



CLY-24.12

DIGITAL MIXING CONSOLE

USER'S MANUAL

24 CHANNELS



Important Safety Instructions



This symbol, wherever used, alerts you to the presence of un-insulated and dangerous voltages within the product enclosure. These are voltages that may be sufficient to constitute the risk of electric shock or death.



This symbol, wherever used, alerts you to important operating and maintenance instructions.

Please read.



Alternating current/voltage (for adapter).

ON: Denotes the product is turned on.

OFF: Denotes the product is turned off.

WARNING

Describes precautions that should be observed to prevent the possibility of death or injury to the user.



CAUTION

Describes precautions that should be observed to prevent damage to the product. Disposing of this product should not be placed in municipal waste but rather in a separate collection.

WARNING

Power Supply

Ensure that the input voltage (AC outlet) matches the voltage rating of the product. Failure to do so could result in damage to the product and possibly the user. Unplug the product before electrical storms occur and when unused for long periods of time to reduce the risk of electric shock or fire.

External Connection

Always use proper ready-made insulated mains cabling (power cord). Failure to do so could result in shock/death or fire. If in doubt, seek advice from a registered electrician.

Do Not Remove Any Covers

Within the product are areas where high voltages may present. To reduce the risk of electric shock do not remove any covers unless the AC mains power cord is removed. Covers should be removed by qualified service personnel only.

No user serviceable parts inside.

Fuse (for adapter).

To prevent fire and damage to the product, use only the recommended fuse type as indicated in this manual. Do not short-circuit the fuse holder. Before replacing the fuse, make sure that the product is OFF and disconnected from the AC outlet.

Operating Conditions

Always install in accordance with the manufacturer's instructions.

To avoid the risk of electric shock and damage, do not subject this product to any liquid/rain or moisture. Do not use this product when in close proximity to water.

Do not install this product near any direct heat source. Do not block areas of ventilation. Failure to do so could result in fire.

Keep product away from naked flames.

IMPORTANT SAFETY INSTRUCTIONS

Read these instructions

Follow all instructions

Keep these instructions. Do not discard.

Heed all warnings.

Only use attachments / accessories specified by the manufacturer.

Cleaning

When required, either blow off dust from the product or use a dry cloth.

Do not use any solvents such as Benzol or Alcohol.

For safety, keep product clean and free from dust.

Servicing

Refer all servicing to qualified service personnel only.

Do not perform any servicing other than those instructions contained within the User's Manual.

PORTABLE CART WARNING



Carts and stands - The component should be used only with a cart or stand that is recommended by the manufacturer. A component and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the component and cart combination to overturn.

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Front Panel



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Rear Panel



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under the EM disturbance, the ratio of signal-noise may be changed above 3dB.

* The mixer for professional use. They can be used in following electromagnetic environment: residential, commercial and light industrial, urban outdoors.
They are the apparatus not intended for rack mounting.

* The peak inrush currents equal to 8.33 A.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1)this device may not cause harmful interference,and (2)this device must accept any interference received,including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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1

Introduction

Thank you for purchasing the Digital Mixing Console. As one significant feature of your mixer means its function is multiple and powerful. With 24 microphone preamplifiers, Digital 4 band full parametric EQ, Compressor, Gate, Delay, Remote control, 13 precision motor fader for level control, Large and small LCD display operation in real-time, Program, save, load, and copy functions and so on.

This digital mixer can help you to create wonderful shows that will make you more determined in your choice. Also the unit will bring you an unparalleled sense of superiority since it is powerful and easy to operate.

As a professional audio product built by our team which has more than 20 years of experience in the industry. With the tireless efforts of our development team, Our products have been endowed with many advantages such as excellent performance, reliable quality and full of innovation so that our products can sell well in different markets and always well received by consumers in application of different places and bring customers an inexperienced value experience.

We suggest that you use this manual to familiarize yourself with the features and applications before using.

2

Summary of features

- 24 XLR analog inputs & 8 Ø6.3 Line input with digital gain control applied
- Up to 32 Digital inputs
- 8 XLR / Ø6.3 Mix Bus outputs & 6 XLR / Ø6.3 Matrix outputs.
- Main and CTRL L/R Outputs
- +48V phantom power
- CTRL Room Outputs for all channels
- USB key for Headphone outputs for all channels
- Presets save/load and firmware update.
- Ethernet port firmware update interface, can be used to connect iPad remote control APP – Multiple app support...etc.
- Up to 2 stereo internal FX processors
- 13 precision motorized 100mm faders
- 32 bit floating point digital signal processing
- 7 inch color LCD touch screen for graphical view and setup.
- Two-color LCD displaying channel information.
- 24-bit / 48 / 96KHz sampling rate.
- Up to 24 DSP processing channels
- Program, save, load & copy functions
- Digital noise gate
- Digital compressor/limiter
- Digital 4-band full parametric EQ
- PAN
- Phase reverse

Summary of features

- Time delay
- 12 DCA for fader / 8 mute group
- Authority management
- Auto mix
- RTA Real-time Spectrum Analysis
- FBC Feedback Howling Suppressor
- User Defined Keys
- Talkback / Mic input

- Optional function:

Equipped with T-32 DANTE network audio port and can support to be installed on site.

Usefull Data

Please write your serial number here for future reference.

Serial Number:

Date of Purchase:

Purchased at:

4

Control

About Front Panel (function buttons and knobs)

1. Gain

Touch it to set the input signal gain (0-50dB) for any channel among CH1-32 and can read the gain value from LCD screen.

Notes: That adjusting the knob to get the propriate gain value is very important to reduce noise and avoid overload distortion issue.

1.1 LED Sig & Clip LED

- The clip LED will light red when input signal is more than +16dB. It displays related channel single is overload.
- The signal LED will light yellow when the input signal reach the peak.
- The signal LED will light green and signal status applied on the related channel will displayed when the input signal exceeds -48dB



- Pre. AMP -



2. HPF/LPF

- Below thumbnail images will be displayed if user press down HPF or LPF button. Click the window of EQ curve and then access the PEQ interface. Please refer to the DSP control interface for more details.
- Adjust Filter Type button to change the type.
- Adjust the button beside the HPF/LPF button to change the frequency needed.



- HPF/LPF (Thumbnail) -



- HPF/LPF -

3. PEQ

Press the "EQ on/EQ View" key to go back to EQ interface or boot the PEQ and switch into below interface. The gain of audio signal can be adjusted in the range of 20Hz-20KHz by adjusting corresponding knob or key applied on the EQ, Here total 4 EQ bands can be adjusted, Please refer to DSP control interface to get more details.



- PEQ -

Control

4. Gate on/Gate View

Press the button to enter "Gate" interface and press the button again to activate the "Gate" function. Under this function it means the signal less than the gate threshold can't pass. While the signal more than gate threshold can pass. The threshold can be adjusted by rotating related knob. Please refer to DSP control interface to get more details.



- Gate on -

5. Comp on/Comp View

Press the button to enter "Comp" interface and press the button again to activate the "Comp" function. The signal more than trigger level will be clipped by the compressor based on a certain compression ratio. And the compression ratio can be adjusted by rotating the related knob. Please refer to DSP control interface to get more details.



- Comp on -

6. Pan Knob

The encoder controls signal level from left to right for the selected input channel. The LCD display shows the setting in real time. If two channels have been linked as stereo pair, the LCD display will automatically change to stereo pan.

7. Phase

Touch this button to reverse the signal of selected channel (reverse the phase by 180°). After touching the button, Its background LED illuminates and LCD screen to show real-time reverse setting. Here the polarity control can be used to correct the reversed audio signal and cancel or enhance each other.

8. 48V phantom power button

An independent phantom power is equipped with each microphone input. Press down 48V button. Its background LED will illuminate and supply 48V phantom power. Select the channel needed and press the button to turn on the phantom power at this time.

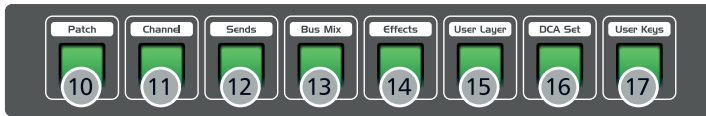
Notes: Only condenser microphone needs phantom power. Don't connect the phantom power to any other device that doesn't require it. Otherwise the device will be damaged.

9. Assign To Main

Press the button to enter Assign page on LCD display, signal from a selected input channel can be assigned to the Main.

4

Control



10. Input Patch

Press the "patch" button to enter the signal assignment interface as below:



- PATCH SET -

a). Patch setting for input signal: Input setting / Mix Bus input setting, There are analog 1-24 / Digital 1-32 as optional signal source.

b). Patch setting for output signal: analog output setting / DANTE1-32 / Plug-in output setting, The required channels in each output module can be customized, e.g: BUS01-08, MTX01-06, MAIN L/R, SOLO L/R, etc.

Please refer to the DSP control interface for more details.

11. Channel

Press the button to switch the single channel / Multi channels which shows on LCD screen.



- CHANNEL -



- MIXER -

12. Sends

Press the button to enter the interface of auxiliary send to assign the selected channels to Bus01-08, FX01 - FX02 or MTX01-06.



- Aux sends -

Control

13. Bus Mix

Press the button to enter the page of Bus Mix adjustment. on this interface the gain value can be adjusted once corresponding channel is selected to enable.

On the Mixer page, you can select CH01-CH24 or FX1-FX2. Here it is associated with the BUS channel page, Their gans value will change simultaneously. If you enable some channels on this page, the corresponding Bus of each channel will enable too. Slide the fader on the right to adjust the gain value of selected channels. Please refer to the DSP control interface for more details.



- BUS MIX -

14. Effects

Press the button to show and edit the settings of internal effects, There are total 12 scene effects applied on each FX, Please refer to the DSP control interface for more details.



- Effects -

15. User layer

Touch User Layer page to enter setting interface to custom channels. Detailed operation refers to the 5.3 USER LAYER of DSP control.

16. DCA Set

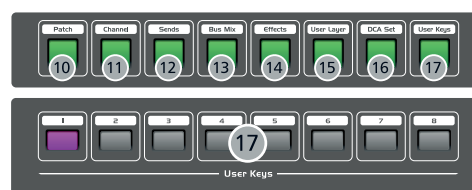
Press the "DCA Set" button to enter the interface of DCA group setting, please refer to the 5.11 sections of DSP control interface for more details.

17. User Keys

The upper user keys work as custom function setting button. the lower user keys 1-8 work for shortcut setting. Please refer to the DSP control interface for more details.



- User Keys -



4

Control

18. LCD display

It is used to display current information such as channel type, channel name, level value etc.

19. Selected Channel

It is used to indicate the level of selected channel, user can use it to review the input level value.

20. System Setting

Press the "system" button to enter the system interface, Partial parameters can be displayed or adjusted here. Please refer to the DSP control interface for more details.



- System Setting -



21. Parameter Adjust

Rotate the knob to adjust the parameter to change selected output channel audio. Detailed parameter can be read on LCD screen. Rotate clockwise to increase and counterclockwise to decrease. Based on different modules the operation of knob maybe different. Anyway please note related parameters shown on LCD screen during your operation.

22. Copy

Press the button to select one channel. Then you can copy the parameters set on this channel for other channel. Please refer to DSP control interface for more details.

23. Load

The page is used to load preset about: DSP Channel, GEQ, DFX, Scene.



- Copy -



- Load -

24. TAP

Press the button to enable the parameter values for Delay, Stereo Delay, Delay Rev or StDelay Rev applied on FX channel and then adjust the Time value; On the page of FX1 and FX2. And the button can be switched to TAP function automatically so that it can be used to adjust the time of Delay and Empto during playing music.

Control

25. Save

It is used to save the current settings: DSP Channel, GEQ, DFX, Scene.



- Save -

26. LED Level indication

It indicates the level of the MAIN channel or SOLO channel. By default, it is used to indicate the MAIN channel level when the SOLO METER button is not pressed.

27. Solo Meters

When the button is off, meters above it indicate input level of main, while illuminated indicate input level of Solo.

28. Phones

It is used to adjust the output level from headphone.

29. C Room

It is used to adjust the level of CTRL OUT.

30. PFL

The default setting for the Solo bus is After-Fader Listen (AFL); by pressing PFL, Pre-Fader Listen is enabled.

In either mode, press Solo on any channel or bus to route that channel to the Solo bus and has no effect on the main or on subgroup output mixing.

31. Mono

Press the button to adjust Pan value of Mono audio.

32. USB port

The port can be used to update firmware or GUI picture. Details refers to the contents described in software chapter or DSP control chapter.

33. DATA

Press the "DATA" button to enter the interface of USB KEY, Please refer to DSP control interface for more details.

34. Solo Clear

Press this button to clear the monitor function for all of the soloed buses or channels.

35. M Clear

Press this button to clear the mute function for all of the muted buses or channels.



4

Control

36. Stereo Link

The input channels, aux buses and sgroups can be linked as some stereo pairs. The background light will illuminate when if the button has been pressed and enabled. All stereo pairs are predefined and cannot be changed.

List these pairs as following:

Channels 1-2

Channels 3-4

Channels 5-6

etc.....

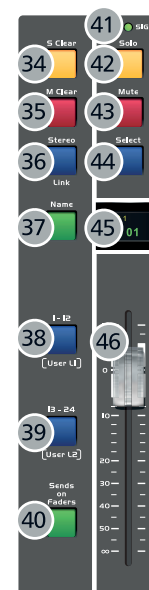
A stereo link can be enabled when either channel in the pairs is selected by pressing the Link button. When the Link button is illuminated which indicates the Stereo Link function enabled, all DSP setting, solo status and main assignments are passed to the other channel in the pair.

- Link & DCA: After link, the channels can also be grouped to DCA as stereo channel, but not able to cancel the link in DCA. On the contrary, if the channel has been grouped to DCA, it can not link at all, but its paired channel can link.

For example, channel 5 is linked with channel 6, then both channel 5 and 6 can be grouped to DCA. But if channel 5 has been grouped to DCA first, it can not link to channel 6, but channel 6 can link to channel 5.

Notes: This transmission is non-destructive, Turn off stereo link function and restore the previous setting for the other channel.

For example: Select the channel 6 and then press the stereo link button. All settings applied on channel 6 will be copied to channel 5. The original settings applied on channel 5 will recovery after link bounces.



37. Name

Press this button to rename the channel (Attention: the current display on the channel page can only be edited).

Operation: Press Name button--- Select the channel which need to be named--- Edit the name--- Enter.

38. 1-12/User L1

Press the button to select the channel from CH01 to CH12, Or press the button to enter the User L1 interface if under the "User layer" interface.

39. 13-24/User L2

Press the button to select the channel from CH13 to CH24. Or press the button to enter the User L2 interface if under the "User layer" interface.

40. Send on fader

Press this button to quickly select one or more channels to assign the signal such as CH1-24, FX1-2, TB/OSC to any bus.

41. CLIP/SIG

Signal level indicator

42. Solo

Press this button will send its channels or buses to the control room outputs. It will illuminate as has been pressed and enabled. Using the solo button, User can monitor all current channels selected as well as Main channel and bus.

43. Mute

Press this button will mute selected channel as well as corresponding backlight illuminates, If the button is pressed to mute some channel, all of its assigned outputs will mute.

44. Select

Press the "select" key corresponding to related channel. All current selected channels will be displayed on LCD screen for DSP adjustment and other settings.

45. LED Display

Press the corresponding button. total 3 kinds of modes will be displayed.

Control

46. Level Faders

There are 13 PCS of level faders (CH1-13) and can be used to adjust the level of corresponding channels. The CH12 can be not only used as a fader of CH1-12 but also the main fader.

47. GEQ Fader

Press this button to activate GEQ function (Note: only for output channel). In GEQ page you can set the 31-band EQ and use 12 faders on the front panel to adjust corresponding EQ value. Details refers to the DSP control interface.



48. FX Mute

This button is for FX function, when press it, effects of FX1-2 will be mute synchronously, which is similar to MUTE button.

49. Mute Groups

Touch the button to enter the setting interface of Mute group as well corresponding backlight lights up. Here user can register the channel into the group and there are total 8 groups which can be registered. Once registration completed, Click the switch on the right side to call the corresponding group, Then all channels in the same group will be mute all together.

50. Meters

Press the button to view the the input /output signal's level activity.

51. DCA Groups

Press the button to enter the DCA Groups interface with the background light illuminate simultaneously. Please refer to 5.2 DCA LAYER of DSP control interface for more details.

52. Talkback

In patch the talkBack input channel will be assigned and detect if the assigned output channel only output MIC. Mute other all inputs from the balanced channels to ensure talkback function works normally.

53. FX1-2/BUS1-8/MTX1-6/User L3, User L4

Press the button to switch current interface& channel among FX1-2/BUS1-8/MTX1-6. And assign related channels corresponding to FX1-2/BUS1-8,Then turn on corresponding channels for gain adjustment after assignment. If under the "User layer" interface, press the button to enter User L3, User L4 interface.

54. GEQ on

Press the button to switch on/off the GEQ.

55. FBC on

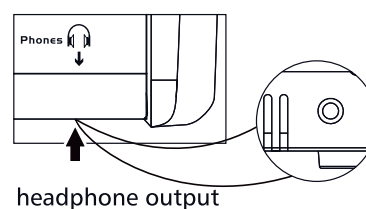
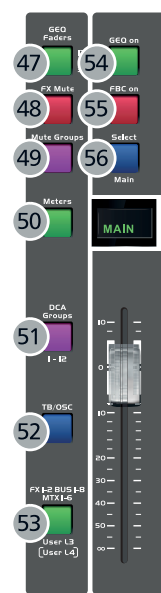
Press the button o switch on/off the FBC.

56. MAIN

The main channel

57. Headphone Output

The jack is used to connect headphone.



4

Control

Rear Panel



58. Power

It works as the power switch and the mixer can be power once the switch turns on.

59. AC power

The provided power cable can be plugged in.

60. MIC Input Jack

This Digital Mixer equips 32 microphone preamplifiers for use with all types of microphones.

The preamplifier has a Class A input buffer which followed by a dual-servo gain stage.

This arrangement will bring ultra-low noise and wide gain control which help to boost signals without increasing unwanted background noise.

61. Line In

Total 8 PCS of Ø6.3 line in ports are equipped with the Digital Mixer.

62. OUTPUT 1-8

As a mixing audio output port with two port types (XLR & Ø6.3), It can be used to adjust MATRIX assignment according to DSP settings.

63. CTRL OUT

These are the balanced control-room outputs. The level is controlled by the knob in the Control Room on the top panel.

64. Main output

This Digital Mixer features both XLR and TRS main outputs.

65. USB Audio IN/OUT

The port can be used to connect your PC to record or transfer the audio signal. And the CH23/24 will be regarded as the defaulted output channel for playing the recording.

66. Ethernet

This port is for Ethernet control which can be proceeded via iPad linkage after connected to the router.

67. Optional module

Select our optional module that you want for extra function.

Please contact with distributor to get more information about the optional modules.

- Ensure the same sampling ratio applied on all equipments before Digital Audio Expansion System is linkaged.
- After the Dante card inserted, please try to switch current sampling ratio in unit's system menu one time in order to ensure the same sampling ratio.
- It is recommended to use gigabit switches under 96K routing mode.
- Up to 32 units can be linked with Dante equipment.
- When Dante card inserted, it is needed to be set in switch mode.

DSP Control

In addition to control directly on the machine, the Digital Mixer can also achieve remote operation via the app, which greatly facilitates the users.

5.1 Mixer Interface

Once you turn on the mixer switch, the Mixer interface will come to your eyes at first if you have preset, now let's see what you can get in this interface.



- Channel -



- Mixers -

5.1.1 BUS page

Touch the display box on the left side of the page to jump to the following BUS page.

Page shows BUS01-BUS8 and FX1-FX2.



a). Touch ON switch to enable BUS channel. Related signals can't be controlled by faders if PRE switch turn on. or the signal can be controlled by faders.

b). After selecting corresponding BUS channel, Slide it to adjust the Gain of BUS channel or adjusted by panel parametric adjustment knob. Finally press the EXIT button to exit the page .

5.1.2 CHANNEL COPY

Touch the button to enter following channel copy page.



a). Select a channel or bus that you want to copy its settings onto other channels, then press Copy button, you can see the selected channel or bus will flash. Touch OFF of other channel or bus, it will turn to ON and the background will illuminate red, which means you are ready to copy.

b). Touch the tick in the box to select the parameter you want to copy.

c). Press "copy" button to make channel copy. Please notice the information displayed on LCD screen during your operation.

5

DSP Control

5.1.3 Channel Select

Touch "Channel Select" icon as right to enter the interface as below:



a). Selecting the channel and click "Enter" and then it will jump to the selected channel for saving and then exit current interface.

b). If none channels selected, please click" Exit" to exit current interface.

5.1.4 Gate Interface



Touch "Gate" on LCD screen and enter relative Gate parameter adjustment interface.

The backlight of this control item will be on or off at the same time as the Gate on button on the panel and real-time settings can be displayed on LCD screen. Click the Comp curve in "a" area as left image to jump to the interface of dynamic EQ. Details refer to the interface of 5.5 dynamic EQ.

5.1.5 Comp Interface



The backlight of this control item will be on or off at the same time as "Comp on" button on the panel and real-time settings can be displayed on LCD screen. Details refer to the interface of 5.5 dynamic EQ.

DSP Control

5.1.6 Faders And Other Interface

a). 48V: Click it to provide the 48V phantom power as well as corresponding backlight illuminate. At the same time a prompt window will pop up "Are you sure to open +48V phantom power of the channel".

Note: Only condenser microphone needs phantom power. Don't connect the phantom power to any devices which don't need it. Otherwise the device will be damaged.

b). Phase: Touch this button to reverse the signal of selected channel (reverse the phase by 180°). After touching the button, Its background LED illuminates and LCD screen to show real-time reverse setting. Here the polarity control can be used to correct the reversed audio signal and cancel or enhance each other.

c). Mute: Click this button to mute the selected channel and its backlight will synchronize the Mute button on front panel to light on or off simultaneously.

d). Solo: Click this button to monitor the audio signal of selected channel and its backlight will synchronize the Solo button on front panel to light on or off simultaneously.

e). The icon shows the current channel, Click this box, a virtual keyboard will appear on the screen, and you can customize the name & color applied on the current channel at this time.

f). The gain value will be displayed here.

g). Pan Icon: It indicates the left and right channel positions of the current audio. And user can adjust it by the Pan knob on the front panel.

h). Fader: Slide it to adjust the audio signal applied on output channel. and it synchronize the fader on front panel to control input level. When user press the solo key and select key simultaneously, The gain of fader will be set to 0dB automatically.



5.1.7 EQ Interface



a). The area shows the EQ curve and touch it to jump onto the "parametric equalizer" interface.

b). Touch the box "PATCH" to enter the "signal assignment" interface, and here the channel routing can be assigned.

c). Touch it, a dialog box saying "Are you sure to flat the EQ? " will prompt to check with you, if you click "yes", all the setting values in this page will restore to default, while choose "no" can keep your settings.

d). Touch the switch to engage or disengage the equalizer for the selected channel. It will illuminate to indicate that the equalizer has been touched and enabled. The LCD display shows the EQ setting in real time. Its parameters can adjust by sliding the curve on the screen directly or using up & left & down & right key to choose the function that you want to modify and use the Parameter Adjust knob to set the value.

e). The FBC of CH01-12 can show the variety of Q, FREQ, GAIN values of the current channel.

f). Once touching the box "Main Assign", The signal of selected channel will be assigned to the main channel with both its background light and the corresponding keys on front panel illuminate simultaneously. And each channel is enabled by default.

5

DSP Control

5.2 DCA LAYER

Click the "DCA LAYER " box on screen or press the "Fader Groups" button on the front panel to enter below interface. And channel grouping can be set according to actual needs and usage habits and quickly call the set grouping method on this page. Details refers to the 5.11 group-set interface.



5.3 USER LAYER

Click "user layer" box on screen or press the "User Layer " button o enter below interface. There are total 4 pages (U1~U4) which can be selected. Each page can be set by 12 faders and user can review the channel status by touching "CHANNEL SELECT" box on the upper right concern.



Setting methods:

Press the "system" button and click "user layer setup" to enter below interface, Here the channel combination and sort orders an be customized by user.



5.4 PEQ Interface

Touch the "PEQ" box to enter PEQ interface.

PEQ equalizer is a kind of filter, It is used for button "Channel Select" to switch the gain of channel audio signal based on any frequency in the range of 20HZ-20KHZ.

DSP Control



a). Touch "Channel Select" icon to switch current channel.

b). Touch the "Return To Single Page" icon to return to the interface of single channel page.

c). Touch the "Mute" icon to silence selected channel audio signal. it will illuminate synchronized with Mute button on the panel.

d). Touch the "Solo" icon to monitor selected channel audio signal, it will illuminate synchronized with Solo button on the panel.

e). Rename the name of channels by clicking it.

f). Slide the fader icon to adjust the audio signal applied on the channel.

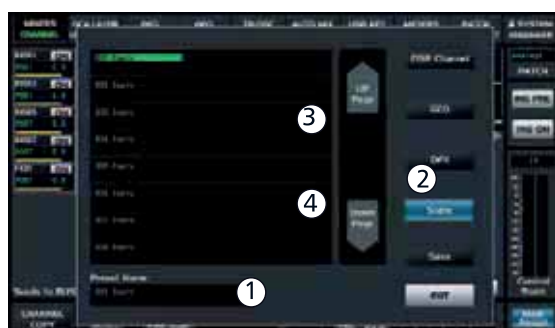
g). Touch the icon to copy all relative setting of current channel to other channels.

h). Touch the switch to engage or disengage the equalizer for the selected channel.

i). Touch it, a dialog box saying "Are you sure to flat the EQ? " will prompt to check with you, if you click "yes", all the setting values in this page will restore to default, while choose "no" can keep your settings.

j). The different parametric value corresponding to EQ can be adjusted by moving fader, The function is the same as the "Parameter Adjust " knob on the front panel and both change simultaneously.

k). touch Save to save current selected item's preset.



1). Key in the customized name

2). Select saving scene

3). Page up

4). Page down

l). Touch "Load" icon in below image to load current selected item's preset.



Select the corresponding preset name and then load it.

Click "Delete" to clear the selected data.

m). Press the "HOLD "icon to keep the MAX dynamic audio value once RTA function enable.

5

DSP Control



n). Press the "RTA ON" icon to active RTA function. Once RTX enable, user can review the activity of 20~20KHz dynamic audio applied on all channels. By inputting any single frequency signal, such as 100, 1k, 10kHz, etc., it can adjust the EQ value of input frequency. Changes to the dynamic curve to ensure that the RTA function is normal for each channel.

5.5 DYNAMIC EQ INTERFACE



a). Touch it to set the time for the gate to change from closed to open and It can be set from 0.5 to 200 ms. Although faster attack is very important for percussion instrument. It maybe take much more time to attack the slower rising signal like voice and bass guitar so that the click noise can be heard easily from each noise gate based on the fast attack time. So propriate ATTACK settings is an effective way to avoid click noise.

b). Touch it to set the amount of time for the gate to go from open to fully close. It can be set from 0.01 to 1 second.

Notes: It is very important to set propriate release time in order to avoid affecting natural attenuation of the noise gate's device or sounds. Although shorter release time is helpful of eleminating the noise, it maybe lead to percussion noise"click"; While longer release is usually good to remove the click noise So please hear the sound effects carefully during setting the release time.

c). Touch it to set the trigger level of noise Gate for the selected channel. It can be set from 20 to -84 dB. The trigger level will decide which level at the gate will open. An audio signal which exceeds the trigger level will go though smoothly.

d). Touch it to rotate the "Parameter Adjust" knob to choose preset compression ratio, Usually there are total 20 kinds of presets.

e). Touch it to set the amount of time for the gate to go from open to fully close. It can be set from 10 to 1000 milliseconds. It means to set how long it will take for the released signal which is lower than trigger level to recover to the normal gain level.

f). Touch it to set the compressor threshold for the selected channel. If the amplitude of an audio signal exceeds a certain threshold, the compressor will reduce the level of this signal. The threshold can be set from -83 to +20dB.

g). Touch it to set the compressor's attack setting for the selected channel. The attack setting is the period when the compressor is decreasing gain to reach the level that is determined by the ratio. You can set the attack from 10 to 250 milliseconds.

h). Touch it to set the compression ratio for the selected channel. The ratio sets the slope of the compression, which is the ratio of the output level to the input level, For example, a ratio of 4:1 means any signal which is higher than trigger level will be compressed by 4:1 ratio. In other words that if input level is 4 dB over the threshold, the output signal level will be 1 dB over the threshold. The ratio can be set from 10:1 to 1:1 until limit.

DSP Control

- i). Touch it to set the compression gain of the selected channel. When it compress the signal, that the gain goes down usually leads to the attenuation of the whole level, At this time the button can be used to recover the loss level and readjust the previous compression ratio. And the range of gain adjustment is usually 0dB to +12dB.
- j). When some button is selected, user can change its input level or corresponding parameters by moving the fader icon or rotating the "Adjust Parameter" knob.

5.6 GEQ Fader

The model is equipped with Main output stereo and RTA (real-time spectrum display. Press this button to activate GEQ function (**NOTE:** only for output channel). In GEQ page you can set the 31-band EQ(20HZ~20KHZ) and 2 sampling ratio (48k or 96k). When 48k is selected, there are 4 main output stereo GEQ and 8 bus GEQ; When 96k is selected, there are 2 main output stereo GEQ and 8 bus GEQ.



a). "GEQ Select": it is used to switch the output channel. There are total four groups of channels (GEQ01~ GEQ04) which can be set by the item "05-05, 05-06" under submenu "Audio Setup" of "system" interface. They can be set to correspond to any one of BUS1-2, BUS3-4, BUS5-6, BUS7-8 and MAIN L/R channel. Once setting completed, Touch any icon from GEQ01~GEQ04 and then corresponding output channel will be displayed so that current output channel can be switched.

- b). "GEQ ON": as the switch for GEQ function.
- c). "Flat": it is used to recover the default value of GEQ.
- d). Click the key to enable all faders on the front panel so that them synchronize with the faders on screen.
- e). "Save": Touch it and then the save interface will pop up to save current presets.
- f). "Load": Touch it and then the load interface will pop up to load current presets.
- g). Click the button "upper,down, left or right" to adjust the fader icons of every channel to adjust the frequency.
- h). In this area user can adjust the gain value of each band with the fader icon on LCD screen or "Adjust Parameter" knob.
- i). Related frequency & gain value adjusted will be displayed in this area.

5.7 BUS MIXER

Press the button to enter Mixer interface. Assign corresponding BUS to CH01-CH24 and FX1-FX2. After assignment it can be used to adjust Gain value. This is linked with the BUS channel page on home page and the gain value changes synchronously. When each channel is enabled on this page, the corresponding BUS1 channel will turn on, At this time the gain value of selected channel can be adjusted by sliding the fader on the right.

5

DSP Control



- Click it to enter corresponding page.
- All will restore to the default value 0dB once clicking it.
- Click it to select which channels will be assigned to the BUS.
- Click it to clear all.

5.8 TB /OSC

5.8.1 Talkback

a). Press the "PATCH" button on the front panel or touch "PATCH" icon on the right up corner of LCD display. Then touch the "TB/OSC" button from the window pop up to select related channels.



- Press the "Talkback" button on the front panel to enable it.
- Enable the "talkback gain adjustment" knob on the monitor-room interface, the output gain of other channels will be attenuated by adjusting the gain value so that the talkback channel will be equipped with priority function.
- The "Talkback" channels can be assigned to BUS1~8, MTX1~8 and Main channel.

5.8.2 Signal generator

The generator can produce automatically multiple noise such as pink noise, 100Hz, 1kHz, 10kHz and so on. The different noise can be generated by touching different knobs. Those noise can be assigned to BUS1~8, MTX1~6 and Main channel. And observing that the signal frequency corresponds to the nominal value on the RTA page.

5.9 About EFFECT Interface

Press the button to display or modify the internal effects and then save corresponding preset values with the save icon on the screen or the button on the front panel in order to be used in the future. Then user can operate it by following steps displayed on the screen.



Click any button icon on the left to setup corresponding effect parameters by rotating the "Adjust Parameter" knob or sliding the fader on the right of screen.

DSP Control

In order to realize the effects user want, Total 12 kinds of effect processors which are built in the unit. Details as following:

No.	Preset	Description	Parameters
1	Hall	Simulate the sound effect of a large hall	Delay before crossover, attenuation, room size, HF damping, effect output or original sound output
2	Room	Simulate the effect of a studio with echo	Delay before crossover, attenuation, room size, HF damping, effect output or original sound output
3	Plate	Simulates the effect of a classic gramophone record	Delay before crossover, attenuation, room size, HF damping, effect output or original sound output
4	Delay	Make the sound output a little later than the input	Delay time, attenuation, HF damping, effect output or original sound output
5	Stdelay	Add anothe input sound to the stereo output at a different time.	L/R channel time, L/R channel attenuation, HF damping, effect output or original sound output.
6	Karaoke	Analogue karaoke sound effects	Mixing output, echo output, original sound output
7	Flanger	Simulate the effects when different persons play the same instruments at the same time.	Feedback, Depth, modulation, effect output or original sound output.
8	Chorus	The illusion of playing multiple instruments can be created, when playing with a single instrument.	Feedback, Depth, modulation, effect output or original sound output.
9	DelayRev	The delay of Room effect.	Delay before crossover, accelerated attenuation, Room size, Rev Hi, Rev Out, echo time, Echo Hi, Echo F.B, Echo output or original sound output.
10	StDelayRev	The stereo delay of Room effect.	Delay before crossover, accelerated attenuation, Room size, Rev Hi, Rev Out, L/R channel time, Echo output or original sound output.
11	FlangerRev	Stereo Chorus and Hall Reverb.	Delay before crossover, accelerated attenuation, Room size, Rev Hi, Rev Out, Modulation F.B, Modulation depth , Echo output or original sound output. FM, Modulation output or original sound output.
12	ChorusRev	Simulates the sound effects when turning the horn and woofer.	Delay before crossover, accelerated attenuation, Room size, Rev Hi, Rev Out, Modulation F.B, Modulation depth , Echo output or original sound output. FM, Modulation output or original sound output.

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DSP Control

5.10 AUTO MIX

Under the "AutoMix" function, the level of unused MIC can be reduced automatically so that it can reduce the risks of rumble, reverb or other extraneous noise when multiple microphones are working simultaneously. The function is usually used for mixing TV talk shows, meetings and seminars Group discussion at the meeting. Or it is often used in settings where the live sound operator is not present, such as courtrooms and city council chambers.

Input fixed-frequency signal for selected input channels so that the Gain value of Main will be stable unchanged.



a). Auto-mix switch: Touch the button to activate the selected channel.

b). Clear-All button: Touch it to clear all saved datas.

c). Active time: Means the response time.

5.11 GROUP SET

• DCA Group Set

Touch the "SYSTEM" icon to select "DCA Setup" or touch the "GROUP SET" icon to enter "Group Set " interface as below image:



For example: If the DCA 01 group is selected, Then click "Setup" to choose multiple channels which will be grouped together such as CH1, CH2, CH3 and so on, Then click "Name" to custom the name & color mark of the group, Finally click "Setup" to confirm above settings, If the selected channels which output 0dB such as CH1, CH2 or CH3, They can be controlled by DCA1 Fade too.

• Mute Group Set:

Touch the "System" icon to select "Mute Groups" or press the "Mute Groups" button on the front panel to enter "Mute Groups" interface and then click "Mute Groups Setup" to enter the interface as below:

For example: If the "MUTE GROUP1 " is selected, Then click "Setup" to select multiple channels which will be grouped together such as CH1, CH2, CH3 and so on. Then click "Name" to custom the name of the group, Finally click "Setup" to confirm above settings, Touch the switch of "MUTE GROUP1" to mute/unmute these channels linked.



DSP Control

5.12 USB KEY INTERFACE

Touch the "USB KEY" icon or press the "DATA" button on the front panel to enter following interface. User can store current parametric settings of DSP channel, GEQ, EFFECT or SCENCE into U disk through this USB port. Or load related parameters saved in U disk into the machine as current settings through this port. It makes parametric setting so easy.



- a). Page up/Page down
- b). Save
- c). Load

5.13 USER KEYS

Touch "USER KEYS" box on the LCD screen and then press the "User Keys" button on front panel or touch "User Keys" icon under "System" page to enter below interface, Then total 16 User Keys items (User Keys1~User Keys16) will be listed on the screen. Among them User keys (1~8) will correspond to the 8 buttons in User keys area on the front panel one by one. User can setup them by pressing the corresponding button on the pane as shortcut method. While the remaining 8 User Keys (User Keys9~16) only can be setup by touching their icon on the screen since none button on front panel can correspond to them. Each one of 16 User Keys can be set as anyone of following functions: USER LAYER, DANTE SETUP, MUTE GROUP, DCA SET UP, CH SELECT, Preset Recall or MAIN MUTE SOLO.



5.14 METERS

Touch "Meters" box to enter below interface:

User can review related audio signal before (PRE) or after (POST) of the input/output channel.



- PRE -



- POST -

5

DSP Control

5.15 CTRL ROOM

Touch the "Ctrl Room" icon to enter below interface:



a). As what the right image shows as the list of Ctrl Room setup, It is divided into 8 groups (1~8) and user can turn on/off the "Ctrl Room" function applied on corresponding group by clicking the number box on the interface. Under each group, User can use the knob on front panel to adjust or select the parameters of CH01~CH24, FX01-02, BUS1~BUS08, MTX01-06 or the Main channel. Also it is necessary to turn on "Multi Channel Solo" to solo multiple channels simultaneously, Or it only can solo single channel.

b). Touch it to monitor multiple channels simultaneously.

Or it will mean under the single-channel solo mode if don't lit the button icon.

c). Touch it to activate the PFL function as well as the button light illuminates, At this time solo outputs will be out of control by Fade Gain applied on assign channel. While the solo outputs will be under control of fade Gain once the PFL function disables.

d). Touch it to clear all solo settings and restore the default settings.

e). After it activates, it is necessary to choose one channel between TB and OSC for the attenuation of SOLO output gain.

5.16 PATCH



a). Input Patch: Different input signal source can be selected for each channel, the Analog 1~24 or Digital 1~32 can be selected as input channel.

b). Bus Mix Input: It is used to let input signal enter output bus directly without passing through the DSP processing of input signal such as fader, Mute, Gate, Comp, EQ control and so on. The audio signal can be transferred after completing selection for both input channel and BUS output channel.



DSP Control

c). Analog output: it is used to select which channel output from analog such as: if the Bus1 is selected for Analog1, it means the signal of Bus1 will output from the analog out1 port.



d). Dante 1-32: It is used to select which channels output from Dante. E.g if Bus1 is selected for Dante out1, It means the signal output from Dante Out1 is Bus1.



e). Insert Output :

Total 16 inserts (INS01~INS16) here and user can select corresponding channel for them among CH01-CH24.



"INS01~INS16 SEND" as audio direct send and user can select corresponding channels for them from Analog / Dante Output. "INS01~INS16 RETURN" as audio turnback and user can select corresponding channels for them from Analog / Dante Output. (Press the channel key on the front panel or LCD screen and then click the "INS ON" key to activate the function.)

For example:

Send setting: When "CH01" selected for "INS01" and "Analog 1" selected for "INS01 SEND", Then the signal of CH01 will be sent to Analog 1 outputs.

RETURN setting: When "CH01" selected for "INS01" and "Analog 1" selected for "INS01 RETURN", At this time the signal will input to Analog 1 and then assigned to BUS or the Main.

Under SEND / RETURN mode, User can press the channel key on the front panel or LCD screen to set input audio to "IN PRE/IN POST".

5.17 DANTE SET



Click to enter Dante setup, Following the hookup diagrams to connect digital audio expansion system to mixer by network line. Click scan to search and all linked devices' name can be shown in the list.

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DSP Control

Select the name of device which receive the digital signal.



User can select which device and channel for sending from below box.



5.18 SYSTEM ENGINEER

Touch "System Engineer" icon to enter below interface:



a). "Enter"key: Touch it to reconfirm once some parameters are changed so that current settings can be saved.

b). "Device Setup" key: Touch it to enter below interface:

NO.	ITEM	DESCRIPTION	SPEC
01-01	AUDIO CLOCK	SAMPLING RATE	48KHz
01-02	SLOT	CARD TYPE	NO CARD
01-03	METER	PEAK HOLD	2s
01-04	SOFTWARE	VERSION	v 1.00
01-05	DEVICE	DEVICE ID	0x100(PRIMARY)

01-01	Audio device mode	48KHz or 96KHz as optional modes
01-02	Card Type	DANTE and NO CARD as two status, It shows DANTE if DANTE card inserted. And shows NO CARD if none card inserted.
01-03	Meter Peak hold time	Three options applied here, Inf-permanent; 2s-Holding 2 seconds; Off None time
01-04	VERSION	Current firmware version
01-05	DEVICE ID	Device's ID information

DSP Control

c). "Panel Setup" key: Touch it to enter below interface:

NO.	ITEM	DESCRIPTION	SPEC
02-01	LCD PAGE	AUTO CHANNEL SELECT	DISABLE
02-02	LCD PAGE	AUTO RETURN	OFF
02-03	LCD PAGE	DEFAULT PAGE	Single Channel
02-04	LCD PAGE	DELAY UNIT	Millisecond
02-05	ACC SWITCH	LINK MODE	STEREO LINK
02-06	CHANNEL	REMOTE SYNC	ENABLE
02-07	CHANNEL	LCD BACK LIGHT	3

02-01	AUTO CHANNEL SELECT	Selecting ENABLE to open it and DISABLE to close it. If it opens, click the Mute/Solo button on one channel to be switched to the corresponding channel.
02-02	Auto Return	Three options can be selected such as 3min, 5min and OFF. After relative function set, it will return to default interface upon time it up.
02-03	Default Page	Single Channel and Multi Channel as two options. It will return to the selected page by default after setting.
02-04	Delay Unit	Meter and Millisecond as two options.
02-05	Link Mode	Stereo Link and Fader Link as two options. Both modes can be linked by fader. Difference means stereo link also has the function of channel link.
02-06	REMOTE SYNC	ENABLE selected to turn on and DISABLE selected to turn off. It will synchronize with ipad if it turns on.
02-07	LCD brightness setting	The dimming can be adjusted based on the Lighting grade 1-8.

d). User setup: Click it to enter below interface, There are two options (ENABLE and DISABLE) for each item and user can setup according to actual needs.

NO.	ITEM	DESCRIPTION	SPEC
03-01	OPERATOR	DIGITAL GAIN	ENABLE
03-02	OPERATOR	FADER/MONITOR PANEL	DISABLE
03-03	OPERATOR	CHANNEL MUTE/SOLO	ENABLE
03-04	OPERATOR	CHANNEL DSP FUNCTION	ENABLE
03-05	OPERATOR	CHANNEL FBC	ENABLE
03-06	OPERATOR	CHANNEL SEND	ENABLE
03-07	OPERATOR	CHANNEL COPY	ENABLE
03-08	OPERATOR	GEQ	ENABLE

03-01	Digital Signal Gain	ENABLE
03-02	Fader & Monitor Panel	DISABLE
03-03	Channel Mute/Monitor	ENABLE
03-04	Channel DSP	ENABLE
03-05	Channel FBC	ENABLE
03-06	Channel signal sends	ENABLE
03-07	Channel Copy	ENABLE
03-08	GEQ Adjustment	ENABLE

e). Network setup: Click it to enter below interface:

NO.	ITEM	DESCRIPTION	SPEC
04-01	NETWORK	REMOTE CONTROL	CONTROL
04-02	NETWORK	MAC ADDRESS	0-01-00-0-0-0
04-03	NETWORK	IP ADDRESS	192.168.1.10

04-01	Remote control	CONTROL, MONITOR ONLY, DISABLE
04-02	MAC address	Display MAC address
04-03	IP Address	Display IP address

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DSP Control

f). Audio setup, Click it to enter below interface:

NO.	ITEM	DESCRIPTION	SPEC
05-01	FBC	RESPONSE	FAST
05-02	FBC	SENSE	HIGH
05-03	REC	REC INPUT	BUS1-2
05-04	REC	REC LEVEL	-18dB
05-05	OUTPUT GEQ	OUTPUT GEQ1-2	BUS1-2
05-06	OUTPUT GEQ	OUTPUT GEQ3-4	MAIN L/R

05-01	FBC Response speed	There are two optional speed modes (FAST and SLOW) for user to adjust FBC response speed.
05-02	FBC Response	Three optional release speed (HIGHT, MID and LOW)
05-03	Recording Input Setup	Anyone of OUT1-2, OUT3-4, OUT5-6, OUT7-8 or MAIN L/R can be set as recording input.
05-04	Recording Level Setup	The recording level can be adjusted from -24dB to 0dB and -16dB as default value.
05-05	GEQ Output 1-2	Anyone of BUS1-2, BUS3-4, BUS5-6,BUS7-8 or MAIN L/R can be set as GEQ output channel, Click "GEQ Select " on GEQ interface to select GEQ001 and GEQ002 and then corresponding set channels can be used.
05-06	GEQ Output 3-4	Anyone of BUS1-2, BUS3-4, BUS5-6,BUS7-8 or MAIN L/R can be set as GEQ output channel, Click "GEQ Select " on GEQ interface to select GEQ003 and GEQ004 and then corresponding set channels can be used.

g). User Key: Use it for shortcut settings, Details as 5.13 User Keys Interface.

h). Mute Group Setup: Refer to the 5.11 GROUP SET interface for more details.

i). Patch Setup: Refer to 5.16 PATCH interface for more details.

j). Dante Setup: Refer to 5.17 Dante Set interface.

k). Automix Setup: Refer to 5.10 AUTO MIX interface.

l). Digital Level Control: Click it to enter below interface.



INPUT PATCH: Select the needed channel and click on to open the channel and adjust the gain of channel by selecting the numbers on the channel.



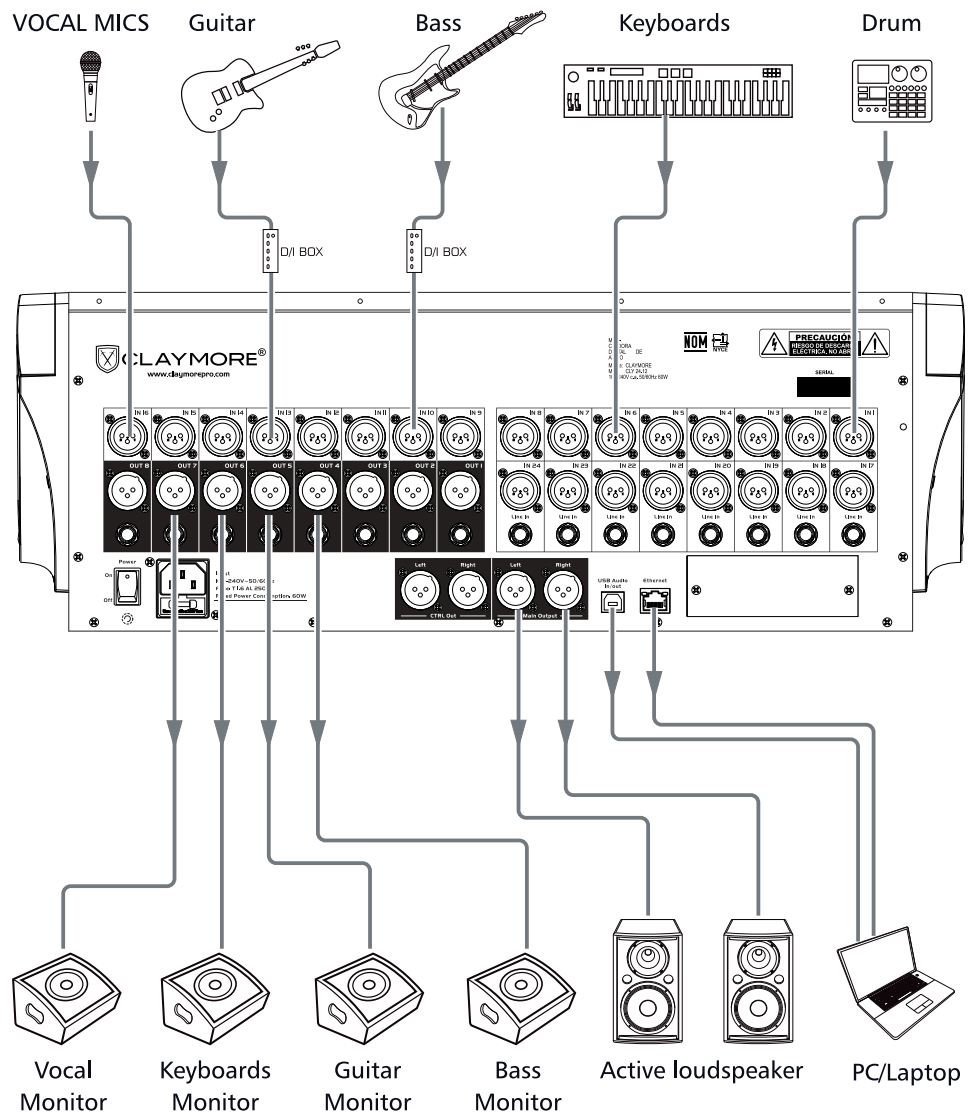
OUTPUT PATCH: Select the needed channel and click on to open the channel and adjust the gain of channel by selecting the numbers on the channel.

DSP Control

- m). Default Setting: Click it and then a prompt message appears, It will restore to default settings after confirmation, It means DSP parameters user setup will be replaced with the default parameters.
- n). Update Firmware: Touch the it or use shortcut "System+1" to update current firmware.
- o). User Layer Setup: Refer to the 5.3 USER LAYER interface for more details.
- P). DCA Setup: Refer to the 5.11 GROUP SET interface for more details.

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Hookup Diagram



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Technical Specification

Microphone input	Electronically balanced
Frequency Response to Main Output	22Hz~20KHz at 0dBu $\pm$ 2dBu
Distortion(THD&N) to Main Output	<0.03% at 0dBu 1KHz
Digital Gain	0dBu~50dBu
SNR(Signal to Noise Ratio)	108dB
Maximum Input Level	+20dBu $\pm$ 0.5dBu
Phantom Power	+48VDC
Line input	
Frequency Response to Main Output	22Hz~20KHz at 0dBu $\pm$ 2dBu
Distortion(THD&N) to Main Output	<0.03% at 0dBu 1KHz
Gain	-20dBu~30dBu
Maximum Input Level	+20dBu $\pm$ 0.5dBu
Out 1- 8	
Maximum Outputs Level	+20dBu $\pm$ 0.5dBu
Main Outputs	
Maximum Outputs Level	+20dBu $\pm$ 0.5dBu
Control Room Outputs	
Maximum Output Level	+20dBu $\pm$ 0.5dBu
HeadPhones Outputs	
Maximum Output Level	+15dBu $\pm$ 0.5dBu
System Crosstalk	
Input to Output(at +0dBu 1KHz)	-88dBu
Adjacent Channels (at +0dBu 1KHz)	-87dBu
Noise(Bus noise)	-90dBu
Noise Gate	
Threshold Range	-84dBu $\sim$ $\pm$ 19dBu
Attack time	0mS $\sim$ 250mS
Relesae time	5mS~2S

