TOPP PRO MUSIC GEAR

www.topppro.com.ar

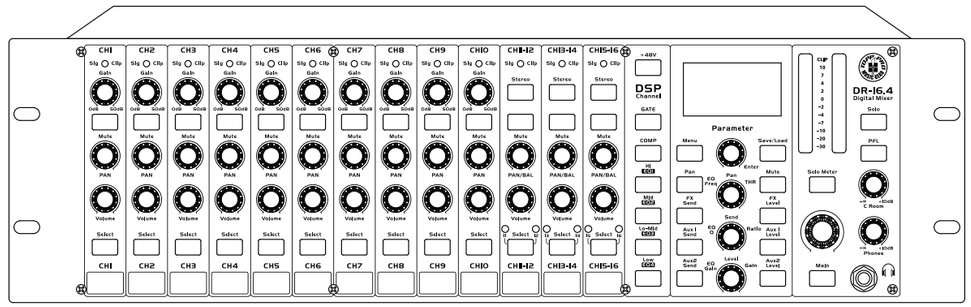
DR-16.4

NF05294-1.1

DR-16.4

User's Manual

16-CH Digital Mixer



Important Safety Instructions

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

TO REDUCE THE RISK OF ELECTRIC SHOCK PLEASE DO NOT REMOVE THE COVER OR THE BACK PANEL OF THIS EQUIPMENT.
THERE ARE NO PARTS NEEDED BY USER INSIDE THE EQUIPMENT. FOR SERVICE, PLEASE CONTACT QUALIFIED SERVICE CENTERS.

This symbol, wherever used, alerts you to the resence of un-insulated and dangerous voltages in 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.

Protective Ground Terminal

~ AC mains (Alternating Current)

Hazardous Live Terminal

ON: Denotes the product is turned on.

OFF: Denotes the product is turned off.

CAUTION
Describes precautions that should be observed to prevent damage to the product.

1. Read this Manual carefully before operation.
2. Keep this Manual in a safe place.
3. Be aware of all wamings reported with this symbol.
4. Keep this Equipment away from water and moisture.
5. Clean it only with dry doth. Do not use solvent or other chemicals.
6. Do not damp or cover any cooling opening. Install the equipment only in accordance with the Manufactu-rer's instructions.
7. Power Cords are designed for your safety. Do not remove Ground connections! If the plug does not fit your AC outlet, seek advice from a qualified electri-cian. Protect the power cord and plug from any physical stress to avoid risk of electric shock. Do ot place heavy objects on the power. This could cause electric shodk or fire.
8. Unplug this equipment when unused for long periods of time or during a storm.
9. Refer all service to qualified service personnel only. Do not perform any servicing other than those instruc-tions contained within the User's Manual.
10. 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.

WARNING
To reduce the risk of electric shock and fire, do not expose this equipment to moisture or rain.

Dispose of this product should not be placed in municipal waste and should be separate collection.

Before replacing the fuse, make sure that the product is OFF and disconnected from the AC outlet.

11. Move this Equipment only with a cart, stand, tripod, or bracket, specified by the manufacturer, or sold with the Equipment. When a cart is used, use caution when moving the cart / equipment combination to avoid possible injury from tip-over.

12. Permanent hearing loss may be caused by exposure to extremely high noise levels.
The US. Government's Occupational Safety and Health Administration (OSHA) has specified the permissible exposure to noise level.
These are shown in the following chart:

Hours x day	SPL	Example
8	90	Small gig
6	92	Train
4	95	Subway train
3	97	High level desktop monitors
2	100	Classic music concert
1.5	102	
1	105	
0.5	110	
0.25 or less	115	Rock Concert

According to OSHA, an exposure to high SPL in excess of these limits may result in the loss of heat. To avoid the potential damage of heat, it is recommended that Personnel exposed to equipment capable of generating high SPL use hearing protection while such equipment is under operation.

The apparatus shall be connected to a mains socket outlet with a protective earthing connection.

The mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

Notes

11 Notes

Table of Contents

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

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.

FCC Statement:
"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."

1 Introduction

Thank you for purchasing the Digital Mixer. With 16 line-level inputs, 10 microphone preamplifiers; Digital 4 band full parametric EQ; Compressor; Gate; Delay; Polarity; Remote control, program, save, load, and copy functions and so on. The Digital Mixer helps you creating a wonderful show. It is easy to operate though it has powerful function.
We suggest that you use this manual to familiarize yourself with the features and applications for your Digital Mixer before using.

2 Summary of Features

- 10 Microphone preamplifiers with dedicated trim control
- 16 Line-level inputs
- 1 internal FX
- 1 Stereo main output
- All channels control Room Outputs
- 1 headphones output
- 128 * 64 line dot matrix monochrome LCD screen
- 24-bit/48KHz sampling rate
- Program, save, load, and copy functions
- Digital noise gate
- Digital 4 band full parametric EQ
- PAN
- Phase reverse
- Time delay
- AutoMixer
- Ducker
- FBC
- Remote control: Ethernet
- Pad APP Digital Mixer editor for wireless control

Expand socket for options module: Multi-track USB audio recording module or Dante module etc.

3 Useful Data

Please write your serial number here for future reference.

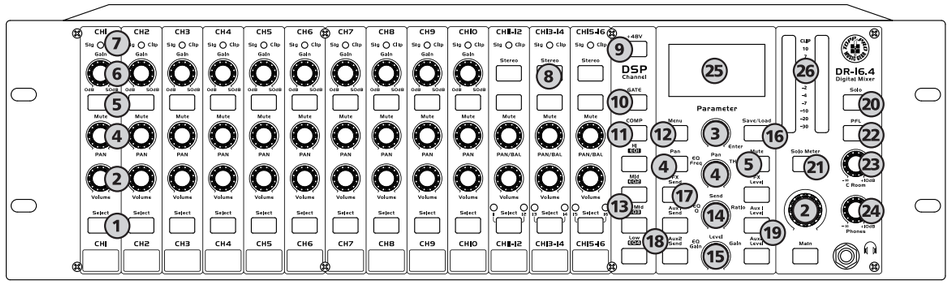
Serial Number:
Date of Purchase:
Purchased at:

Notes

11 Notes

Controls

Function Buttons and Knobs



1- Select
There are 13 select buttons on the panel as you can see.
CH11-12, CH13-14, CH15-16 are the linked buttons, press this button to achieve two-channel switching. Press this button will route its channel to add DSP setting and assign its output. It will illuminate as has been pressed and enabled.

2- Volume
It is used for level adjustment of the corresponding channel.

3- Parameter Adjust
This Encoder adjusts the parameter values of selected control that are shown on the LCD display. Turning it clockwise increases the value and counterclockwise decreases the value. As the function of this button will be a little bit different in different function, please notice the notes that are shown on the screen when operating. Press to confirm the selected parameters.

4- Pan
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.
Used for the pan selection of all input channel, output channel and internal FX.
a)The default is PAN adjustment
b)EQ---Level adjustment
c)GATE/COMP---Threshold adjustment

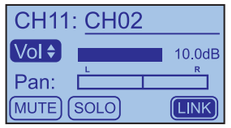
5- Mute
There are 13 mute buttons on the panel as you can see, control corresponding channel separately. Press this button will mute selected channel and all of its assigned outputs. It will illuminate when the button has been pressed and enabled.
Main---Mute (Used for FX, AUX and Main)

6- Gain
This knob controls the Gain value of the corresponding channel.

7- Sig & Clip LED
When the signal> + 18dB, this Clip LED lights green, indicating the relevant channel signal overload.
When the signal> -30dB, this Sig LED lights green, indicating the status of the relevant channel input signal.

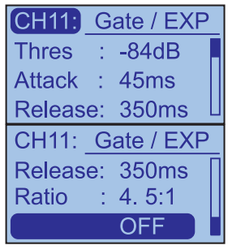
Controls

8- Stereo
Press this button, CH11&CH12, CH13&CH14, CH15&CH16 can be linked as stereo pairs. It will illuminate if the stereo link button has been pressed and enabled. The stereo pairs are predefined and cannot be changed. When the link button is illuminated which indicates the stereo link function enabled, all DSP setting, subgroup assignments, solo status and main assignments are passed to the other channel in the pair.



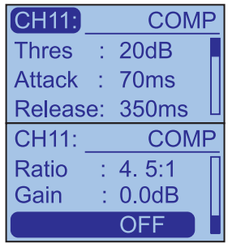
Stereo

9- +48V phantom power
It will be illuminated by pressing this button, providing 48V phantom power (CH1-CH10).
Please notice that only the condenser microphone needs phantom power.
Note: Please do not supply phantom power to any device which do not need phantom power otherwise the device and Digital Mixer may be damaged.



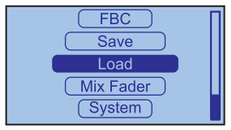
Gate

10- Gate
It will be illuminates when Gate turned on of any channel. Noise gate attenuates signals that below the threshold and allows signals to pass through only when they are above a threshold setting. Press this button to adjust Gate parameters such as threshold, attack, release, ratio.
Operation: Press this button and select the parameters which need to be adjusted by parameter knob, press the button again, and you can adjust the selected parameters, press to confirm after the adjustments.



Comp

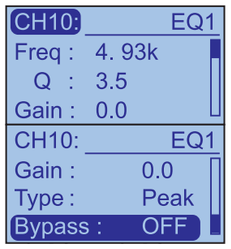
11- Comp
A compressor reduces the level of an audio signal if its amplitude exceeds a certain threshold. Please refer to the operation of Gate. There is a little bit difference compared to GATE, compressor has the GAIN adjustment function.



Menu

12- Menu
Optional function menu, press this button and then use the parameter knob to select the function to be adjusted.

13- Hi(EQ1), Mid(EQ2), Lo-Mid(EQ3), Low (EQ4)
Used for the selection of four segment EQ parameter.



Lo-Mid(EQ3), Low (EQ4)

14- Send
a) Used for Aux send DSP internal level adjustment
b) Used for Q value adjustment
c) Used for internal FX level adjustment (channels are optional)

15- Level
a) Used for channel level adjustment
b) Used for EQ gain adjustment
c) Used for COMP gain adjustment

Guarantee

Topp Pro guarantees the normal operation of the product against any defect of manufacture and / or vice of material, by the term of (12) months, counted as of the date of purchase on the part of the user, committing itself to repair or to change, to its election, without position some, any piece or component that will fail in normal conditions of use within the mentioned period.

This guarantee is valid if the original buyer will have to present/display this certificate properly sealed and signed by the selling house, accompanied by the corresponding invoice of purchase where it consisted the model and serial number of the acquired equipment.

The guarantee does not cover:

- Damages caused by the illegal use of the product, repair and/or nonauthorized modification conducted by people by **Topp Pro**.
- Damages caused by the connection of the equipment to other equipment different from the specified ones in the manual of use, or by bad connection to these last ones.
- Damages caused by electrical storms, blows and/or incorrect transport.
- Damages caused by excesses or falls of tension in the network or by connection to networks with a tension different from the required one by the unit.
- Damages caused by the presence of sand, acid of batteries, water, or any strange element inside the equipment.
- Deteriorations produced by the course of the time, use and/or normal wear of the unit.
- Alteration or absence of the serial number of factory of the equipment.

The repairs could only be carried out the authorized technical service by **Topp Pro**, that will inform about the term and other details into the repairs to take place according to this guarantee.

Topp Pro, will repair this unit in counted a term nongreater to 30 days as of the date of entrance of the unit to the Technical Service. In those cases in that due to the particularitity of the spare part, outside necessary their import, the repair time and the viability of the same one will be subject to the effective norms for the import of parts, in which case one will inquire to the user about the term and possibility into repair.

With the object of its correct operation, and of the validity of this one guarantee, this product will have to be installed and to be used according to the instructions that are detailed in the manual associate or the package of the product.

This unit will be able to appear for its repair, next to the invoice of purchase (or any other proof where the date of purchase consists), to its authorized distributer Topp Pro or an authorized technical center on watch by **Topp Pro**.

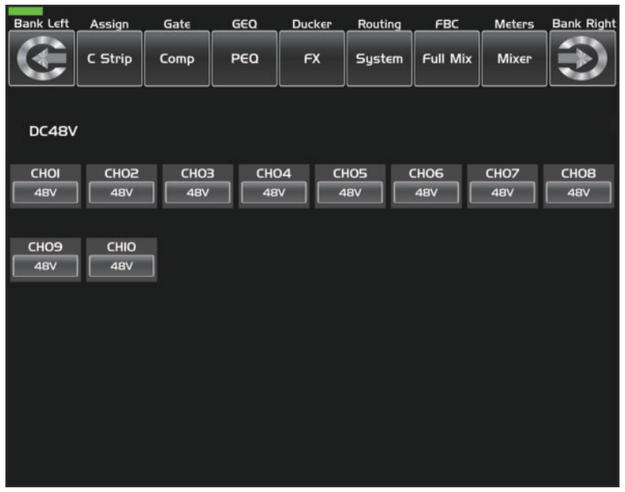
Exclusion of damages:
THE RESPONSABILITY OF TOPP PRO BY ANY DEFECTIVE PRODUCT IS LIMITED THE REPAIR OR THE REPLACEMENT OF HE HIMSELF, TO TOPP OPTION PRO. IF WE CHOSE TO REPLACE THE PRODUCT, THE REPLACEMENT CAN BE A RECONDITIONATED UNIT. TOPP PRO WILL NOT BE RESPONSIBLE BY THE DAMAGES BASED ON THE LOST, INCONVENIENCE, LOSS OF USE, BENEFITS, LOST SAVINGS, BY THE DAMAGE TO OTHER EQUIPMENT OR OTHER ARTICLES IN THE USE SITE, OR BY ANY OTHER DAMAGE IF HE IS FORTUITOUS, CONSEQUENT OR OF ANOTHER TYPE, ALTHOUGH TOPP PRO HAS BEEN NOTICED OF THE POSSIBILITY OF SUCH DAMAGES.

Some states do not allow to the exclusion or the limitation to the fortuitous or consequent damages, so the aforesaid limitation can not be applied to you.
This guarantee gives specific legal rights him, you you can also have other right that varies of state to state.

9 DSP Control

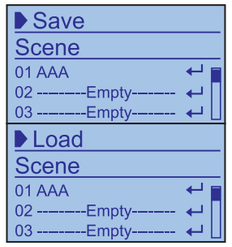
Static Filters Setup: Adjust the level of dedicated channels at nominal value and open microphones.
Clear Dynamic Filters: used to initialize all the dynamic filters.
Clear All Filters: used to initialize all the dynamic and all static filters.
Bypass: the signal is not processed and goes directly to the next treatment module.

9.20 +48V interface
It will be illuminated by touching the box, providing 48V phantom power (CH1-CH10, it is the same function as the +48V button on panel).
Warning: when you touch the corresponding box, it will prompt says" please do not supply phantom power to any device which do not need phantom power, otherwise the device may be damaged, are you sure?" If you touch ok then it will supply 48V phantom power to the corresponding channel or touch cancel to give up the operation.



Controls 4

16- Save/load
Save: Used to save the current settings (Scene, DSP, GEQ, FX), load: used to load presets (Scene, DSP, GEQ, FX), by pressing this button to achieve the switching of save and load.

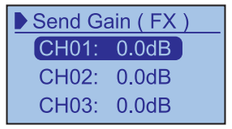


Save/load

17- Fx send
Press this button to enter the channel interface of FX adjustment.

18- Aux1 send & Aux2 send
Press this button to enter the channel interface of AUX1 & AUX2 send adjustment.

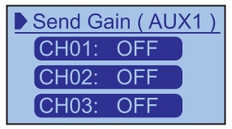
19- Fx level
Press this button to enter the adjustment interface of FX (the same as Aux1 level and Aux2 level).



Fx send

20- Solo
It will be illuminated by pressing this button, which can assign corresponding channel to control room output.

21- Solo meter
Press this button to solo channel level, and the default setting is to solo the main level if not press it.



Aux1 send & Aux2 send

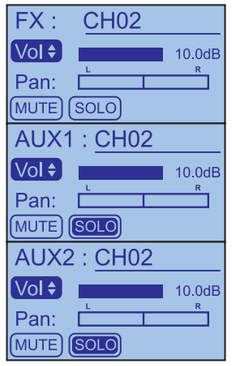
22- PFL
The default setting for the Solo bus is After-Fader Listen (AFL); by pressing PFL, Pre-Fader Listen is enabled. In either mode, pressing Solo on any channel or bus routes that channel to the Solo bus and has no effect on the main or subgroup mixes.

23- C Room
This knob adjusts the entire volume of the control room output.

24- Headphones
This knob adjusts the volume of the headphones.

25- LCD display
This LCD screen is used to display the current user interface.

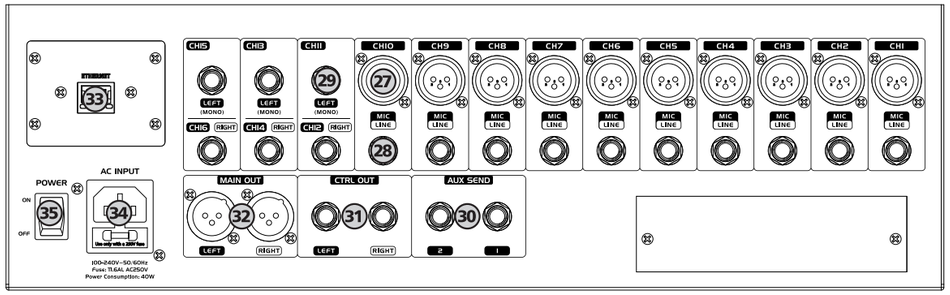
26- LED level indicator
It indicates the level of the MAIN channel or SOLO channel. By default, it is used to indicate the MAIN channel level when the SOLO METER button is not pressed.



Fx level

Controls

Rear Panel



27- MIC input jack
The Digital Mixer equips 10 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.

28- Line-level input connector
The Digital Mixer is equipped with 10 1/4 "balanced TRS connectors for line input.
Note: Please notice that there will be a momentary spike in the output when plugging in a microphone or a line-level input device, or turning phantom power on or off. So it should be better to mute or turn down the channel fader before changing connections or turning phantom power on or off.

29- Line Inputs 11-16
The 11-16 Line Inputs are normally used as effects returns. A line bus can be used to send several channels to an external effects processor and also can be used to return the processed signal to the mixer. The input is balanced stereo. If a mono signal has to be returned to the mix, connect it to the left input, then the right as well as the left side will get the signal.

30- Aux send 1-2
These are balanced mono outputs for each auxiliary.

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

32- Main Output
The Digital Mixer features both XLR and TRS main outputs. These outputs are parallel to each other.

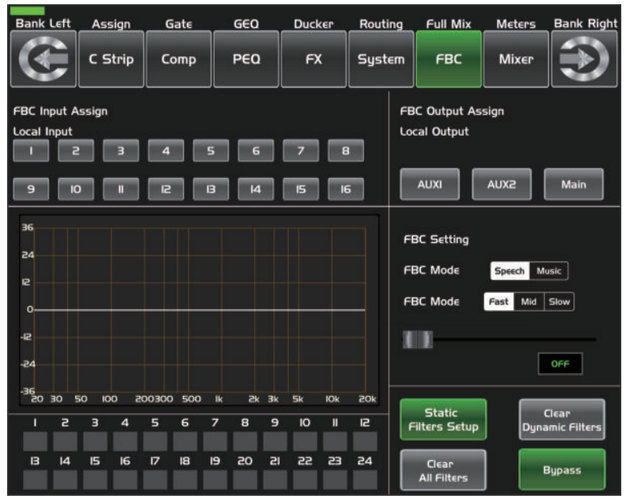
33- Ethernet
This port is for Ethernet control or firmware update.

34- AC INPUT
The provided power cable can be plugged in.

35- POWER
Push the top part of the switch to turn on and the bottom part to turn off.

DSP Control

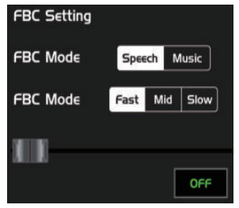
9.19 FBC interface



FBC or Feedback Canceller is a function which eliminates feedback automatically. Feedback occurs unexpectedly in a system where there are microphones and speakers nearby one of the other. This loop effect is an electro-acoustic resonance which generates an unpleasant frequency noise.
The FBC automatically detects the frequencies involved and attenuates them almost instantly using a series of selective filters.

FBC Input Assign:
Local Input: selection of input channels (1 to 16) to be processed.

FBC Output Assign:
Local Output: selection of output channels where the FBC processed input is routed.

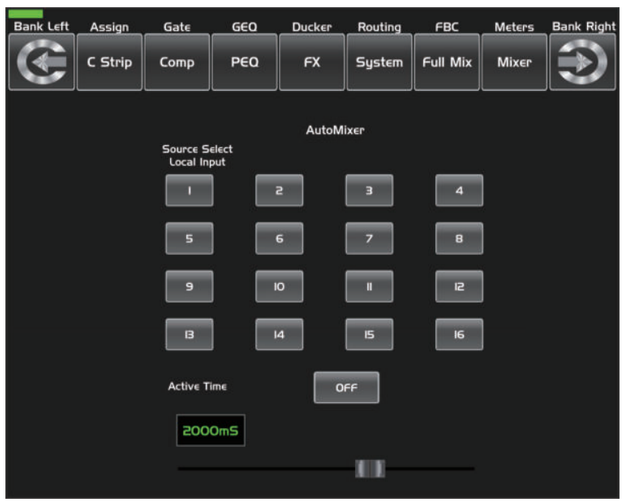


FBC Setting:
FBC Mode : application type, Speech or Music, Fast, Mid and Slow.
Push On/OFF to activate the function, increase the level of the FBC using the horizontal fader until the feedback effect appears (This fader only appears when Static Filters Setup is selected).

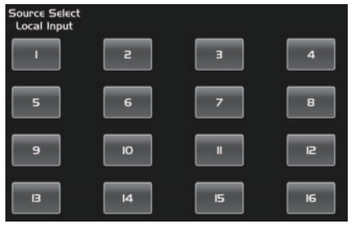
As soon as the system has detected the frequencies to process, the indicator boxes 1 to 24 turn red and the filtering effect is materialized on the diagram.
For dynamic filters the attenuation also appears on the diagram and indicator boxes light up in green.

9 DSP Control

9.18 AutoMixer interface



The AutoMixer automatically reduces the level of a microphone when it is not being used. Consequently it lowers the rumble, reverberation and other extraneous noise that occur when several microphones operate simultaneously.
It is typically used to mix panel discussions on television talk shows and at conferences and seminars. It can also be used to mix actors' wireless microphones in theater productions and musicals. It is frequently employed in settings where it is expected that a live sound operator will be not present, such as courtrooms and city council chambers.
This function is often used in conjunction with the microphone priority of the Ducker.



Local Input: selection of the local input to be processed.

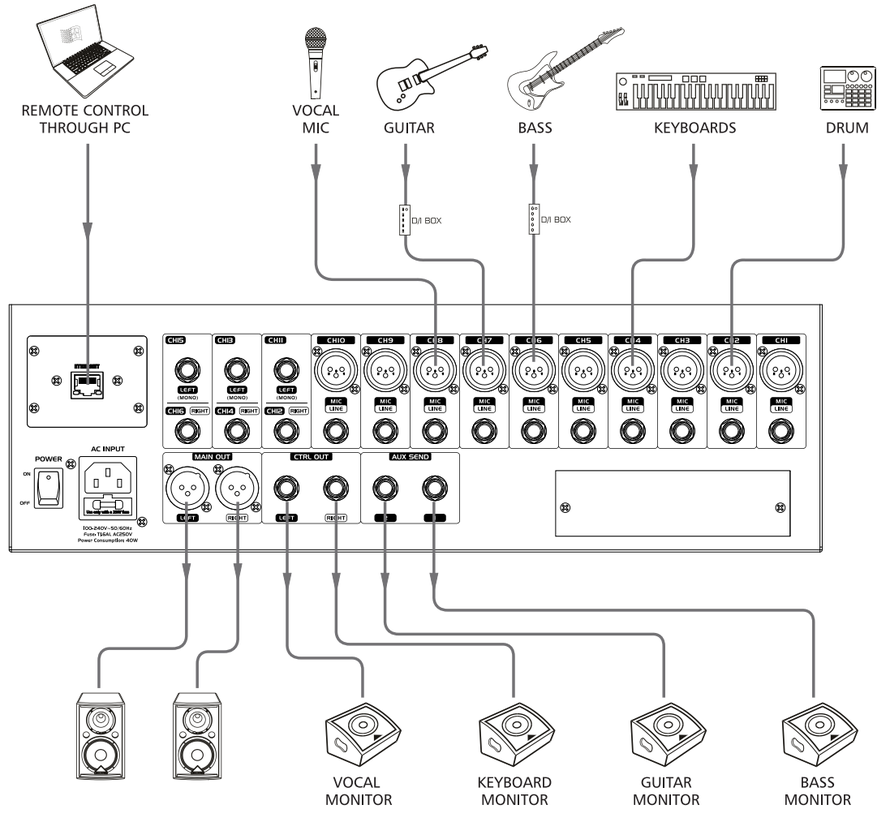
Velocity of the gain change to attenuate inputs.
Push On/OFF to activate the time setting, and use the horizontal fader to set the time value.

5 Software Update

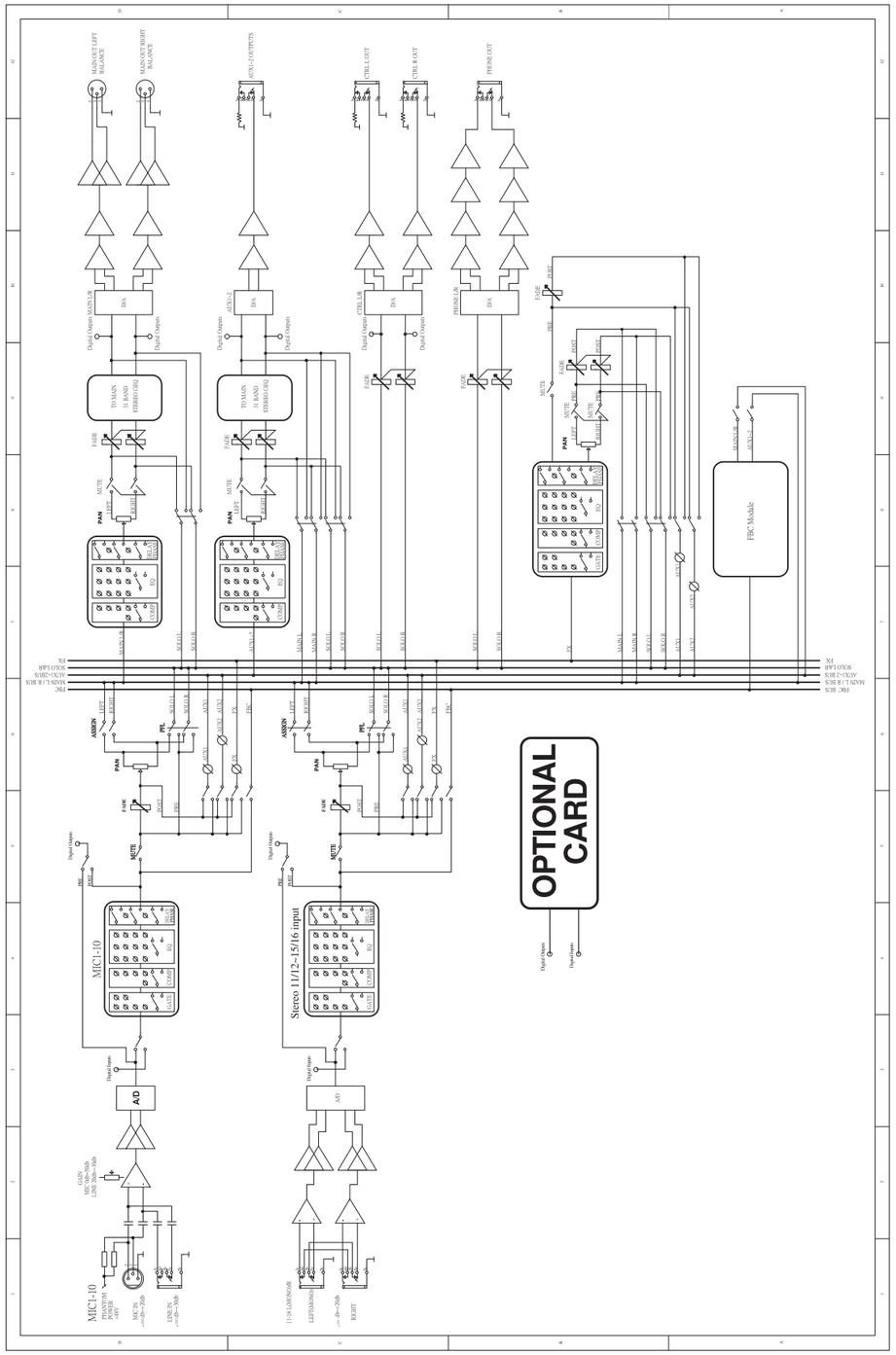
We will always update the Digital Mixer software, please download the latest version from below sites: www.seikaku.hk .
Since function of Digital Mixer will also change when you update the software, this manual can help you familiar with the basic function, for the precision, please refer to the real digital mixer.

Note: When you update the firmware, all the parameters you had saved in the mixer may be destroyed.

6 Hookup Diagram



7 Block Diagram



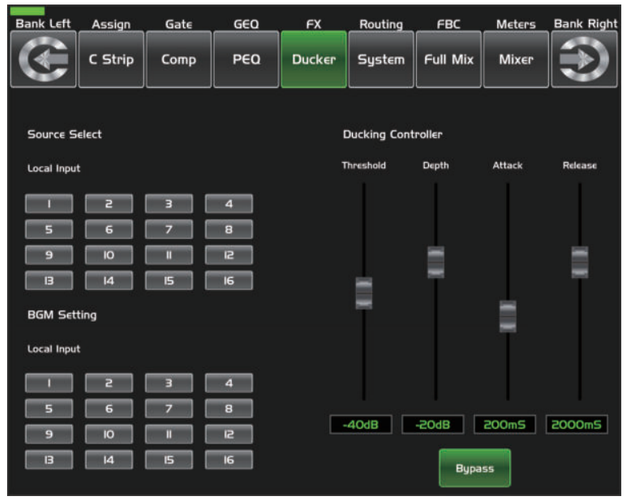
9 DSP Control

Touch the box, it will show current channel that will be copied to other channels or buses.

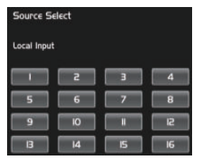
You can touch this box to select all the channels.

Then touch Copy control to complete your operation.
In the process of operation, please keep an eye to the LCD screen display.

9.17 Ducker interface



The principle of the Ducker is to attenuate one or several channels when priority signals are activated. The main applications are automatic speech for conference or priority messages.

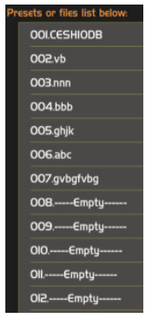


Source Select:
Local Input: selection of the priority channels.

BGM Setting:
Local Input: selection of channels from 1 to16 being affected by the attenuation.

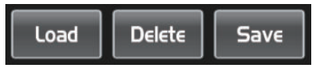
Ducking Controller:
Threshold: threshold of attenuation.
Depth: depth of attenuation.
Attack: transition time between the normal and the attenuated level.
Release: transition time between the attenuated level and return to the normal level.
Bypass: touch it back to the default status.

DSP Control



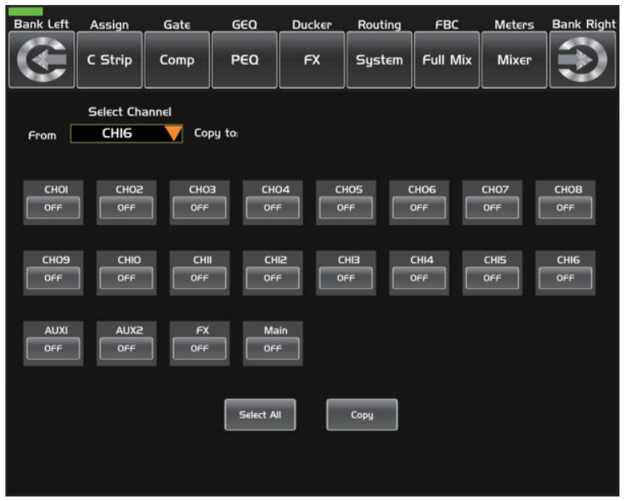
In this screen, you can adjust gain at every specific frequency. The EQ number, Frequency and Gain value which you are adjusting will be shown on the LCD below the graphic curve. Please follow the instruction that is shown on the LCD display to adjust the value.

Touch anyone of these controls, the corresponding background will illuminate, you can load preset of selected controls.



Touch Delete to delete current selected item's preset, touch Load to load current selected item's preset.
Save is the same as section 6.18.
The preset can be recalled to the same channel with exactly the same DSP setting and other setting like Solo, Mute, Post..., but with the channel's own DSP setting if recall to other channels. For example, if you select Channel 6 and save the setting as scene preset 6. If you select the Channel 6 and press the Load button to load the scene preset 6, then, the Channel 6 will be exactly same as the scene preset 6. But if you choose other channel like Channel 7, the DSP setting will be same as the Channel 7 and other settings will be same as preset 6.

9.16 Copy interface



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.

Technical Specification

Technical Specification	MAIN OUT L/R=0dB(Balanced)
Frequency Response to Main Output	20Hz~20KHz at 0dBu ±1.5dB
Distortion(THD&N) to Main Output	<0.01% at 0dBu 1KHz
Gains	0dBu~50dBu
SNR(Signal to Noise Ratio)	108dB
Maximum Input Level	+20dBu
Phantom Power	+48VDC±3V
Line input	MAIN OUT L/R=0dB(Balanced)
Frequency Response to Main Output	20Hz~20KHz at 0dBu ±1.5dB
Distortion(THD&N) to Main Output	<0.01% at 0dBu 1KHz
Gains	-20dBu~+30dBu
Maximum Input Level	+20dBu
AUX1~2 input	Balanced(2 stereo pair)
Frequency Response to Main Output	20Hz~20KHz at 0dBu ±1.5dB
Distortion(THD&N) to Main Output	<0.01% at 0dBu 1KHz
LEVEL Gains	-∞~+10dBu
Maximum Input Level	+20dBu
Main outputs	
Maximum Output Level	+20dBu
AUX1-8 Outputs	
Maximum Output Level	+20dBu
Tape Outputs	
Maximum Output Level	+20dBu
Control Room Outputs	
Maximum Output Level	+20dBu
HP1 Level	
Maximum Output Level	15dB
Input to Output(at +0dBu 1KHz)	-88dBu
Adjacent Channels(at +0dBu 1KHz)	-85dBu

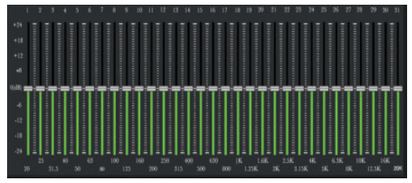
8

Technical Specification

Noise(Bus noise)	-91dBu
Noise Gate	Noise Gate
Threshold Range	-84dBu - 20dB
Attack time	0.5mS ~ 200mS
Relesae time	10mS~1S
Compressor	
Threshold Range	-30dBu -+20dB
Attack time	10mS ~ 150mS
Relesae time	10mS~1S
Ratio	1:1 to 10:1
Gain	0dBu - +24dB
EQ	
Low (LowPass or LowShelf)	21Hz~19.2KHz +/- 24dB
Low Mid	21Hz~19.2KHz +/- 24dB
High Mid	21Hz~19.2KHz +/- 24dB
High(HighPass or HighShelf)	21Hz~19.2KHz +/- 24dB
Digital Audio	
ADC Dynamic Range	114dB
DAC Dynamic Range	114dB
Internal Processor	32-bit , floating point
ADC,DAC bit depth	24bit
Impedances	
Microphone input	6.8KΩ
Line input	75K
Stereo input	27K
All other output	240Ω
operating free-air temperature range	0~40℃
storage temperature range	-20℃~45℃

9

DSP Control



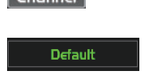
In this screen, you can adjust gain at every specific frequency. The EQ number, Frequency and Gain value which you are adjusting will be shown on the LCD below the graphic curve. Please follow the instruction that is shown on the LCD display to adjust the value.

The Flat EQ button can help you set the whole 31 bands to be default setting.

The box can show the frequency and gain that you are adjusting.

Touch Load, Copy or Save to realize corresponding function.

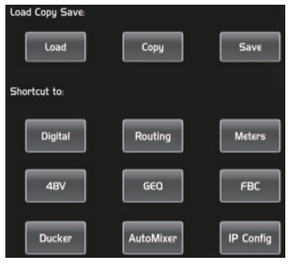
Touch this control in this area to enter page of corresponding channel.



Text Default in the box shows preset of GEQ. You can change it by loading another parameter setting.
The GEQ settings can be saved as preset for future use by pressing the Save button and flowing instruction that is shown on the LCD display. Please notice that the assign state will not be saved when one GEQ setting is saved as preset. The preset can be recalled by pressing the Load button and deleted by pressing the Flat EQ button after it has been chosen. Please notice the instruction that is shown on the LCD display. Please take section of DSP Load, Save, Copy as reference.

9.15 Load & Save interface
In this interface you can load Scene, Effect, GEQ or DSP channel setting.
You can save preset of DSP Channel, GEQ, DFX, and Scene in this interface.
The chosen preset can be deleted by pressing Delete.
Please notice the instruction that is shown on the LCD display.

9 DSP Control



Touch these icons to enter corresponding page.

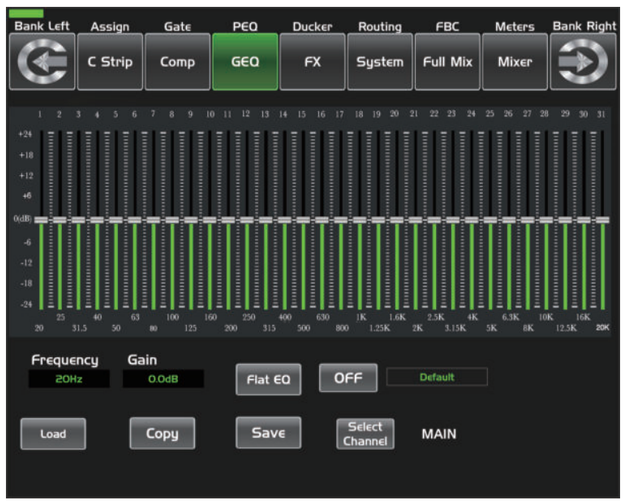
Touch this icon to solo channel level.

Restore to factory default settings.

Touch this icon to select solo mode to be PFL or not, it will illuminate synchronously with PFL button once enabled. For the detail of PFL, please refer to corresponding introduction in Function Buttons.

At the lower right corner, you can see instruction of the DSP firmware.

9.14 GEQ interface



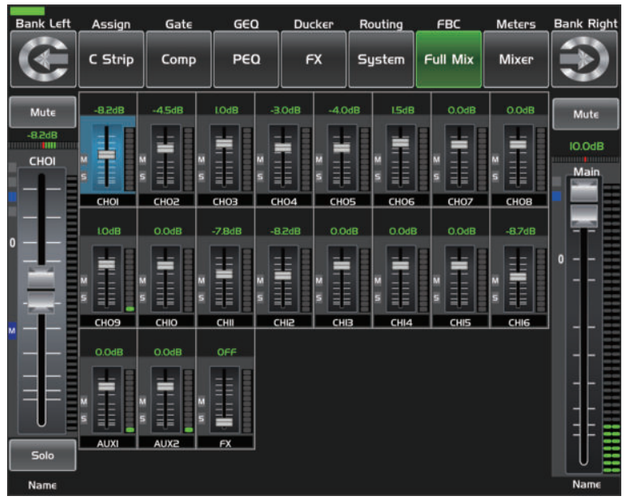
It features MAIN Stereo and AUX Mono, 31-band, 1/3 octave graphic EQs.
The 31 bands range from 20Hz to 20 KHz. There is 1 MAIN Stereo GEQ and 4 AUX Mono GEQs in 24-bit/48 kHz sample rate.

DSP Control 9

Connection page: It will automatically search for the device and display in the device list in this page, select it and connect it.

9.1 Mixer interface

Once you click the software 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.



Touch a channel, for example, CH01, the background and corresponding CH1 button will illuminate synchronously, you can control the output signal level by Parameter Adjust knob.
S will illuminate synchronized with Solo button on the panel.
M will illuminate synchronized with Mute button on the panel.
Meter beside the fader indicates the input signal level activity.

9 DSP Control

This long fader can control level of all input and output channels in this screen, but for one selected channel at one time, all its control will change synchronized with the selected channel. Slide the fader, you can increase or decrease corresponding channel's level. Meter beside the fader indicates signal activity.

-8.2dB The number indicates current channel level.

The pan icon shows real pan of selected channel audio signal, press Pan button on the panel and rotate Parameter Adjust knob to adjust it.

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

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

CH01 This letter shows the real current channel.

9.2 Long Faders interface

DSP Control 9

Touch it to route input channel 1 to output AUX1 as an example. Please rotate Parameter Adjust knob or slide long fader on the screen to change selected channel's audio level.
Touch PRE on the screen, it will switch to POST, and the background will illuminate. The selected channel will derive its signals from all channels post-fader. If the button has not been pressed and not illuminate, by default, the selected channel will derive its signal from all channels pre-fader and all unaffected by the sending channel's fader position.

Slide the fader or rotate Parameter Adjust knob to adjust level of selected input channel.

9.13 System interface

Text in these box show current corresponding preset you have saved.

DSP Control

This icon indicates current channel's fader position, "0" is zero dB position.

The number above it shows level of current channel.

This icon on the left shows LIMITER/COMP meters.

This icon on the right shows the actual input signal level activity.

The square below is Gate indicator, when the Gate activate, it lights yellow color.

9.12 Routing interface

You can select input channels of Main 1-16, FX in and route them to output channels of Main 1-16, Aux 1-2 and FX.

In Main routing page, channel level can not be adjusted, but channel level in Aux and FX pages are adjustable.

As the function of this button will be a little bit different in different control please notice the notes that are shown on the LCD screen when operating.

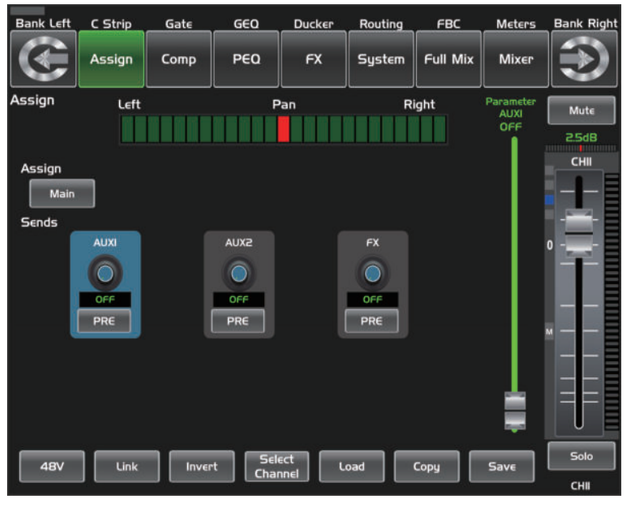
DSP Control

Touch this icon to switch channels and enter corresponding Long Faders page, in which you can adjust channels' basic function like solo, mute, level and rename the channel, etc.

Functions on this icon (like mute, level number, long fader, solo and channel name) are the same with that in Mixer interface.
M indicate the assign status. If you assign to main, M will illuminate.

9.3 Assign interface

The 16 main inputs and internal FX returns can be assigned to any or all of the Aux sends and main outputs.



Touch Main on the screen, the corresponding channels will be assigned to the main output. It will illuminate synchronizing with button in Assign area on the panel after pressed.

9 DSP Control

Touch AUX1-2 and FX on the LCD screen or press corresponding button on the panel to assign input channel audio to these channels or buses. To adjust output level of the channel audio, you can rotate Parameter Adjust knob on the panel.
Touch PRE on the screen, it will switch to POST, the AUX & FX send will derive its signals from all channels post-fader. If the icon has not been pressed and not illuminate, by default, the AUX & FX Send will derive its signal from all channels pre-fader and all unaffected by the sending channel's fader position.
In a word, touch PRE and switch it to POST, then you can adjust its level by sliding fader. Otherwise, the fader wouldn't function on level adjustment.

Slide the fader to change selected input channel audio. The fader function is the same with Fader on the panel, which can control input signal's level, they will change synchronously.
Meter beside it indicates the signal level activity.
Pan above fader indicates value of pan setting.
Solo can monitor selected channel audio.
Mute can silence selected channel audio.
Click Name can rename the selected channel.

Adjust this parameter to change selected output channel audio. This fader function is the same with Parameter Adjust knob, they will change synchronously.

Touch pan left or right to change signal's balance effect, it can be adjusted by Parameter Adjust knob on the panel when pan button is on. If you have adjusted a channel pan, please just touch 2 times on the screen and make it back to the centre position.

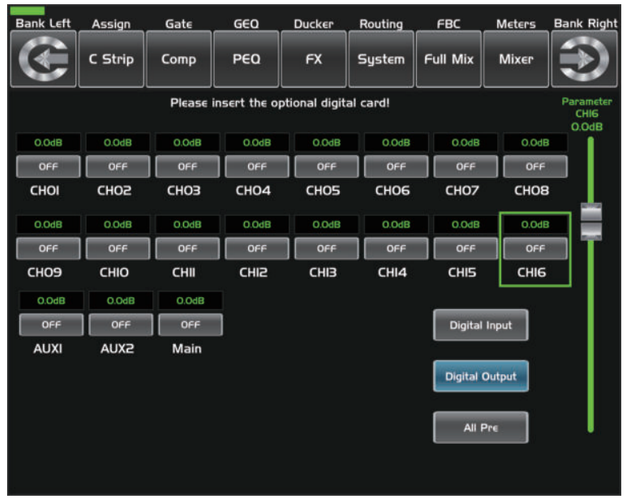
Touch anyone of these controls to enter corresponding page.

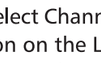
Touch it, the background and Link button will illuminate synchronously, and current channel will link to its pair channel, the button will illuminate then.

Touch Select Channel icon here, all input channels will display to you. Please follow the indication on the LCD screen to operate.
For different input channels, the function and output assignments are different, please notice indication on the screen.

DSP Control 9

9.10 Digital Output interface
When you select a channel as digital output, OFF will switch to ON, the background of ON will illuminate.
The screen will give clues if no digital card inserted in, and the Digital Out function can not enable either.





Click it and will find a popup, if you click ok, then digital IN&OUT can not be on for same channel, and click cancel to close this popup.

9.11 Meters interface
This page gives you a overall review of all input and output channels and buses' meters status.

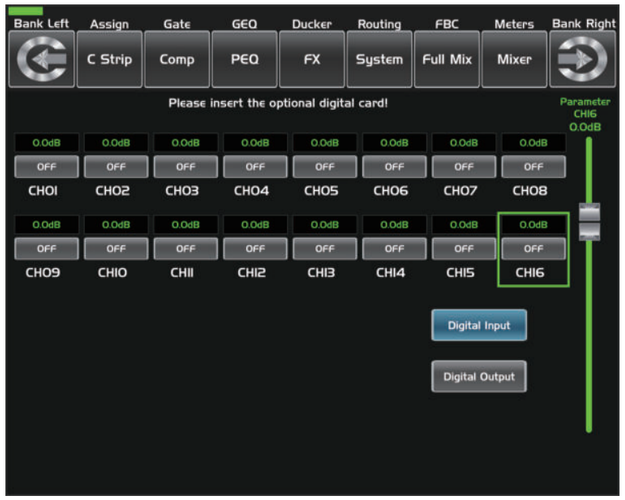
9

DSP Control

9.9 Digital Input interface

Only channel 1-16 are given digital input. You can select which channels input from option module, and which channels input from analog.

The screen will give clues if no digital card inserted in, and the Digital in function can not enable either.



Touch this icon to switch between Digital Input and Digital Output page.

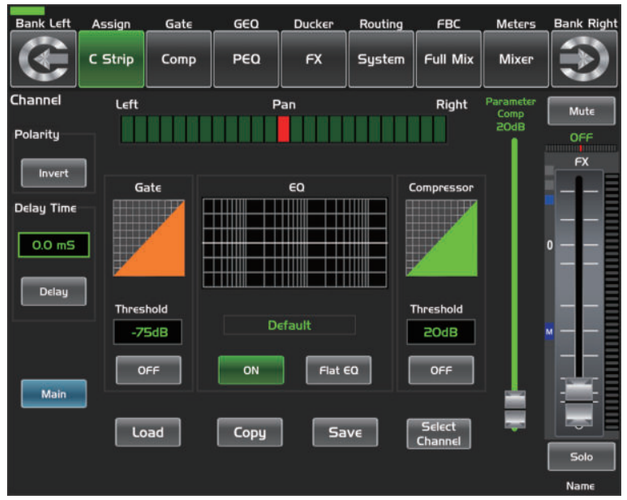
This symbol enables you to choose digital input channels, touch the switch OFF, it will turn to ON and illuminate, which means this selected channel can input digital signal.

When you choose a digital assign channel, you can adjust its input level by sliding this long fader on the screen or by rotating Parameter Adjust knob on the panel.

DSP Control

9

9.4 Channel interface

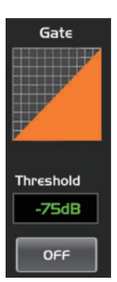


Touch it in Polarity to invert the phase of the selected channel's signal (to alter the phase by 180~). If the phase reverse is active the button will illuminate. The LCD display shows the phase reverse setting in real time. The Polarity control can be used to correct audio signals which are out of phase as well as to cancel/reinforce each other.

Touch it in Delay Time can engage and disengage the delay for the selected channel. It will illuminate to indicate that the delay has been pressed and enabled. The LCD display shows the delay time in real time. It can be set 300ms at 48K Hz. Please notice that only if the Delay button has been enabled can its parameter be adjusted.

When Delay icon is engaged, you can slide the fader to adjust or touch it in Delay Time and rotate the Parameter Adjust knob can control the selected channel's delay time.

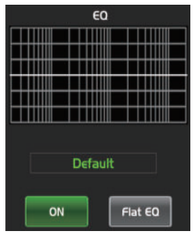
Touch this control, it will illuminate as well as the button, signal from a selected channel can be assigned to Main channel, for the details please refer to Assign introduction in section 9.3.



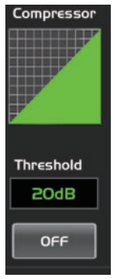
Touch the switch ON to enable Gate function, then rotate Parameter Adjust knob or slide long fader on the right LCD screen to adjust value of Threshold, which will show in the middle box. During adjustment, corresponding figure change will show in the Gate grid.

In this area, you can touch the grid area to enter Gate page, for the detail of Gate function, please refer to the Gate introduction in section 9.5.

9 DSP Control



Touch the switch ON to enable EQ function, it will illuminate and synchronize with ON/OFF control in EQ page. Please set values in EQ page because it is not adjustable here. This page can only show the values. You can also load a preset, please refer to load introduction section for the detail operation, the loaded state will show in the middle box.
Touch Flat EQ to eliminate EQ settings and restore it to default.
In this area, you can touch the grid area to enter EQ page, for the detail of EQ function, please refer to the EQ introduction in section 9.7.



Touch the switch to enable Compressor function, then rotate Parameter Adjust knob or slide long fader on the right LCD screen to adjust value of Threshold, which will show in the middle box. During adjustment, corresponding figure change will show in the Compressor grid.
In this area, you can touch the grid area to enter COMP page, for the detail of COMP function, please refer to the COMP introduction in section 9.6.

Touch anyone of these controls to enter corresponding page.

It is the same with that in Assign interface in section 9.3.
Note: you can also rename the selected channel by clicking CHXX.

9.5 Gate interface

DSP Control 9

Touch anyone of these controls to adjust parameter of the effects by rotating Parameter Adjust knob or slide fader on the right of LCD screen.

Touch this control to mute current FX effect.
It includes 12 kinds of adjustable effects which can help to realize the effect that you want to show your audience.

No.	Preset	Description	Parameter
1	Hall	Simulate an acoustic space of the sound	Pre Delay; Decay; Room Size; Hi Damp; Efx Out; Dry out
2	Room	Simulate a studio room with many early reflections	Pre Delay; Decay; Room Size; Hi Damp; Efx Out; Dry Out
3	Plate	Simulate the transducer's sound like classic bright vocal plate	Pre Delay; Decay; Room Size; Hi Damp; Efx Out; Dry out
4	Delay	Reproduce the sound input on the output after a lapse of time	Time; Decay; Hi Damp; Efx Out; Dry Out
5	Stdelay	Recreate the input sound on the stereo output with different time	L Time; R time; L Decay; R Decay; Hi Damp; Efx Out; Dry Out
6	Tremolo	Simulate the sound effect by repeating the same note or different notes alternately and quickly	Feed Back; Depth; ModFreq; Efx Out; Dry Out
7	Flanger	Simulate to play with another person carrying out the same notes on the same instrument	ModFreq; Efx Out; Dry Out
8	Chorus	Recreate the illusion of more than one instrument from a single instrument sound	Feed Back; Depth; ModFreq; Efx Out; Dry Out
9	DelayRev	Delay with room effect	Pre Delay; Rev Decay; Room Size; Rev Hi; Rev Out; Echo Time; Echo Hi; Echo F.B; Echo out; Dry Out
10	StDelayRev	Stereo Delay with room effect	Pre Delay; Rev Decay; Room Size; Rev Hi; Rev Out; L Time; R Time; L Decay; R Decay; Echo Hi; Echo Out; Dry Out
11	FlangerRev	Stereo chorus and large room reverb	Pre Delay; Rev Decay; Room Size; Rev Hi; Rev Out; ModF.B; ModDepth; ModFreq; Mod Out; Dry Out
12	ChorusRev	Simulate the sound effect achieved by rotating horn speakers and a bass cylinder	Pre Delay; Rev Decay; Room Size; Rev Hi; Rev Out; ModF.B; ModDepth; ModFreq; ModOut; Dry Out

9 DSP Control

Touch it to set the center frequency of the equalizer's Low/Low-mid/High-mid/ High band separately. The center frequency is the middle of the pass-band between the lower and upper cutoff frequencies which define the limits of the band. The center frequency can be set from 19.7Hz to 20.16K Hz.

Touch it to set the Q for the Low/Low-mid/High-mid/High band separately. The Q is the ratio of the center frequency to the bandwidth. If the center frequency is constant, the bandwidth is inversely proportional to the Q, which means that if you raise the Q, the bandwidth will be narrowed. It can be adjusted from 0.4 to 128.

Touch it to set the gain cut or boost at the center frequency for the Low/Low-mid/ High-mid/High band separately. It can be set from -18 to +18 dB.

This is a high-pass filter. It can pass higher frequencies. When set to its lowest position, the filter is off.
Type indicates the filter's type that you selected, different type means different shape and different filter frequency range.

This is a low-pass filter. It can pass lower frequencies. When set to its highest position, the filter is off.
Type indicates the filter's type that you selected, different type means different shape and different filter frequency range.

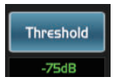
Touch EQ1 to set its Frequency, Q and Gain parameters separately, touch Type to change the filter to high-pass, low-pass or band-pass filter, the same as EQ2, EQ3 and EQ4. You can see the waveform on the screen.
Note: you can also rename the selected channel by clicking CHXX.
Bypass: Signal is not processed and go directly to the next processing module.

9.8 FX interface
The setting values of FX can be saved as preset for future use by simply touching the Save button and following the instruction that is shown on the LCD display.

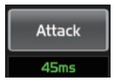
DSP Control 9

Touch the switch in this window, you can engage and disengage the Gate for the selected channel. It will illuminate to indicate that the Gate has been touched and enabled. The LCD display shows the Gate setting in real time. Its parameters can change by adjusting Threshold, Attack & Release control directly and use the Parameter Adjust knob to set the value.
Please notice that only if the Gate control has been enabled can its parameters be adjusted.

The bar has 2 colors here, which indicate status.
- Grey- the switch is OFF.
- Green- the switch is ON, there is signal input and the value is below threshold level.

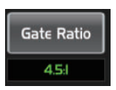


Touch it to set the level at which the gate will open. It can be set from 0 to -75 dB.



Touch it to set the time for the gate to change from closed to open, much like a fade-in. It can be set from 0.5 to 200 ms.

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.



Touch it to set the compression ratio for the selected channel. The ratio determines the amount of gain reduction. For example, a ratio of 4:1 means 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.
Note: A fast release abruptly cuts off the sound once it has fallen below the threshold,
A slower release smoothly changes from open to closed, much like a slow fade out.
If the release time is too short a click can be heard when the gate re-opens.

The Gate grid shows level setting of threshold in real time. Meter on the left indicates the input signal's level activity.

Touch anyone of these controls to enter corresponding page.

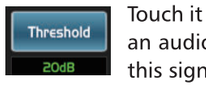
It is the same with that in Assign interface in section 9.3.
Note: you can also rename the selected channel by clicking CHXX.

9 DSP Control

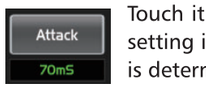
9.6 COMP interface

Touch the switch in this window, you can engage and disengage the Compressor for the selected channel. It will illuminate to indicate that the compressor has been pressed and enabled. The LCD display shows the compressor setting in real time. Its parameters can change by rotating the Parameter Adjust to set the value of Gain, Threshold, Attack, Release & Ratio control directly or using the parameter adjust knob to choose the function that you want to modify and to set the value.
Please notice that only if the Compressor button has been enabled can its parameters be adjusted.

The bar has 2 colors here, which indicate 2 statuses.
- Grey- the switch is OFF.
- Green- the switch is ON, there is signal input and under compressing, which means it enables the compressor function.



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 -30 to 20 dB.



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 150 milliseconds.

Touch it to set the compressor for the selected channel. Release sets the length of time the compressor takes to return to its normal gain once the signal level drops below the threshold. Release can be set from 10 to 1,000 milliseconds.

Touch it to set the compression ratio for the selected channel. The ratio determines the amount of gain reduction. For example, a ratio of 4:1 means 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 9

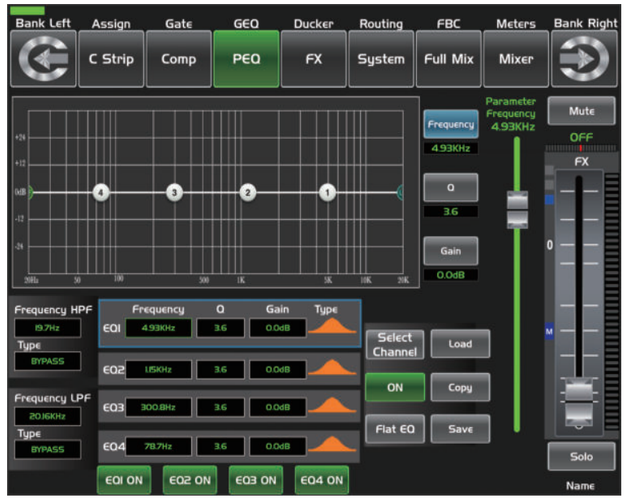
Touch it to set the gain of the compressor for the selected channel or bus. Generally, when compressing signal, the decreasing of gain will cause whole level attenuation. This Gain control can recover the lost level and re-adjust volume that compressed before. The Gain can be set from 0 dB (no gain adjusted) to +24 dB.

The compressor grid shows level setting of threshold in real time.
Meter on the left indicates the input signal's level activity.
Meter on the right indicates degree of compressor.

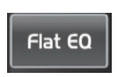
Touch anyone of these controls to enter corresponding page.

It is the same with that in Assign interface in section 9.3.
Note: you can also rename the selected channel clicking CHXX.

9.7 EQ interface



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 the parameter adjust knob to choose the function that you want to modify and to set the value.
Please notice that only if the EQ button has been enabled can its parameters be adjusted. The equalizer is available for all input and output buses. When OFF is selected, the equalizer is not adjustable.



Touch it, all the setting values in this page will restore to default.