operations to the input and output channel.

Sorting: fix 1 ~ N channel; to view the position of the corresponding channel.

Name: select the channels to be sorted, adjust the corresponding position by pressing the up key and the down key, and modify the name of corresponding channel.

Category: display channel attributes, and cannot be modified.

Display: selected display, otherwise hide the channel.

Grouping: display the channel information in groups.

5) Device List

Click "Search" to check the devices in the current local area network. The search result is shown above. Input the IP address of the device for connection.

The status "!" means there is no IP in the PC side falling into the same network segment as the device IP address. In this case, add an IP in the PC side falling into the same network segment as the device IP address and try to connect again (Refer to FAQ 1).
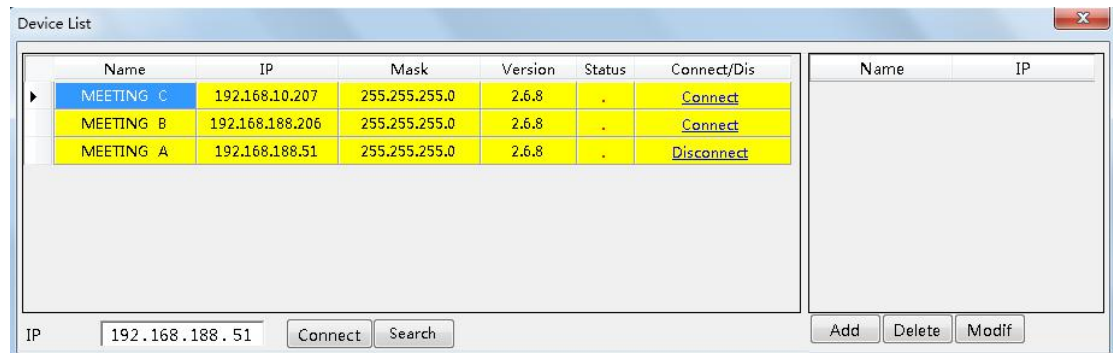
If the "Connect" is displayed in "Connect/Disconnect", the device is not online. Click the "Connect" to connect the currently selected device. When the "Connect" is changed to "Disconnect", the device is online successfully.

If the "Disconnect" is displayed in "Connect/Disconnect", the device is online. Click the "Connect" to disconnect the currently connected device. When the "Disconnect" is changed to "Connect", the device is offline successfully.

It is necessary to input the user's information when "Connecting" and "Disconnecting" device.

6) Connect

Connect the latest connected device

7) Disconnect

 Disconnect from the currently connected device.

8) Center Control Command Generator Operation

➢ **Easy Generated Center Control Command**

Open Software; choose "Center Control Command" in the drop-down box under "Local Setting" menu. The Dialog box pops out--- It is the Center Control Command Generator.

Operating on the software interface, it will simultaneously generate the corresponding command in the Center Control Command Generator.

Example 1: Input channel 2 mute command

Click "M" of input channel 2 on the software interface, then the Center Control Command Generator will reveal the command code.

➤ **Center Control Command Generator Operating Instruction**

Set: The button under the status of clicked , the current generated center control command is the control command.

Query: The button under the status of clicked Query, the current generate center control command is the search command

No reply: The button under the status of clicked Reply ; each command that sent out via Center Control will have its corresponding reply command; through the reply command, one can check whether it was set successfully. Otherwise, there will be no reply command.

Top: The button under the status of clicked Top ; then the Center Control Command interface will always be current display window.

Processor Type: Choose the module need to be controlled. The module corresponds to the input and output module on Smart2.o PC Interface. Eg: To control Mute of Input channel 1, then choose the "InputCtrl" under "Processor Type". Because the Mute function on Smart 2.0 PC interface is included in Input source Module, to control Mute, "Input Ctrl" needs to be chosen.

Item: To choose the control items of the processor type.

Example: To control Mute of Inupt 1, after chose the processor type, choose "Mute" under "Item".

Choose the detailed parameter in the control item of Processor Type.

Example: To control Mute of Input1, O represents cancel mute, 1 means mute.

ProcessorType	ProcessorIndex	Item	V0
InputCtrl	0	Mute	1	0

0---No
1---Yes

Note: Detailed control parameter will be differ based on the change of the control item

Choose "Load", it will be the selection of scene number.

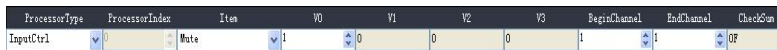| ProcessorType	ProcessorIndex	Item	Group	NO.	V2	V3
ScenenManager	0	Load	1	1	0	0
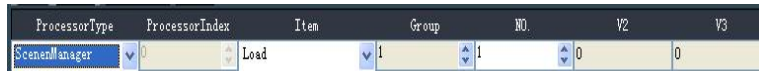
Choose "Mixer", then it will be the selection of input and output channel number.

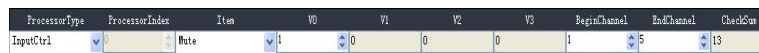| ProcessorType	ProcessorIndex	Item	Input NO.	Output NO.	Switch	V3
Mixer	0	Control	1	1	0	0

Note: in the above pics, some of the control parts are in gray color. It means the corresponding parameter is invalid. Like the "ProcessorIndex", "Group", "V2", "V3" in "Load" and "ProcessorIndex" "V3" u Mixer control.

Begin Channel/End Channel: Choose the channel need to be controlled.

Example: To control Mute of Input 1

ProcessorType	ProcessorIndex	Item	V0	V1	V2	V3	BeginChannel	EndChannel	CheckSum
InputCtrl	0	Mute	1	0	0	0	1	1	0F

Example: To control Mute of Input 1 to Input 5

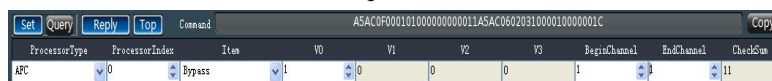| ProcessorType	ProcessorIndex	Item	V0	V1	V2	V3	BeginChannel	EndChannel	CheckSum
InputCtrl	0	Mute	1	0	0	0	1	5	13

CheckSum: Checksum in Center Control Command, it will be automatically generated by the specific control parameter.
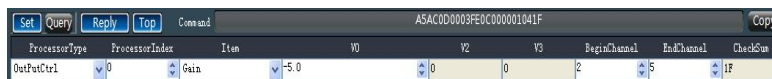
Center Control Command: It will automatically generate the center Control Command by the specific control parameter.

Copy: Quick operation button of copy.

Example 1: Enable AFC of Input1, choose "AFC" under "Processor Type"; choose "0" under "V0"; choose "1" under both "Begin Channel" and "End Channel" then the command thus generated will enable the "AFC " button of input 1.

Set Query Reply Top Command A5AC0F0001010000000000011A5AC0602031000010000001C Copy

ProcessorType	ProcessorIndex	Item	V0	V1	V2	V3	BeginChannel	EndChannel	CheckSum
AFC	0	Bypass	1	0	0	0	1	1	11

Example 2: To control gain as -5 of input 2 to input 5: choose "Output Ctrl" under "Processor Type"; choose "Gain" under "Item"; input "-5" in "V0"; set "Begin Channel" as 2, "End Channel" as 5; then the command thus generated will be Channel gain of input 2 to input 5 as -5.

Set Query Reply Top Command A5AC0D0003FE0C000001041F Copy

ProcessorType	ProcessorIndex	Item	V0	V2	V3	BeginChannel	EndChannel	CheckSum
OutPutCtrl	0	Gain	-5.0	0	0	2	5	1F

Note: Please refer to the Center Control Command Protocol as to check what a certain value represents in the command.
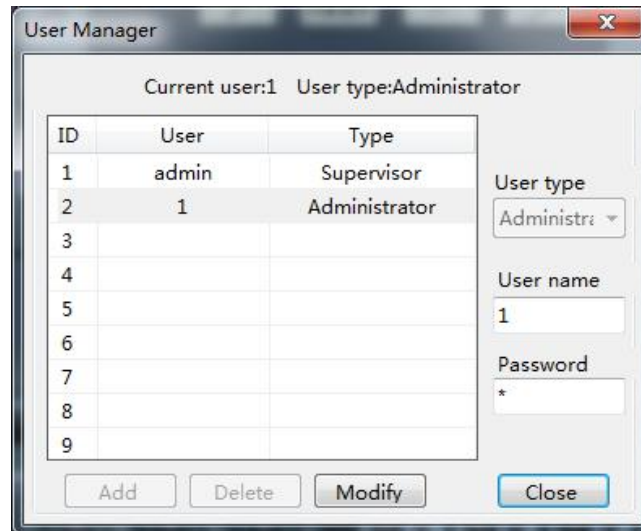
2.1.3 Device Settings

1) User Manager

Table 1 - Initial User List of Device

| Type	User Name	Password
Administrator	admin	123456
General user	1	1

The system administrator has the right to add, delete and modify the information of general users, as well as his own information; general users can only operate their personal information. Specific procedures are as follows:

Modify User Information: firstly, select a user to be modified in the right list and then the user's old information will appear in the User Name and Password edit box at the left side. Then, insert new information in the edit box and click the "MODIFY" button to update the user information. The updated information will be displayed in the right list.

Delete User: select the line you want to delete at the right list and then click the "DELETE" button to delete the user. Meanwhile, the user's information will be cleared from the right list.

Add User: select a blank line at the right list and insert the information of a new user in the left the User Name and Password edit box (should be blank). Click the "Add" button to add the new user. The user's information can be seen in the right list.

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2) Scene Manager
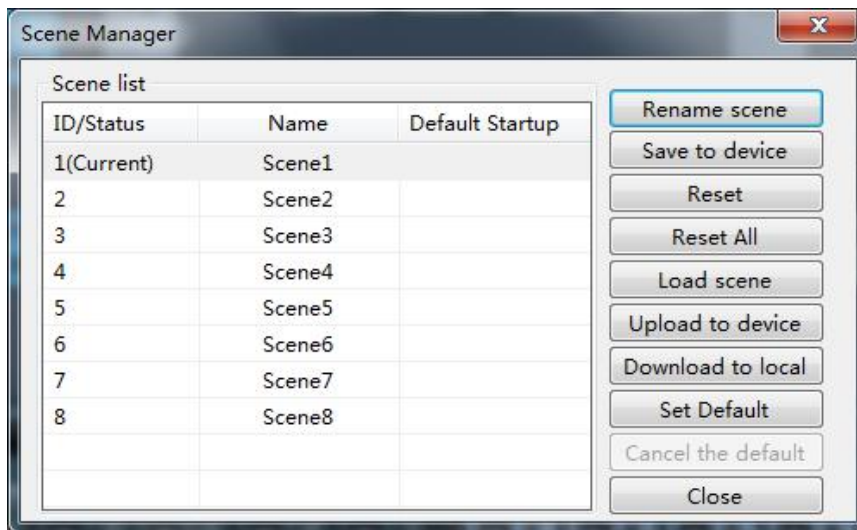
There are eight scenes setting options. Except "Factory Configuration" (the 0th scene) can be renamed.

Save Scene: save the current scene to the scene number in the selected device.

Reset: Revert the selected scene to default.

Reset All: Revert all the scenes to default.

Load Scene: enable the currently selected scene; usually used to change a scene.

Upload to Device: upload the scene in PC to the device and overwrite the selected scene on the device.

Download to Local: save the currently selected device scene to PC.

- Activate Setup default: Check the selected preset as the starting up one.

- Cancel Setup default: Cancel the checked starting up preset.

- On the main interface, there is an intuitive display of current scene and the common functions, like below pic：

The drop-down box shows the scene as the current running scene.

Save: Save the selected scene to local

Upload: The configuration file of the scene which saved to the local and overlay the current scene number configuration file in the drop-down box will not running automatically. If need run this scene, you need "load" this scene.

Load: Set the selected scene to operate as current one.

GPIO only as the display interface, 16 pieces GPIO indicators show the level of current GPIO pins. The indicators turn red when GPIO pins at high level; The indicators turn green when GPIO pins at low level.

3) Network Settings
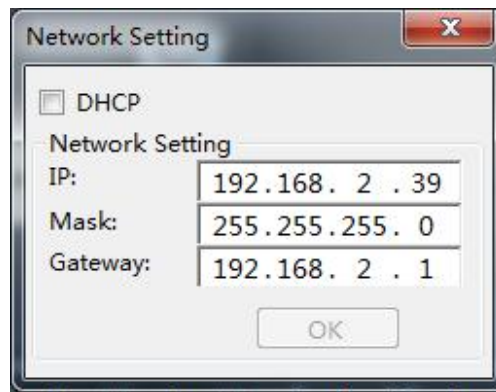
It is used to view and modify the device's network address and other information, and supports automatic acquisition and manual input of IP settings.

4) Serial Settings
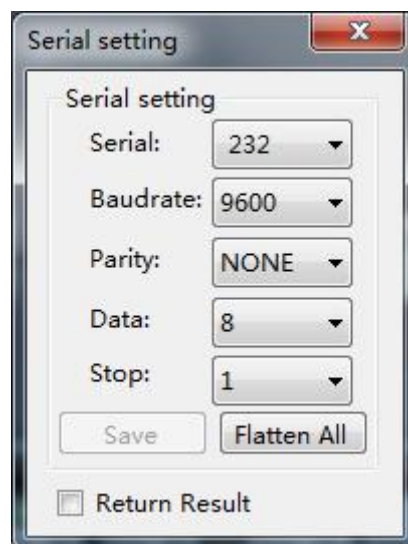
Used to view and modify the serial information of current connected equipment. After revision made, click "Save". Click "Reset All" to revert to default set. Tick "Return Result" to get reply command when sending command via the Serial.

Illustration 1 To control the camera via RS-232 Serial
Common 232 serial interface illustration as below:

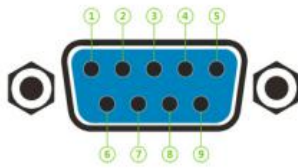When using RS 232 to control the camera, only need connect Pin 2, Pin 3, Pin 5.

2	RXD	Receive data
3	TXD	Transmitter data
5	GND	Ground wire

Sony camera D70 port
schematic:
Connecting RS232
Pin 2/3/5 to Pin 3/5/4 of D70 correspondingly when setting up serial connection of the camera.
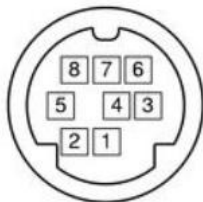
1	DTR	Data Terminal Ready
2	DSR	Data Set Ready
3	TXD	Transmitter Data
4	GND	Ground wire
5	RXD	Receive Data
6	GND	Ground wire
7	IR OUT	IR Commander Signal
8	MD	Motion Detector Sensing
	Caution	Signal

5) Set Voice tracking
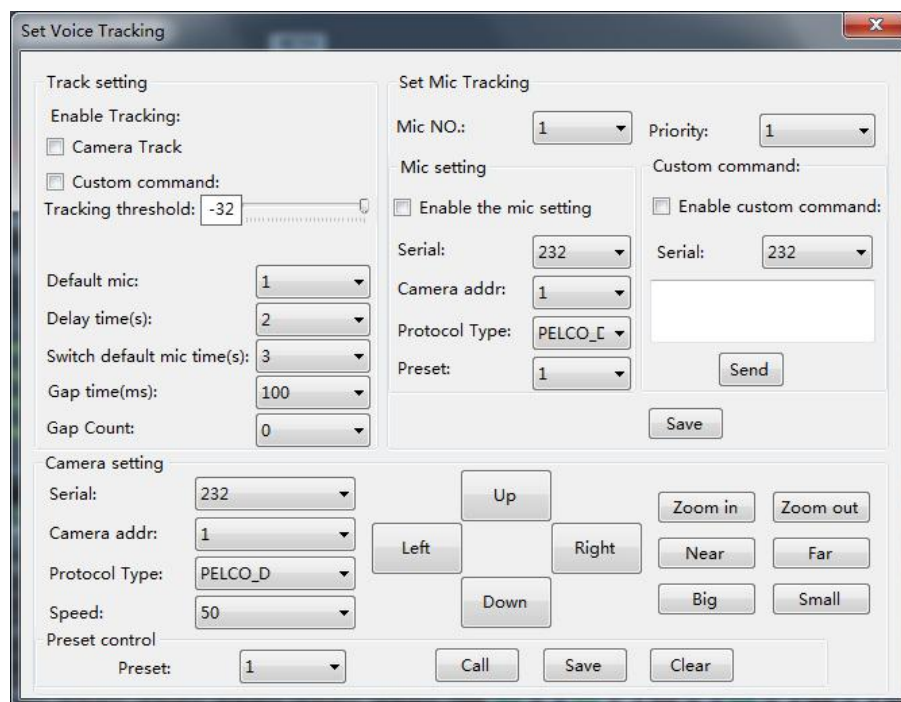
The tracking adjustment, video camera parameters and MIC parameters shall be set for voice tracking.

A. The voice tracking setting can be divided into camera tracking and custom command sending. The video camera tracking is used to control the camera rotation during specking with MIC; and the custom command sending is used to send corresponding command to the corresponding port during speaking with MIC.

The tracking parameters can be activated only when the detected voice signal is more than or equal to the tracking threshold value. Otherwise, tracking will not be conducted.

The default MIC is when all MICs has no input, turn the video camera to the position of default MIC setting or send the associate command defined by default MIC. The one with # is the virtual number, which can only be used in setting default MIC.

B. The video camera setting is on a video camera debugging interface. Generally, the video camera position shall be set before tracking, and the parameters of the part will be saved in the video camera finally.

Firstly, set the serial port. There are two serial port numbers, 232 and 485 respectively, which are corresponding to the back plate connected to the clouds terrace;

Secondly, select the video camera address and protocol type. Please refer to the actual address of the video camera for the address of video camera, and the protocol is related with the camera model;

Finally, the preset point number is the mark defined by the user for the video camera. Then adjust the upper, lower, left, right, focal length, light ring and other parameters, to define the position and settings of the video camera;

Note: a video camera can contain multiple preset points, but a preset point can only correspond to a video camera address.

Finally, click "save" to save the parameters on the video camera. "Clear" is to delete the information of the current preset point, and "call" is used to view the video camera position saved in the current preset point.

C. The number of MIC generally corresponds with the input channel, i.e. the number of channel connected to the MIC. The one with # indicates that the MIC number is the virtual number, which can only be used in setting default MIC.

The smaller the priority number is, the higher the priority level is. When the priority levels are the same, it shall be handled in accordance with the triggering priority; for example, if speech is made via two MICs, the video camera will automatically turns to the corresponding preset position of

the MIC with smaller priority number (i.e. higher priority level) or send the corresponding command to the MIC with smaller priority number (i.e. higher priority level). The one of which the signal is first checked shall prevail.

To enable the MIC setting is when there are multiple MICs, all MIC parameters can be preset. During the actual use, only a few are enabled in accordance with the actual situation.

The preset point, serial port number, video camera address and protocol are generally related with the video camera, and must be corresponding to the actual connection of the video camera.

The custom command is to send the corresponding command to the defined serial port when the matrix MIC checks the input signal (usually when someone is speaking). Secondly, the command can be preset, but the "enable the custom command" shall not selected. Then the equipment will not automatically send the command, but one can still press the "send" button, to send the command in the input frame to the specified serial port at any time.

Note: both the video camera settings and the MIC settings have the preset point, serial port number, video camera address, protocol and other parameters, which shall be in accordance with the actual occasion in practical use.

For example, a video camera shall be connected with the audio processor at Port 232, and shall be disconnected and then connected with another audio processor at Port 485 without changing the position after debugging. At this moment, the parameters in the video camera shall be remained and not required to be reset. It is only required to adjust the MIC settings. However, Port 485 shall be chosen at this moment.

Click "save" to save the parameter information on the device. At this moment, the channel MIC has been associated with the corresponding video camera address. Determine whether the MIC setting is effective when enabling tracking through "enable MIC setting" option.

Example:
Switch in the video camera with address 2 at RS232 interface, and switch in a MIC at the input channel 1 and 8 respectively (it is required that the preset point 1 be associated with the MIC of channel 1, the preset point 2 be associated with the MIC of channel 8, and the video camera turn to the MIC of the corresponding input channel). The setting process is as follows:

Connect PC with the device, and open the serial port setting in the device setting. Select 232 for the serial port number, and select 9600 for the baud rate. The check bit, data bit and stop bit shall not be changed, click "save".

A. Associate the preset point 1 and channel 1: (1). video camera settings: select 232 for the serial port number; select 2 for the video camera address; set the preset point 1; select the protocol in accordance with the actual device; adjust the upper, lower, left, right, focal length, light ring and other parameters, to align the video camera with the MIC of input channel 1, and click save button to save the save the preset point; (2) preset point control setting: select 1 for MIC number; select 2

for video camera address; select the protocol in accordance with the actual device; select 232 for the serial port number; set the preset point 1. Click enable the MIC setting; Click OK..

B. Associate the preset point 2 and channel 8: (1). video camera settings: select 232 for the serial port number; select 2 for the video camera address; set the preset point 2; select the protocol in accordance with the actual device; adjust the upper, lower, left, right, focal length, light ring and other parameters, to align the video camera with the MIC of input channel 8, and click save button to save the save the preset point; (2) preset point control setting: select 1 for MIC number; select 2 for video camera address; select the protocol in accordance with the actual device; select 232 for the serial port number; set the preset point 2. Click enable the MIC setting; Click OK..

After two MICs and video camera are associated, select enable tracking and set the tracking threshold value, to realize the voice tracking control.

6) GPIO

A. GPIO Setting

The rear panel of the audio matrix device has GPIO muddle with DB25 socket. The output channels of the upper part of the DB25 socket are channels 1~8 (whose original state is high level output), among which channels 5~8 are OC (open-collector) output with reference (driving) voltage of +12 V and maximum output current of 60 mA, and channels 1~4 are common level output with reference voltage of 3.3 V. The maximum output current is 0.4 mA when it outputs high level and -30 mA when it outputs low level.

The input channels 1~8 of the GPIO are located in the lower part of the DB25 socket of the GPIO module. The inner part of the module is equipped with put-up resistor, so the module supports 3.3 V-12 V inputs.

Choose one GPIO input/output channel number on the left and set the parameters of such selected channel on the right. The orange button showing certain channel number indicates that such GPIO

channel is on, and the gray buttons indicate that the corresponding GPIO channels are off. Taking the above chart as example, the output channel 1 is on, and the rest channels are off.

GPIO Enabled indicates whether the settings are effective. Users can set the GPIO electrical level and parameters, and click "Save" or "Apply" to save such settings; but such operation is only to save the PIN parameters to the device, and only when the On/Off State is set at "ON", such settings can become effective.

It is impossible to set several GPIO channels and submit the settings at one time. After setting one GPIO channel, click "Apply" button to save the settings before setting the next GPIO channel; and click "Save" to save the settings of the GPIO channel on the current page and exit from the current page.

B. Definition and Wiring Demonstration of the GPIO Terminals

Two usages of GPIO:

The first usage is to output electrical level RO (RO 1~4), which means when the any parameter of the inside of the matrix changes (for example, certain channel is muted), output level of certain GPIO output pin will change subsequently and drive the external circuit;

Inside of the audio matrix changes → electrical level of certain GPIO pin changes → driving external circuit.

The second usage is input RI (RI 1~12), which means when the external circuit changes, the level of certain GPIO input pin will change subsequently and trigger certain parameter of the matrix to change.

State of external circuit changes → level of certain GPIO pin changes → certain parameter of the inside of the matrix changes

Output connection RO 1 ~ 4

RO1 ~ 4 are ordinary 3.3V level output, Pin RO 1 ~ 4 output high voltage is 3.3V, high level maximum output current 40mA, low level when the maximum output current is -30mA.

Example 1: Direct Electrical Output

Settings of　RO 13 on the PC interface are as follows:
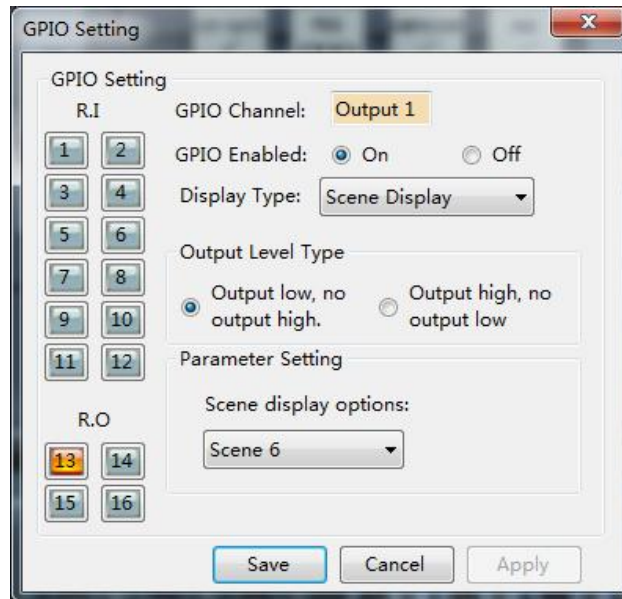
When Scene 6 of the matrix is loaded, RO13 outputs low level (< 0.7 V); and when scenes other than Scene 6 are loaded, PIN 3 outputs high level (> 2.5 V).

Input connection RI 1-12

Example 1:

The settings are as follows when Scene Setting of RI 8 is selected on the PC interface: the matrix will load Scene 4 automatically if the level of the pin corresponding to RI 8 is "Falling Edge".

If the state of the switch in the above chart is changed from "open" to "closed", the level of PIN-16 will be changed from "high level" to "low level", and then a falling edge will be formed so that the matrix will load Scene 4 automatically.

If the state of the switch in the above chart is changed from "closed" to "open", the level of PIN-16 will be changed from "low level" to "high level", and then a rising edge will be formed so that the matrix will remain the same.

Example 2:

And then select Mixer Setting for RI 12 on the PC:

When the external triggering signals are rising from low values, RI 12 generates a rising edge, which will cause the sound mixing function of the contact corresponding to the sound mixer to be turned on.

C.   Basic Attribute of GPIO Input Channel RI

a)   GPIO Channel: display the number of the input channel being set currently.

b)   GPIO Enabled: set the parameters of the channel at On state.

c)   Display Type includes Scene Setting, Mixer Setting, Volume Setting, Channel Mute Setting, Mute System and Serial Command Setting.

Control type has 2 basic attributes:

1)   Trigger Mode: categories of trigger types depend on control types, and there are at most 4 triggering modes (Rising Edge Trigger; Falling Edge Trigger; Rising Edge Selection and Falling Edge Trigger Cancellation; and Falling Edge Selection And Rising Edge Cancellation); and Rising Edge refers to the fact that electrical level of the GPIO input channel pins is changed from low to high; and Falling Edge refers to the fact that the level of the GPIO input channel pins is changed from high to low.

2)   Parameter Setting: parameter setting depends on control types, and different control types allow different parameter settings.

   a）Mix Setting
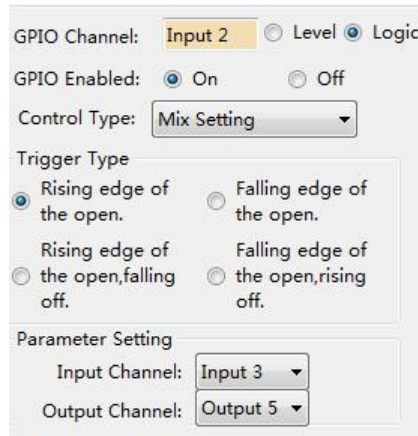
When the GPIO Channel is input 2(RI10), the mixer setting should be selected as the Control Type. As is shown in the chart, when the level of GPIO input channel 2 is changed from low to high, the sound mixing contacts corresponding to input channel 2 and output channel 5 will be opened, and the signals of input channel 3 will be mixed and transmitted to output channel 5 and then the signals will be output. If the trigger type is trigger mode 4 (Falling edge of the open, rising off), the contacts corresponding to the input channel 3 and output channel 5 of the key sound mixer will be closed when electrical level of the pin of GPIO input channel 2 is changed from low to high.

b）Serial Command Setting
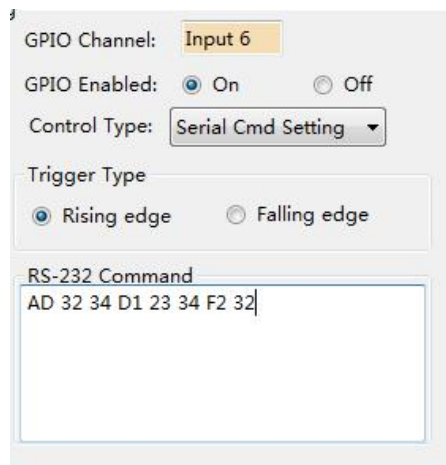
Parameter setting: input hexadecimal orders (0~9 and A~F). Two characters constitute one effective order, and if there is only one character, a 0 should be added before such bit, such as 03, 0A, etc. Bland space will be added after each two characters for the convenience of reading automatically by the interface. The blank spaces will be filtered off before the orders are transmitted, so the transmitted orders consist of successive hexadecimal characters.

As is shown in the above chart, the system will perform the hexadecimal order when the level of GPIO input channel 6 is changed from low to high.

Notes: the input characters must hexadecimal characters, otherwise the order will not be approved, and such transmission will fail.

D. Basic Attributes of GPIO Output Channels:
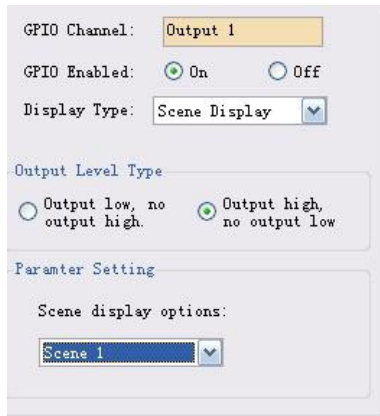
a)   GPIO Channel: display the number of the output channel being set currently.

b)   GPIO Enabled: set the parameters of the GPIO channel at ON state.

c)   Display Type: scene display, level display, channel mute display and system mute display.

Display type has two basic attributes:

Output Level Type: depends on display type and has only two modes. Categories of output level types depending on actual external inputs of the GPIO are as follows:

Output level type 1: output low, no output high: refers to the fact that GPIO outputs low level when the audio matrix meets the relevant outputting requirements, otherwise the GPIO outputs high level.

Output electrical level type 2: output high, no output low: refers to the fact that GPIO outputs high level when the audio matrix meets the relevant outputting requirements, otherwise the GPIO outputs low level.
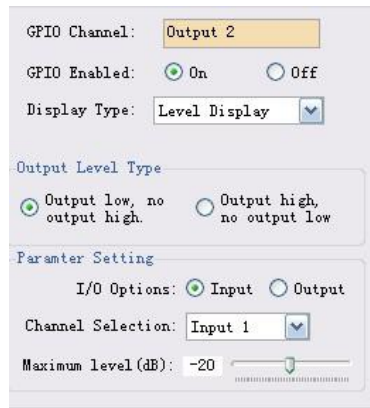
1)   Parameter Setting:

Parameter settings depend on the display types. Different display types allow different parameter settings.

a）Scene Display
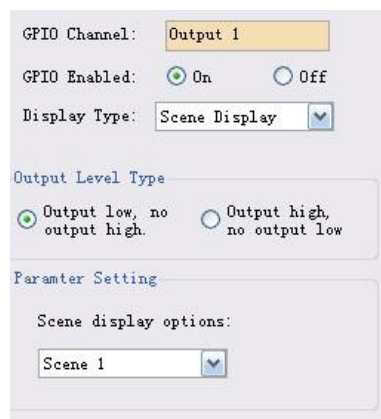
As is shown in the chart, pin of GPIO output channel 1 outputs low level when the audio matrix loads the default scene.

b）Level Display

As is shown in the chart, pin of GPIO output channel 2 outputs low level when the level of audio matrix input channel 1 reaches -20dB.

7) Device Update

To download the upgrade package from the official website, input the directory of the upgrade package in the address bar, and click "upgrade" to complete device upgrade. The device will reboot after upgrade, but manual connection is required.

2.1.4 Help

1) Help document

Display documentation for this series of products

2) About

Displays company and current software version information

2.2 Audio input module

The interface can display 8 channels at most, which can be switched by pressing ◀▶ key; click the channel to switch the above functional module display box. See 2.1.2.3 for the channel information.

Different colors of the channel represent different types of input channels. For example, the 14-16 channel shown in the figure above represents the simulated input channel of the device, 17-18 channel represents the USB playback channel, and 1-3 channel represents the Dante input channel

The input channel supports grouping function, and multiple channels can set to a group. When the gain of the group is adjusted, the gain of the subordinate channel is also changed. The grouping identification will be on the gain fader after grouping. The system provides two groups: one is GROUP group, to directly adjust the gain value; the other is DCA group, to adjust the gain percentage.

1) The above edit box displays the channel name, which can be modified.
2) The lamp indicates whether the channel has external control panel input, with 3 states: on, off and flash, which depends on whether call is allowed in the input source.

Lamp state	Whether call is allowed in the channel.	Whether there is panel MIC signal input in the channel.
On	Yes	Yes
Off	Yes / No	No
Flash	No	Yes

3) PRE/POST: the electrical level displayed is before or after fader.
4) Level display and input gain adjustment fader
5) Input gain

2.2.1 Input source

The sensitivity of MIC input and line input can be selected. High sensitivity indicates high acoustic-electric conversion efficiency of the MIC, and sensitive reflection of weak voice signal;

Allow call: allow the access of panel signal to the channel. Down indicates access, and up indicates access is not allowed.

- Telephone input: allow the access of the phone module signal to the channel. Down indicates access, and up indicates access is not allowed.

- Mute: down indicates the channel enables mute, i.e. the input signal is shielded, and up indicates the channel signal is not mute.

- Test signals: including sine, pink and white noise. The parameters of the signal generator can be adjusted when pressed, the signal of the signal generator access the channel, and other input signals are no longer output;

- Phantom power: MIC input is provided with phantom power, for condenser microphone. It shall not be turned on in case of line input or non-condenser microphone, so as to prevent overburning;

2.2.2 Exp/Gate
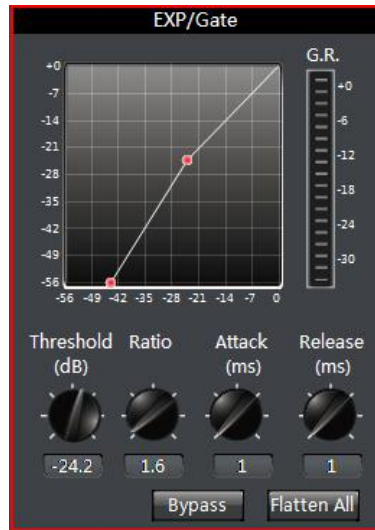
The expander will add dynamic range to the input according to needs of the user. When the signal input is less than "threshold", the expander amplifies and outputs the signal input by the "ratio" set. Level output = threshold – (threshold – level input)/ratio; when the signal input is more than "threshold", it is output by 1:1. Level output = level input, when the ratio is adjusted by the maximum value （∞）， the expander becomes a noise gate.

- Bypass: the signal input is bypassed and the signal will go directly to the next processing module. If it is pressed the expander will not be enabled; otherwise, the expander will be enabled.

- Ratio: the dB of dynamically changed signal input of the expander/the dB of dynamically changed signal output of the expander.

- Attack time: less than the time needed of the signal input of "threshold" of the expander from the entering into the expanding status to output by the setting of expanding ratio.

- Release time: the time needed for the signal input returning to the original non-expanding status from the expanding status.

- All reset: all parameters are reset to the factory settings.

2.2.3 EQ

The equalizer is used to compensate and modify the frequency characteristics, so that it can achieve the characteristic of relatively flat frequency response Different models of equalizers are of different types, and the specific type shall be subject to the actual model of the device.
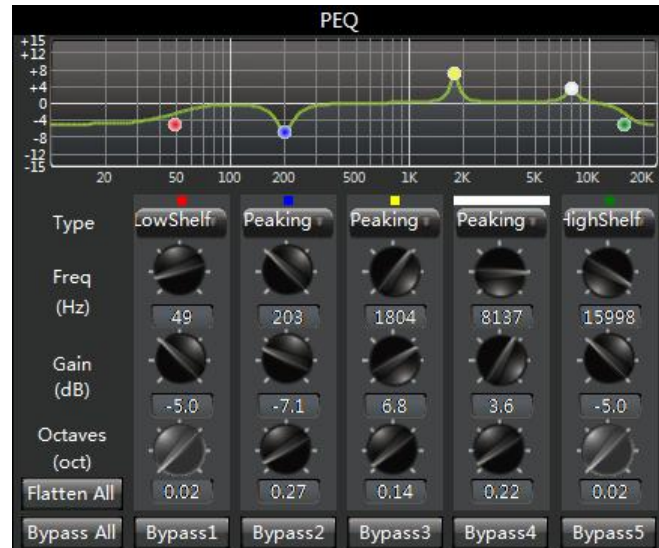
5 band paragraph EQ

The equalizer is to compensate and correct the frequency characteristics to make it reach a true and straight frequency response characteristic.

Bypass All: bypass all bands, the signal directly to the next processing module. Press down shows that EQ is disabled, when popped up shows the EQ is enabled.

Band Bypass: Range through-pass: after equalizer adjustment, you can cancel the bypass of certain set frequency ranges. As long as you click to select the corresponding frequency range button, you can restore the original 0dB status, inactivating the bypass of this band without affecting others.

Center frequency: the frequency that needs equalization processing shall be between 20Hz and 20000Hz. When we change the value, the icon of equalizer will also react synchronously.

Gain: the gain/attenuation at the center of frequency. When the value is 0, the center frequency and Q value shall be invalid.

Q value: It means the bandwidth of frequency point. The more the value, the larger the bandwidth will be.

Type: Equalizer built-in five types of filters, namely: Peak, Hshelf, Lshelf, HighPass, LowPass

Bypass: the signal input is bypassed and not be processed.

Gain: the gain/attenuation at the center of frequency. When the value is 0, the center frequency and Q value shall be invalid.

Flatten: all band gain recovery to 0dB.

Narrow Band: bandwidth (Q), value is smaller than normal.

Normal: bandwidth (Q), value is common bandwidth.

Wide Band: bandwidth (Q), value is larger than normal.

2.2.4 Compress

The compressor is to compress the signal by the preset ratio when input signal level more than threshold. When the input level is more than the preset threshold, the output level is compressed by the ratio set. Signal Output = Threshold + (Signal Input - Threshold) / Ratio; if the input level is less than preset threshold, the signal will be directly output. Signal Output = Signal Input; when the ratio is adjusted by "+∞", the compressor becomes as a limiter.

Bypass: the input signal is bypassed and will not be processed. If it is pressed, the compressor will be disabled. Otherwise, the compressor will be enabled.

Threshold: is the initial level of compression. When the signal is more than this limit value, the compression processing module will be enabled to compress the signal; when the signal is less than this limit value, the compression processing module will be disabled and the signal input will be fed directly to the output.
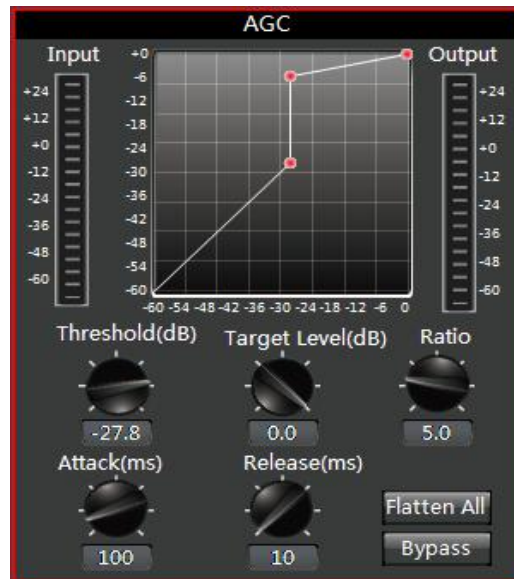
Ratio: the compression ratio of signal over threshold.

Release time: the time from the level input is less than preset value to that the compressor fully stops operating.

Attack time: the time from the level input reaches the threshold to that the compressor starts.

Output: the actually compressed level value.

2.2.5 AGC

First, the function of AGC is described. For example, when the user speaks towards the microphone, the distance between the mouth and the microphone will fluctuate, causing fluctuating volume output. Though setting the threshold, AGC outputs the signal input by 1:1 if the level less than threshold while the level over the threshold will be directly raised by ratio. The target level is properly set so that the sound signal may be output stably.

AGC control is to automatically control range of gain through changing I/O compression ratio. When the weak signal is input, the signal will be amplified to ensure the strength of the sound signal output; when the signal strength input reaches to the certain extent, the signal will be compressed to lower the range of output.

Input: the level of input automatic gain controller.
Output: the level of output automatic gain controller.
Threshold: it is the initial level of automatic gain. When the signal is less than this limit value, the automatic gain processing module will be enabled to gain the excessively small signal.
Bypass: the signal input is bypassed and not be processed.

2.3 Auto Mixer

In the meeting room, 10 microphones, if 10 microphones are open and have the same level, and only one person in the speech cause the remaining 9 microphones will pick up the room noise, reverberation sound, affect the audio quality. Secondly, because of these standby microphones, the effective acoustic components of the maximum gain before the sound feedback would relatively decline and cause volume inadequacy.

Automatic mixer adjust gain from each input channel in real-time to adapt the general level, through improving the high signal gain, reducing low level signal gain to maintain the overall system gain.

There are two general types of automixers built on different underlying technologies: Gating and Gain Sharing Automixers.

2.3.1 Gain-Sharing Automixer

In the gain distribution type automatic mixer, a channel is not exactly open or closed, but located any state arbitrarily. Relatively speaking, if the volume channel is higher, the gain is higher too . If several channels volume are the same, then gains are equal. If a channel is almost no signal through, it almost no gain.
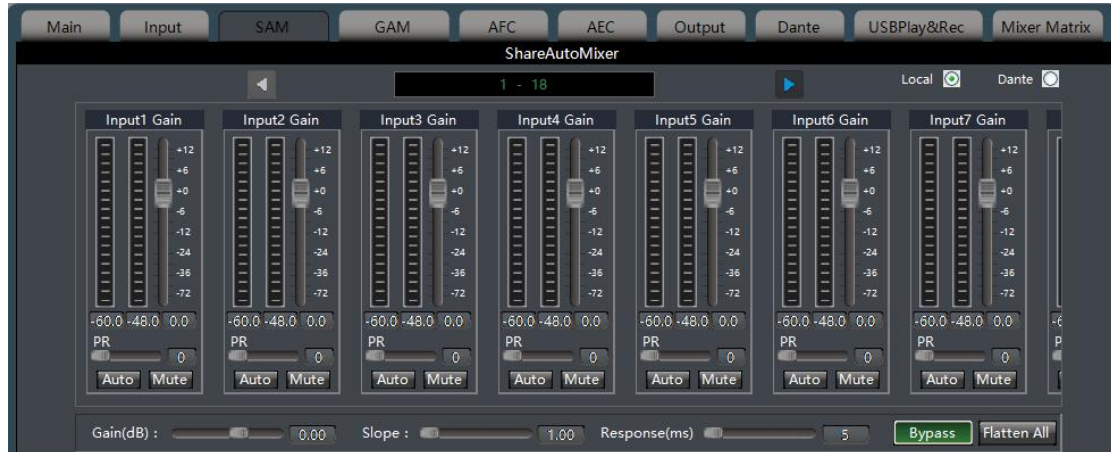
Each channel of automatic mixer has input, gain level meter and an automatic gain, channel fader, priority, and channel muting.

Channel control: each channel has an automatic" AUTO " button, turn on the channel into the automatic mixing. If you need a background music channel at a fixed level, or need to be a "chairman" Mic always remains in the open state, then you need to push the "AUTO" off button on the automatically key. When a channel to select" AUTO " off the automatically key, the gain will be automatically regulated, the channel signal level will not affect the other channel gain (such as no longer affects automatic mixer gain calculation).

Channel mute and fader are automatic gain type, i.e., no matter how you act; there is no effect on automatic mixer. It means that a particular channel is silent, if the high level signal on the channel is present, the remaining channels' level would also reduce. In order to mute a signal and prevent the signal effect automatic mixing, please open the mute and turn "AUTO" off automatic mixer. Each channel of the mute function is to mute the channel in mix and mute the output channel directly. Channel fader control the channel mix level and output level directly.

Priority control PR: allows the priority level high channel exceeding level of low passage, thus affecting the automatic audio mixing algorithm.

The control grades from number 0 (lowest priority) to 10 (highest priority) the numerical definition of priority, the default value is 5 (standard priority). User can control priority through the slider, also click on the edit box and enter the number between 0 - 10 data adjusting priority. If the 2 channels are receiving a signal having the same level, high priority channel will be a higher gain. Channels between each difference of 1 priority" units", the gain will differ 2dB (if Slope is set in 2).

For example, in channel 1's priority is set to 6, channel 2 priority is set to 3, when the two channel receiving the same level signal, channel 1 is 26dB more gain than channel 2. Obviously, the slope setting affects the priority weights. When Slope is set to 3.0, difference between each channel is 1 priority" units", the gain will differ 3dB.

If all channels of equal priority, please set all channel priority to 5.

Note: when the channel priority differences for extreme cases, such as 1 and 10, must be more circumspect. High priority from the speaker up to very large signal, background noise, will" masking" out the low priority channel, even when it is not in use, higher slope value will further exacerbate the problem.

2.3.2 Gating Automixer

Composer's Gain Sharing Automixers feature fast, smooth-sounding operation and require little adjustment and set up time. However, for some users, a gating algorithm that limits the total Number of Open Microphones (NOM) is preferable. Composer's gating automixer modules are built around an adaptive threshold algorithm that is easy to set up and doesn't require setting a fixed threshold.

The Gating Auto Mixer is useful in speech reinforcement applications that require a number of always-on microphones. The Gating Auto Mixer analyzes all microphone inputs, and attenuates or gates off any microphones that are not passing speech audio. Microphones that are passing speech audio are heard normally.

The Gating Auto mixer accomplishes this by setting a dynamic threshold just above the background noise floor. Microphones that are below this threshold are gated off. If a qualifying

speech signal exceeds the threshold, the channel gates on and the signal passes. If the background noise floor changes, the threshold updates in real time.
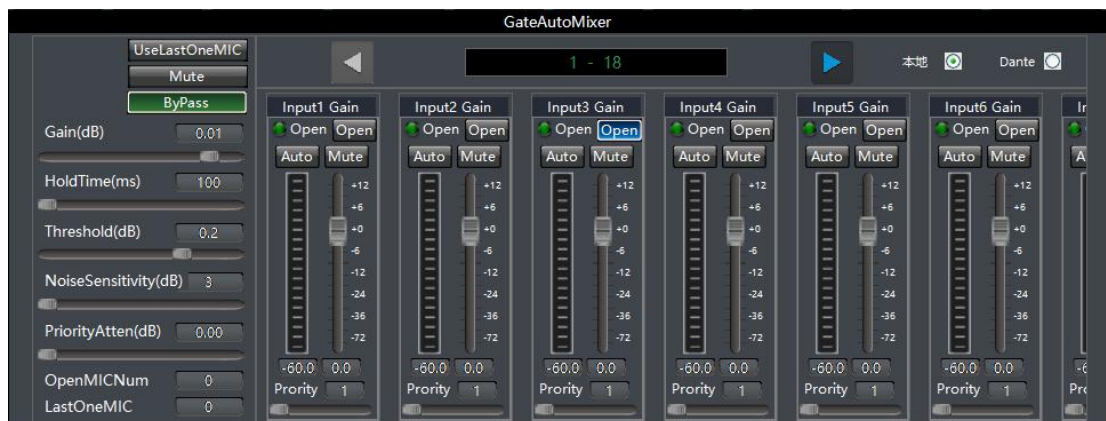
1) channel control

Indicator light: When the channel is selected by auto mix and turned on, the indicator light is on.

Open: Normally open button is selected, the channel does not participate in the automatic mixing algorithm, does not affect the automatic mixing algorithm, only as a regular microphone and automatic mixing microphone after the mix output.

Level meter: Each channel has a level meter, this is a pre-automatic gain level value. The -60dBu level meter shows the level of the input signal, which is the level before and after the fader.

Auto: Each channel has an "auto" key, press to add this channel to the auto mix. If you need to place a background music channel at a certain level, or you need to keep a "chairman" microphone always open, the autokey needs to be bounced. When a channel's automatic key selects "bounce", its gain will not be automatically adjusted and the channel's signal level will no longer affect the gain of the other channels (no longer affecting the auto-mix gain calculation).

Mute: Channel mute is a pre-automatic gain. In other words, turning on the mute can eliminate the effect of the channel on other channel gains. It mutes the channel and mutes the direct output of the channel in the mix.

Fader: Channel fader is auto gain. Controls the mixing level and direct output level of the channel, but does not affect the automatic mixer algorithm. You can also precisely control the channel level by clicking and entering the dB value in the text box.

Channel mute and fader are automatic gain type, that is, no matter how you action, are no impact on the automatic mixing. It means that even if a channel is muted, if the high-level signal on the channel is present, the level of the remaining channels will be reduced. To mute a signal and prevent the signal from affecting automatic mixing, turn on "Mute" and cancel "Auto".

Priority PR: Allows higher priority channels to go beyond low-level channels, which affect the automatic mixing algorithm. This control defines the priority by a value between 1 (lowest priority) and 10 (highest priority). The default value is 5 (standard priority). You can adjust the priority by slider control, or you can click the edit box and enter the data between 1 and 10 to adjust the priority. If the two channels are receiving the same signal level, the higher priority will have a

higher gain. The difference between the channels is one difference per unit, and the gain is different by 2dB (assuming the priority step value is set at 2.0). For example, the priority of channel 1 is set to 6 and the priority of channel 2 is set to 3. When the two channels receive the same level of signal, the gain of channel 1 is higher than the gain of channel 2 by 6dB. Obviously, the setting of the priority step value affects the weight of the priority. If all channels have the same priority, set the priority of all channels to 5.

UseLastOneMic: Press to enable the last microphone button to ensure that the last microphone remains on, even if no voice is detected. This ensures that at least one microphone will always remain open to prevent dead air.

Mute and Gain: The master section includes main gain and mute settings. These only affect the main mix output, not the channel output directly.

ByPass: and the gain-sharing auto-mix through-button mutual exclusion, that is, only one algorithm can participate.

Hold Time: After the microphone stops speaking, the Hold slider adjusts the length of time the channel remains open. Use it for a long enough time so that a short pause between words and sentences does not cause the channel to turn off. Longer maintenance is usually helpful if excessive jitter (frequent opening and closing) occurs. However, the duration is too long to prevent the next speaker from starting to select when the NOM count is reached.

Threshold: Sets the level of all channels whose channels are closed. Higher settings (eg -20dB) may help to ensure that some room tones exist when all the microphones are off, if you do not use "Enable Last Mic". Regardless of this setting, the mute channel will be completely attenuated.

Noise Sensitivity: The Sensitivity slider controls whether the channel must have an adaptive noise threshold above it. If the access door is too quiet and quiet, increase this setting. According to our experience, noisy rooms (such as many fans) need to be lower than the quiet room setting. This is because in a quiet room, even low-level sound is much larger than the noise.

Priority Atten: The priority step value slider affects the number of all channel fades because more microphones are turned on. This parameter indicates the attenuation when the two microphones are gated, and the additional attenuation per doubling of each open microphone.

OpenMicNum: Set the number of open microphones

LastOneMic: Displays the last open microphone number.

Local/Dante: Select the source of the mixed input.

2.4 Feedback Canceller

AFC Feedback Canceller can auto-detect and suppress sound's feedback. It can distinguish voice and feedback clearly. When the feedback is detected, the module will add a notch filter and reduce the feedback frequency.
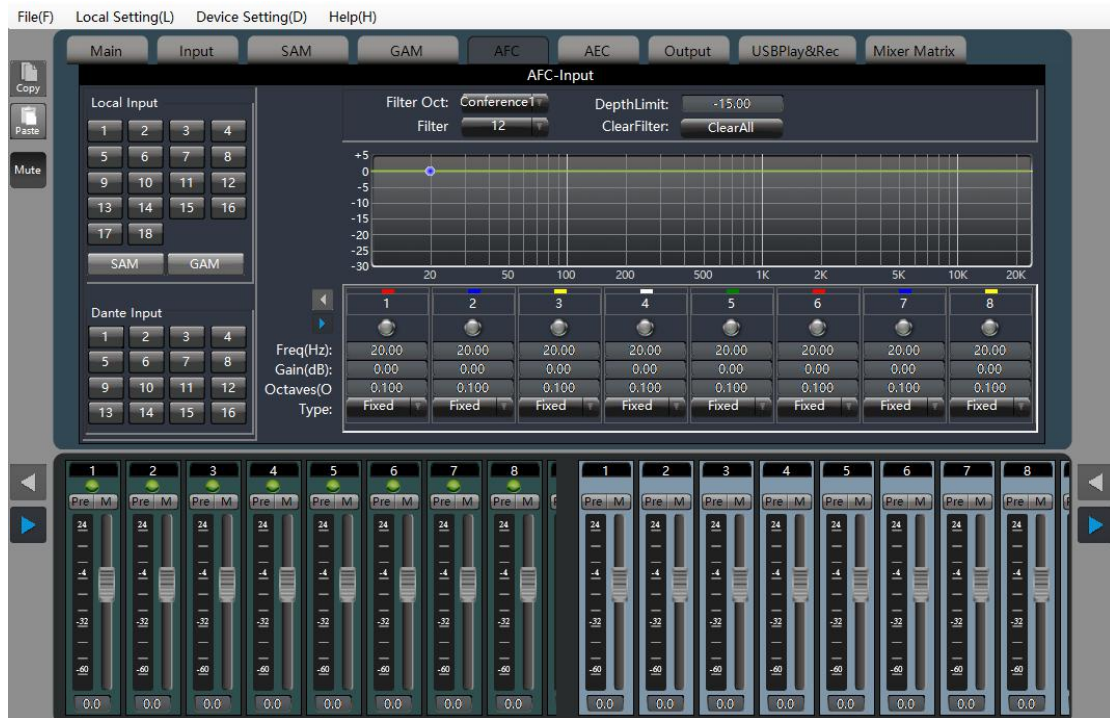
Filter Oct: there are four kind of mode in the list, they are "Conference 1", "Conference 2", "Music 1" and "Music 2". The sensitivity of the modes is different as well as the gain value and the bandwidth value.

Filter: can select 12 or 16, default one is 12.

Depth limit: range of notching depth is from 0dB to 20dB.

Clear Filter : clear data on filters.

Frequency: show feedback frequency.

Gain: show filter notching gain value.

Octaves: show filter notching bandwidth value.

Type: Static, Dynamic and Manual. Static Type and Dynamic Type support auto-detecting, Manual Type means user need to set the parameter manually. Once the frequency point was set to Static, it cannot be revised or covered until the user clean the points manually. Dynamic frequency points cannot be revised and they will cover previous point once all points are used. When select Manual Type, user can revise frequency point, gain value and bandwidth value.
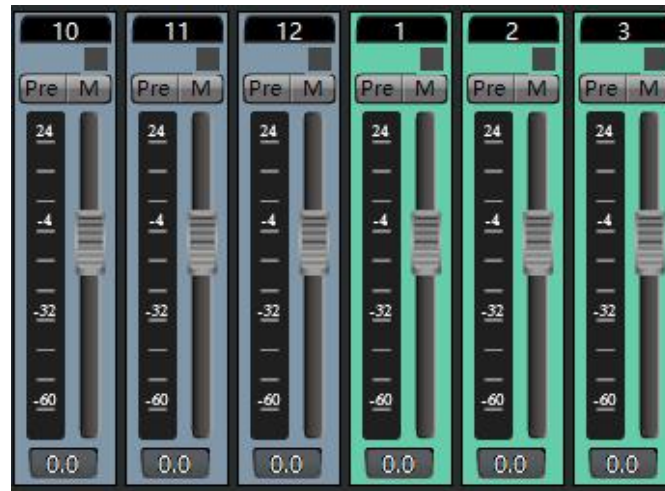
2.5 AEC
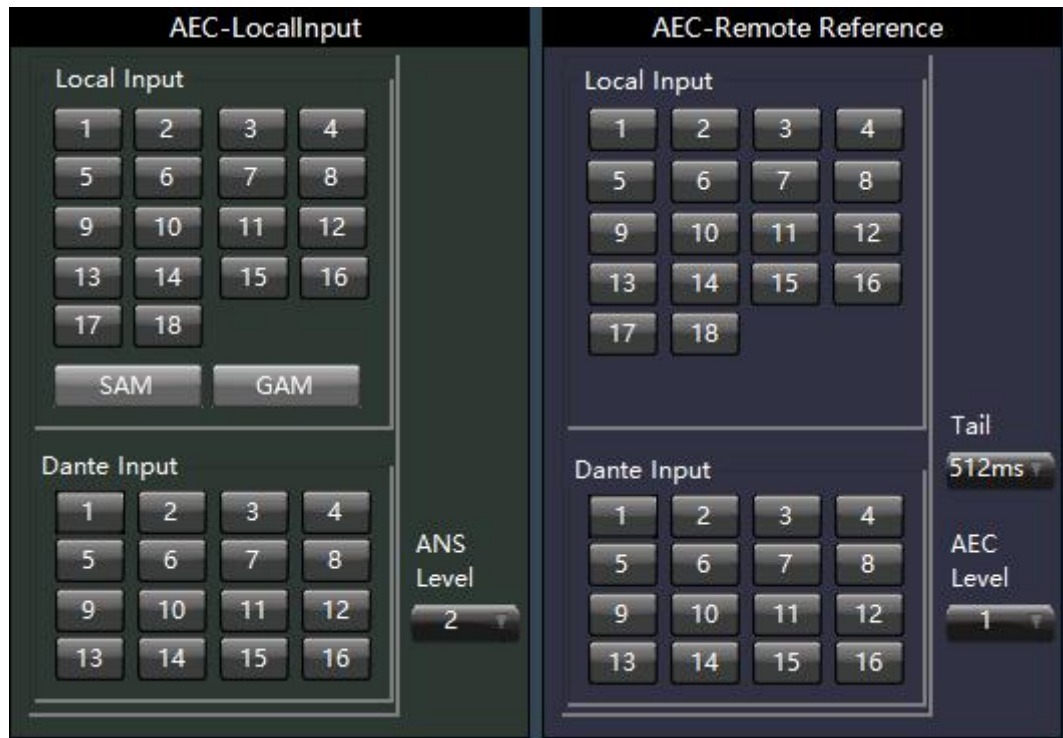
Set the echo to be processed through the feedback canceller, and the signal processed can be output in "from" of the output part.

Proximal end input: the signal input from local MIC and requiring echo processing.

Remote input: reference signal.

2.6 Audio output module

The interface can display 8 channels at most, which can be switched by pressing ◄► key; click the channel to switch the above functional module display box. See 2.1.2.3 for the channel information.

According to the different colors of the channel, different types of the output channel are respectively represented. For example, the 10-12 channel shown in the figure above indicates that the device simulates the output channel, and the 1-3 channel represents the Dante output channel.

The input channel supports grouping function, and multiple channels can set to a group. When the gain of the group is adjusted, the gain of the subordinate channel is also changed. The grouping identification will be on the gain fader after grouping. The system provides two groups: one is GROUP group, to directly adjust the gain value; the other is DCA group, to adjust the gain percentage.

- ➤ The above edit box displays the channel name, which can be modified.
- ➤ PRE/POST: the electrical level displayed is before or after fader.
- ➤ Level display and output gain adjustment fader.
- ➤ Output gain

2.6.1 From

Select the input signal from which the output channel signal are taken. If more than one signals are selected, then the signal are superimposed for output.

2.6.2 Speaker Manager
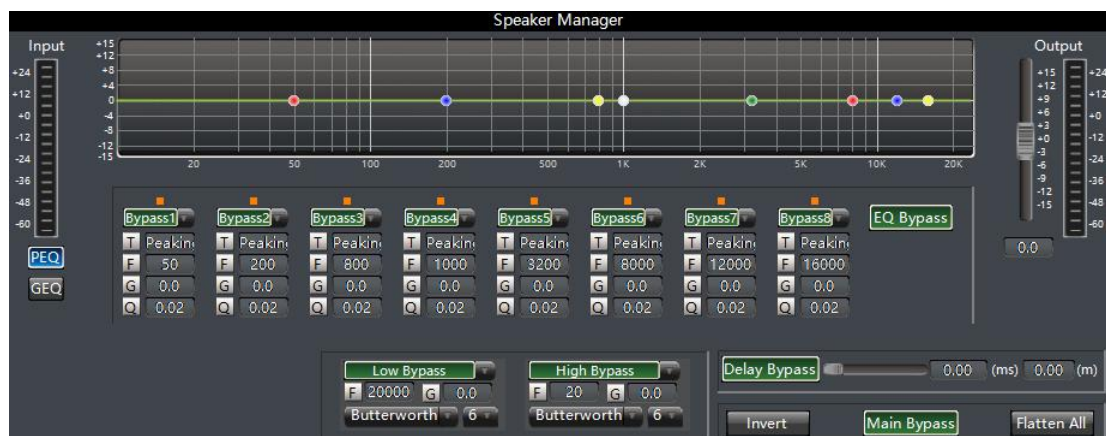
(1) EQ

There are 8 bands for output parameter equalizer and each band can individually adjust center frequency, gain and Q value (bandwidth) to reinforce or weaken the signal in some bands and accordingly to achieve different effects. Each point on the equalizer can be dragged without limit. The parameters for the selected band will change accordingly.

Flatten All : restore all bands to the status at 0 dB.

Band Bypass: after adjusting EQ, a user can cancel the bypass which has been set for some bands. A user can restore a band to the status at 0 dB by selecting the corresponding button to that band. Bypass can only affect the band and cannot affect others.

Center Frequency: the frequency to be balanced. When some numbers need to be changed, the graph in the graphic equalizer will be accordingly synchronized.

Gain: the gain/attenuation in a center frequency. When this value is 0, both the center frequency and Q value are invalid.

Q Value: frequency band block. The greater the value is, the greater the bandwidth will be.

(2) XOVER (Crossover)

Xover can distinguish the sound signals of different frequencies.

High-Pass Flat: bypass switch to prevent signal from being processed by a high pass filter; the selection of this item indicates the channel does not start the filter.

Low-Pass Flat: bypass switch to prevent signal from being processed by a low pass filter; the selection of this item indicates the channel does not start the filter.

High-Pass Gain: the gain/attenuation output by a high-frequency signal after processed.

Low-Pass Gain: the gain/attenuation output by a low-frequency signal after processed.

High-Pass Frequency: frequency settings for high pass filter.

Low-Pass Frequency: frequency settings for low pass filter.

(3) Output Gain

If "MAIN BYPASS" is selected, the limiter will be enabled, otherwise, it will be disabled. The output gain control parameter settings are mainly adjusting the output gain. The output gain after a series of functional processing above mentioned can be adjusted by changing the setting value.

Input Level: shows the input signal before it is processed by the speaker manager module.

Output Level: show the output signal after it is processed by the speaker manager module.

(4) Delay

Signal from the input to the output of the processor, the processor time interval, usually used to produce reverb or echo effects. Also it can be used for the auxiliary speaker with a larger processing.

2.6.3 Limiter
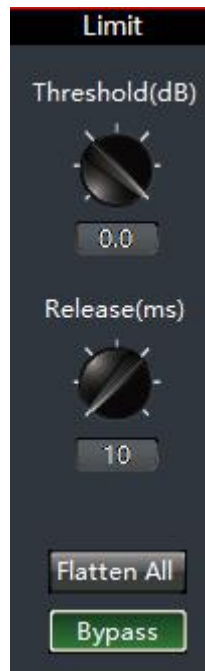
The limiter is to limit the signal more than threshold. When the signal input is more than threshold, the signal output is equal to threshold. When the signal input is less than threshold, the signal output is equal to the signal input.

Bypass: The signal input is bypassed and not be processed.

Threshold: the initial level for limiter; when the signal is above this limit, the limiter processing module will start to limit excessively large signal.

Release Time: if the input signal is lower than the threshold, it will not immediately turn off the sound channel but rather delay the closing time according to the specified value. As long as some signal is larger than "Threshold" during the delay, the sound channel will continue to open.

Output Sensitivity: is used to adjust the sensitivity of output level.

Audio Effect Level: is used to show the processing effect of signal after the limiter.

Output Level: used to show the output signal after processed by the limiter.

2.7 USB Play&Rec
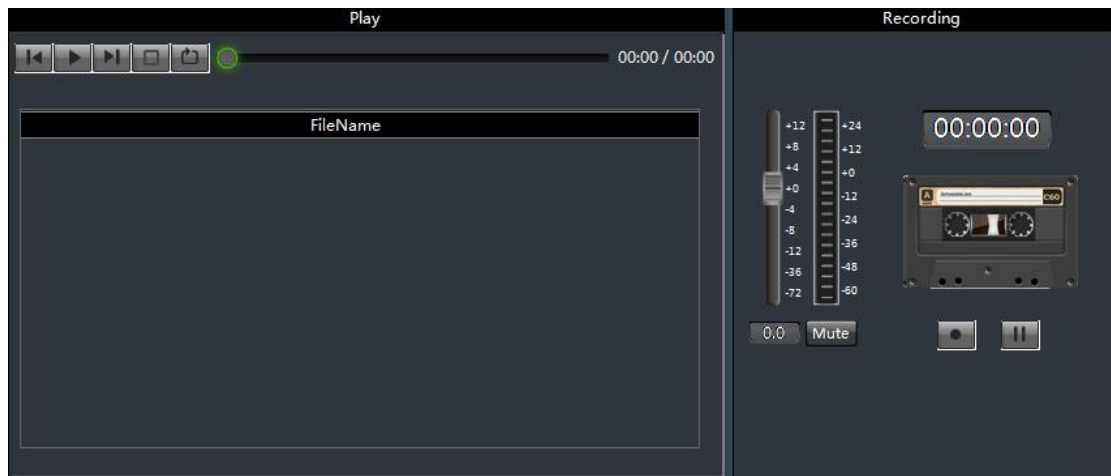
USB interface can be connected to the USB disk to achieve the MP3 file playback or recording channel audio to MP3 format to save.

Play: access USB disk, the interface will automatically recognize the USB disk in the .mp3 file displayed in the playlist.

Recording: In the mixing matrix you can mix the channels you want to record to the recording channel, click to start recording, or stop recording. Click to pause or resume recording. When recording is complete, a recording folder "EB_REC" will be generated in the USB flash drive. The recording music is saved in the folder in the file name RECxxxx.mp3.

2.8 Mixer Matrix

The mixing matrix expresses the connection of the input and output channels intuitively through the form of a matrix array.

If you want to output the input 1 (IN1) sound to output 1 (OUT1), simply turn on the node button of the first row of the first row of the matrix.

Click the OUT1 button to pop up the gain control of each input channel in the output 1 channel, as shown below:
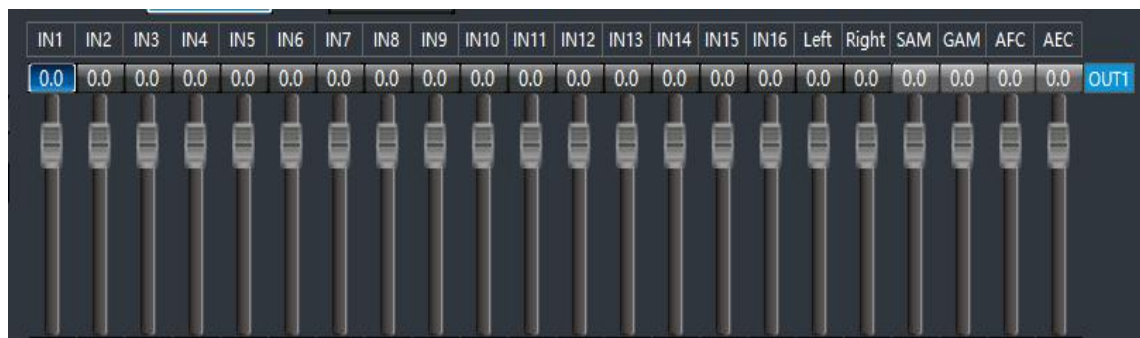
2.8.1 Dante send setting
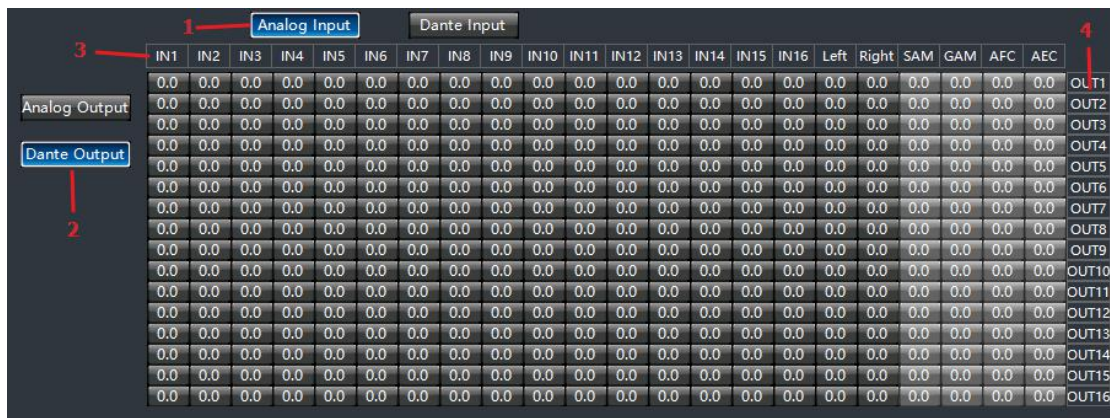
(1) Remote input channel sending Settings

Figure 4

(1) **Dante input:** Press the button to display blue, represents the routing of the set signal from Dante input.

(2) **Dante output:** Press the button to display blue, represents the routing of the set signal from Dante output.

(3) **Remote input channel:** Dante input channle number,can be modified.

(4) **Remote output channel:** Dante output channle number,can be modified.

For example, 16 signals received by Dante are respectively sent out through Dante's 16 output channels as shown in figure 4.

(2) Local input channel sending Settings

(1) **Local analog input:** Press the button to display blue, represents the routing of the set signal from local analog input.

(2) **Dante output:** Press the button to display blue, represents the routing of the set signal from Dante output.

(3) **Remote input channel:** Dante input channle number,can be modified.

(4) **Remote output channel:** Dante output channle number,can be modified.

Ⅲ.FAQ

★ **Question:** *What configurations shall be made when the system is used for the first time?*

- Answer: When this system is used for the first time, the following steps shall be followed:

① Read the instructions carefully, especially the safety precautions.

② Connect PC port, device, audio input and output device according to the instruction in the rear panel. Firstly, PC and devices can be connected via LAN (for other connection mode, pay attention to the location of the interface needed). Secondly, connect signal input devices (MIC and LINE input devices); Finally connect output devices (power amplifier and other devices).

③ The defaulted IP address in the factory is "192.168.10.10". If there is no address of "192.168.10.10" network segment in the PC, please add at least one address of this network segment in the PC so that the device can be normally connected. The adding process is as follows (the following shows the process adding IP in XP system): Right click network computer ->Attribute->Local Connection-> Attribute ->Select Internet protocol（TCP/IP）in "Series of item used of this connection"， click attribute ->advanced->Click "Add" in the IP column->Input IP address such as "192.168.10.101", sub-network mask "255.255.255.0"->Add->OK->OK;

④ Plug in the power, and then test the connection in the device. For details refer to: PC -> Menu Bar -> Local Settings ->Device list. Press the "CONNECT", successfully connected devices when the "CONNECT" button change to "DISCONNECT".

⑤ If Step 4 is normal, enter the device configuration stags.

★ **Question:** *There is no voice from the output?*

- Answer:

① Check whether the input and output interfaces are connected correctly.

② Check whether there is any voice from the input source and make use of line input mode for testing.

③ Check the Mute parameters of channels corresponding to input and output and the corresponding levels.

④ Check mute parameters and level value of the channel that the input and output correspond to.

★ **Question:** *The output audio quality is poor and the output sometimes rustles?*

- Answer:

① The output audio quality has close relationship with input and output levels. Usually, the input/output levels are less than -10dB. Adjusting other parameters can gain better result. Check other parameter settings, such as EQ and crossover.

② The signal generator may generate some noise and check whether it is turned off.

③ The noise gate can filter white noise in the absence of human voice. Enable the noise gate and then check the audio quality.

④ MIC input will produce echo. The audio quality can be improved by enabling the feedback suppressor.