成品尺寸210x140mm (A5)

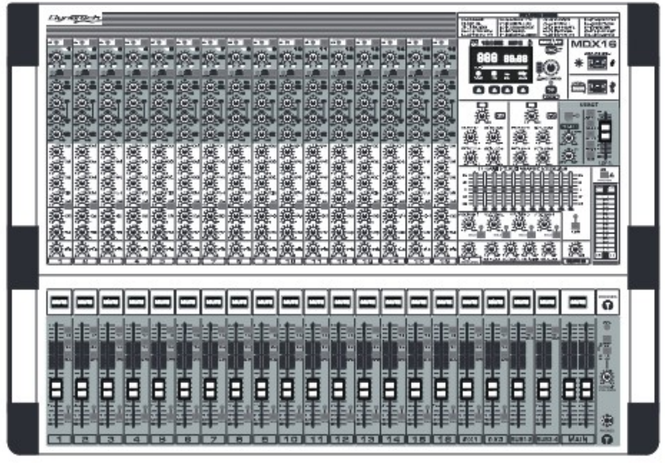


DynaTech

封底

DynaTech

MDX12 & MDX16
PROFESSIONAL MIXER & MDX24



Instruction Manual

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Catalogue

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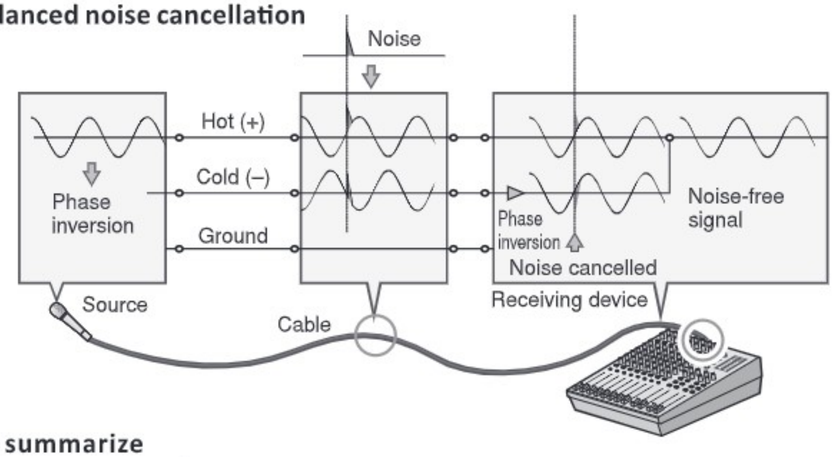
The operating theory of the sound mixer

If you are using the mixer for the first time, you may need to read this manual and select the basic operations according to your needs to help you better play the function and performance of the mixer.

Balanced/Unbalanced—What's the Difference?

In a word: “noise." The whole point of balanced lines is noise rejection, and it's something they're very good at. Any length of wire will act as an antenna to pick up the random electromagnetic radiation we're constantly surrounded by: radio and TV signals as well as spurious electromagnetic noise generated by power lines, motors, electric appliances, computer monitors, and a variety of other sources. The longer the wire, the more noise it is likely to pick up. That's why balanced lines are the best choice for long cable runs. If your “studio" is basically confined to your desktop and all connections are no more than a meter or two in length, then unbalanced lines are fine - unless you're surrounded by extremely high levels of electromagnetic noise. Another place balanced lines are almost always used is in microphone cables. The reason for this is that the output signal from most microphones is very small, so even a tiny.amount of noise will be relatively large, and will be amplified to an alarming degree in the mixer' s high-gain head amplifier.

Balanced noise cancellation

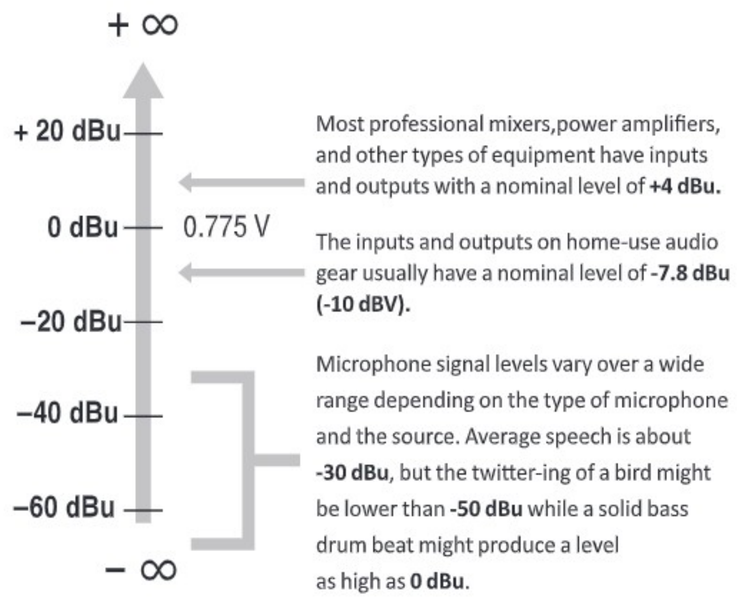


To summarize

Microphones	Use balanced lines.
Short line-level runs	Unbalanced lines are fine ifyou're in a relatively noise-free environment.
Long line-Level runs	The ambient electromag-netic noise level will be the ultimate deciding factor, but balanced is best.

Signal Levels and the Decibel

Let's take a look at one of the most commonly used units in audio: the decibel (dB). If the smallest sound that can be heard by the human ear is given an arbitrary value of 1,then the loudest sound that can be heard is approximately 1,000,000 (one million) times louder. That's too many digits to deal with for practical calculations, and so the more appropriate "decibel” (dB) unit was created for sound-related measurements. In this system, the difference between the softest and loudest sounds that can be heard is 120 dB. This is a non-linear scale, and a difference of 3 dB actually results in a doubling or halving of the loudness. You might encounter a number of different varieties of the dB: dBu, dBV, dBM and others, but the dBu is the basic decibel unit. In the case of dBu, “0 dBu" is specified as a signal level of 0.775 volts. For example, if a microphone's output level is -40 dBu (0.00775 V), then to.raise that level to 0 dBu (0.775 V) in the mixer's preamp stage requires that the signal be amplified by 100 times. A mixer may be required to handle signals at a wide range of levels, and it is necessary to match input and output levels as closely as possible. In most cases the “nominal" level for a mixer's input and outputs is marked on the panel or listed in the owner's manual.



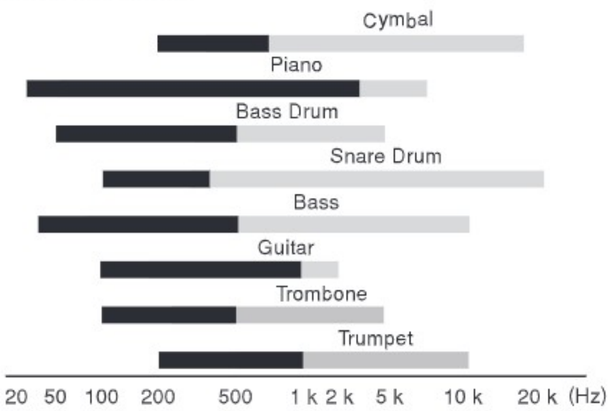
EQ or not to EQ

In general: less is better. There are many situations in which you'll need to cut certain frequency ranges, but use boost sparingly, and with caution. Proper use of EQ can eliminate interference between instruments in a mix and give the overall sound better definition. Bad EQ - and most commonly bad boost -just sounds terrible.

Cut for cleaner mix

For example: cymbals have a lot of energy in the mid and low frequency ranges that you don't really perceive as musical sound, but which can interfere with the clarity of other instruments in these ranges. You can basically turn the low EQ on cymbal channels all the way down without changing the way they sound in the mix. You'll hear the difference, however, in the way the mix sounds more“spacious," and instruments in the lower ranges will have better definition. Surprisingly enough, piano also has an incredibly powerful low end that can benefit from a bit of low-frequency roll-off to let other instruments - notably drums and bass - do their jobs more effectively. Naturally you won't want to do this if the piano is playing solo. The reverse applies to kick drums and bass guitars: you can often roll off the high end to create more space in the mix without compromising the character of the instruments.You'll have to use your ears, though, because each instrument is different and sometimes you'll want the“snap” of a bass guitar, for example, to come through.

The fundamental ■ and harmonic □ frequency ranges of some musical instruments.



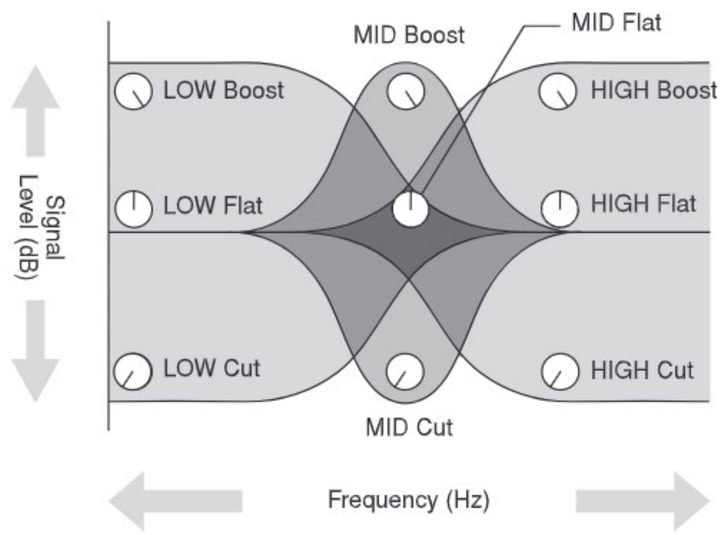
■ Fundamental: The frequency that determines the basic musical pitch.

□ Harmonics: Multiples of the fundamental frequency that play a role in determining the timbre of the instrument.

Some Frequency Facts
The lowest and highest frequencies than can be heard by the human ear are generally considered to be around 20 Hz and 20,000 Hz, respectively. Average conversation occurs in the range from about 300 Hz to about 3,000Hz. The frequency of a standard pitchfork used to tune guitars and other instruments is 440 Hz (this.corresponds to the“A3”key on a piano tuned to concert pitch). Double this frequency to 880 Hz and you have a pitch one octave higher (i.e.“A4”on the piano keyboard). In the same way you can halve the frequency to 220 Hz to produce“A2”an octave lower.

Boost with Caution

If you're trying to create special or unusual effects, go ahead and boost away as much as you like. But if you're just trying to achieve a good-sounding mix, boost only in very small increments. A tiny boost in the midrange can give vocals more presence, or a touch of high boost can give certain instruments more“air”.Listen, and if things don't sound clear and clean try using cut to remove frequencies that are cluttering up the mix rather than trying to boost the mix into clarity. One of the biggest problems with too much boost is that it adds gain to the signal, increasing noise and potentially overloading the subsequent circuitry.



Ambience

Your mixes can be further refined by adding ambi-ence effects such as reverb or delay. internal effects can be used to add reverb or delay to individual channels in the same way as external effects processors.

Reverb and Delay Time

The optimum reverb time for a piece of music will depend on the music's tempo and density, but as a general rule longer reverb times are good for ballads,while shorter reverb times are more suited to up-tempo tunes. Delay times can be adjusted to create a wide variety of“grooves". When adding delay to a vocal, for example, try setting the delay time to dotted eighth notes corresponding to the tune's tempo.

Reverb Tone

Different reverb programs will have different“reverb tone”due to differences in the reverb time of the high or low frequencies.' Too much reverb, particularly in the high frequencies, can result in unnatural sound and interfere with the high frequencies in other parts of the mix. It's always a good idea to choose a reverb program that gives you the depth you want without detracting from the clarity of the mix.

Reverb Level

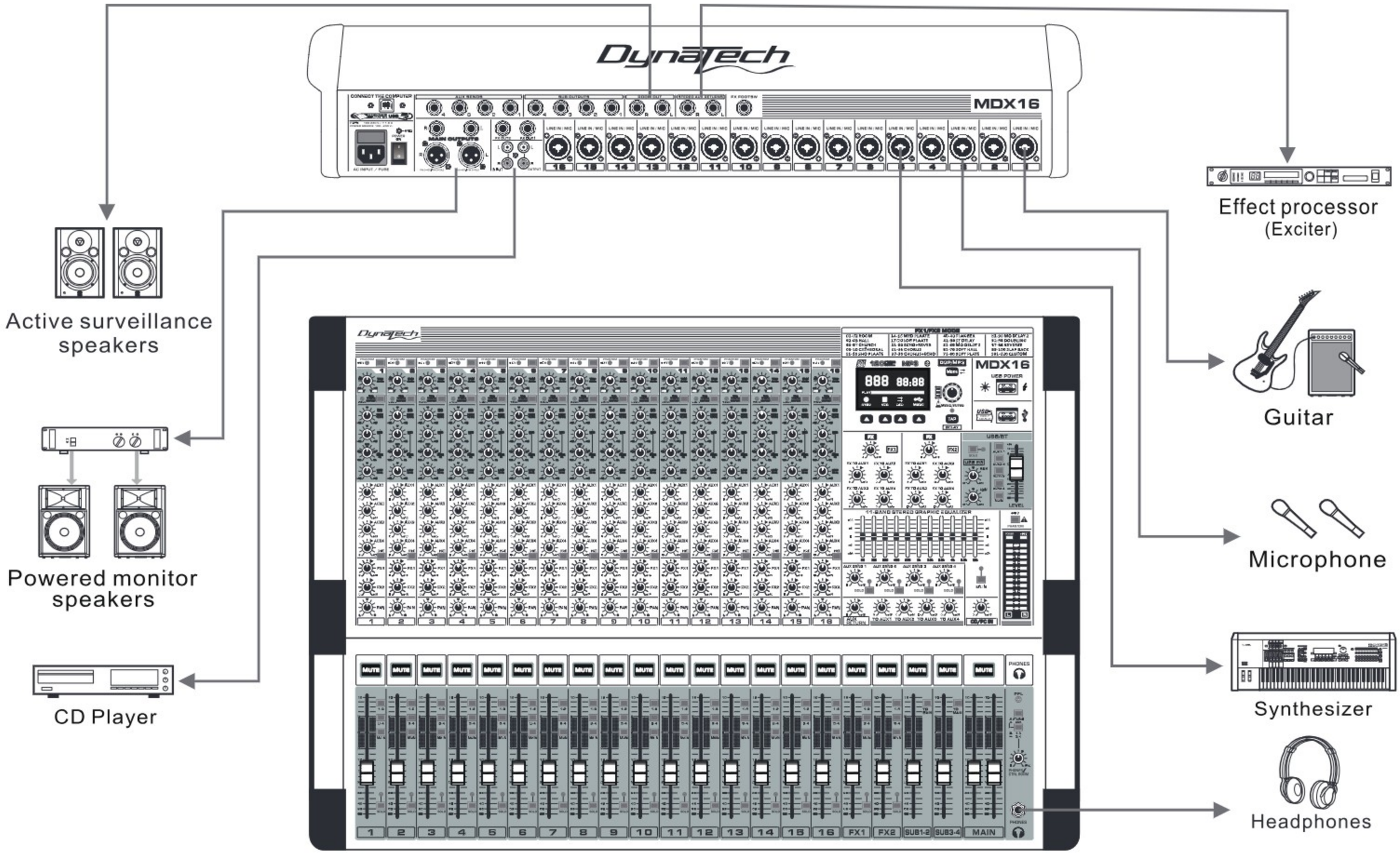
It's amazing how quickly your ears can lose perspec-tive and fool you into believing that a totally washed-out mix sounds perfectly fine. To avoid falling into this trap start with reverb level all the way down, then gradually bring the reverb into the mix until you can just hear the difference. Any more than this normally becomes a“special effect."

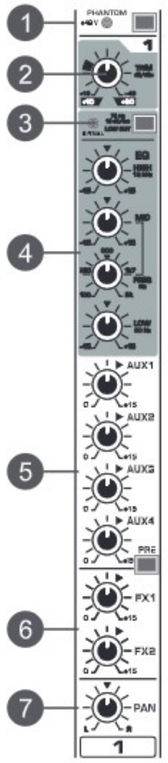
The Modulation Effects:

Phasing, Chorus, and Flanging

All of these effects work on basically the same princi-ple: a portion of the audio signal is “time-shifted" and then mixed back with the direct signal. The amount of time shift is controlled, or“modulated", by an LFO (Low-frequency Oscillator).For phasing effects the shift is very small. The phase difference between the modulated and direct signals causes cancellation at some frequencies and rein-forces the signal at others and this causes the shim-mering sound we hear.

For chorus and flanging the signal is delayed by sev-eral milliseconds, with the delay time modulated by an LFO, and recombined with the direct signal. In addition to the phasing effect described above, the delay modulation causes a perceived pitch shift which,when mixed with the direct signal, results in a harmonically rich swirling or swishing sound. The difference between chorus and flanging effects is primarily in the amount of delay time and feedback used-flanging uses longer delay times than chorus,whereas chorus generally uses a more complex delay structure. Chorus is most often used to thicken the sound of an instrument, while flanging is usually used as an outright“special effect" to produce other-worldly sonic swoops.


Active surveillance speakers
Powered monitor speakers
CD Player
Effect processor (Exciter)
Guitar
Microphone
Synthesizer
Headphones
MDX16



1. +48V phantom power switch

Phantom power to the input channel XLR jacks can be activated via the PHANTOM switch, Phantom power +48V is required to use a condenser microphone, the LED glows to indicate that phantom power is on. Dynamic microphones can usually still be used, as long as they are balanced.

2. TRIM control

Adjusts the input signal level. For the best balance between signal-to-noise ratio and dynamic range, adjust the gain so that the CLIP indicator lights occasionally and briefly on the highest input transient.MIC Input Adjustment Range +10 to +60dB.LINE Input Sensitivity Adjustment Range +10 to -40dB.

3. SIGNAL LED

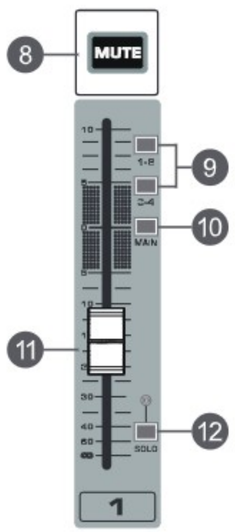
When the optimal working level is reached, the LED is illuminated.

LOW CUT Switch

The console's mono channel is also equipped with a steep-edge low-cut filter, which you can use to eliminate unwanted portions of the low-frequency signal, attenuating frequencies below 75 Hz at a slope of 18 dB/octave.

4. Equalizer(HIGH.MID and LOW)

All single input channels are equipped with a 3-band sound quality adjustment knob with a semi-parametric mid range. Each band can be raised/lowered by up to 15 dB, and the equalizer has no effect in the center position. The high-frequency and low-frequency ranges are 12 kHz and 80 Hz. For the mid-frequency range the console has a semi-parametric tone adjustment between 100 Hz and 8 dry Hz. The tone is raised/lowered with the MID knob and the frequency is adjusted with the FREQ knob.



5. AUX control

The AUX1 knob adjusts the level of the pre-fader signal (before the faders are adjusted).The PRE switch on AUX4 can be used to select AUX4.Pressing the PRE switch sends the pre-fader (signal before it is adjusted by the faders) and flicking the PRE switch sends the post-fader (signal after it is adjusted by the faders) signal to the AUX bus.

6. FX control

The FX knob adjusts the signal after sending the fader to the FX bus.

7. PAN control

The PAN (Positioning Acoustic Pan) knob adjustment is used to determine the position of the channel's signal in the stereo field. If grouping is used, you can assign the signal to either SUB1 (with the PAN knob turned to the far left) or SUB2 (with the knob turned to the far right).

8. MUTE switch

When this switch is on, signals from the corresponding channel can be sent to the bus, which is illuminated when it is on. When this switch is off, the corresponding signal input will not be sent to the AUX or SUB bus.

Even if the [MUTE] switch is off, the SOLO signal for each channel can still be heard through the [PHONES] jack.

9. 1-2/3-4 button

When this switch is turned on, the signal of the corresponding channel can be sent to the SUB bus.

10. MAIN button

When this switch is turned on, the signal from the corresponding channel is sent to the stereo (MAIN MIX) main mix bus.

11. Fader channel

Used to adjust the level of the channel signals. Use these controls to adjust the balance between multiple channels.

12. SOLO button and CLIP lamps

When this switch is turned on, the signal in front of the corresponding channel fader is monitored and the input level of the corresponding channel in front of the fader is displayed on the level meter.

The corresponding LED glows when the SOLO switch is turned on.

If the CLIP LED glows, the input level is too high.

13. FX control

The FX knob sends to the built-in effects processor.

14. FX TO AUX control

Sends the effect to AUX1, AUX2, AUX3, AUX4.

15. Equalizer

Equipped with an 11-band graphic equalizer. The equalizer is turned on by the EQ IN button, and you can use it to adjust the tone to the specific room space. At position "0", no frequency response processing is performed. To increase the frequency range, push the corresponding fader up or down.

16. AUX SEND1-4 control

The AUX knob adjusts the AUX output volume.

17. AUX RETURN control

Adjusts the level at which the signals received at the RETURN jacks (L (mono) and R) are sent to the stereo L / R bus.

18. RETURN to AUX control

AUX returns to AUX1/2/3/4.

19. USB POWER Input

Connector with DC5V lamp.

20. USB Input

The USB port allows you to insert a USB flash drive to play music/recordings.

21. AUX1-2/AUX3-4 buttons

When this switch is turned on, the signal of the corresponding channel can be sent to the AUX bus.

SUB1-2/SUB3-4 button

When this switch is turned on, the signal of the corresponding channel can be sent to the SUB bus.

MAIN button

When this switch is turned on, the signal of the corresponding channel can be sent to the stereo (MAIN MIX) master mix bus.

22. MP3 Volume Fader

Changing the volume fader controls the volume of the Mp3.

23. USB playback equalizer

In the case of a two-band MP3 playback equalizer, the levels are adjusted for both bands.

24. +48V Phantom Main Power Button

The red 48V LED lights up when phantom power is applied. Phantom power is required for condenser microphones.

25. Level indicator

The level meter LEDs show the main output and monitor signal levels, and the CLIP indicator lights up when the output signal reaches the clipping level.

26. CD/PC IN control

Adjusts the level of the signals received from the CD IN jack and the computer's USB audio, sent to the stereo L/R bus.

27. FX Fader

The FX fader adjusts (MAIN MIX) the effect signal of the main mix setting effects processor.

28. SUB fader

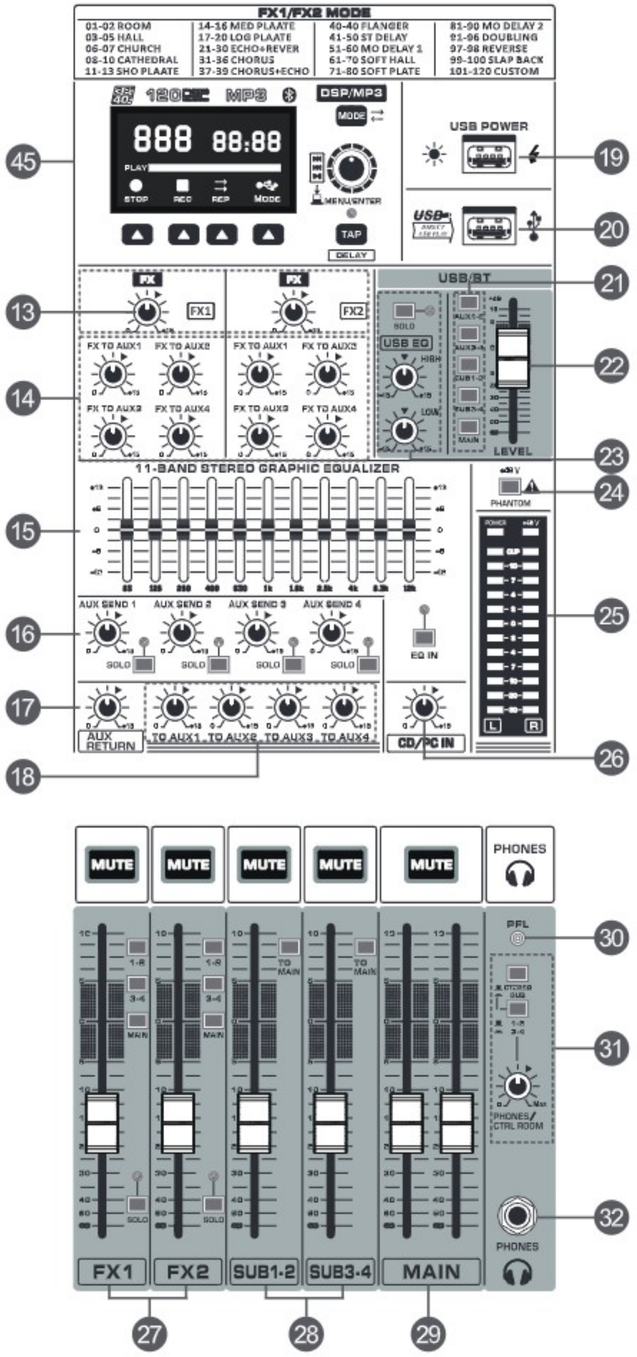
The SUB fader adjusts the SUB output volume.

29. MAIN fader

The MAIN fader adjusts the volume of the main output.

30. PFL Indicator Light

When you turn on listening, the PFL lights up.



31. Phones/ctrl room control

Use this control to adjust the output level and headphone volume.

Monitor Switches

These switches select the signals sent from the stereo L/R bus, the 1/2 group bus or the 3/4 group bus to the monitor output jacks, the headphone jack and the level meter.

32. Headphone monitor Jacks

A pair of stereo headphones can be connected to monitor the output signal.

33. FX FOOTSWITCH socket

A footswitch can be connected to control the effector output off or on.

34. Stereo AUX return (L,R) Jacks

The stereo AUX return jack is normally used as a return to the effects mix (created by using the AUX send after the faders) by connecting the outputs of an external effects unit. If only the left jack is connected, the AUX return will automatically switch to mono.

35. ROOM OUT Jack

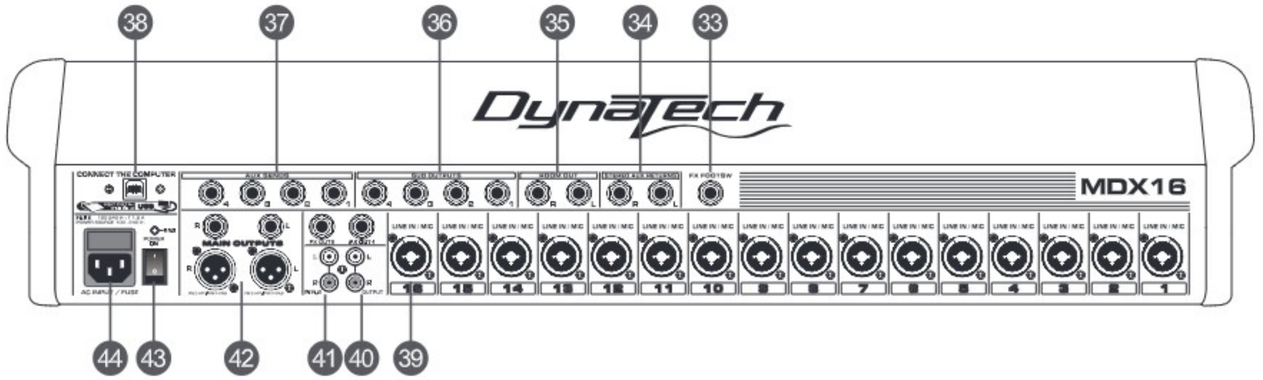
The control room outputs are usually connected to a monitor system in the control room and are either stereo-mixed or transmitted with a solo signal selected.

36. SUB Output (1 to 4) Jacks

These impedance-balanced TRS headphone jacks output SUB 1/2 and 3/4 signals. Use these jacks to connect to the input jacks of a multitrack recorder, external mixer, or other such device.

37. FX to AUX (auxiliary) Controls

Sends the effect to AUX1 AUX2 AUX3 AUX4.



38. Computer USB port

Connect the computer sound card to play music/record.

39. MIC/LINE Input Jacks

The balanced XLR microphone input jack and the balanced TRS ear instrument input jack can be connected. (1: Ground; 2: Hot; 3: Cold)

40. REC Output (L, R) Jacks

These RCA pin jacks can be connected to an external recorder, such as an MD recorder, in order to record the same signal that is output through the stereo output jacks.

41. CD IN Jacks

These RCA pin jacks input a stereo sound source. Use these jacks when you want to connect a CD player directly to the mixer.

42. MAIN OUT (L, R) Jacks

Provides stereo output from the mixing console. The stereo outputs of the left and right channels are mixed for the stage return amplifier.

For example, you can use these jacks to connect to a power amplifier that drives the main speakers.

43. Power switch

Use the POWER switch to start the mixer. The POWER switch should be in the OFF position when connected to the power grid.

Please note that the POWER switch, when turned off, does not completely disconnect the unit from the power grid. Therefore, unplug the power cord from the outlet when the unit will not be used for a longer period of time. Frequent and rapid switching on and off of the appliance can cause damage. After turning off the power, wait at least 6 seconds before turning it on again.

44. Fuse holder/IEC socket

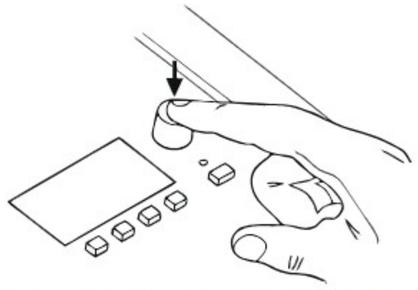
The power connection is made through an IEC socket. It complies with the required safety regulations. A suitable power cord is also part of the scope of supply. Always use the same type of fuse when replacing it.

45. Effector and MP3 function operation

Provides two independently controllable, identically configured 24-bit stereo effect units-FX1 and FX2. Each unit provides 100 program presets, which can be selected by using the up/down buttons. The preset parameters can be edited and stored as user presets (101-120), see Figure 5 for details.100 presets are divided into groups according to their different effect structures. The programs in each preset group are arranged in order, the higher the number, the stronger the type of FX provided. Presets 1-20 provide high-quality reverb operation effect programs, which are also suitable for live performances, recording studios or home recording applications. Program numbers 21-40 provide mixed effects of echo + reverb and chorus Type, while the numbers 41-60 provide different delay effects. The last group from 61-100 provides different doubling effect presets and special delay and reverberation programs. During the initialization period of the FX unit (when the power is turned on), the preset 05 (BRIGHT HALL, Large HALL 3) is selected as FX1, and the FX2 unit is set to the preset 55 (MONO DELAY, 230ms 40%). These two effects are equally applicable to live performances and recording applications. This is a factory preset configuration that can be changed at any time.

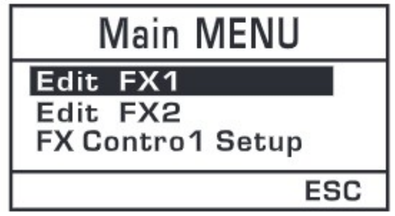
1.Menu mode

(1.1)Press the MENU/ENTER rotary encoder in the effect mode to enter the menu mode. When entering the menu mode, the main menu is displayed.



Picture(1.1):Press the MENU/ENTER rotary encoder to enter the menu mode

(1.2)In the menu mode, the MENU/ENTER rotary encoder and the four function keys at the bottom of the display screen are used for navigation and parameter selection and editing. Rotate MENU/ENTER to move the encoder to the left or right to move the cursor in the menu. Press the MENU/ENTER rotary encoder to select or execute the highlighted menu item. If the menu item is highlighted, the corresponding dialog box will open. If the parameter is highlighted, the value will be displayed in reverse font and can be edited by turning the MENU/ENTER rotary encoder. Press MENU/ENTER again to apply the edited parameter value to the rotary encoder. The bottom line of the display shows the functions of the four function keys. The following table describes some of the functions available in the menu dialog.and recording applications. This is a factory preset configuration that can be changed at any time.

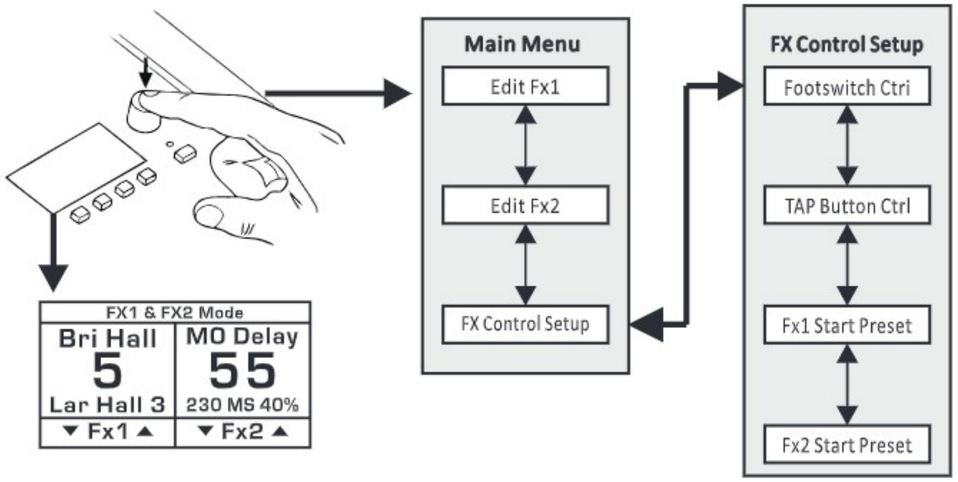


Picture(1.2):The main menu of the menu mode

(1.3)Function description of function keys

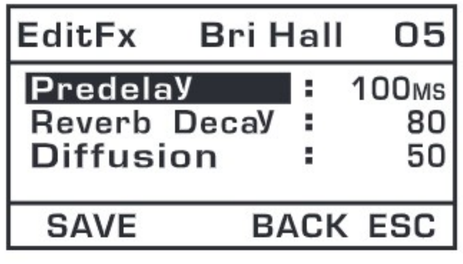
BACK	Return to the previous menu.
ESC	Exit all edits in the dialog box and return to the effect mode.
◀ or ▶	Move the cursor to the left or right.
SAVE	Open the FX user preset list and save the edited effect as a user preset.
OK	Confirm entry, for example when editing a user-preset name.

2.Menu structure



3.Edit FX1/FX2

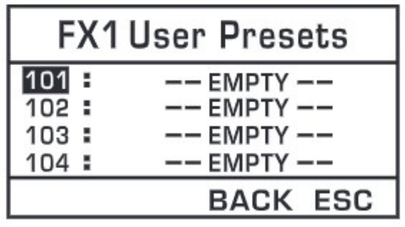
3.1) This dialog box allows you to edit the effect parameters of FX1 or FX2. The available parameters will depend on the type of effect, see Figure 4.4 for details. In addition, you can assign a custom name to the editing effect and store it as a user preset. Up to 20 user presets can be created.



Figure(3.1):Edit fx1 dialog

3.2) Turn the MENU/ENTER rotary encoder to highlight an item in the left column of the Edit FX menu. Press and turn the encoder MENU/ENTER key to select the corresponding value in the right column. Now turn the MENU/ENTER to rotate the encoder to edit the value. Press MENU/ENTER again to rotate the encoder to return to the left column. Press the SAVE function key to save the edited effect as a user preset. The FX User Preset dialog box appears.

3.3) Turn the MENU/ENTER rotary encoder to select where the user preset editing effects should be stored. Press the MENU/ENTER rotary encoder to open the dialog box for setting the FX name.



Figure(3.2):FX user preset dialog



Figure(3.3):Set FX name dialog

3.4) This dialog box is used to change the description information of the user preset. Turn the MENU/ENTER rotary encoder to the left or right to edit the highlighted character. Press the MENU/ENTER rotary encoder to select the desired symbol and move the cursor to the next character. Press ◄ or ► function key to move the cursor to the left or right. Select the "↵" symbol or press the "OK" function key to exit name editing. Press the BACK function key to return to the menu.

4. FX control settings

4.1) This dialog box is used to configure the effector FX1 or FX2. In addition, this dialog is used to select the default effect when the effect is turned on.

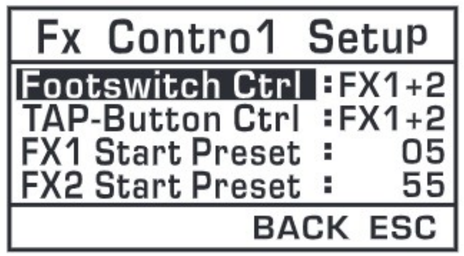


Figure (4.1): FX control setting dialog box

4.2) FX control setting parameters

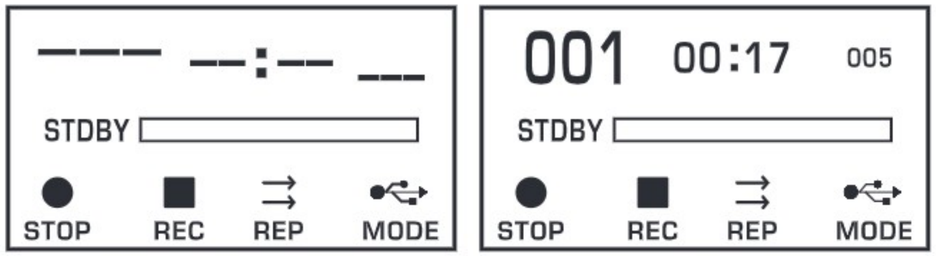
Parameter	Description instructions
Footswitch Ctrl	Select FX1, FX2 or FX1+2 to control one or two effects using the foot switch.
TAP-Button Ctrl	Select FX1, FX2 or FX1+2, and use the TAP button to control the delay time of one or two effects.
FX1 Start Preset	Effect FX1, select the default effect when the effect is turned on.
FX2 Start Preset	Effect FX2, select the default effect when the effect is turned on.

4.3) Turn the MENU/ENTER rotary encoder to highlight the entry in the left column of the FX Control Setup dialog box. Press the MENU/ENTER key of the rotary encoder, select the corresponding value in the right column, then turn the MENU/ENTER rotary encoder to edit the value, and press the MENU/ENTER rotary encoder again to apply the new value. The entries in the FX Control Setup dialog box are shown in the table (Figure 4.4). Press the BACK function key to return to the menu. Press the ESC function key to return to the effect mode.

4.4) Effect Parameter Setting

No.	Effect group	Description	Suitable for use
01-10	Bright Hall	Bright reverb, concert hall, church, cathedral	Vocals, Horn, Strings
11-20	Bright Plate	Bright plate, no audible reflections	Piano, Guitar, Drums, Vocals
21-30	Echo+Reverb	Bright echo/reverb mix	Specially for Live vocals, strings, horns
31-33	Chorus	Light chorus	Piano, Guitar, Bass, Rhodes, Strings
34-36		Deep chorus	Organ, Piano, Guitar, Bass, Rhodes, Strings
37-39	Chorus+Echo	Deep chorus with fading echo	Organ, Guitar , Strings
40	Flanger	Real late sixties jet flanger	Drums, Prcussion, Bass, Strings, Vocals
41-50	Stero Delay	L/R echoes	Combined with a reverb effect well suited for vocals, horns, strings
51-60	Mono Delay	Centered echoes, slowly fading (40% feedback)	Combined with a reverb effect well suited for vocals, horns, strings
61-70	Soft Hall	Extremely smooth reverb, concert hall, church, cathedral	Vocals, Horns, Strings, Home recording
71-80	Soft Plate	Smooth plate, no audible reflections	Piano, Guitar, Drums, Vocals, Home recording
81-90	Mono Delay	Centered echoes, vastly fading (20% feedback)	Fast fading slap back echoes for vocals, percussion. Combined with a reverb effect well suited for vocals, horns, strings
91-92	Doubling	Doubling effect without coloration	Vocals, Horns,Strings,Organ
93-96		Doubling effects	Snare drum, Kick drum
97-98	Reverse	Reverse reverb	Snare drum, Kick drum
99	Slap-Back	Fast slap back echo without repeats	Vocals, Kick drum, Snare drum
100		Slow slap back echo without repeats	Vocals, Kick drum, Snare drum

5. MP3 player operation



(5.1) Button description: (STOP) stop playback, (REC) recording mode, (REP) sequence and loop playback conversion, (MODE) U disk playback and Bluetooth switching.

(5.2) Through the MODE button, DSP and MP3 switch between interface operations.

(5.3) After inserting the U disk in the MP3 display interface to read the track, press the rotary encoder MENU/ENTER button to play and pause, and the rotary encoder to switch the song up/down.

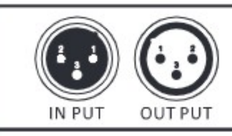
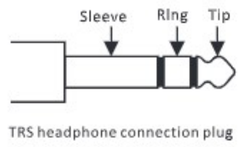
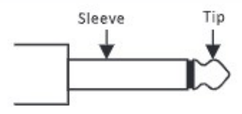
(5.4) For recording operation and playback, press the REC button to enter the start recording mode. During the recording, you can press the MENU/ENTER button of the rotary encoder to pause the recording. After the recording is completed, press the STOP button to stop the recording, and enter the recording folder to play back the current recording. File, you can also turn the MENU/ENTER rotary encoder to select the track playback of the recording file, long press the REC button to exit the recording and switch to MP3 playback.

6.Installation

(6.1) Cabinet installation

This mixer needs at least a 12U cabinet, and the space is for the connection of cables. Cabinet size: 10U is about 445mm, 11U is about 489mm, 12U is about 533mm, 14U is about 623mm, in the mixer package, you can find two assembly cabinet side panels, they can be installed on both sides of the mixer. Before assembling the cabinet side panels and fixing them on the mixer, please remove the screws on the original left and right side panels. Then please install the two cabinet side panels with the screws provided with the cabinet side panels. Please note that the assembly side panel distinguishes the left and right. After installation, install the mixer on a universal 12U rack. Please always maintain sufficient air circulation to avoid overheating of the machine.

(6.2) List of sockets and plugs

MIC/LINE, MIIC STEREO OUT	Pin 1: Ground Pin 2: Hot (+) Pin 3: Cold (-)	
MIC/LINE, AUXSEND SUB OUT, MONO OUT STEREO OUT	Tip: hot (+) Ring: cold (-) Sleeve: Ground	 TRS headphone connection plug
PHONES	Tip: L Ring: R Sleeve: Ground	
LINE (STEREO IN PUT CHANNEL)	Tip:hot (+) Sleeve:Ground	 TS PHONE type plug
EFFECT MUTE FOOT SWITCH	Tip: trigger Sleeve: Ground	

Technical parameter

Microphone input (MIC preamplifier)	
Type	XLR, balanced, Discrete input circuit

Mic E.I.N.(20Hz-20kHz)	
@0Ω Source impedance	-134dB/135.7dB A-Weighted
@50Ω Source impedance	-131dB/133.3dB A-Weighted
@150Ω Source impedance	-129dB/130.5dB A-Weighted
Frequency response	<10Hz-150KHz(-1dB) <10Hz-200KHz(-3dB)
Gain range	+10dB to +60dB
Maximum input level	+12dBu@+10dB gain
Impedance	About 2.6KΩ balanced
Signal-to-noise ratio	110dB / 112dBA -Weighted (0dBu In @ +22dB gain)
Distortion (total harmonic distortion+noise)	0.005%/0.004%A-Weighted
Tpye	6.3mm stereo channel, unbalanced
Impendance	About 20 KΩ unbalanced 10 KΩ unbalanced
Gain range	+10 to -40
Maximum input level	+22dBu@0dB gain

Signal attenuation (crosstalk attenuation)	
Main output fader off	90dB
Channel mute	89dB
Channel fader off	89dB

Frequency response	
Microphone input to main output	
<10Hz-90KHz	+0dB/-1dB
<10Hz-160KHz	+0dB/-3dB

Stereo input	
Type	6.3-mm-stereo channels, unbalanced
Impedance	About 10KΩ
Maximum input level	+22dBu

Balanced mono channel	
Low	80Hz/±15dB
Mid	100Hz-8KHz/±15dB
High	12KHz/±15dB

Balanced stereo channel	
Low	80Hz/±15dB
Mid	2KHz/±15dB
High	12KHz/±15dB

Aux Send auxiliary output	
Type	6.3-mm-Mono, unbalanced
Impedance	About 120Ω
Maximum output volume	+22dBu

Sub grouping output	
Type	6.3-mm-Mono, unbalanced
Impedance	About 120Ω
Maximum output volume	+22dBu

Main output	
Type	XLR, balanced, 6.3mm stereo channel plug, balanced
Impedance	About 240Ω balanced, 120Ω unbalanced
Maximum output volume	+22dBu

Headphone output	
Type	6.3-mm-Stereo channel
Maximum output volume	+19dBu/150Ω(+25dBm)

Digital effector(DSP)	
Converter	32-bit digital-to-analog converter 64/128-times (sampling rate)
Scan speed	40KHz

Main Mix system data	
Noise	
Master fader-∞	-101dB
Channel fader-∞	-100dB
Master fader-∞	-93dB
Channel fader-∞	-96dB
Master fader-∞	-81dB
Channel fader-∞	-83dB

Power supply	
voltage	110-220V~, 50~60Hz
Power consumption	12CH/30W 16CH/35W 24CH/40W 32CH/50W
Fuse	110-240V~ : T1.6A 250V
Power cable	Standard IEC interface

Important safety instructions



Caution!

To reduce the risk of electric shock, do not remove the top cover (or the rear section). There are no user serviceable parts inside.Refer servicing to qualified personnel.

Caution!

To reduce the risk of fire or electric shock, do not expose this appliance to rain and moisture. The apparatus must not be exposed to dripping or splashing liquids and no objects filled with liquids, such as vases, should be placed on the apparatus.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual carefully.



This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure–voltage that may be sufficient to constitute a risk of shock.

Caution!

1) Keep these instructions.
2) Heed all warnings.
3) Follow all instructions.
4) Do not use this apparatus near water.
5) Clean only with a dry cloth.
6) Do not block any ventilation openings. Install in accordance with the manufacturer s instructions.
7) Do not install near any sources of heat such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
8) Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
9) Place the power cord so that it is protected from being walked on and sharp edges. Be sure that the power cord is protected particularly at the plug, convenience receptacles and the point where it exits from the apparatus.
10) The apparatus must be connected to a MAINS socket outlet with a protective earthing connection.

11) Where the MAINS plug or an appliance coupler is used as the disconnected device, the disconnected device must remain readily operable. [Two images below]





12) Only use attachments/accessories specified by the manufacturer.
13) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or those sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury.
14) Unplug this apparatus during lightning storms or when left unused for long periods of time.
15) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Before you get started

Shipment

Your mixing console was carefully packed in the factory to guarantee safe transport. Nevertheless, we recommend that you carefully examine the packaging and its contents for any signs of physical damage, which may have occurred during transit.

☞ If the unit is damaged, please do NOT return it to us, but notify your dealer and the shipping company immediately, otherwise claims for damage or replacement may not be granted.

Initial operation

Be sure that there is enough space around the unit for cooling purposes. To avoid overheating, please do not place your mixing console on high-temperature devices such as radiators or power amps. The console is connected to the mains via the supplied cable. The console meets the required safety standards. Blown fuses must only be replaced by fuses of the same type and rating.

☞ Please note that all units must be properly grounded. For your own safety, you should never remove any ground connectors from electrical devices or power cables, or render them inoperative.

☞ Please ensure that only qualified individuals install and operate the mixing console. During installation and operation, the user must have sufficient electrical contact to earth, otherwise electrostatic . discharges might affect the operation of the unit.

Troubleshooting

Power doesn't come on .	●Is the power line properly plugged into an AC wall outlet? ●Are the power line and AC wall outlet connected correctly ?
No sound.	●Are microphone, external devices, and speakers connected correctly? ●Are the channel GAIN controls, channel fader, STEREO OUT Master fader and GROUP fader set to appropriate levels? ●Are the speaker cables connected properly, or are they shorted? ●If the above checks do not identify the problem, please contact the service center.
Sound is faint, distorted,or noisy.	●Are the channel MAIN controls, channel fader, STEREO OUT Master fader and GROUP fader set to appropriate levels? ●Are two different instruments connected to the XLR-type and phone jacks, or to the phone and RCA pin jacks on one channel? Please connect to only one of these jacks on each channel. ●Is the input signal from the connected device set to an appropriate level? ●Are you applying the effects at an appropriate level? ●Are microphone connected to the MIC input jacks? ●If you are using condenser microphone, is the PHANTOM +48V switch turned on?

No effect is applied.	●Check that the EFFECT control on each channel is correctly adjusted. ●Be sure that the FX control and EF FECT fader are correctly adjusted.
I want spoken words to be heard more clearly.	●Adjust the equalizers on each channel.
I want to output a monitor signal through speakers.	●Connect a powered speaker to the AUX jack, or to the AUX1 or 2 jack and turn the PRE switch on each channel on. Then adjust the output signal by using the AUX controls on each channel.
The level meter doesn't s how the . output signal level.	●Are the PEL switches for the channels that you are not using turned on?