LUCASACS

DMIX24

24 CHANNEL DIGITAL MIXER

Operating Instruction

Version 1. 1



www.lucasacs.co.uk

LUCAS ACOUSTIC INTERNATIONAL ELECTRONIC LTD.
71-75 SHELTON STREET COVENT GARDEN LONDON WC2H 9JQ UNITED KINGDOM

Thank you very much for purchasing our products!

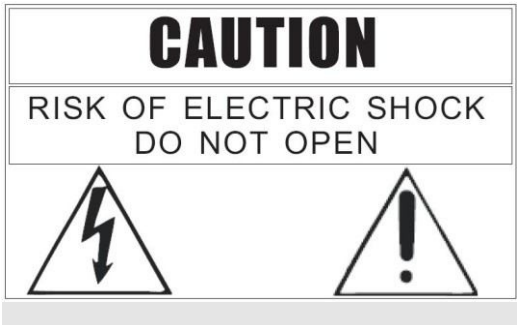
Before installing and officially using this product, please read this manual thoroughly to fully understand this device and be proficient in how to use it properly. After you have read this manual, please keep it in a safe place for future reference.

Based on the product strategy of continuous development, some newly added or modified functions about this device may not be included in this manual, please pay attention to relevant supplementary instructions.

For other information about this product, please call your service provider.

Safety Matters

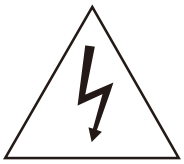
Please read these concise rules. Violating these rules may cause dangers. More detailed information on safety matters is provided in this manual. Please check it carefully.



Note: There are no user-available spare parts inside the machine! To prevent electric shock, do not remove the cover by yourself! It should be repaired by a professional if necessary!

Warning: To prevent the risk of fire or electric shock, do not expose this machine to rain or moisture!

l Graphic symbol description



The lightning graphic with an arrow in an equilateral triangle is intended to remind the user of the presence of uninsulated "dangerous voltages" in the case, which may be sufficient to pose a risk of electric shock to persons.



The graph with exclamation mark in equilateral triangle means there are important operation and maintenance instructions in the machine accessories, please refer to the operating manual.

Warning!

In order to avoid possible personal injury due to electric shock, short circuit,damage, fire or other dangers, be sure to observe the following basic precautions.These precautions include but are not limited to the following cases:

Important Safety Matters

- Read these instructions and keep them, and follow all instructions.
- Pay attention to all warnings on the device or in the manual.

Power / Power Line

- Use only the voltage specified by this device. The required voltage is printed near the power connector of this device.
- Turn off the power switch of the device before plugging or the power connector.
- Do not place the power cord near heat sources, do not bend ç damage the power cord excessively, do not put heavy objects on the power cord, and do not place it in a place where it may be stepped on or crushed.

Do Not Open

- There are no user-available spare parts inside the device. Do not disassemble or modify it in any way.
- In case of special abnormal conditions, it must be overhauled by a professional approved by the manufacturer.

Warning about Humidity

- Do not use the device in a humid environment. Do not place containers filled with liquids near the device to prevent liquid from splashing in.
- Clean only with a dry cloth.
- Never plug or unplug the power plug with wet hands.

To avoid possible personal injury, equipment, or property damage to you or othersaround you, be sure to observe the following basic precautions. These precautions include but are not limited to the following:

Device Connection

- Be sure to connect to a properly grounded power source.
- When connecting this device to other external devices, use a connection cable approved by the manufacturer.
- Be sure to disconnect all connecting cables before moving the device.

Operation / Placement

- Do not use the device with the protective case open.
- Before operating this device, you can prevent static electricity by discharging electricity.
- Install the device in a well-ventilatedplace.
- Do not place the device in a humid placeor expose it to rain.
- Do not place beverages, food, and firesources on the device to prevent liquid, solid residues and open flames from damaging it.

Other Matters

- Do not use the headphones at high volume for a long time, otherwise it may cause hearing damage.
- Avoid using excessive force when operating buttons, knobs, and other parts of this device.
- To avoid possible noise, do not use mobile phones nearby.

Introduction

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1. Introduction and characteristics

This digital sound mixer is designed for professional live performance, and is ideal for stage sound reinforcement, live audio program recording, multi-functional conference hall and other application environments due to its excellent timbres and dynamics. This product is flexible, portable and easy to operate, ensures professional effects and can help users with less experience quickly obtain high-quality experience ef fects. This product supports the function of BLE wireless APP control and remote control through the protocol code of the central control port.

MAIN CHARACTERISTICS

- 24 channel inputs include: 16 microphone inputs, 4 stereo inputs, and 4 hybrid stereo inputs (including RCA input, 3.5mm headphone jack input, stereo Bluetooth, USB/OTG sound card, USB flash disk playback).
- 4 SUB group output channels, 4 AUX auxiliary output, 1 stereo main output, 1 stereo monitor/headphone output, and 2 stereo digital outputs (USB/OTG sound card, USB flash disk recording).
- Design of 14 internal buses, with 4 independent programmable DCA channels.
- The microphone input channel has independent gain control, noise gate, low cut, phantom power, PEQ equalization, compressor, phase, left and right balance adjustment, mute, etc.
- Stereo input channel has independent gain control, PEQ equalization, left and right balance adjustment, mute, etc.
- SUB group output channel has independent compressor, PEQ equalization, delay, phase, left and right balance, mute, etc.
- Stereo main output channel has independent compressor, PEQ equalization, delay, phase, left and right balance, mute, etc.

- AUX output channel has independent compressor, PEQ equalization, delay, phase, mute, left and right balance processing, mute, etc.
- It has 2 independent professional stereo effects and an independent transmission bus, any of 16 combinations of effects can be selected in each group, and detail parameters of each effect can be set respectively.
- Names and colors of all channel labels can be customized for user management.
- All input channels support any custom channel parameter copying function.
- It has 2 programmable mute buttons, 1 total effect mute button and 1 total output mute button.
- It internally supports the function of 20-scene preset storage and call function, as well as the function of parameter import and export through USB flash disk. In addition, the panel has 4 preset shortcut buttons for one-click scene operation.
- The panel supports USB flash disk player, which has the functions of previous song, next song, play and pause, as well as real-time stereo recording.
- Built-in USB sound card supports the functions of real-time recording and playback connected with PC.
- It supports high-quality stereo Bluetooth V5.0 input as well as Bluetooth V4.2 and V2.1+EDR, and input volume can be controlled.
- It has independent custom user password protection function, realizing safe and reliable operation management of the system.
- 9-inch HD 1280*600 capacitive touch screen supports multi-touch operation.

  It supports the switching of Chinese and English operation pages.
- 9 high-precision 100MM stroke electric faders realize volume management for all channels through page turning buttons on the panel.
- Built-in dual-mode Bluetooth module supports BLE control protocol, and volume control, mute management and scene are switched through APP.
- The central control protocol can also be managed and controlled through the network port.

2. Technical Indexes

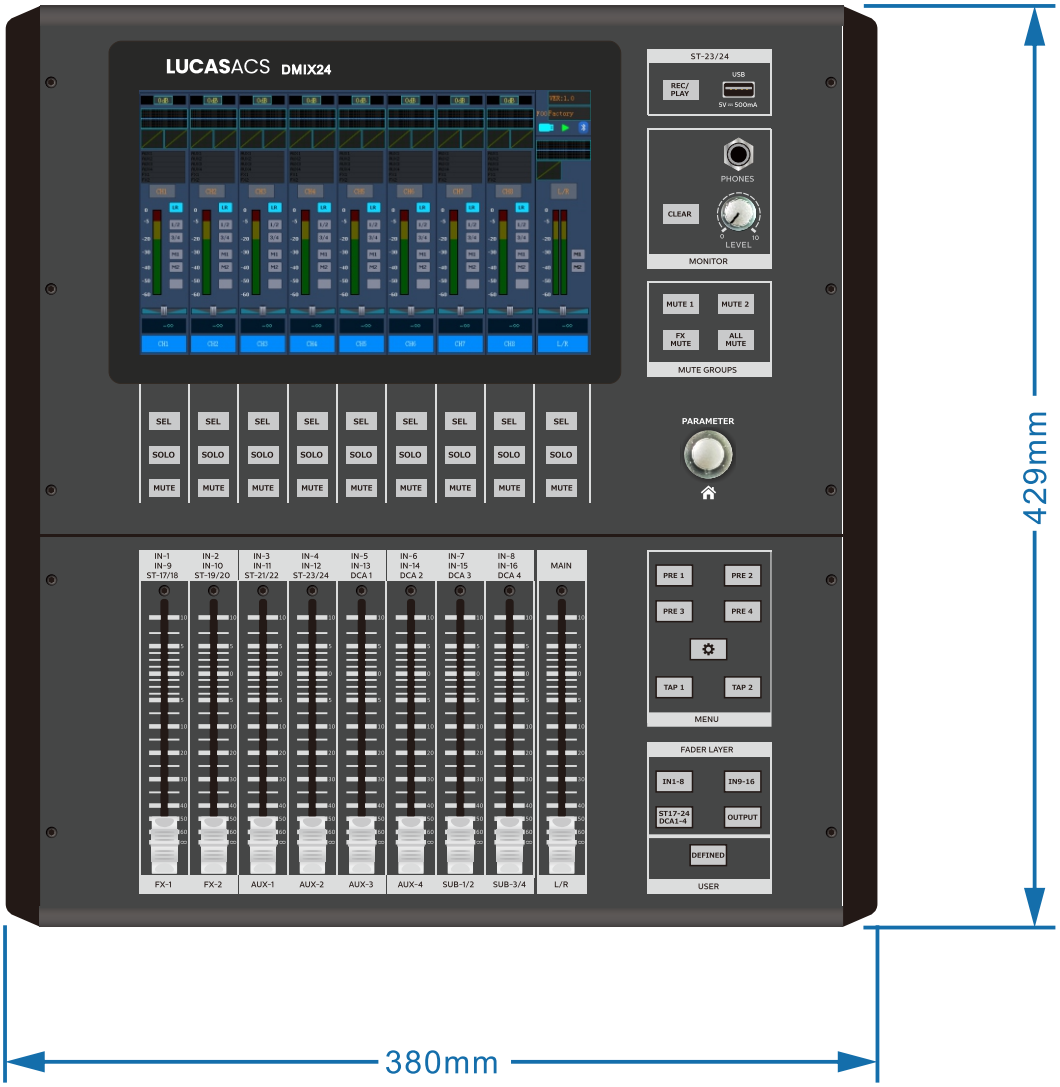
Hardware Indexes:	
Input channel	24 channel inputs include: 16 microphone inputs, 8 stereo inputs, and stereo digital inputs (USB sound card, USB flash disk playback, Bluetooth playback).
Output channel	2 stereo main outputs, 4 SUB group outputs, 4 AUX auxiliary outputs, 2 stereo monitoring outputs, 2 stereo digital outputs (USB sound card, USB recording).
Recording interface	Dual-track USB sound card recording and playback
	Dual-track USB flash disk audio playback and storage
Input gain:	Microphone/line gain: 0dB+50.0dB; line gain: -80dB to +10dB
Input and output impedance	Microphone input: 2KΩ; line input:10KΩ; output:100Ω
System:	32-bit SHARC DSP chip processing, 96kHz sampling rate, 24-bit AD/DA conversion
Frequency response	20Hz~20kHz: +/-0.5
Total harmonic distortion plus noise:	-20dBFS@ 1kHz:<0.01%
Noise:	Noise level (20/20k bandpass): -85dBFS
Input and output level	Maximum input and output 20dB
Dynamic range	>-105dB
Crosstalk:	Inter-channel isolation (1k): -83dB
Phase difference:	Inter-channel phase difference (+4dB 1k): <0.5°
Delay:	<3ms
UBS:	Maximum current: 500mA
Screen:	9-inch HD IPS 1024x600 display
Phantom power:	Positive 48V software control management
Power consumption	<35W (typical value)
Power supply:	AC input voltage range: 100~240V, AC automatic induction, AC frequency: 50~60Hz
Operating condition:	Temperature range: -20ºC to 55ºC

Function Indexes	
DCA group	4 independent programmable DCA channels, supporting allocation and management of all input/output channels
Effect	2 independent effect channels, 16 effect combinations to be selected
Input channel threshold	Threshold: -80dB-0dB
	Attack time: 1ms~1000ms
	Release time: 10ms~3000ms
	Ratio: 1:1~20:1~Gate
Input/output channel compressor	Threshold: -60dB~+20dB
	Compression ratio: 1:1~20:1~LIMIT
	Attack time: 1ms~1000ms
	Release time: 10ms~3000ms
	Makeup Gain: -20dB~+20dB
	Soft knee controllable on and off
Input/output channel equalizer	4-band parameter equalizer
	Frequency of each frequency band: 20Hz~20kHz
	Q: 0.4~15
	Gain: -12dB~+12dB
	Type: PEQ, HPF, LPF, HSF, LSF
Input channel filter	HPF: 20Hz~20kHz□-12dB/oct)
Output channel delay:	Delay: 0-680ms
Default shortcut buttons:	Support 4 preset scene modes
Custom buttons:	Support the control of any channel on an independent interface
Mute groups:	2 programmable mute groups and 2 total effect and total output mute groups

3. Hardware Structure and Installation

STRUCTURE AND DIMENSION





INTERFACE DESCRIPTION



1. Power switch

It is used to turn on and of f the power supply of the machine.

2. Power socket

It connects 100-240V AC power supply.

3. Central control port

It supports the central control management protocol, and connects the central control system for remote control.

4. OTG port

TYPE-B and TYPE-C stereo recording and playback sound card interfaces.

5. FOOTSWITCH port

It can be connected to the foot switch for mute control of the effect.

6. MONITOR interface

Left and right channel output interface for monitoring system.

7. 3.5 input interface

It connects the stereo music input signal.

8. RCA interface

It connects the stereo music input signal.

9. 6.3 input interface

It is the input port of the stereo signal and can also be connected to the L terminal as the input of the monophonic signal.

10. LR main output

Balanced output XLR interface for the main sound sound-reinforcement L/R signal.

11. SUB output

SUB1-4 bus balanced output XLR interface, connected to the main or auxiliary sound reinforcement system.

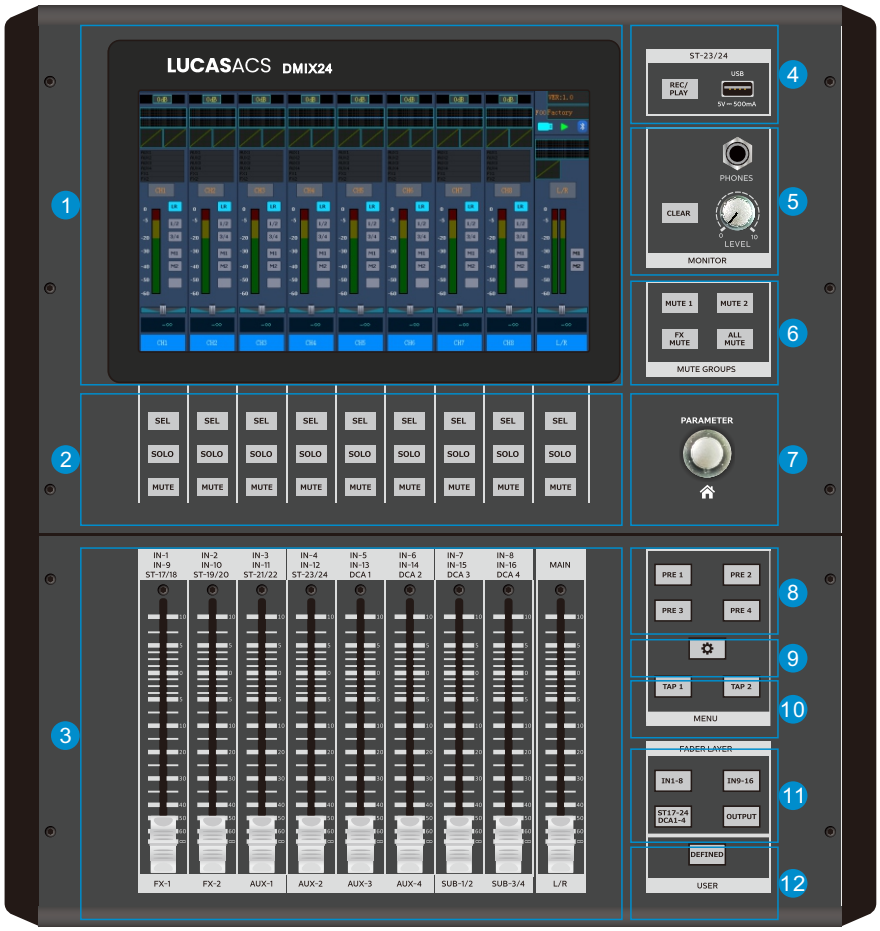
12. AUX output

AUX1-4 bus balanced output XLR interface, connected to the auxiliary sound reinforcement system.

13. 1-16 input interface

It is used to connect microphones or balancing analog line input signals, and both XLR and 6.3 interfaces are supported. +48V phantom power is available in all interfaces.

OPERATION PANEL DESCRIPTION



1. Screen

It is used to monitor various working states of the sound mixer and set the parameters of the sound mixer by touch screen.

2. Channel operation button

SEL is used to select the channel editing interface to adjust the channel function; SOLO is used to monitor the channel corresponding to this button (Note: all input channels can use SOLO together, and all output channels can use SOLO together, but the input channel and output channel cannot use SOLO at the same time); MUTE is used to mute the channel corresponding to this button.

3. Electric faders

They are used to control the volume of all channels. The user can select the corresponding channel to be adjusted through the page switching button on the right.

4. 23/24 USB flash disk playback and recording

It is used to enter the PLAY/REC interface of the USB flash disk. Click PLAY to control the USB flash disk. The sound mixer can read and play the music inside the USB flash disk (support mp3, wav format). Note: Some USB flash disks may have the problem of slow reading/storage. After recording, please make sure that the recording file has been completely stored before inserting and removing the USB flash disk to avoid file damage.

5. Earphone monitoring interface and monitoring channel volume knob

They are used for earphones to monitor any channel. Click CLEAR to clear the monitoring mode of all channels.

6. Mute group buttons

MUTE1/2 group buttons are used to control the corresponding mute channels. In the Channel page of the channel editing interface for each channel, Mute Group of each channel can be set. All non-DCA channels can be grouped into MUTE1/2 mute group and controlled by the corresponding button. There are separate FX total mute and total output mute buttons. Note: When holding down any button in MUTE1/2 for more than 3 seconds, the mute status of each channel in the current state can be memorized to the group button at one time. To remove MUTE1/2 control, first unmute the channel, and then long click MUTE1/2 button to cancel the group control.

7. Main encoder knob

It is used to quickly adjust the corresponding selected functional parameters (such as EQ gain, dynamic parameters, channel transmission parameters, etc.). Most of the selected adjustable parameters of the sound mixer can be adjusted by the main encoder knob. Click the main encoder to exit to the main page.

8. Scene call mode button

It is used to quickly switch four scene modes. A prompt will be given for each operation, and the scene mode can be changed after confirmation. The four scene modes correspond to U01-U04 in the main menu call preset interface.

9. Main menu button

Click the button to enter the function operation on the main page, preset call, preset saving, channel copying, system menu page, etc.

10. TYPE1-2 button

It can control the delay speed of FX1-2 effects respectively, and switch to the appropriate speed following the beat of the music. When using this function, it is necessary to select the effect type with delay parameter and turn on the TAP switch.

11. Layer switching button

It is used to switch layers currently controlled by the fader. They are (CH1~8 layers), (CH9~16 layers), (CH17-24/DCA1~4 control layers), and (output channel: FX ef fect, SUB channel, AUX channel, main output channel) from top to bottom.

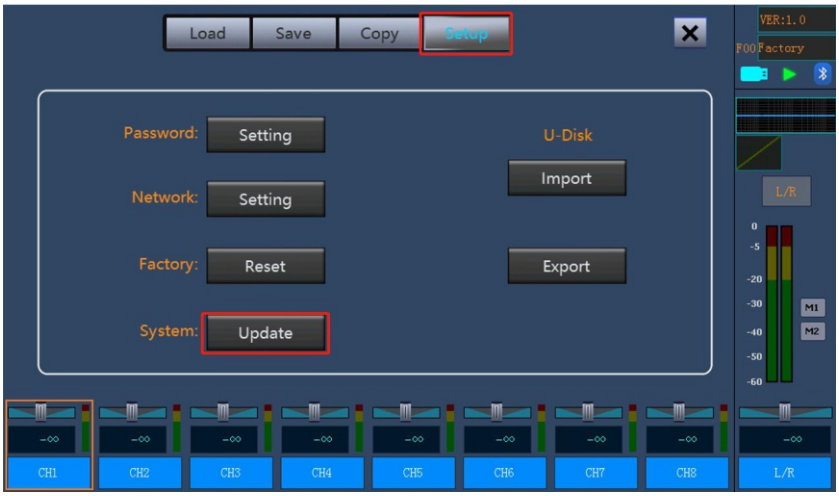
12. Custom button

It is used to put the channels used by the user into the same page for control, reducing the switching frequency among channels.

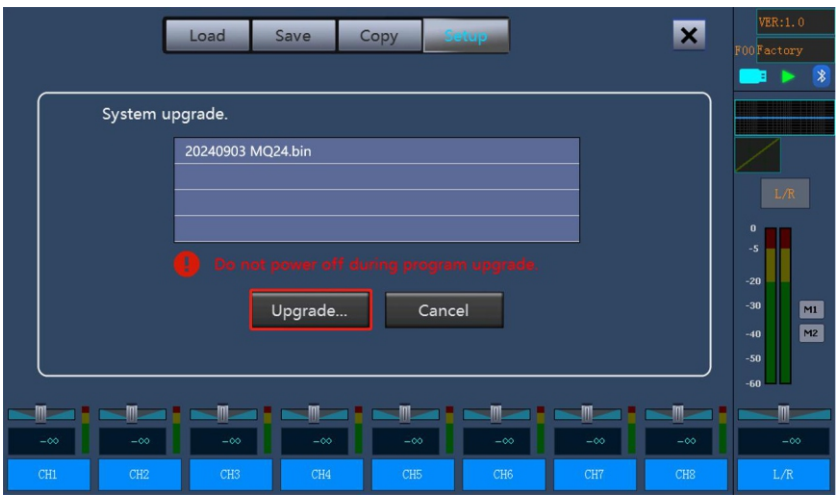
4. System Settings

SOFTWARE UPGRADE METHOD: (USB FLASH DISK UPGRADE)

1. Copy the upgrade package file (.bin) to the folder MIXER in the root directory of the USB flash disk;
2. Turn on the sound mixer;
3. Connect the USB flash disk to the USB port of the sound mixer;
4. Click Setup on the main interface;



5. Click Update to go to the Upgrade interface of the USB flash disk. All updatable data packets in the USB flash disk are automatically searched and displayed on the operation interface. Click the bin file of the data package to be upgraded and click Upgrade to start upgrading.



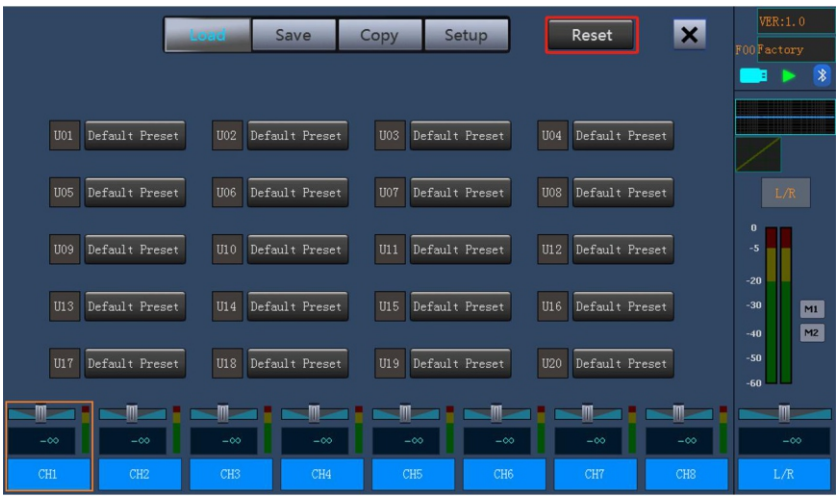
6. Wait about 1-2 minutes. After the program is updated, the sound mixer will be restarted and the update is complete.

Note: 1. Do not interrupt the power supply during update;

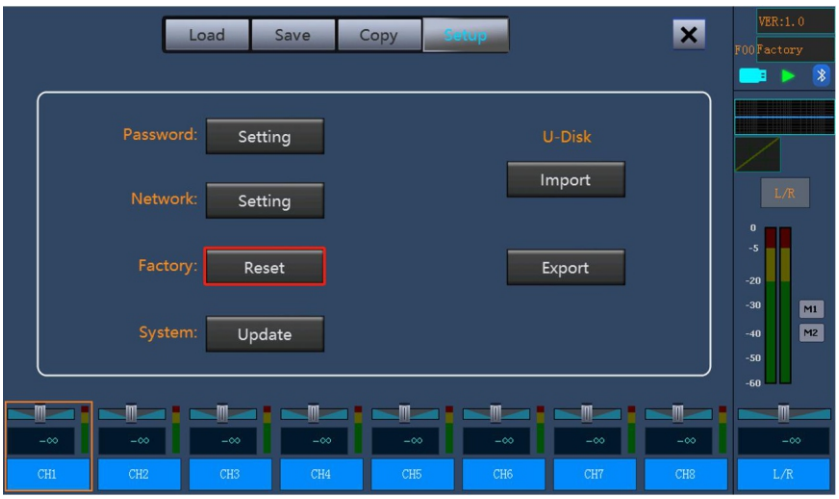
FACTORY RESET

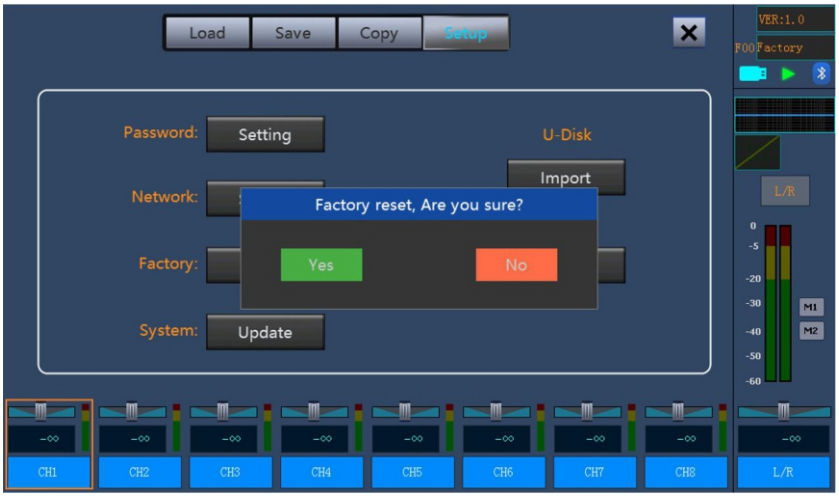
The sound mixer provides two levels of factory reset. One is to reset the set parameters of all channels, and the other is to clear all user data and fully restore to factory settings.

1. Restore all channel settings: Click Reset in the Load interface of the system menu for the sound mixer to restore the parameter settings of all channels currently preset on the sound mixer, including the parameters of all input and output channels restored to the factory defaults, but the saved parameters will not be cleared.



2. Restore factory settings: Click Factory Reset in the Steup interface on the main menu of the sound mixer to completely restore factory settings. All channel settings, network settings, preset parameters and scenes, user files and user passwords will be cleared. **Note: The cleared parameters include all saved preset parameters.**

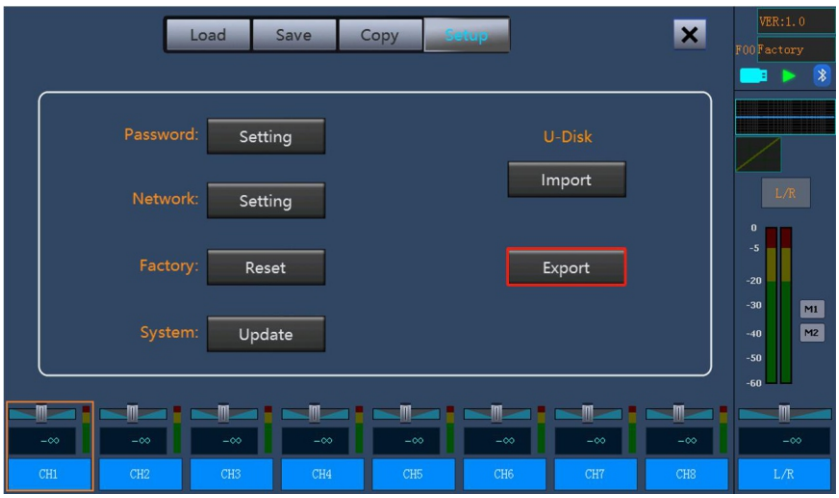



Load
Save
Copy
Setup
VER:1.0
F00 Factory
Password:
Setting
U-Disk
Import
Network:
Factory reset, Are you sure?
Factory:
Yes
No
System:
Update
L/R
M1
M2
CH1
CH2
CH3
CH4
CH5
CH6
CH7
CH8
L/R

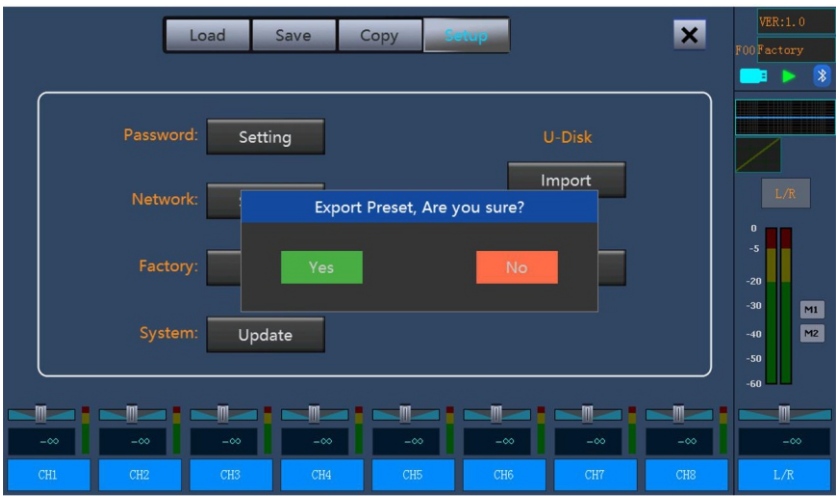
USB FLASH DISK IMPORT/EXPORT

The import and export function of USB flash disk presets is supported, so that the users can back up files.

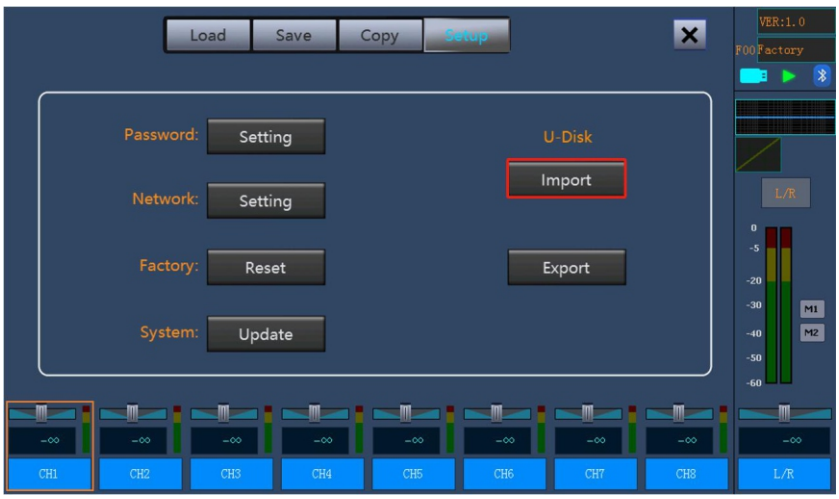
1. Click Export in the Steup interface of the main menu for the sound mixer to save the preset parameters to the USB flash disk.



2. Click Yes to save the preset parameters immediately to the folder “24 Preset Files” in the root directory of the USB flash disk, and the suffix of the saved preset file is. prs.



3. On the steup interface, click Import to import the preset parameters from the USB flash disk to the current page of the sound mixer.



4. Select one file "24 Mixer_0.prs" inside the USB flash disk, click Yes to start importing parameters, remember not to unplug the USB flash disk during import. About 30 seconds later, the parameters will be imported successfully and the parameters of the current page will be refreshed.

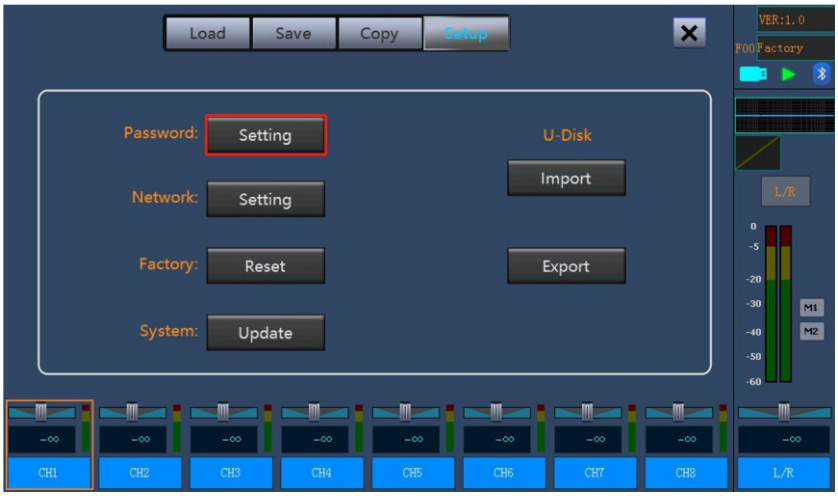
   Note: After opening the preset parameters, they are not saved to the sound mixer. It is necessary to save them to any user preset again, so that the opened files will not be lost.



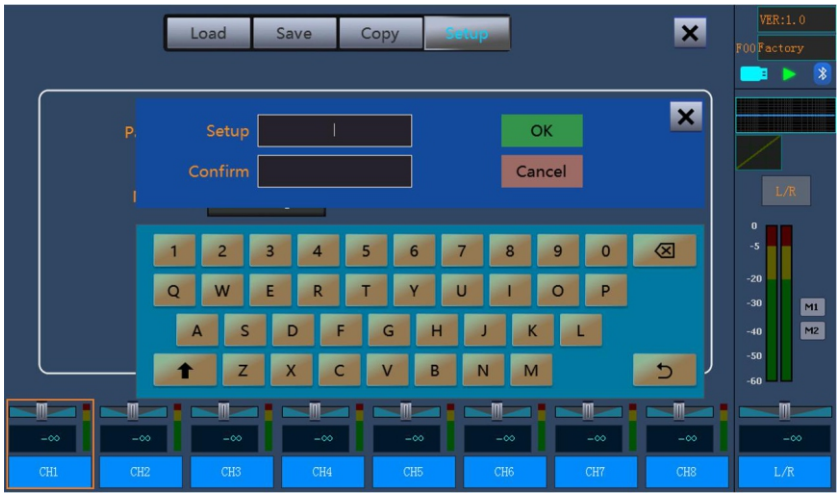
ACCOUNT SETTINGS

This product is configured with a user password system, which can prevent the playback accident caused by the wrong touch of the sound mixer. There is no factory password by default.

1. Click Password Setting in the Steup interface of the main menu for the sound mixer to open the password setting page.



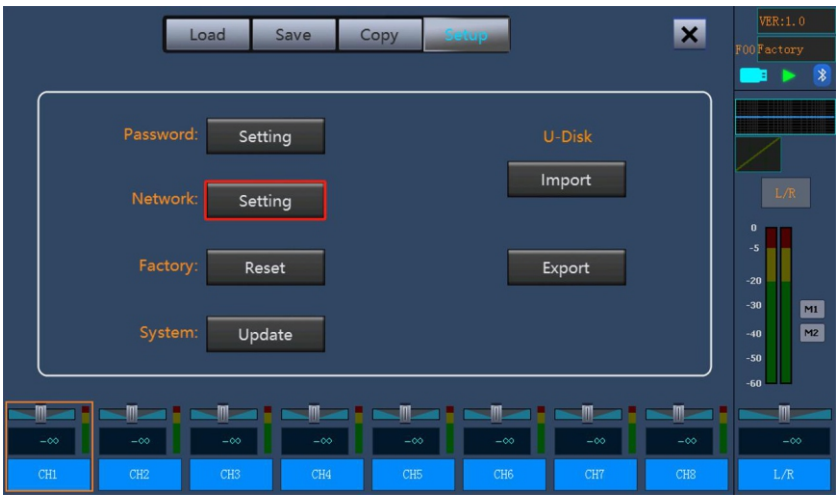
2. Enter the password twice and click OK. The password takes effect after the next startup. All other functions except USB flash disk playback are unavailable and can be operated only after unlocking. To delete the password, unlock first and then click Del. It will not be locked after startup.



NETWORK SETTINGS

By setting network parameters, the connection control of the central control protocol can be performed.

1. In the Steup interface, click Network Setting to open the network setting page.



2. Enter IP address 192.168.1.2, subnet mask 255.255.255.0, and gateway 192.168.1.1, and click OK to confirm the settings. The default port number is 9761.



APP CONNECTION CONTROL

This product supports Bluetooth BLE connection operation, and user preset call, volume control, mute control and other operations can be performed through Android APP.

1. First of all, turn on the main switch of the channel 21/22 Bluetooth for the sound mixer.



2. Open Android APP and click Connect for automatic connection. After successful connection, the button will turn green and the bottom bar will display Online status. At this time, the sound mixer can be controlled, and both sides of the sound mixer synchronously change.



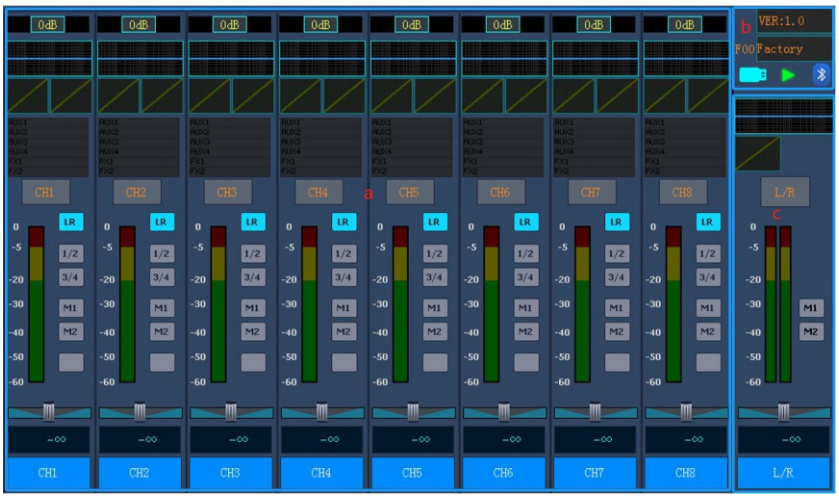
5. Operation and Use

1. After startup, go to the channel overview page.

a: It displays the overview information of the channels 1-8, which include channel gain, phantom power, phase, EQ curve, noise gate curve, compressor/limiter curve, channel output, channel input level meter, channel number, bus transmission switch, mute group, DCA group, PAN value, fader value and channel name from top to bottom.

b: Version information, preset information and USB flash disk Bluetooth status displayed at the top right of the screen.

c: Main channel interface information on the right, including EQ curve, compressor curve, level meter and mute group information.



2. Click the page turning buttons 9-16 on the panel to enter the overview page of channels CH9-16. The content displayed is the same as that in channels 1-8.



3. Click the page turning buttons 17-24 on the panel to enter the overview page of stereo channel and DCA channel.

a: Stereo channel displays input gain, phase, EQ curve, channel output, channel number, level meter, bus transmission switch, mute group, DCA group, PAN value, fader value and channel name.

b: DCA channel displays channel number, grouped channel, fader value and channel name.



4. Click the page turning button OUTPUT on the panel to enter the overview page of the output channel.

a: The effect channel displays EQ curve, channel output, channel number, level meter, bus transmission switch, mute group, PAN value, fader value and channel name.

b: AUX auxiliary channel displays EQ curve, compressor curve, channel output, channel number, level meter, mute group, fader value and channel name.

c: SUB group channel displays EQ curve, compressor curve, channel transmission switch, channel number, level meter, main channel transmission switch, mute group, PAN balance value, fader value and channel name.



5. Click the channel selection button SEL on pages 1-16 to enter the channel editing interface.

a: Reset is the channel parameter reset button. Click Reset and confirm, then all parameters of the current channel are restored.

b: The level light displays the optional level values for AFL and PFL.

c: 48V phantom power on and off, channel phase switch 0 degrees and 180 degrees, microphone Gain adjustable range 0-50dB, channel name and color modification and Balance adjustment.

d: Transmission volume settings for AUX channel. AFL, PFL and volume value sent to FX effect channel can be selected.

e: Switches sent to the bus main channel and group channels SUB1-4, and 2 groups of mute control buttons.



6. Select EQ on the channel editing page and enter the low cut and balance setting interface.

a: After clicking the LC button, the high-pass filter function takes effect, and the control knob can be used to adjust the corresponding frequency 20HZ-20KHZ.

b: Drag the dots on the curve to change the frequency value of the low cut and the frequency and gain value of the equalizer.

c: Turn on the ON switch to enable the EQ function to take effect, press it to disable the equalizer. Press EQRST to reset the balance parameters to the factory defaults.

d: The equalizer is started when L/LM/HM/H are turned on, and the equalizer is disabled when the buttons are off. The frequency, gain, Q value and type of each equalizer are independently adjustable. The adjustable frequency range is 20HZ-20KHZ, the gain range is -12dB to +12dB, the Q value is adjustable within 0.4 to 15, and the optional types include high pass, low pass, high shelving, low shelving and PEQ.

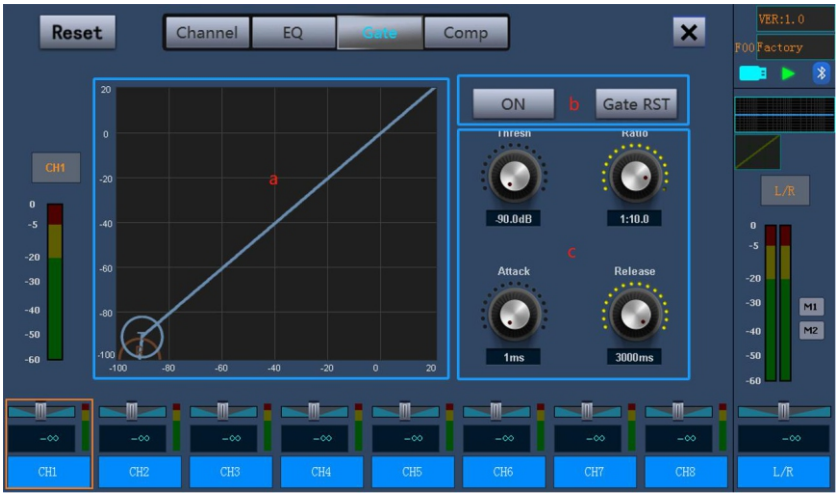


7. Select Gate on the channel editing page to enter the noise gate setting interface.

a: Drag the dots of T and R on the noise gate curve to change the threshold and ratio values of the noise gate.

b: ON is the noise gate switch. The noise gate takes effect when it is turned on. Gate RST can be used to restore the initial value of the noise gate.

c: THRESHOLD adjustment range is -80 to 0dB, Ratio is the ratio parameter ranging from 1:1 to 1:20-Gate, Attack is the attack time ranging from 1 to 999ms, and Release is the recovery time ranging from 10 to 3000ms.



8.Select Comp on the channel editing page to enter the compressor setting interface.

a: Drag the dots of T and R on the compressor curve to change the threshold and ratio values of the compressor.

b: ON is the compressor switch. The compressor takes effect after it is turned on. Comp RST can be used to restore the initial value of the compressor.

c: THRESHOLD adjustment range is -80 to +20dB, Ratio is the ratio parameter ranging from 1:1 to 1:20-LIMIT, Gain is the gain after the compressor, which is adjustable from -20dB to +20dB, Attack is the attack time ranging from 1 to 999ms, and Release is the recovery time ranging from 10 to 3000ms. The knee of the compressor takes effect after Knee is enabled.



9. Click the channel name label under Name in the Channel interface to modify the name and background color. The name modification can be displayed in Chinese and English, and there are 9 colors for selection. Click Yes, then the name and color of the label in the bottom bar are refreshed simultaneously.





10. On pages 17-24, press Stereo Channels 17-20, and select SEL to enter the channel editing function interface.

a: Reset is the channel parameter reset button. Press it and confirm, then all parameters of the current channel are restored.

b: The level light displays the optional level values for AFL and PFL.

c: Mono is the mono signal on and off, Gain for the stereo input is adjustable from -20 to +20dB, the channel name and color can be modified, and Balance is used for balance adjustment.

d: Transmission volume settings for AUX channel. AFL, PFL and volume value sent to FX effect channel can be selected.

e: Switches sent to the bus main channel and group channels SUB1-4, and 2 groups of mute control buttons.



11. Select EQ on the channel editing page to enter the balance setting interface.

a: Drag the dots on the curve to change the frequency and gain values of theequalizer.

b: The equalizer is started when L/LM/HM/H are turned on, and the equalizer isdisabled when the buttons are of f. The frequency, gain, Q value and type ofeach equalizer are independently adjustable. The adjustable frequency range is20HZ-20KHZ, the gain range is -12dB to +12dB, the Q value is adjustable within0.4 to 15, and the optional types include high pass, low pass, high shelving, low shelving and PEQ.

c: Turn on the ON switch to enable the EQ function to take ef fect, press it to disable the equalizer. Press EQRST to reset the balance parameters to the factory defaults.



12. On pages 17-24, press Stereo Channels 21-22, and select SEL to enter the Channel editing function interface.

a: Reset is the channel parameter reset button. Press it and confirm, then all parameters of the current channel are restored.

b: The level light displays the optional level values for AFL and PFL.

c: Bluetooth is the Bluetooth main switch of. When the main switch is turned off, APP cannot be found, and Bluetooth cannot be connected to play. When the Bluetooth main switch is turned on, the Bluetooth symbol switch is automatically turned on. At this time, you can search for Bluetooth device through the mobile phone to connect and play. About 1 minute later, the Bluetooth symbol switch is automatically turned off. At this time, the Bluetooth device cannot be searched. If you need to search, turn on the Bluetooth symbol switch again. Once successfully connected, Bluetooth can be directly connected without searching at the subsequent startup. Mono is the mono signal on and off; Gain for the stereo input is adjustable from -20 to +20dB; the channel name and color can be modified; and Balance is used for balance adjustment.

d: Transmission volume settings for AUX channel. AFL, PFL and volume value sent to FX effect channel can be selected.

e: Switches sent to the bus main channel and group channels SUB1-4, and 2 groups of mute control buttons.



13. On pages 17-24, press Stereo Channels 23-24, and select SEL to enter the channel editing function interface.

a: Reset is the channel parameter reset button. Press it and confirm, then all parameters of the current channel are restored.

b: The adjustable range of UBS Gain is -20 to +20dB; the level light displays the optional level values for AFL and PFL.

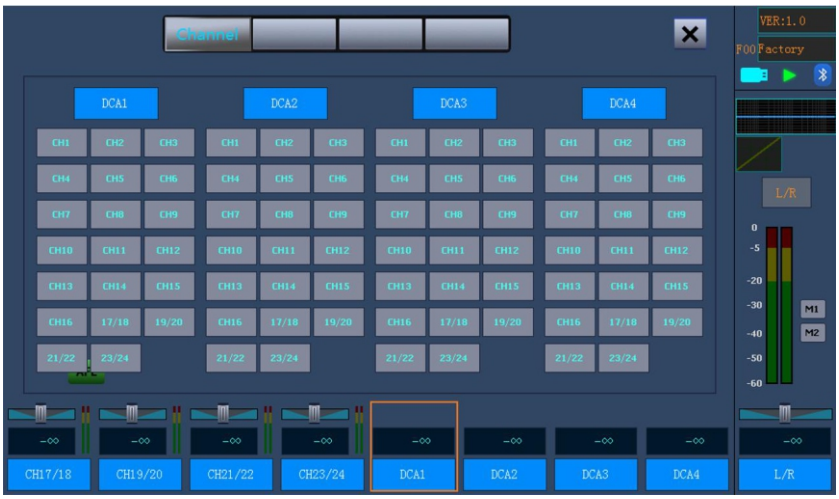
c: One of USB sound card and USB flash disk play is selected to use, and the factory default is USB sound card; Mono is the on and off of a mono signal; Mono is the mono signal on and off; Gain for the stereo input is adjustable from -20 to +20dB; the channel name and color can be modified; and Balance is used for balance adjustment.

d: Transmission volume settings for AUX channel. AFL, PFL and volume value sent to FX effect channel can be selected.

e: Switches sent to the bus main channel and group channels SUB1-4, and 2 groups of mute control buttons.



14. Press the selection button SEL of DCA1-4 channels to enter the DCA group channel setting interface. All input channels can be grouped randomly. Note that each DCA channel cannot be selected repeatedly. After the setting is successful, volume and mute can be controlled through the faders and buttons of the DCA channel.



15. Press FX1-2 channel selection button on the OUTPUT page to enter the effect setting interface.

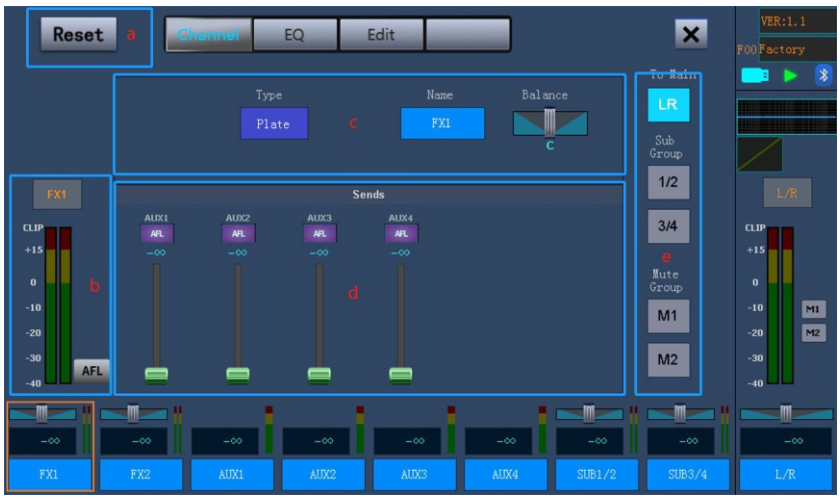
a: Reset is the effect channel parameter reset button. Click Reset and confirm, then all parameters of the current channel are restored.

b: The level light displays the optional level values for AFL and PFL.

c: Type displays the current effect type, the name and color of the effect channel can be modified, and Balance is used for balance adjustment.

d: The effect volume sent to the AUX channel is independently adjustable, and AFL and PFL can be selected.

e: Effect switches sent to the bus main channel and group channels SUB1-4, and 2 groups of mute control buttons.



16. Press EQ in the effect channel to enter the balance setting interface.

a: Drag the dots on the curve to change the frequency and gain values of the equalizer.

b: The equalizer is started when L/LM/HM/H are turned on, and the equalizer is disabled when the buttons are off. The frequency, gain, Q value and type of each equalizer are independently adjustable. The adjustable frequency range is 20HZ-20KHZ, the gain range is -12dB to +12dB, the Q value is adjustable within 0.4 to 15, and the optional types include high pass, low pass, high shelving, low shelving and PEQ.

c: Turn on the ON switch to enable the EQ function to take effect, press it to disable the equalizer; press EQRST to reset the balance parameters to the factory defaults.

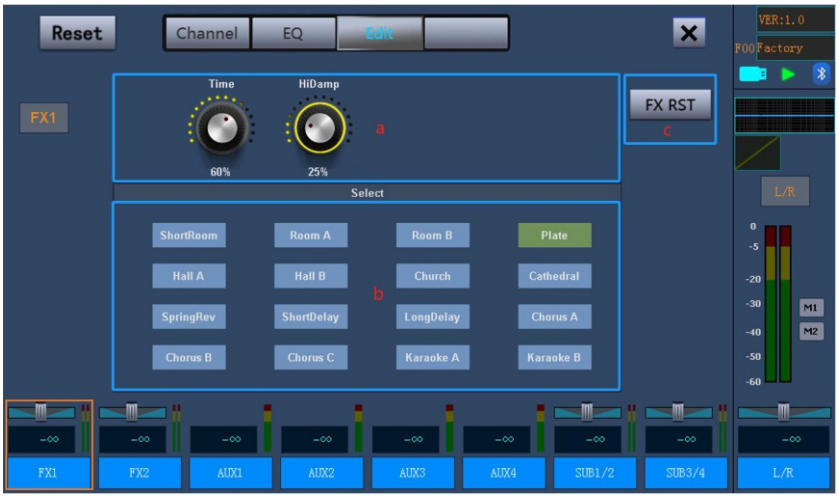


17. Press Edit in the effect channel to enter the effect type selection interface.

a: Detailed parameter setting knob for effects. The parameters are different after selecting different types of effects, and the effect can be fine-tuned by the effect parameters.

b: There are a total of 16 effects for selection, which can be adjusted respectively by the above ef fect parameters. Note: When selecting Dealy and Karaoke effects, the TAP button and parameters will appear on the effect interface, corresponding to the TAP1-2 metronome button on the sound mixer. By pressing the TAP button at different speeds, different delay effects can be achieved.

c: FX RST can be used to reset the current effect parameters to factory defaults.



18. Press AUX1-4 channel selection button on the OUTPUT page to enter the auxiliary channel setting interface.

a: Reset is the auxiliary channel parameter reset button. Press it and confirm, then all parameters of the current channel are restored.

b: The level light displays the optional level values for AFL and PFL.

c: The channel phase can be set to 0 and 180 degrees, the Delay adjustment range is 0 to 680ms, the step pitch is 0.021ms per cell, and the name and color of the auxiliary channel can be modified.

d: The current volume status of all input channels sent to the auxiliary output is displayed.

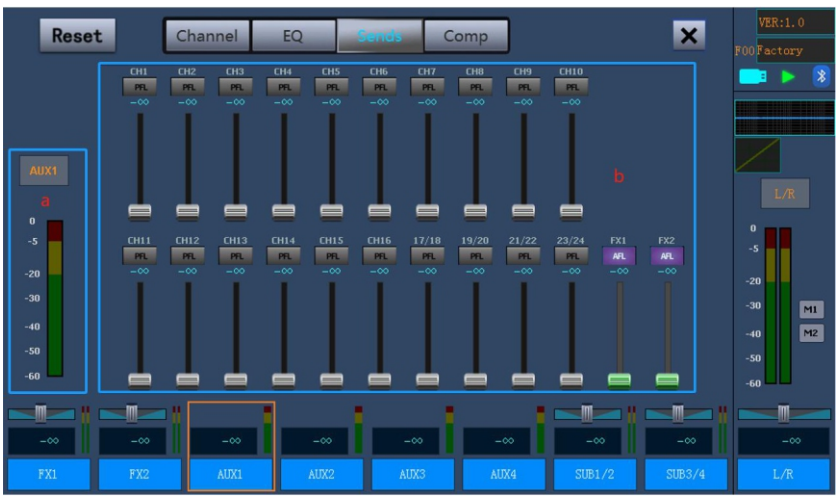
e: Auxiliary channel supports two groups of mute control.



19. Press EQ in AUX channel to enter the balance setting interface.
a: Drag the dots on the curve to change the frequency and gain of the equalizer.
b: The equalizer is started when L/LM/HM/H are turned on, and the equalizer is disabled when the buttons are off. The frequency, gain, Q value and type of each equalizer are independently adjustable. The adjustable frequency range is 20HZ-20KHZ, the gain range is -12dB to +12dB, the Q value is adjustable within 0.4 to 15, and the optional types include high pass, low pass, high shelving, low shelving and PEQ.
c: Turn on the ON switch to enable the EQ function to take effect, press it to disable the equalizer; press EQ RST to reset the balance parameters to the factory defaults.



20. Press Sends in the AUX channel to enter the volume sending setting interface.
a: The current channel volume level is displayed.
b: Here you can set the volume of all input channels sent to the current auxiliary channel, which is synchronized with the volume sending fader of the input channel, and you can select the volumes of AFL and PFL.



21. Press Comp in AUX channel to enter the compressor setting interface.
a: The volume level of the current auxiliary channel.
b: Drag the dots of T and R on the compressor curve to change the threshold and ratio values of the compressor.
b: ON is the compressor switch. The compressor takes effect after it is turned on. Comp RST can be used to restore the initial value of the compressor.
d: THRESHOLD adjustment range is -80 to 20dB, Ratio is the ratio parameter ranging from 1:1 to 1:20-LIMIT, Gain is the gain after the compressor, which is adjustable from -20dB to +20dB, Attack is the attack time ranging from 1 to 999ms, and Release is the recovery time ranging from 10 to 3000ms. The knee of the compressor takes effect after Knee is enabled.



22. Press SUB1-4 channel selection button on the OUTPUT page to enter the channel group setting interface.
a: Reset is the channel parameter reset button. Click Reset and confirm, then all parameters of the current channel are restored.
b: The level light displays the optional level values for AFL and PFL.
c: The channel phase can be set to 0 and 180 degrees, the Delay adjustment range is 0 to 680ms, the step pitch is 0.021ms per cell, the name and color of the auxiliary channel can be modified, and Balance can be used to adjust the potentiometer balance.
d: The current switch status of all input channels sent to the group output is displayed.
e: The group output can also be sent to the main bus output; in addition, 2 groups of mute control are supported.



23. Press EQ in the SUB group channel to enter the balance setting interface.

a: Drag the dots on the curve to change the frequency and gain values of the equalizer.

b: The equalizer is started when L/LM/HM/H are turned on, and the equalizer is disabled when the buttons are off. The frequency, gain, Q value and type of each equalizer are independently adjustable. The adjustable frequency range is 20HZ-20KHZ, the gain range is -12dB to +12dB, the Q value is adjustable within 0.4 to 15, and the optional types include high pass, low pass, high shelving, low shelving and PEQ.

c: Turn on the ON switch to enable the EQ function to take effect, press it to disable the equalizer; press EQRST to reset the balance parameters to the factory defaults.



24. Press Comp in the SUB group channel to enter the compressor setting interface.

a: The volume level of the current auxiliary channel is displayed.

b: Drag the dots of T and R on the compressor curve to change the threshold and ratio values of the compressor.

b: ON is the compressor switch. The compressor takes effect after it is turned on. Comp RST can be used to restore the initial value of the compressor.

d: THRESHOLD adjustment range is -80 to 20dB, Ratio is the ratio parameter ranging from 1:1 to 1:20-LIMIT, Gain is the gain after the compressor, which is adjustable from -20dB to +20dB, Attack is the attack time ranging from 1 to 999ms, and Release is the recovery time ranging from 10 to 3000ms. The knee of the compressor takes effect after Knee is enabled.



25. Press the L/R channel selection button on the OUTPUT page to enter the setting interface of the main output channel.

a: Reset is the channel parameter reset button. Click Reset and confirm, then all parameters of the current channel are restored.

b: The level light displays the optional level values for AFL and PFL.

c: The channel phase can be set to 0 and 180 degrees, the Delay adjustment range is 0 to 680ms, the step pitch is 0.021ms per cell, the name and color of the auxiliary channel can be modified, and Balance can be used to adjust the potentiometer balance.

d: The current switch status of all input channels sent to the main output is displayed. The switch is on by default.

e: The main output supports two groups of mute control.



26. Press EQ in the L/R main output channel to enter the balance setting interface.

a: Drag the dots on the curve to change the frequency and gain values of the equalizer.

b: The equalizer is started when L/LM/HM/H are turned on, and the equalizer is disabled when the buttons are off. The frequency, gain, Q value and type of each equalizer are independently adjustable. The adjustable frequency range is 20HZ-20KHZ, the gain range is -12dB to +12dB, the Q value is adjustable within 0.4 to 15, and the optional types include high pass, low pass, high shelving, low shelving and PEQ.

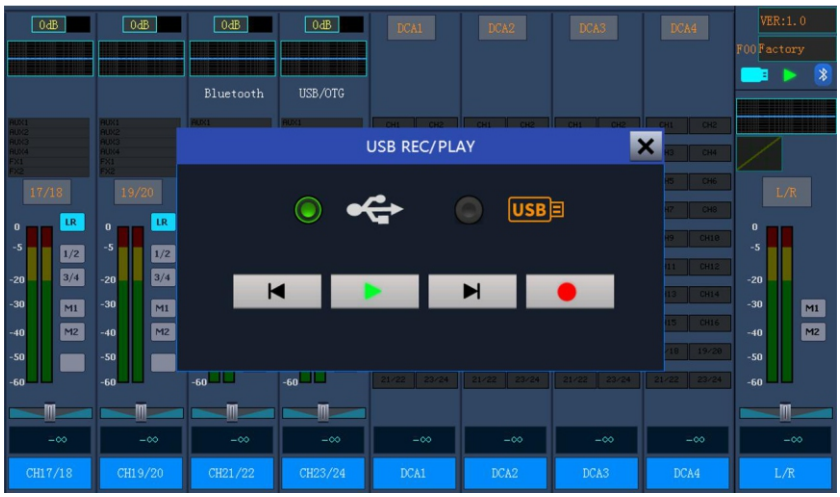
c: Turn on the ON switch to enable the EQ function to take effect, press it to disable the equalizer; press EQ RST to reset the balance parameters to the factory defaults.



27. Press Comp in the L/R main output channel to enter the compressor setting interface.
a: The volume level of the current auxiliary channel is displayed.
b: Drag the dots of T and R on the compressor curve to change the threshold and ratio values of the compressor.
b: ON is the compressor switch. The compressor takes effect after it is turned on. Comp RST can be used to restore the initial value of the compressor.
d: THRESHOLD adjustment range is -80 to 20dB, Ratio is the ratio parameter ranging from 1:1 to 1:20-LIMIT, Gain is the gain after the compressor, which is adjustable from -20dB to +20dB, Attack is the attack time ranging from 1 to 999ms, and Release is the recovery time ranging from 10 to 3000ms. The knee of the compressor takes effect after Knee is enabled.



28. Press PLAY on the sound mixer panel, then the selection page of USB sound card and USB flash disk will pop up. When successfully connected to the computer, the USB symbol changes color, and the computer can play and record normally. When selecting the USB flash disk, the functions of play, previous song/next song and recording can be enabled on the premise of plugging the USB flash disk, and the function key can be used only when the USB flash disk symbol turns orange. When the playback page pops up, the main page will jump to the stereo channel, and you can see the level light of channels 23/24 and control the volume of the channel synchronously.

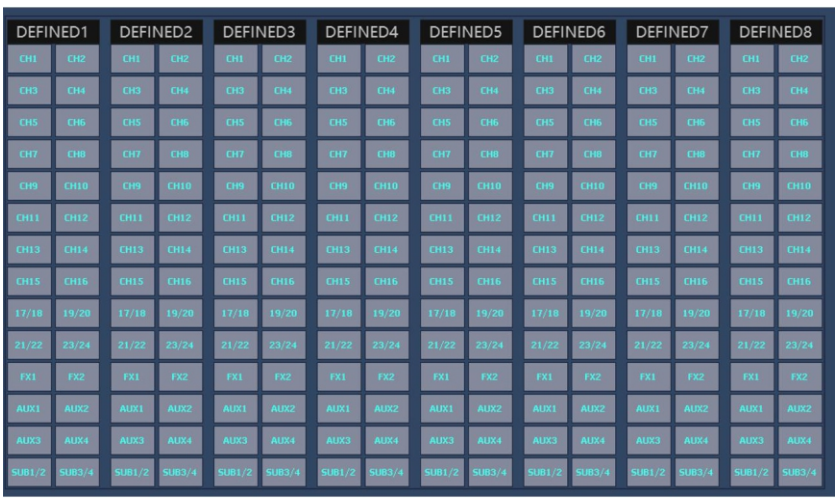


29. USB flash disk, OTG, play/pause and Bluetooth symbols will be displayed above the main output channel, and the corresponding status will be displayed when these functions are enabled or connected successfully. Bluetooth input is in stereo channels 21/22, OTG and USB flash disk input is in channels 23/24.

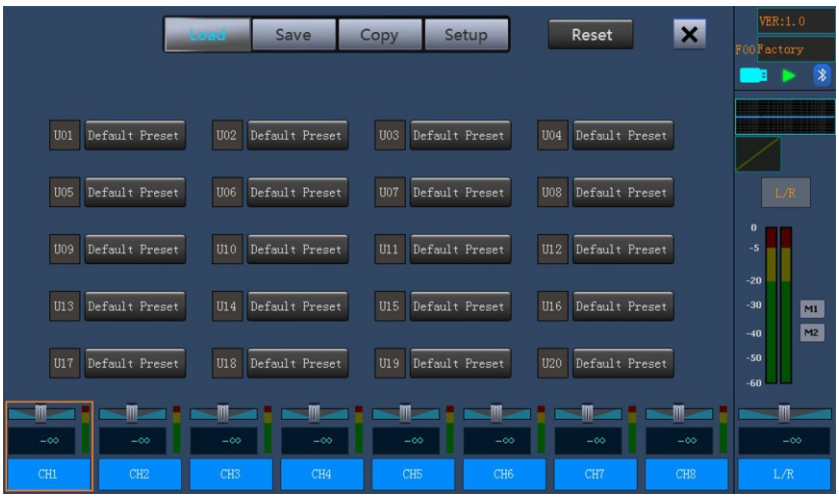


30. On the sound mixer panel, press DEFINED to enter the user-defined channel page. The page is blank when you enter it for the first time, so you can put the channels that y ou often need to control on one page. Specifically, long press DEFINED for 3 seconds, then the setting page pops up; arbitrarily select and put 8 channels into DEFINED1-8 channels. Note that you cannot repeatedly select. After the setting is completed, press DEFINED to exit the setting page. At this time, you can see that the selected channels are moved to the current user-defined page. All functions can be performed on this page.



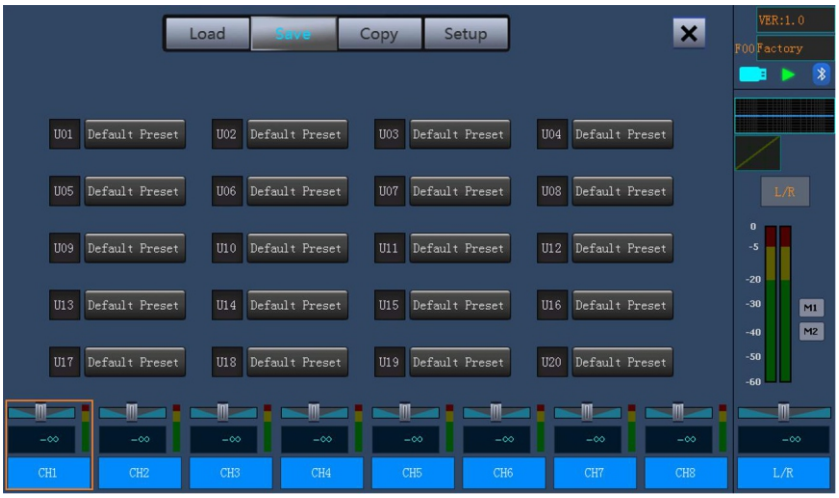


31. On the sound mixer panel, press the main menu button to enter the Load call preset interface, and you can see 20 user preset modes for choice. When selecting one of the preset modes, a confirmation window will pop up; when pressing and confirming, a progress bar will appear, and a new preset name will be displayed in the preset information bar until the call is completed.



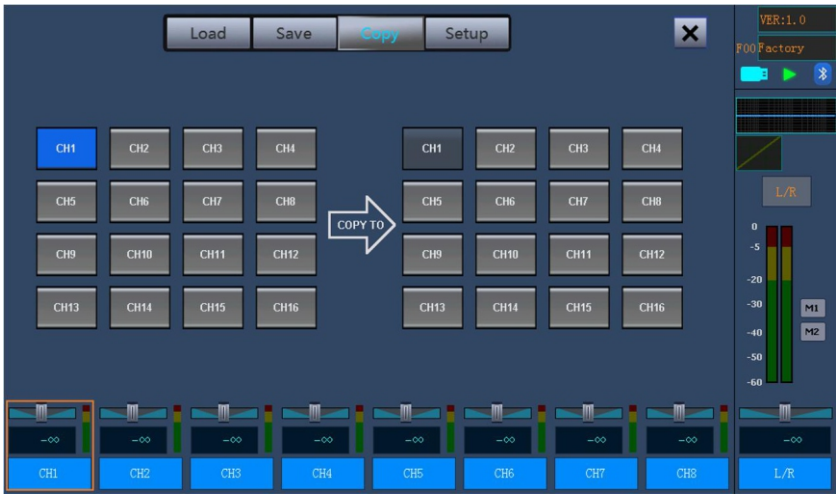


32. In the main menu page, press Save to enter the preset storage setting page, you can save the debugging parameters in these 20 presets; when pressing one of the preset buttons, the preset name window will pop up; modify the name and then press OK for storage. It should be noted that the length of storage time is related to the size of the storage parameters, the more parameters are, the longer the time is. The storage is completed only after the name of the preset information bar at the upper right corner is changed.





33. On the main menu page, press Copy to enter the channel COPY interface. The parameters of input channels CH1-16 can be copied at will. When you press the COPY channel button, a confirmation window will pop up. After you press it and confirm, the channel parameters will be copied.





6. Network communication protocol (code table) V1.0

Communication mode: TCP Client
Port number: 9761

(1). Data **package** architectural definition (**Network → Host**)

0	1	2	3	…	N+4	N+5
DLE	STX	DATA_LEN	CMD	N	STX	DLE
0x7B	0x7D	Data length	Order	Date	0x7D	0x7B

The definition of the channel number value:
Channel:

0~15: Ch1~Ch16.
16~19: Ch17/18~Ch23/24.
20: LR
21~22: SUB1-2~3-4.
23~26: Aux1~4.
27~28: EFX1~2.
29~32: DCA1~DCA4.

Definition of Preset values:
0：Factory Preset
1-20: U01-U20

(2). Command table specification

1. Regulating channel gain

DLE	STX	DATA_LEN	CMD	N=2		STX	DLE
0x7B	0x7D	2	0x11	Channel	Gain：0-255	0x7D	0x7B

Channel：
Gain：
Example：7B7D021100007D7B
Machine replies to the reply packet

2. Adjust channel mute

DLE	STX	DATA_LEN	CMD	N=2		STX	DLE
0x7B	0x7D	2	0x12	Channel	Mute：01 Unmute：00	0x7D	0x7B

Channel:
Mute:
Example: 7B7D021200017D7B
Machine replies to the reply packet

3. Preset call

DLE	STX	DATA_LEN	CMD	N=1	STX	DLE
0x7B	0x7D	1	0x13	Preset: 0-Factory Preset 1-20: U01-U20	0x7D	0x7B

Preset:
Example: 7B7D0113017D7B
Machine replies to the reply packet

4. Get channel gain

DLE	STX	DATA_LEN	CMD	N=1	STX	DLE
0x7B	0x7D	1	0x14	Channel	0x7D	0x7B

Channel:
Example: 7B7D0114007D7B
Machine returns the gain value of the current specified channel

5. Get the channel mute status

DLE	STX	DATA_LEN	CMD	N=1	STX	DLE
0x7B	0x7D	1	0x15	Channel	0x7D	0x7B

Channel:
Example: 7B7D0115007D7B
Machine returns the mute value of the current specified channel

6. Get current preset

DLE	STX	DATA_LEN	CMD	N=0	STX	DLE
0x7B	0x7D	0	0x16		0x7D	0x7B

Channel:
Example: 7B7D00167D7B
Machine returns the current default value

7. Get level meter data

DLE	STX	DATA_LEN	CMD	N=0	STX	DLE
0x7B	0x7D	0	0x17		0x7D	0x7B

Example: 7B7D00177D7B
Machine returns level meter data for all channels at once

(3). The packet definition and description that the host replies to the network (Host → Network)

1. Command response

DLE	STX	DATA_LEN	CMD	N=0	STX	DLE
0x7B	0x7D	0	0x20		0x7D	0x7B

Example: 7B7D00207D7B

2. Returns gain of the channel

DLE	STX	DATA_LEN	CMD	N=2		STX	DLE
0x7B	0x7D	2	0x21	Channel	Gain	0x7D	0x7B

Example: 7B7D022100007D7B

3. Returns mute of the channel

DLE	STX	DATA_LEN	CMD	N=2		STX	DLE
0x7B	0x7D	2	0x22	Channel	Mute	0x7D	0x7B

Example: 7B7D022200007D7B

4. Return to current default

DLE	STX	DATA_LEN	CMD	N=1	STX	DLE
0x7B	0x7D	1	0x23	Preset	0x7D	0x7B

Example: 7B7D0123007D7B

5. Returns level meter data

DLE	STX	DATA_LEN	CMD	N=40	STX	DLE
0x7B	0x7D	40	0x23	Level	0x7D	0x7B

Example:
7B7D28239D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D9D7D7B

Level meter data description:
0-39: There are 40 channels of level meter data of mono and stereo.
IN1-16, IN17/18, IN19/20, IN21/22, IN23/24, MASTER-L/R, SUB1/2, SUB3/4, AUX1-4, Monitor-L/R, FX1-L/R, FX2-L/R

level meter numerical definition:
0x00-0x7F：0dB ~ +127dB，0x80-0xFF：-128dB ~ -1dB

(4). Fader gain table, communication packet gain value range is 0-255, according to the table to get the actual display of the gain parameters:

Gain form (0-255):
-∞, -80.0, -78.0, -77.0, -76.0, -75.0, -74.0, -73.0, -72.0, -71.0, -70.0, -69.0, -68.0, -67.0, -66.0, -65.0, -64.0, -63.0, -62.0, -61.0, -60.0, -59.0, -58.0, -57.0, -56.0, -55.0, -54.0, -53.0, -52.0, -51.0, -50.0, -49.0, -48.0, -47.0, -46.3, -45.6, -44.9, -44.2, -43.5, -42.8, -42.1, -41.4, -40.7, -40.0, -39.7, -39.4, -39.1, -38.8, -38.5, -38.2, -37.9, -37.6, -37.3, -37.0, -36.7, -36.4, -36.1, -35.8, -35.5, -35.2, -34.8, -34.4, -34.0, -33.6, -33.2, -32.8, -32.4, -32.0, -31.6, -31.2, -30.8, -30.4, -30.0, -29.6, -29.2, -28.8, -28.4, -28.0, -27.6, -27.2, -26.8, -26.4, -26.0, -25.6, -25.2, -24.8, -24.4, -24.0, -23.6, -23.2, -22.8, -22.4, -22.0, -21.6, -21.2, -20.8, -20.6, -20.4, -20.2, -20.0, -19.7, -19.4, -19.1, -18.8, -18.5, -18.2, -17.9, -17.6, -17.3, -17.0, -16.7, -16.4, -16.1, -15.8, -15.5, -15.2, -14.9, -14.6, -14.3, -14.0, -13.7, -13.4, -13.1, -12.8, -12.5, -12.2, -11.9, -11.6, -11.3, -11.0, -10.7, -10.4, -10.1, -9.8, -9.6, -9.4, -9.2, -9.0, -8.8, -8.6, -8.4, -8.2, -8.0, -7.8, -7.6, -7.4, -7.2, -7.0, -6.8, -6.6, -6.4, -6.2, -6.0, -5.9, -5.8, -5.7, -5.6, -5.5, -5.4, -5.3, -5.2, -5.1, -5.0, -4.8, -4.6, -4.4, -4.2, -4.0, -3.8, -3.6, -3.4, -3.2, -3.0, -2.8, -2.6, -2.4, -2.2, -2.0, -1.8, -1.6, -1.4, -1.2, -1.0, -0.9, -0.8, -0.7, -0.6, -0.5, -0.4, -0.3, -0.2, -0.1, -0, 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4.0, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 5.0, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 6.0, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.8, 7.0, 7.2, 7.4, 7.6, 7.8, 8.0, 8.2, 8.4, 8.6, 8.8, 9.0, 9.2, 9.4, 9.6, 9.8, 10.0,

7. Accessories list

1. Power cord -1

2. USB cable-1

3. USB Flash Disk-1

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