8×8 Audio Matrix Processor with DSP

BAMX88 Product Manual

⚠ Safety Instructions

For optimum performance and safety, please read these instructions carefully before use and keep this guide for future reference. Please have the part number, serial number, and invoice available when requesting support.

- To prevent an electrical shock, please ensure all devices are properly grounded.
- Place the device in a well-ventilated area and do not block any ventilation openings.
- Do not expose or place device near water - liquid may cause a failure, fire, or eletrical shock.
- Do not place the device on an uneven or unstable surface - a fall may result in a malfunction.
- Never insert anything metallic into the device - this may cause an electrical shock.
- If a third-party power supply is used, please ensure it meets the requirements of this device.

Additional Resources

Visit the product page at www.vanco1.com for the latest version of this document and other resources.

Description

The BAMX88 is a versatile and powerful 8×8 audio matrix DSP-based processor designed for professional audio applications, offering eight microphone/line inputs and eight outputs for flexible routing and control. Engineered for clarity and intelligibility, it features adaptive echo cancellation and adaptive noise suppression, ensuring pristine audio in even the most challenging acoustic environments. Each input and output channel is equipped with an 8-band graphic equalizer, allowing precise tonal adjustments to optimize sound quality. With its advanced signal processing capabilities and comprehensive input/output options, this processor is ideal for conference rooms, classrooms, houses of worship, and other demanding audio installations.

Key features:

- 8×8 audio matrix processor
- Digital Signal Processing (DSP)
- 8 mic/line balanced or unbalanced audio inputs
- 8 line balanced or unbalanced audio outputs
- 8-band graphic EQ
- Mic Phantom Power options with 48V capabilities
- Volume, bass, treble, and mute controls
- Adaptive Echo Cancellation (AEC)
- Adaptive Noise Suppression (ANS)
- High-pass Filter (HPF) and Low-pass Filter (LPF)
- Limit and auto mixer EQ functionality
- IR, RS232, and IP control with browser-based UI
- General Purpose Inputs and Outputs (GPIO)

Box contents:

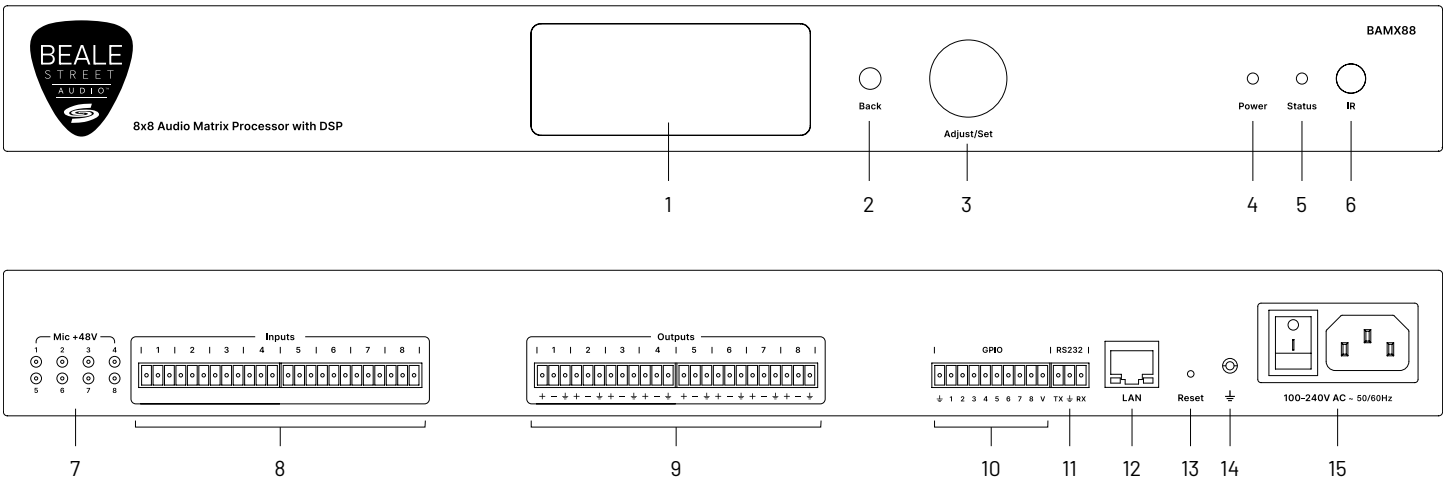
(1) BAMX88 audio matrix processor
(1) Remote control
(2) Rack mounts with screws
(4) 12-pin male Phoenix connectors
(1) 10-pin male Phoenix connectors
(1) 3-pin male Phoenix connectors
(1) Power cable
(1) Quick start guide

Specifications

Vanco International LLC reserves the right to change the specifications, features, and/or appearance of this product at any time without notice. Visit www.vanco1.com the lastest versions of the manual and other resources.

Inputs	
Mic/Line Inputs	8- 3 pin Terminals (24 pins total)
	Line analog audio, Balanced/Unbalanced 2CH Audio, Max input 24dBu
	Mic analog audio, Balanced/Unbalanced 2CH Audio, Min input -35dBv
Input Impedance	20K ohm balanced
	10K ohm unbalanced
Input Level	Max 24dBu (12.28Vrms)- balanced line audio
	Max 18dBu (6.14Vrms)- unbalanced line audio
	Min -35dBV (17.78mVrms)- balanced mic audio
Frequency Response	20Hz to 20kHz (+/- .5dB)
Dynamic Range	>90dB, 0dBu, 1KHzA- weighted
Audio S/N Ratio	>90dB, 0dBu, 1KHzA- weighted
Audio THD+N	<.1% at 0dB, 1kHz
Audio Output Delay	< 4ms
Outputs	
Line Outputs	8- 3 pin Terminals (24 pins total)
	Analog audio, Balanced/Unbalanced 2CH audio, Max output 20dBu
Output Impedance	600 ohm balanced
	300 ohm unbalanced
Output Level	Max 20dBu (7.75Vrms)- balanced audio
	Max 14dBu (3.875Vrms)- unbalanced audio
Frequency Response	20Hz to 20kHz (+/- .5dB)
Dynamic Range	>90dB, 0dBu, 1KHzA- weighted
Audio S/N Ratio	>90dB, 0dBu, 1KHzA- weighted
Audio THD+N	<.1% at 0dB, 1kHz
Audio Output Delay	< 4ms
Technical	
LAN	RJ45 Connector
Network Bandwidth	100Mbps
RS232	3-pin male phoenix connector
GPIO	10-pin male phoenix connector
Audio Latency	Configurable from 0-500ms
	38KHz
ESD Protection	IEC 61000-4-2
	+/- 8kV (air gap contact), +/- 4kV (Contact Discharge)
Power Supply	AC Input: 100-240V 50/60Hz
Power Consumption	9.3W (Max)
Mechanical	
Housing	Metal, black
Dimensions (WxDxH)	17.3" x 8" x 1.73" (1U) / 440mm x 203mm x 44mm
Weight	5.16lbs/ 2.34kg
Operating Temperature	32°-104° F / 0°-40° C
Storage Temperature	-4°-140° F / -20°-60° C
Operating Humidity	20%-80% Relative Humidity, non-condensing
Storage Humidity	10%-90% Relative Humidity, non-condensing

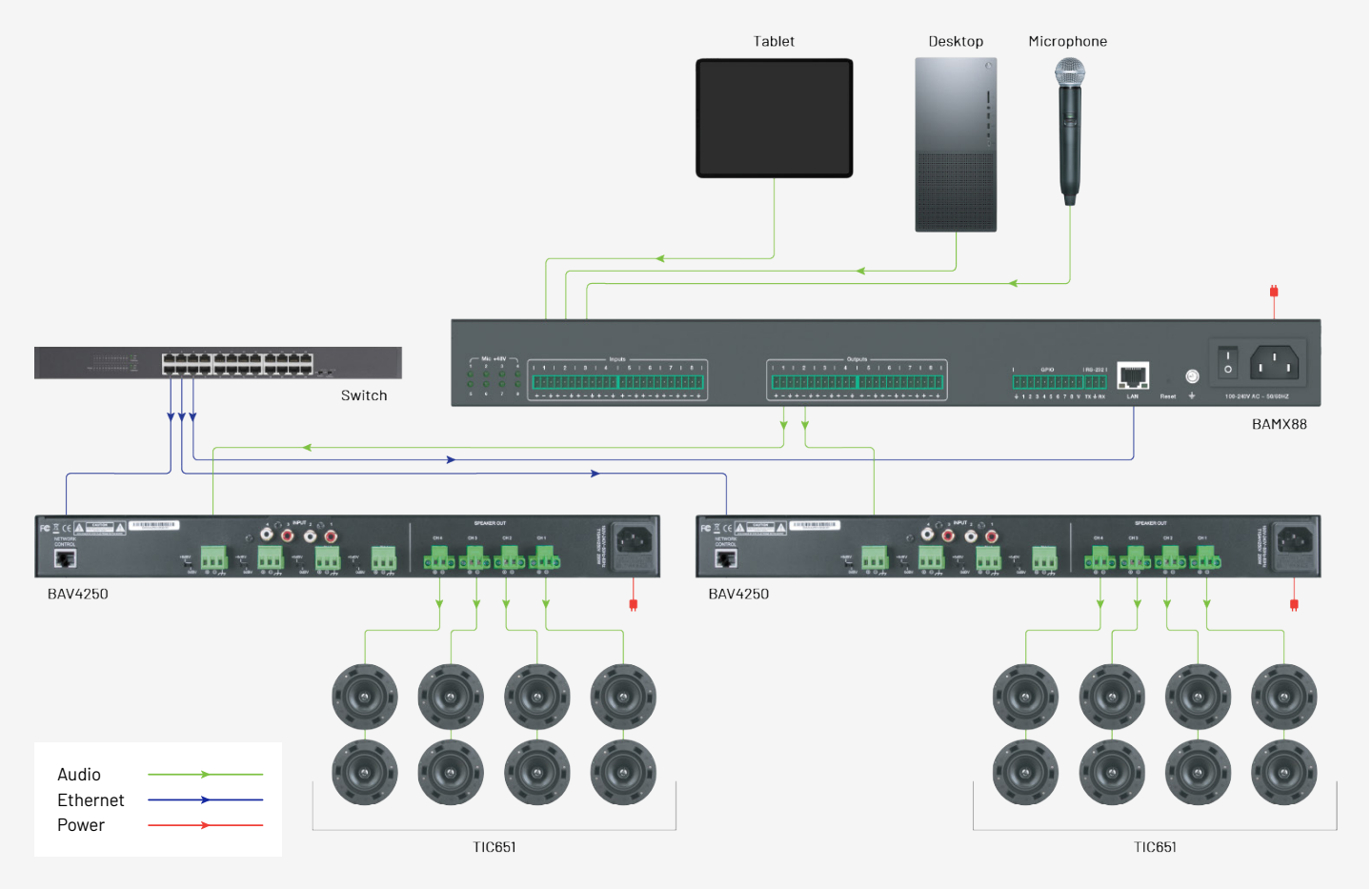
Panel Descriptions



Front Panel		
1	LCD screen	The model, system status, and IP address of the unit will be displayed in sequence on the screen after powering on. Also displays status of the unit, changes made within the system, as well as providing the ability to view and navigate system settings.
2	Back button	LCD menu return button.
3	Adjust/Set button	LCD menu operation button with knob. Pressing the button is equivalent to the function of the "Enter" button on the remote. Rotating the knob clockwise is equivalent to the "Up" button function; Rotating the knob counterclockwise is equivalent to the "Down" button function.
4	Power LED	Green ON: The system is powered on. Red ON: The system is in standby mode. OFF: The system is powered off.
5	Status LED	System status indicator light. ON: The system is normal. Flash: The system is abnormal.
6	IR window	IR signal receiving window, receiving the fixed frequency 38KHz IR remote control signal.
Rear Panel		
7	Mic +48V LED	The phantom power indicator lights for Mic input channel 1-8. Green ON: There is +48V phantom power output. Green OFF: There is no +48V phantom power output.
8	Mic/Line input ports (1-8)	Mic/Line input channels 1-8, supporting balanced/unbalanced input.
9	Line output ports (1-8)	Line analog audio output channels 1-8, supporting balanced/ unbalanced output.
10	GPIO port	8-bit GPIO control, with GPIO direction and configurable corresponding events
11	RS232 port	RS232 serial port, connected to the PC or control system for API command control.
12	LAN port	Network control port, connected to PC for UI control.
13	Reset button	Press and hold the button for 5 seconds to restore the device to the factory default settings.
14	GND	Connect the housing to the ground.
15	Power switch & port	Power switch: Press the switch to turn on/off the power supply. Power port: 100-240V AC 50/60Hz universal AC power outlet.

Connection Diagram

Before setting up the EVO-IP system, please enable settings with your ethernet switch that will allow you get the best performance possible. For information on which ethernet switches are compatible, please visit the product page at www.vanco1.com.



Connection Diagram

1. Connect your line level unbalanced and unbalanced source(s) and any microphone inputs into the provided phoenix connectors under Inputs.
2. Connect your Outputs using the provided Phoenix connectors to your system amplifier(s).

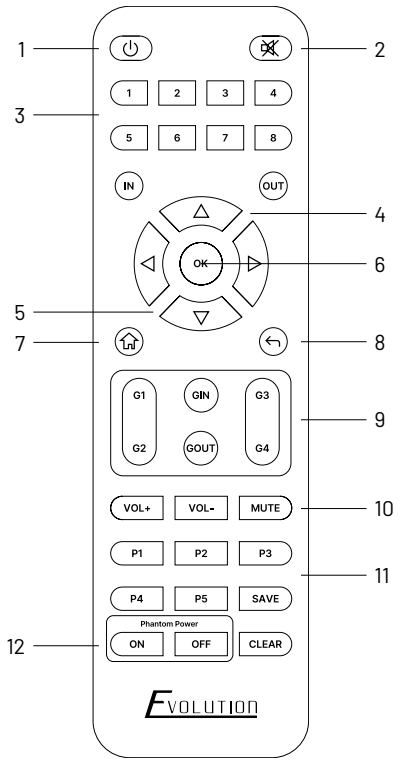
   NOTE: Follow the connection instructions of your amplifier for setup
3. Connect a Cat5e/6 cable to the LAN port on the unit from a computer or network for TCP/IP control, and/or a provided 3-pin Phoenix connector to the RS232 port for control.
4. Turn on units and connected components and test.
5. Use the front panel and dial, provided remote, 3rd party control system, or built-in browser user interface to set up further.

Vanco Tech Support
Phone: 800-626-6445
Email: techsupport@vanco1.com
Web: www.vanco1.com/tech-support

Front Screen Menu and Navigation

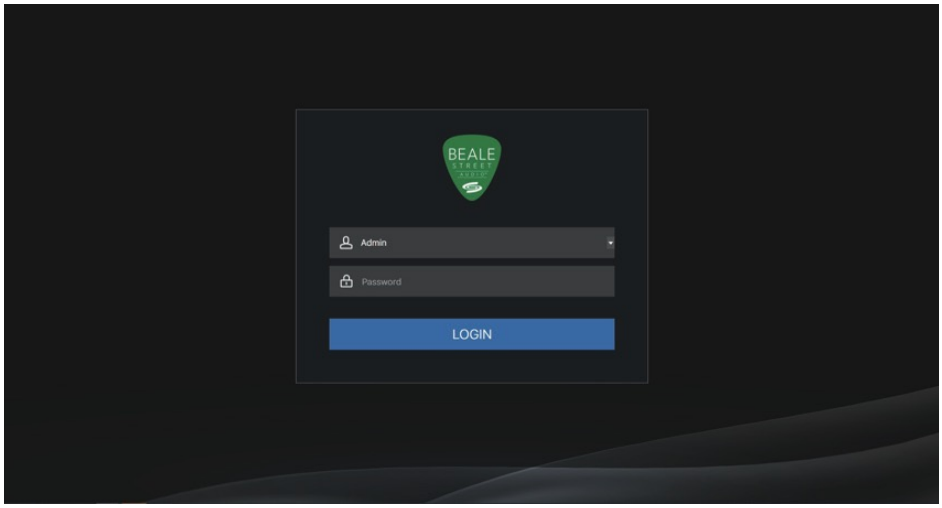
Most of the functions of the BAMX88 can be set through the operation of the screen and dial/button on the front panel. The dial can turn left and right to navigate through the options and will select a menu option when pressed. The LCD screen menu navigation consists of eight primary menus which are Output Level, Output Gain, Input Level, Input Gain, Phantom Power, Recall Preset, Network Config, and F/W Version. Below are the content and functions found within the front panel:

Level 1	Level 2	Level 3
Output Level	OUT1/2/3/4/5/6/7/8	20dBu, 4dBu, 0dBu, -10dBV
Output Gain	OUT1/2/3/4/5/6/7/8	[-100~12]dB (Step=0.1dB)
Input Level	IN1/2/3/4/5/6/7/8	24dBu, 18dBu, 12dBu, 4dBu, 0dBu, 0dBV, -10dBV, -28dBV, -35dBV
Input Gain	IN1/2/3/4/5/6/7/8	[-100~12]dB (Step=0.1dB)
Phantom Power	IN1/2/3/4/5/6/7/8	on/off
Recall Preset	Preset1/2/3/4/5	(The selected preset will be recalled successfully after blinking for 5 times.)
Network Config	DHCP	Auto/Static
	IP ADDRESS	Each field of the IP address/gateway/ subnet mask blinks and pressing the UP/DOWN button allows you to select the corresponding required field.)
	GATEWAY	
	SUBNET MASK	
F/W Version	WEB version	Status
	MCU version	Status
	DSP version	Status



IR Remote		
1	Power button	Power on the device or set it to standby mode.
2	Mute button	System mute/unmute button.
3	IN/OUT/1/2/3/4/5/6/7/8	Press “OUT+Number+IN-Number” to switch the audio signal source to the output channel. For example, “OUT 4 IN 8” means switching Input 8 to Output 4.
4	▲ / ▶	Equivalent to the “Up” button on the front panel. Press the button to select the previous option in the operation of the LSC screen on the front panel
5	▼/◀	Equivalant to the “Down” button on the front panel, used to select the next option.
6	OK	Equivalant to the “Enter” button on the front panel, used to confirm and save the operation.
7	Home button	Press the button to enter the home page of the LCD screen on the front panel
8	Back button	Equivalant to the “Back” button on the front panel, used to return to the previous menu
9	GIN/GOUT/G1/G2	Input/output group select buttons. For example, press “GIN+G1” to select input group 1; Press “GOUT+G1” to select outpur group 1. G3/G4: Reserved buttons without function currently.
10	VOL+/VOL-/MUTE	Input/output channel or group volume control buttons. For example, press “IN+1+VOL+” to increase Input 1 volume by 1; Press “GIN+G1+MUTE” to mute/unmute Input group 1.
11	P1/P2/P3/P4/P5/SAVE/CLEAR	Preset settings buttons. For example, presee “P1” to recall preset 1; Press “CLEAR+P1” to clear preset 1. Press “SAVE+P1” to save the current settings to preset 1.
12	Phantom Power ON/OFF	Phantom power on/off buttons. For example, press “IN+1+ON” to set input 1 phantom power on; Press “IN+2+OFF” to set input 2 phantom power off.

Connecting to the User Interface



Connect the LAN port of the audio processor to a PC or network with a Cat5e/6 network cable.

Press the menu buttons on the front panel or IR remote control to check the IP address of the audio processor on the LCD screen.

Set the IP address of the PC to be in the same network segment as the audio processor.

Input the IP address of the audio processor into the browser on the PC to enter the UI login.

Default usernames and passwords:

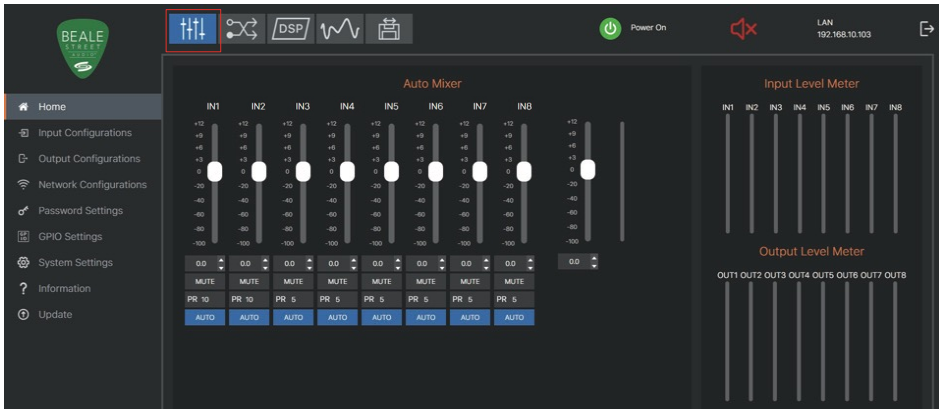
Username	Password
Admin	1234
User	1234

Select the username “Admin” and enter the default password “1234”. Then Select “LOGIN” to access the UI main interface

Note: User accounts are limited in setup options to reduce issues in the field can be individually routed for further options and customization.

1.0 Home Tab

1.1 Auto Mixer & Input Level & Output Level (1) Auto Mixer



The Auto Mixer is used to set the order of priority for audio input when 8 channel audio input ports are connected at one time.

Auto: Select AUTO to add the corresponding input audio to the auto mixing system. Then use the fader

of the audio input channel to adjust its signal level for controlling the mixed volume on the input channel or Select MUTE to mute the audio input channel.

PR (Priority): Used to set the priority of the audio input,

0 = lowest
10 = highest priority.

Channel of higher-priority will override the one of lower-priority to be prioritized in the Auto Mixer's algorithm. If two or more channels are at the same priority, the channel for the main output will be prioritized in the Auto Mixer process.

The OUTPUT meter indicates the output volume after the Auto Mixer process. You can use the fader to control the output volume after the Auto Mixer process.

Input/Output Level Meter: Indicates the audio input/output levels.
Select the username "Admin" and enter the default password "1234". Then Select "LOGIN" to access the UI main interface

1.2 Input Level

The Input Level module is used to set the audio parameters of the input channels and input groups.

Single Audio Input Channel Setting:
Select the lock icon to lock/unlock the corresponding audio input channel. After the input channel is unlocked, you can drag the fader to adjust its gain for controlling the volume or Select MUTE to mute the audio input channel.

Audio Input Group Setting:
Select the IN1/2/3/4/5/6/7/8 button under IN Group A/B to add corresponding input channels into

Group A/B, then drag the fader to adjust the gain of IN Group A/B for controlling the volume of the input group channel or Select MUTE to mute the audio input group channel.

1.3 Output Level

The Output Level module is used to set the audio parameters of the output channels and output groups.

Single Audio Output Channel Setting:
Select the lock icon to lock/unlock the corresponding audio output channel. After the output is unlocked, you can drag the fader to adjust its gain for controlling the volume or Select MUTE to mute the audio.

Audio Output Group Setting:
Select the OUT1/2/3/4/5/6/7/8 button under OUT Group A/B to add corresponding output channels into Group A/B, then drag the fader to adjust the gain of OUT Group A/B for controlling the volume of the output group channel or Select MUTE to mute the audio output group channel.

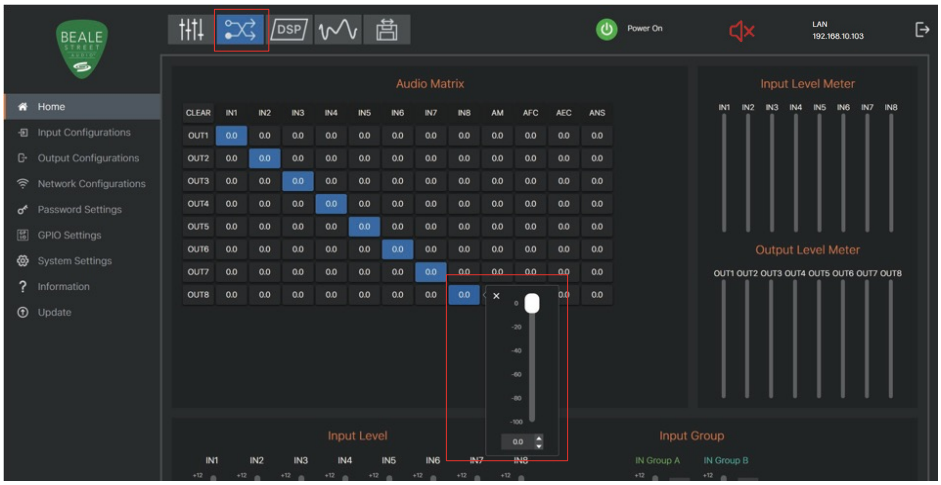
Audio Matrix
As shown above, the horizontal line stands for output channels and the vertical for input channels (except AM, AFC, AEC and ANS).

AM: Indicates the output signal after the Auto Mixer process.
AFC: Indicates the output signal after the AFC process.

AEC: Indicates the output signal after the AEC process.

ANS: Indicates the output signal after the ANS process.

Select the corresponding grids to set the audio matrix, and right-Select the gain in the audio matrix to control the gain level of the input channel mixed into the corresponding output.



1.4 Adaptive Feedback Cancellation (AFC)

The AFC module allows you to detect and suppress the frequency points of the acoustic feedback for 16 bands. Parameters on this module are open to be configured.

Local Input: The source input channels. You can select the channel based on actual access conditions. Auto-mixer refers to mixed signals after the auto mixing process.

Max Depth: The maximum amount of gain that the module allows to reduce, with a scale of [-20, 0] dB.

Bandwidth: The bandwidth of the filter, with narrow and wide options.

Reset: When pressed, the filter will go back to initial settings, and the module will re-detect the frequency point of the acoustic feedback.

Active: Activates the AFC process.

Fix Band: When selected, fixed values of parameters, such as Frequency, Gain and Q value will be applied to configure the filter in a fixed band. You are allowed to design the filter by setting its parameters.

Fix All: When selected, all bands will be processed in a fixed mode or in USER-EDITING mode.

Bypass Band: When selected, the filter of the related band will be disabled.

1.5 Adaptive Echo Cancellation (AEC)

The AEC algorithm is set to eliminate echoes coming from the far end in a remote video conference.

Local Input: The source input channels. You can select the channel

based on actual access conditions. Automixer refers to mixed signals after the auto mixing process.

Nonlinear Processing: Determines the audio effect for both ends of the video conference, with Soft, Medium and Aggressive optional.

Active: Activates the AEC process. You can check to select Delay Estimation Active, ANS Active or AGC Active as required.

Remote Reference: Indicates signals that are available for the AEC algorithm to learn how to eliminate analogous echoes in practice.

1.6 Adaptive Noise Suppression (ANS)

The ANS algorithm can effectively increase the signal to noise (S/N) ratio and suppress noises.

Local Input: The source input channels. You can select the channel based on actual access conditions. Automixer refers to mixed signals after the auto mixing process.

Active: Activates the ANS process.

Parametric Equalizer (PEQ): Select the PEQ tab on the menu bar to enter the PEQ setting interface, which allows you to set the EQ of the selected input/output channel. Each I/O channel has an 8-band parametric equalizer for voice processing, with the frequency, gain and Q value of each band adjustable.

IN1/2/3/4/5/6/7/8: Select the corresponding button to select the input channel.

OUT1/2/3/4/5/6/7/8: Select the corresponding button to select the output channel.

Freq (Frequency): In High/Low Pass Filter, it means the cut-off frequency of the EQ band; In Peak Filter, it means the center frequency point of the EQ band; with a scale of [20, 20000] Hz.

Gain: The value range of gain is [-15, 15] dB.

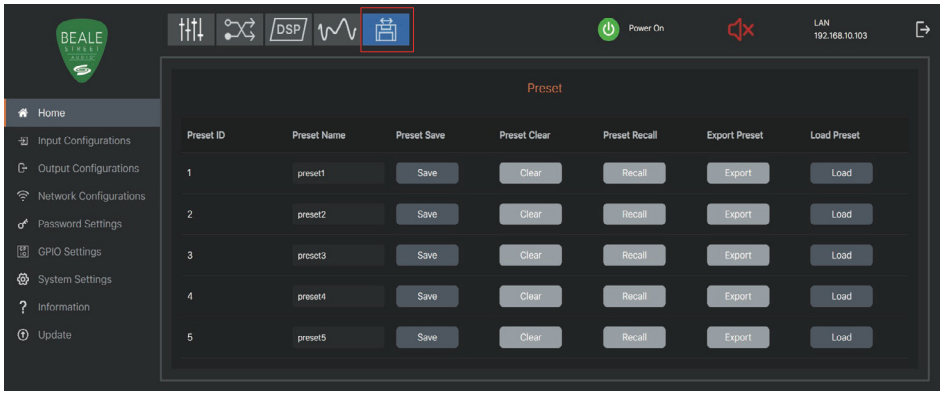
Q Value: The value range of Q value is [0.02, 16].

Type: Provides 5 types of band/filters with Parametric, High pass, Low pass, High Shelf, and Low Shelf options.

On/Off check box: Each band has a check box. When selected, the EQ function in this band will be disabled.

1.7 Preset

Select the Preset tab on the menu bar to enter the Preset setting interface, which allows you to set up to 5 presets.



Preset Name: You can name the preset scene (16 characters max).

Preset Save: Select the Save button to save the preset scene.

Preset Clear: Select the Clear button to clear the saved preset scene.

Preset Recall: Select the Recall button to recall the saved preset scene.

Export Preset: Select the Export button to export the preset to local.

Load Preset: Select the Load button to upload the customized preset. Furthermore, the icons on the right side of the menu bar allows you to perform the following operations. Power on: Select the icon to power on the audio processor or set it in standby mode.

Mute/Unmute: Select the icon to mute/unmute the audio.

LAN: Displays the IP address of the audio processor.

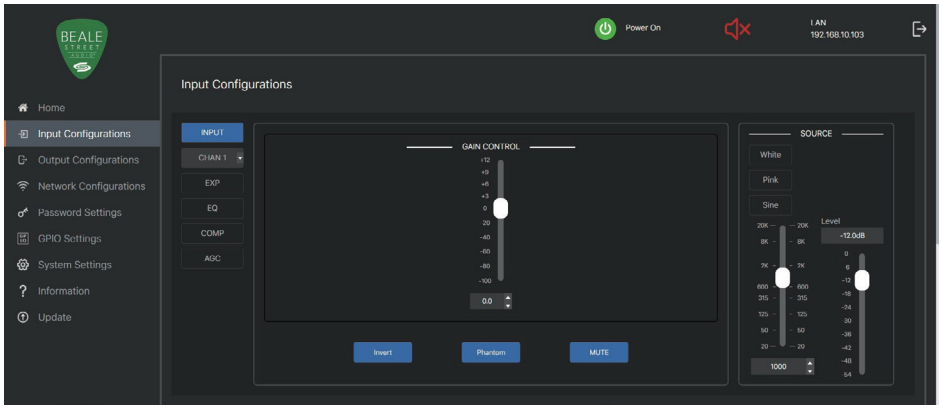
Log Out: Select the icon to log out of the UI and return to the login interface.

2.0 Input Configurations Tab

This page allows you to set the sensitivity, gain, phantom power, invert of the analog input, as well as the invert and input port of digital inputs.

2.1 Input Settings

Select the INPUT button and select the drop-down list icon of the CHAN No. to select the input channel, then you can set the signal parameters of the input channel, as shown in the following figure.



Gain Control: Indicates the gain level of the signal input, which could be adjusted to ensure the gain on the input channel adaptable to the MIC or linear input.

Invert: Select the button to invert on/off the polarity of the signal on the input channel.

Phantom: Select the button to turn on/off 48V phantom power for the channel.

Mute: Select the button to mute/unmute the input channel.

White: Select the button to generate white noise for signal testing.

Pink: Select the button to generate pink noise for signal testing.

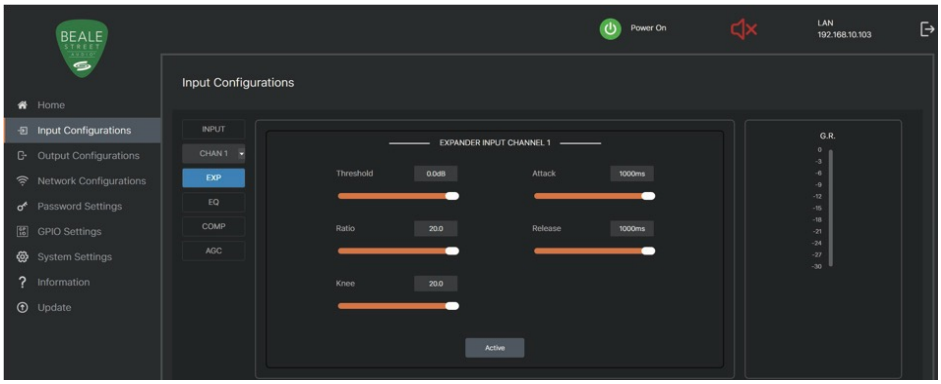
Sine: Select the button to generate sinusoidal signal for testing, the meter

below shows the frequency of the sine wave.

Level: Drag the fader of Level to control the level of the source signal.

2.2 Expander (EXP) Settings

Select the EXP button to enter the Expander settings interface and select the drop-down list icon of the CHAN No. to select the input channel, then you can extend the dynamic range of the input signal, which can eliminate noise under the threshold level.



Threshold: The level that the signal below will be identified as noise and attenuated, with a range of [-60.0, 0.0] dB.

Ratio: The compression ratio for signals below threshold, with a scale of [1.0, 20.0]. If the ratio is 2.0, it means the signal below threshold will be reduced to ½ of the original.

Knee: The curve setting of the inflection point of the Expander, with a scale of [0.0, 20.0]. 0 indicates a hard knee; other values indicate a soft knee.

Attack: The time required by the Expander to begin the Expander process once a signal drops below threshold. The value range of this parameter is [1, 1000] ms.

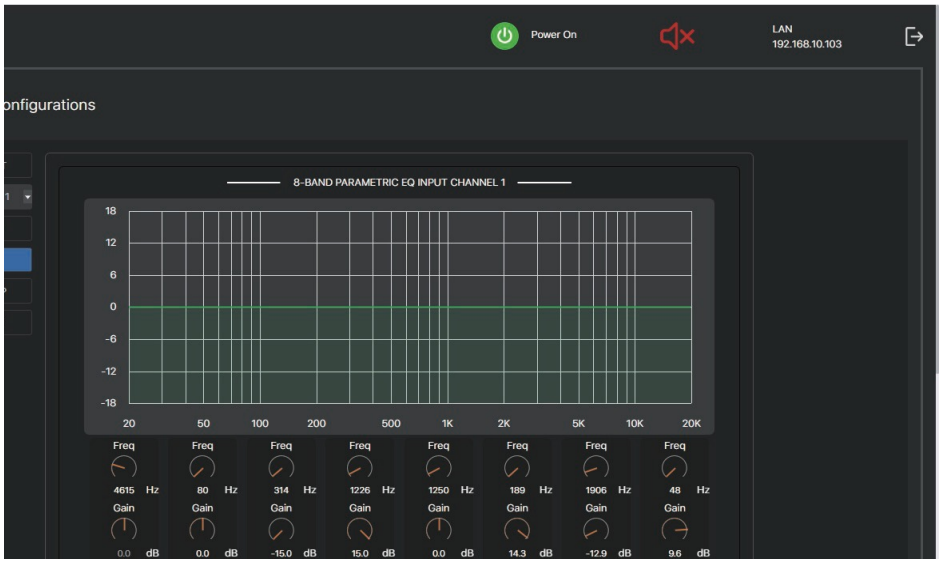
Release: The time required by the Expander to stop the Expander process once a signal is over threshold. The value range of this parameter is [1, 1000] ms.

G.R. (Gain Reduction): Indicates the amount of gain attenuation of the input signal (in dB) in the Expander process.

Active: Activates the Expander process.

2.3 EQ Settings

Select the EQ button to enter the EQ settings interface, and Select the drop-down list icon of the CHAN No. to select the input channel, then you can set the EQ of the selected input channel. Each I/O channel has an 8-band parametric equalizer for voice processing, with the frequency, gain and Q value of each band adjustable.



Freq (Frequency): The frequency of the EQ band, with a scale of [20, 20000] Hz.

Gain: The gain of the EQ band, with a scale of [-15.0, +15.0] dB.

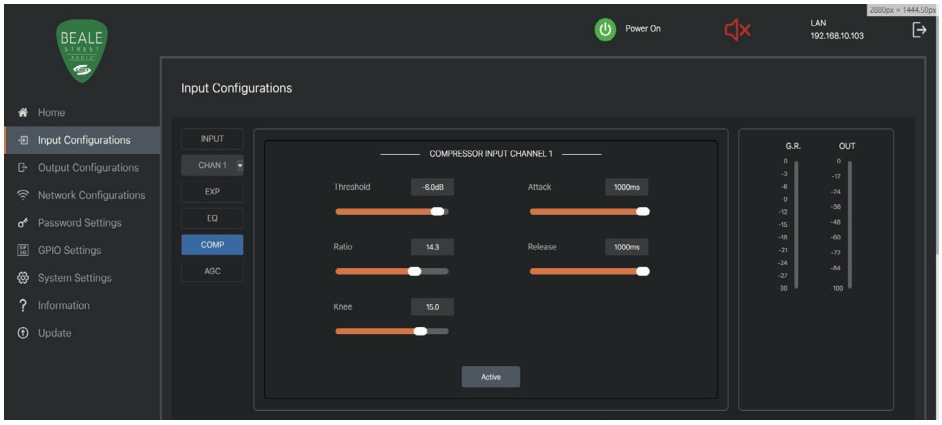
Q Value: The value range of Q value is [0.02, 16.00].

Type: Provides 5 types of band/filter, with Parametric, High pass, Lowpass, High Shelf, and Low Shelf optional.

On/Off check box: Each band has a check box. When selected, the EQ function in this band will be enabled.

2.4 Compressor (COMP) Settings

Select the COMP button to enter the Compressor settings interface, and select the drop-down list icon of the CHAN No. to select the input channel, then you can reduce the dynamic range of the signal above a user determined threshold so that output sounds can be more defined.



Threshold: The level that the signal above will be compressed, with a range of [-60.0, 0.0] dB.

Ratio: The compression ratio for signals with level above threshold, with a scale of [1.0, 20.0]. When the ratio sets to 2.0, it means that the signal with level below threshold will be reduced to ½ of the original.

Knee: The curve setting of the inflection point of the Compressor, with a scale of [0.0, 20.0]. 0 indicates a hard knee; other values indicate a soft knee.

Attack: The time required by the Compressor to begin the Compressor process once a signal is over threshold, with a scale of [1, 1000] ms.

Release: The time required by the Compressor to stop the Compressor process once a signal drops below threshold, with a scale of [1, 1000] ms.

G.R. (Gain Reduction): Indicates the amount of gain attenuation of the input signal (in dB).

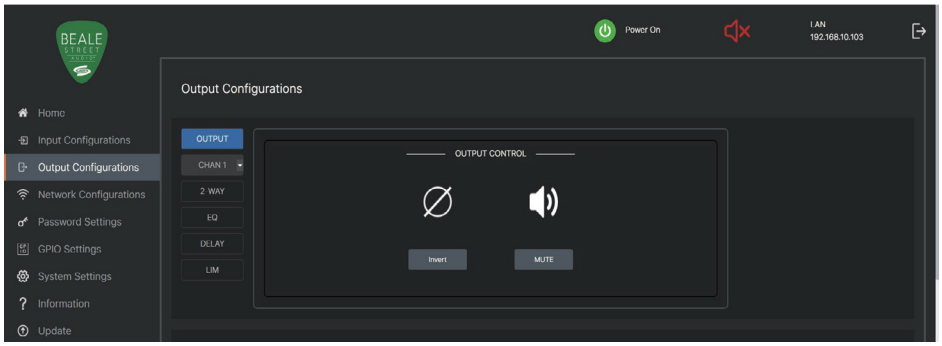
Out: Meter indicates the output signal level after the Compressor process.

Active: Activates the Compressor process.

3.0 Output Configuration and Settings

3.1 Output Settings

Select the OUTPUT button and select the drop-down list icon to select the output channel, then you can set the signal parameters of the output channel, as shown in the figure above.

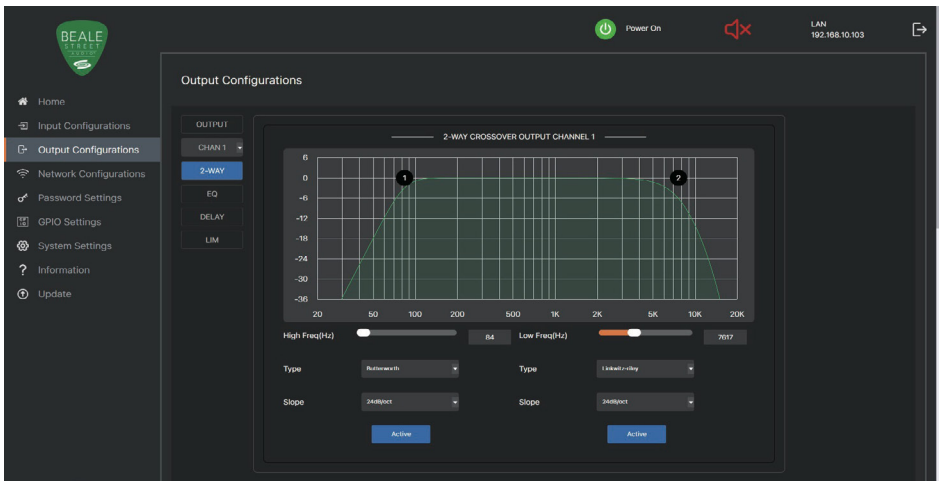


Invert: Select the button to invert on/off the polarity of the signal on the output channel.

Mute: Select the button to mute/unmute the output channel.

3.2 2-Way Settings

Select the 2-WAY button to enter the 2-WAY crossover settings interface and select the dropdown list icon of the CHAN No. to select the output channel, then you can divide the signal up into 2 discreet audio bands (Low and High).



Active: Select the button to activate/inactivate the frequency filter (High Pass or Low Pass).

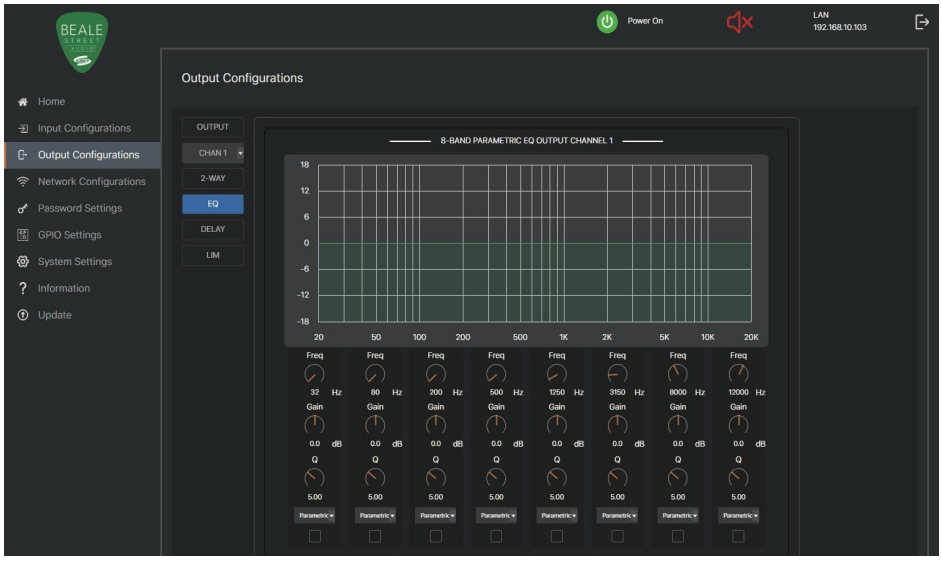
High/Low Freq (Hz): Indicates the cut-off frequency of the filter.

Type: Filter types, including Butterworth filters, Bessel filters, and Linkwitz-riley filters.

Slope: Filter slope setting, supporting 6dB/oct, 12dB/oct, 18dB/oct, 24dB/oct, 30dB/oct, 36dB/oct, 42dB/oct, 48dB/oct.

3.3 EQ Settings

Select the EQ button to enter the EQ settings interface and select the drop-down list icon of the CHAN No. to select the output channel, then you can set the EQ of the selected output channel. Each I/O channel has an 8-band parametric equalizer for voice processing, with the frequency, gain and Q value of each band adjustable.



Freq (Frequency): The frequency of the EQ band, with a scale of [20, 20000] Hz.

Gain: The gain of the EQ band, with a scale of [-15.0, +15.0] dB.

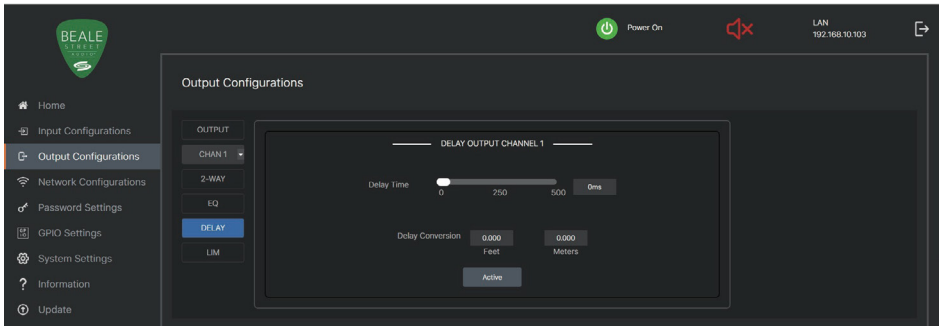
Q Value: The value range of Q value is [0.02, 16.00].

Type: Provides 5 types of band/filters, with Parametric, High pass, Low pass, High Shelf, and Low Shelf optional.

On/Off Check Box: Each band has a check box. When selected, the EQ function in this band will be enabled.

3.4 Delay Settings

Select the DELAY button to enter the DELAY settings interface and select the drop-down list icon of the CHAN No. to select the output channel, then you can delay the output speed of audio signals.



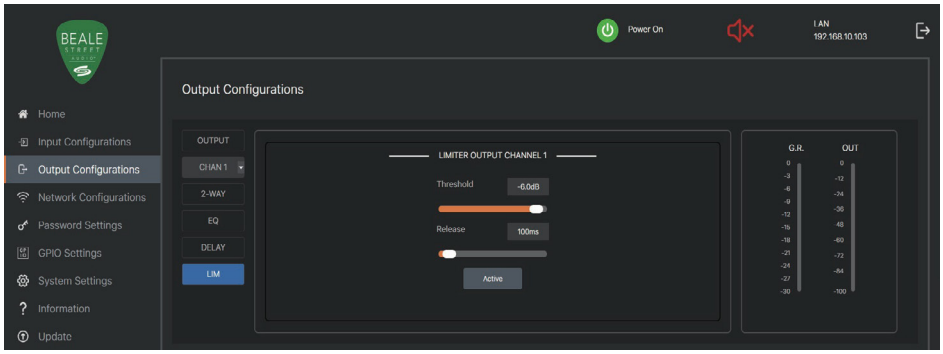
Delay Time: Adjusts the delay time of the output audio signal, measured in milliseconds.

Delay Conversion: Displays the amount of delay measured in both Feet and Meters.

Active: Select the button to activate or inactivate the Delay module.

3.5 Limiter (LIM) Settings

Select the LIM button to enter the LIMITER settings interface and select the drop-down list icon of the CHAN No. to select the output channel, then you can reduce the dynamic range of signals by strictly limiting the maximum output level to ensure that the connected amplifier won't be overloaded because of signals with high signal level.



Threshold: The level that the signal above will be attenuated, with a range of [-60.0, 0.0] dB.
Release: The time required by the Limiter to stop the Limiter process once a signal is below threshold. The value range of this parameter is [1, 1000] ms.

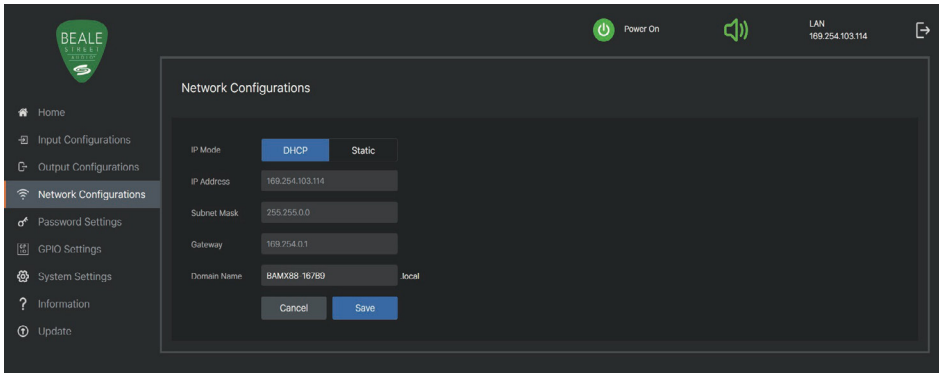
G.R. (Gain Reduction): Indicates the amount of gain attenuation of the input signal (in dB).

Out: Meter indicates the output signal level after the Limiter process.

Active: Activates the Limiter process.

4.0 Network Configuration

This page allows you to set the IP Mode (Static/DHCP). If the mode is set to "Static", you can manually set the IP Address, Subnet Mask, Gateway and Domain Name as required, then Select "Save" to take effect. If the mode is set to "DHCP", the system will search and fill the IP Address with the one assigned by the router automatically.

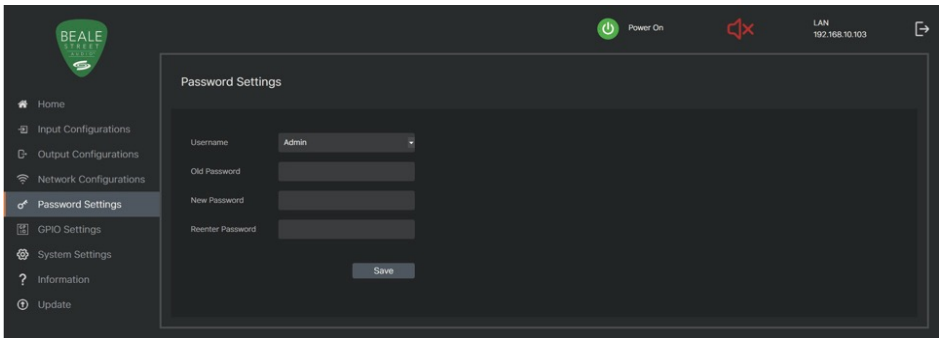


5.0 Password Settings

This page allows you to modify the Web login password for the User/ Admin account. Enter the correct Old Password, New Password, and Reenter Password, then Select "Save" to take effect.

Note: Input rules for changing passwords:

1. The password can't be empty.
2. New Password can't be the same as Old Password.
3. New Password and Re-enter Password must be the same.

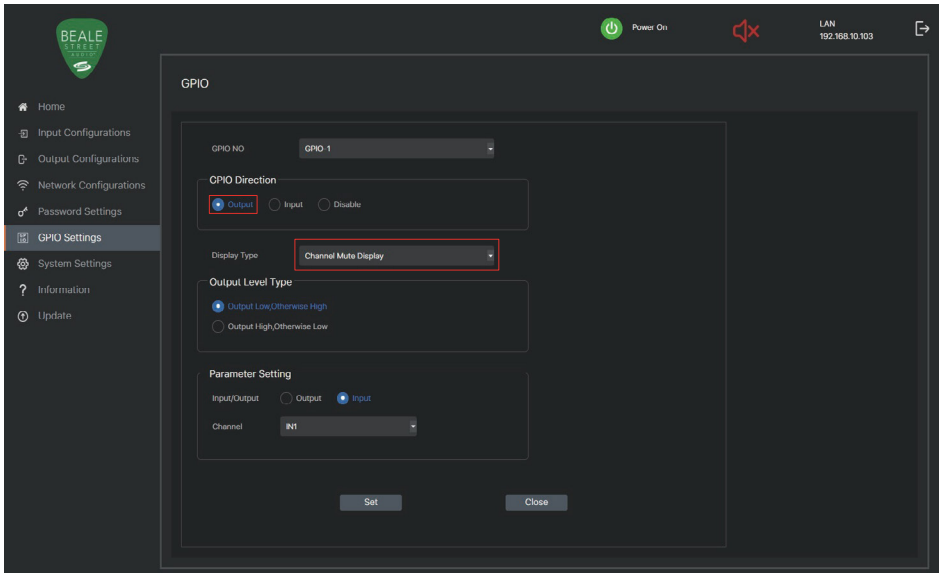


6.0 General Purpose Inputs & Outputs (GPIO) Settings

Select the drop-down list icon of the GPIO NO to select the GPIO pin, then select the GPIO Direction to Output and the GPIO pin can be used to control the peripheral, and the interface is as shown in the figure above.

Display Type: The display type for output GPIO pin, with Channel Mute Display and System Mute Display optional.

(1) If "Channel Mute Display" is selected, as shown in the above figure, you can perform following settings.



6.1 Output Level Type

Output Low, Otherwise High: Outputs a low voltage level when muted, otherwise outputs a high voltage level.

Output High, Otherwise Low: Outputs a high voltage when muted, otherwise outputs a low voltage.

6.2 Parameter Setting

Input/Output: Select the signal direction.

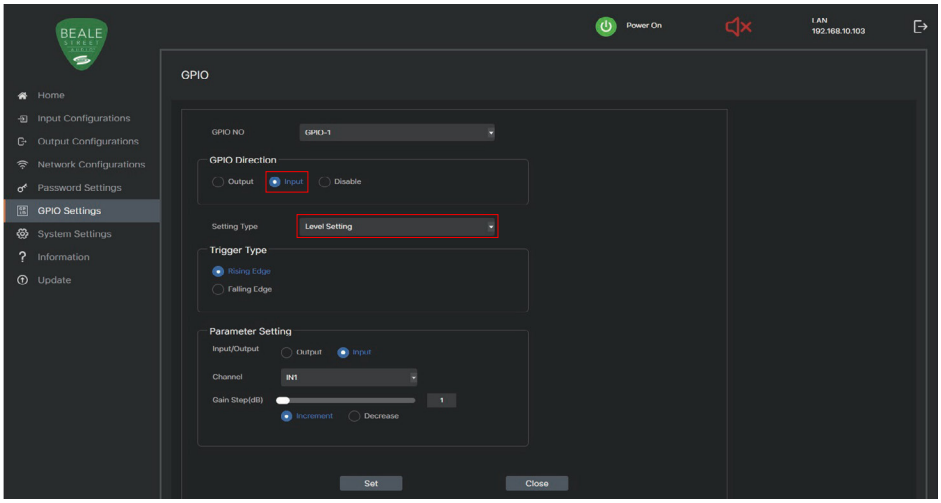
Channel: Select the input/output channel.

After setting, please Select the Set button to take effect.

(2) If "System Mute Display" is selected, you can only select the output level type.

6.3 Input Setting

Select the drop-down list icon of the GPIO NO to select the GPIO pin, then select the GPIO Direction to Input and the GPIO pin can be used to receive external signals.



Setting Type: The setting type for input GPIO pin, with Level Setting, Preset Setting, Channel Mute Setting and System Mute Setting optional.

(1) If "Level Setting" is selected, as shown in the above figure, you can perform following settings.

Trigger Type: Select the trigger type (Rising Edge or Failing Edge).

6.4 Parameter Setting

Input/Output: Select the signal direction.

Channel: Select the input/output channel.

Gain Step (dB): Drag the slide to set the gain step.

Increment/Decrease: Select to select the audio volume increase/decrease trend. After setting, please Select the Set button to take effect.

(2) If "Preset Setting" is selected, you can select a preset for parameter setting.

(3) If "Channel Mute Setting" is selected, you can perform following settings.

Trigger Type: Select the trigger type. There are four types available.

- Mute On Rising Edge
- Rising Edge Mute, Falling Edge Unmute
- Mute On Failing Edge
- Falling Edge Mute, Rising Edge Unmute

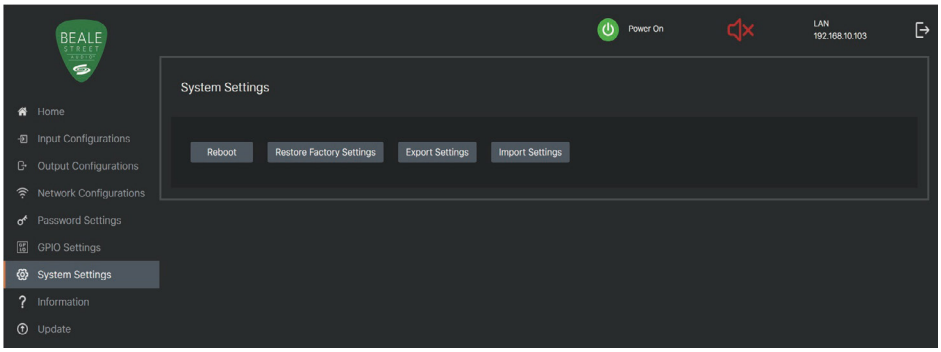
6.5 Parameter Setting:

Input/Output: Select the signal direction.

Channel: Select the input/output channel.

After setting, please Select the Set button to take effect.

7.0 System Settings



Reboot: Select the button to reboot the system.

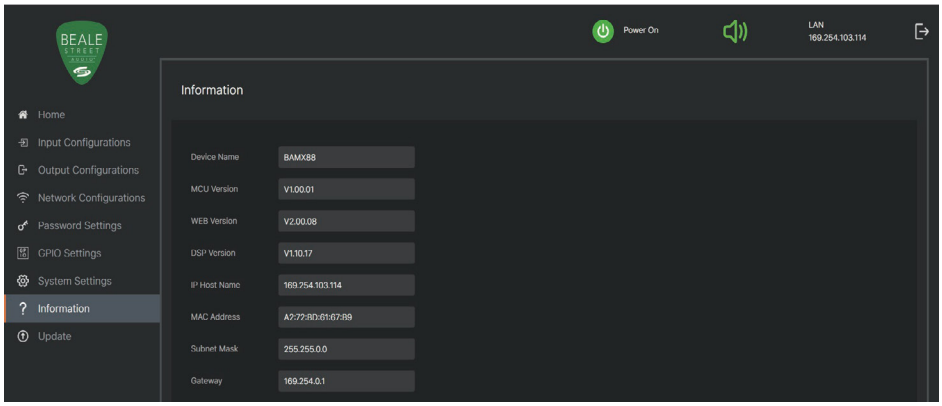
Restore Factory Settings: Select the button to restore the audio processor to factory settings.

Export Settings: Select the button to export system configuration files.

Import Settings: Select the button to import system configuration files.

8.0 Information

This page provides basic information about the audio processor, including device name, MCU version, Web version, DSP version, IP host name, MAC address, subnet mask and gateway.



9.0 Update

Select “Choose File” to import the update file and select “Update” to start an update. There will be a progress bar prompt during the update process. When the progress bar reaches 100%, it indicates the update is successful, and the device will be restarted automatically.