

IMPORTANT SAFETY INSTRUCTIONS

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE		



The lightning flash with arrowpoint in an equilateral triangle means that there are dangerous voltages present within the unit.



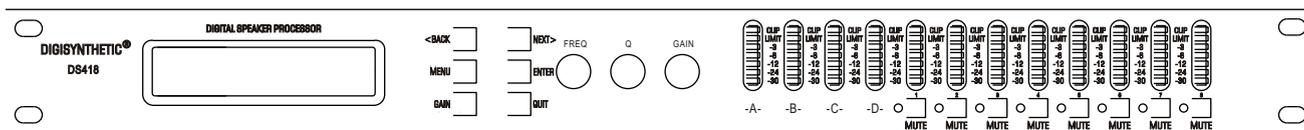
The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the

WARNING FOR YOUR PROTECTION PLEASE READ THE FOLLOWING:

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 OF THE VENTILATION OPENINGS. INSTALL IN ACCORDANCE WITH THE MANUFACTURER' S INSTRUCTIONS.
7. DO NOT INSTALL NEAR ANY HEAT SOURCES SUCH AS RADIATORS, HEAT REGISTERS, STOVES, OR OTHER APPARATUS (INCLUDING AMPLIFIERS) THAT PRODUCE HEAT.
8. ONLY USE ATTACHMENTS/ACCESSORIES SPECIFIED BY THE MANUFACTURE
9. UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME.
10. 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 third prong are provided for your safety. If the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.
11. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Refer all servicing to qualified service personnel, Servicing is required when the apparatus has been damaged in any way, such as 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.
13. For UNITS EQUIPPED WITH EXTERNALLY ACCESSIBLE FUSE RECEPTACLE: Replace fuse with same type and rating only.
14. For UNITS WITH SELECTIVE-INPUT VOLTAGE: This equipment require a different fuse indicated on the equipment rear panel depending on the voltage selector position. Refer servicing to qualified service personnel or equivalent.

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Main features:

DS418 is on the basis of DSP technology speaker processor, high performance AKM A/D Ak5392

3pcs 24 bit high precision DSP

Low distortion, high dynamic, frequency response: 20Hz~20kHz

DS418 is 4 input, 8 output, include 10 configure modes: 4 x 2-way Crossover; 2 x 3-way, and 2 Aux; 2 x 3-way + mono sub; 2 x 4-way Crossover; 1 x 5-way, and 3 Aux; mono distribution; stereo distribution; LCRS with mono subs; 4 x 4 Processor; Muted, Flat Startup。 All the parameters of these preset modes are adjustable.

Each input channel includes input gain control, each channel includes independent crossover controller。

5 bands parameter equalizer, delayer, maximal delay 7ms,

Output gain and phase control, parameters lock function to avoid misoperation.

USB interface remote control, PC software included.

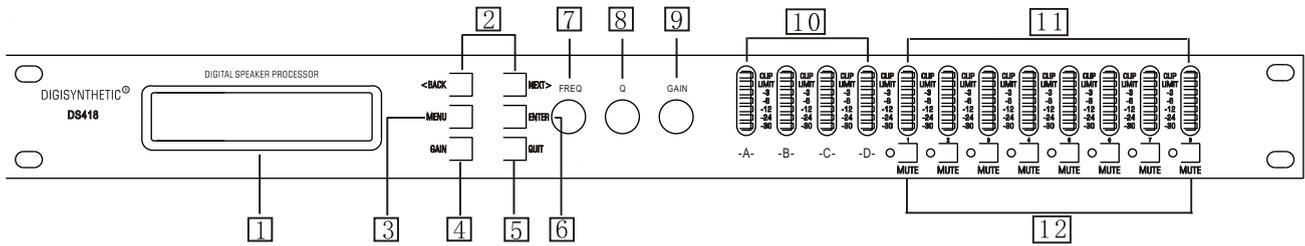
Each group parameter equalizer has 360 (ISO) frequency points, gain is from -12dB to +12dB.

Each group Q value is from 0.5 to 128, and provide Hi_shelf, Lo_shelf function.

Independent limiter: Attack Time, Hold Time, Decay Time and threshold parameter for flexible configuration.

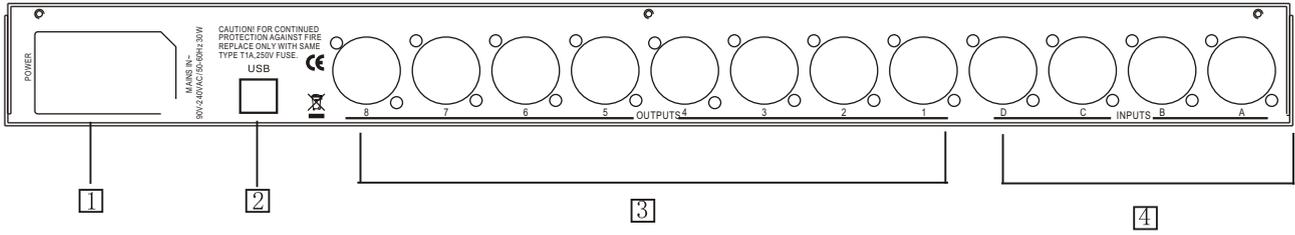
Each channel' high pass, low pass configured with 6dB, 12dB, 18dB, 24dB, 48dB Butterworth、Linkwitz riley、 Bessel frequency response curve。

FRONT PANEL



1. LCD Display
2. <BACK>, <NEXT> button
3. <MENU> button
4. <GAIN> button
5. <QUIT> button
6. <ENTER> button
7. <FREQ> encoder
8. <Q> encoder
9. <GAIN> encoder
10. Input meters
11. Output meters
12. Output Mute button

REAR PANEL

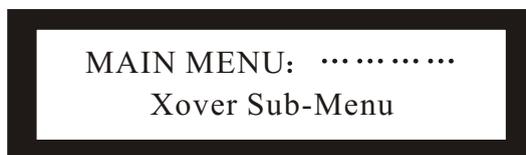


1. Power Cord Receptacle
2. USB Interface
3. Outputs 1~8
4. Inputs A~D

OPERATION

1. Xover Menu

Press the <MENU> button, the display will appear as follows:



Press <ENTER> button to enter the Xover submenus.



Press <NEXT> or <BACK> button, you can navigate forward or backward the Xover submenus: Load a Xover, Design a Xover, Store a Xover and Erase a Xover. Confirm by pressing <ENTER> button.

Load a Xover: Recall a stored Xover mode.

Design a Xover: Design a crossover mode by press <ENTER> button including the mode type, stereo Links, input channel select for the specific modes..

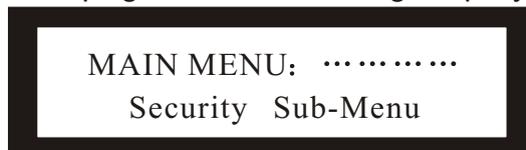
Store a Xover: You can save up to 30 programs. Press the <ENTER> button for saving the desired program number via the <FREQ> encoder. In order to move the cursor (e.g. For entering the next letter or correcting the last letter.), Press the <BACK>/<NEXT> buttons. Confirm your entry by pressing the <ENTER>. Store a crossover program only including the settings in this section. The length of name of the user memory can reach 16 characters.

If store without naming, the system store it with the corresponding mode name by default.

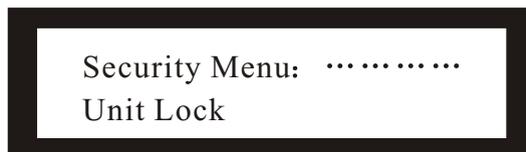
Erase a Xover: Select the desired program via the encoder or <NEXT> or <BACK> button and confirm with the <ENTER> button.

2. Security Menu

Access the Security Menu page as the following display.



Press the <ENTER> button, the display will be appear as follows.



Press the <ENTER> button to select one of the following lock types:

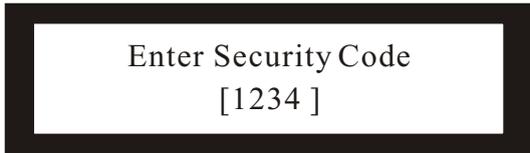
Change only: The parameters can be viewed but not changed. Mute is active.

Changes + View: The parameters cannot be viewed or changed. Mute is active.

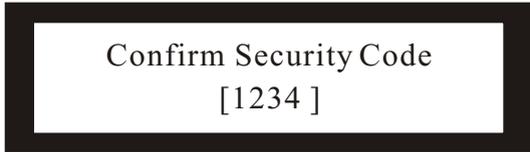
Changes + Mute: The parameters can be viewed. Changes and Mute are inactive.

Everything: Everything is locked.

Confirm with one type. Press <ENTER> button to access the password set page.



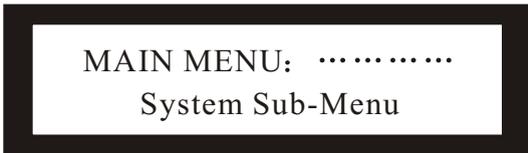
Step 1. Move the cursor via <BACK> or <NEXT> button. Edit the password by turning the <FREQ> encoder.
Step 2. Press <ENTER> button to access the password confirm page as follows.



Step 3. Repeat step 1 operation, then press <ENTER> button. Only when the twice passwords are completely same, the lock operation is valid. Otherwise it would fail.

3. System Menu

Access the Security Menu page as the following display.



Press the <ENTER> button to the System Submenu page. Press <NEXT> or <BACK> button, you can navigate forward or backward the system submenus:
Input Option, Wake-up Time.
Input Option: Switch the stereo link between channels A and B, C and D on or off
Wake-up Time: Via this menu, you can adjust how the controller reacts after turning on.
Fade-in: when turning on, the outputs gradually increase to the preset level.
Mute Hold: all outputs remain muted.

4. Interface Menu

The Remote ID number is the address of this device to be identified by PC at the beginning of data communication. Please refer to the PC software for corresponding information.

Access the Interface Menu page as the following display.



Press <ENTER> button to access the following page.



Press <ENTER> button again. You can choose remote ID number from 1 to 64 via <NEXT>, <BACK> OR <FREQ> encoder in the following page.

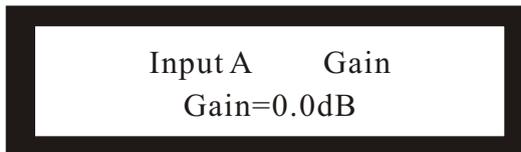


5. Parameters Menu

Press the <GAIN> button to access the Parameters Menu.

A. Input and Output channel selection & Gain

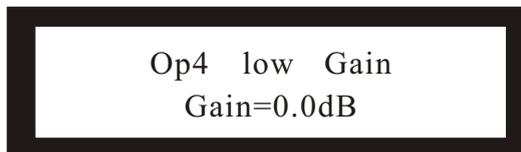
Press <NEXT> or <BACK> button to choose among input A, input B, input C, input D or output 1 channel. At the same time, the selected channel page is with Gain function as follows.



You can adjust the input level from -40dB to +6dB in 0.5dB step via <FREQ> encoder. The display shows if the inputs are linked with each other. For linked inputs, the gain is adjusted for their linked inputs.

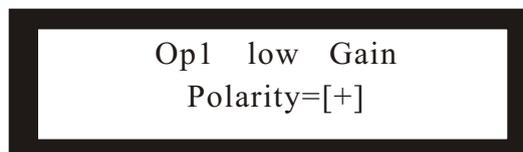
Press the <GAIN> button to access other output channels from 2,3 ... 8,1 circularly at the output 1 page.

The display shows if the inputs are linked with each other. For linked outputs, the parameters are adjusted for the linked outputs.



B. Output Phase

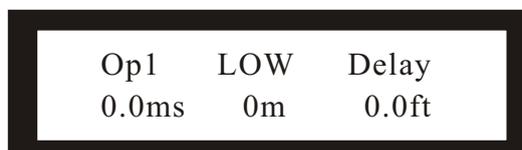
The polarity of every output can be inverted. If the polarity of a linked output will be inverted, the polarity of the other channel will also be inverted.



C. Delay

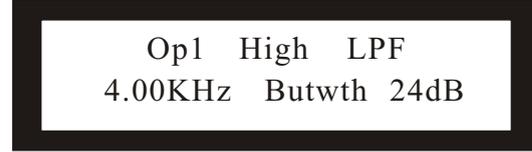
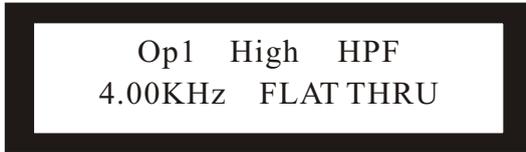
The delay is to compensate differences in the distances between different speaker system or speaker systems at different installation spots.

Turn the <FREQ> to adjust the selected channel delay time from 0ms to 7ms in 0.5 ms step. The corresponding distance in meters and feet also are displayed as follows.



D. HPF & LPF

HPF stands for High Pass Filter, LPF for Low Pass Filter. Each channel has its independent HPF and LPF that can be accessed by pressing <NEXT> or <BACK> button as the following displays.

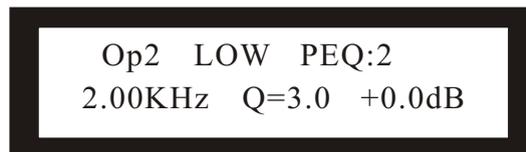


Turn <FREQ> encoder to adjust the frequency whose range is from 10Hz to 16.0kHz for HPF, 35Hz to 22.0kHz for LPF.

Turn <GAIN> encoder to choose the filter type and slope. The available slopes are listed below: Flat Through, Butterworth 6dB, Butterworth 12dB, Butterworth 18dB, Butterworth 24dB, Butterworth 48dB, Bessel 12dB, Bessel 18dB, Bessel 24dB, Bessel 48dB, Linkwitz-Riley 24dB, Linkwitz-Riley 48dB.

E. Equalizer

There are five parametric equalizers per output that can be selected via <NEXT> or <BACK> button. The display is something like as follows.



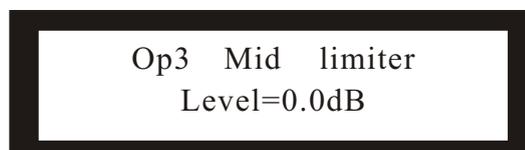
Turn <FREQ> encoder to adjust the frequency whose range is from 20Hz to 20.0kHz. Turn <GAIN> encoder to adjust the gain whose range is from -12dB to +12dB in 0.1dB steps. Turn <Q> encoder to adjust the gain whose range is from 0.5 to 10, including Hishef and Loshelf. Press <ENTER> button to bypass PEQ indicated by " = " symbol in the upper right corner of the display.

ATTENTION: Only when gain is +0dB at the Q value page, you can select Hishef/Loshelf via <Q> encoder. The symbol " { " indicates Hishef, " } " Loshelf. Only when gain is +0dB at the HISHF/LOSHF page, the <Q> encoder is active, i.e. You can return to the Q value setup from HISHF/LOSHF page. The range of Hishef frequency is 1.0k~20.0kHz, Loshelf 20.0Hz~1.0kHz.

F. Limiter

There is one independent limiter for each output channel. The limiter serves as an additional clipping protection to avoid speaker damage. The signal level is always limited to the adjusted threshold level. In most cases, it is sufficient to adjust the threshold value to the clipping level of the connected amplifier. Nevertheless make sure the amplifier does not distort.

Access the Limiter page via <NEXT> or <BACK> button. Turn the <FREQ> encoder to adjust the limiter from -20 to +15dB.



The limiter also include Attack, Hold and Decay time. Enter them via <NEXT> or <BACK> button.

Op3 Mid limiter
ATTACK=12ms

Op3 Mid limiter
hold=0.0ms

Op3 Mid limiter
Decay=120ms

You can adjust the Attack time between 1 and 100ms, Hold time between 0 and 100ms, Decay time between 10 and 1000ms.

G. Name

You can select the best fitting name from a preset name list via the <FREQ> encoder.

Op2 Name
Name: Low

H. Source

You can check the input sources for each output but not change it. Access the source page for different output channel via <GAIN> button.

Op4 High source
source: A

I. Copy Output Data

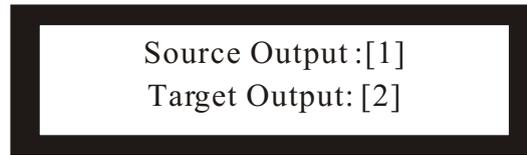
You can copy all the setups of one output channel to the other output channel. Access the Copy Output Data menu.

Copy Output Data
[Enter] to copy

Press <ENTER> button. The display is as follows:

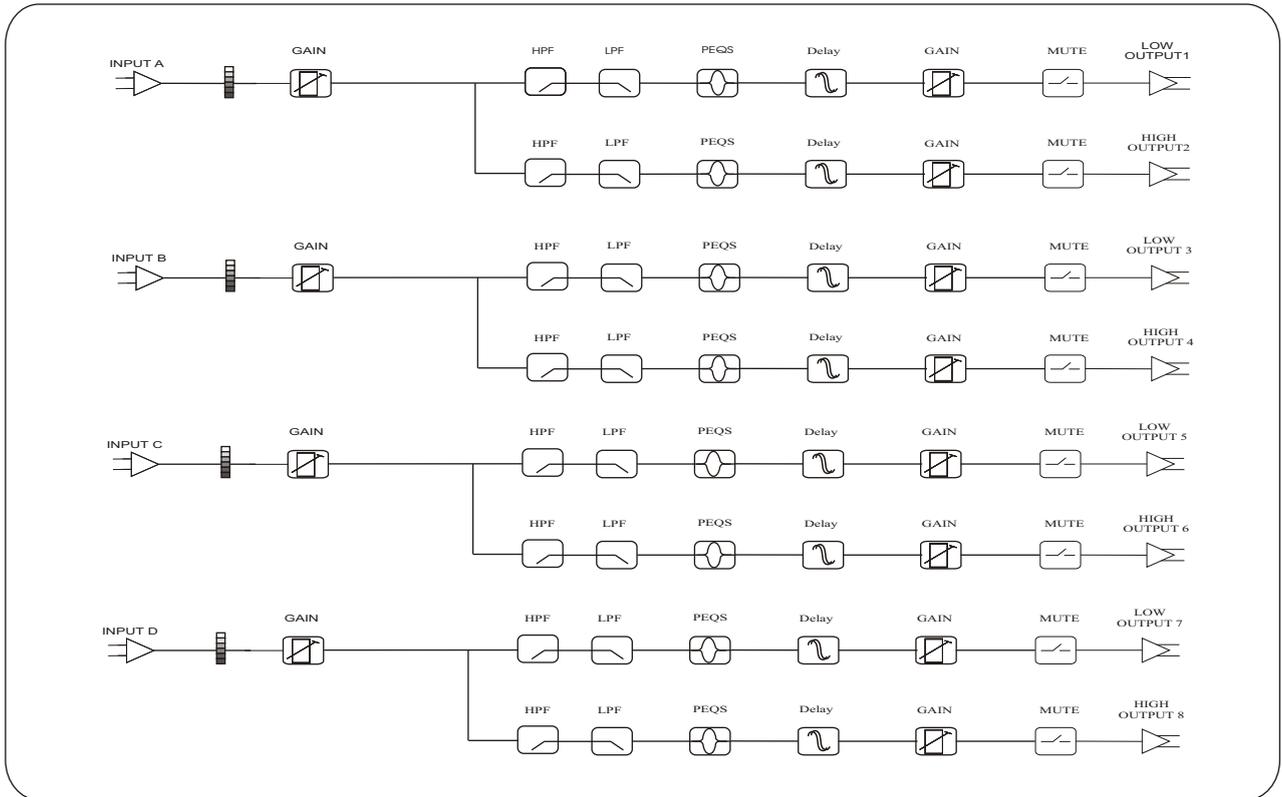
Source Output:[1]

Turn the <FREQ> encoder to select the source channel you want to copy. Then press <ENTER> button. The display is something like this.

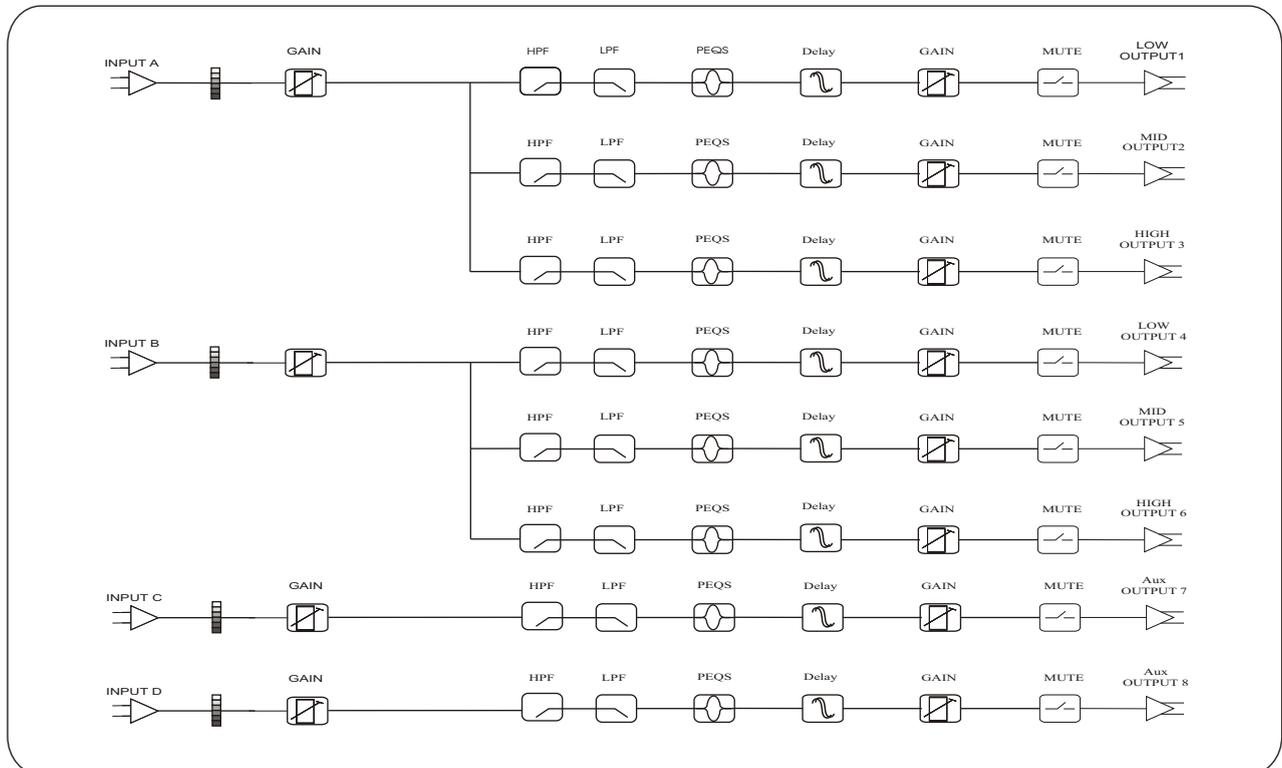


Turn the <FREQ> encoder to select the destination channel of the copy operation. Press <ENTER> button to finish the operation.

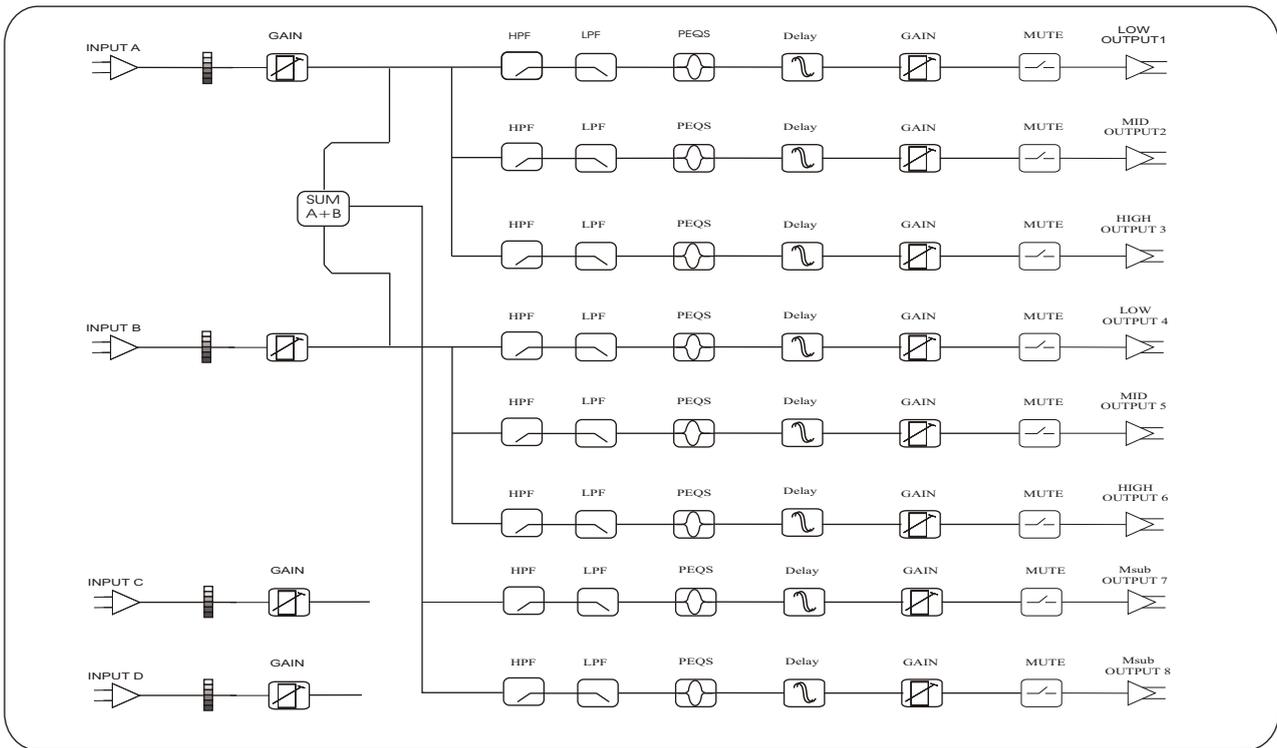
4 x 2-way Crossover



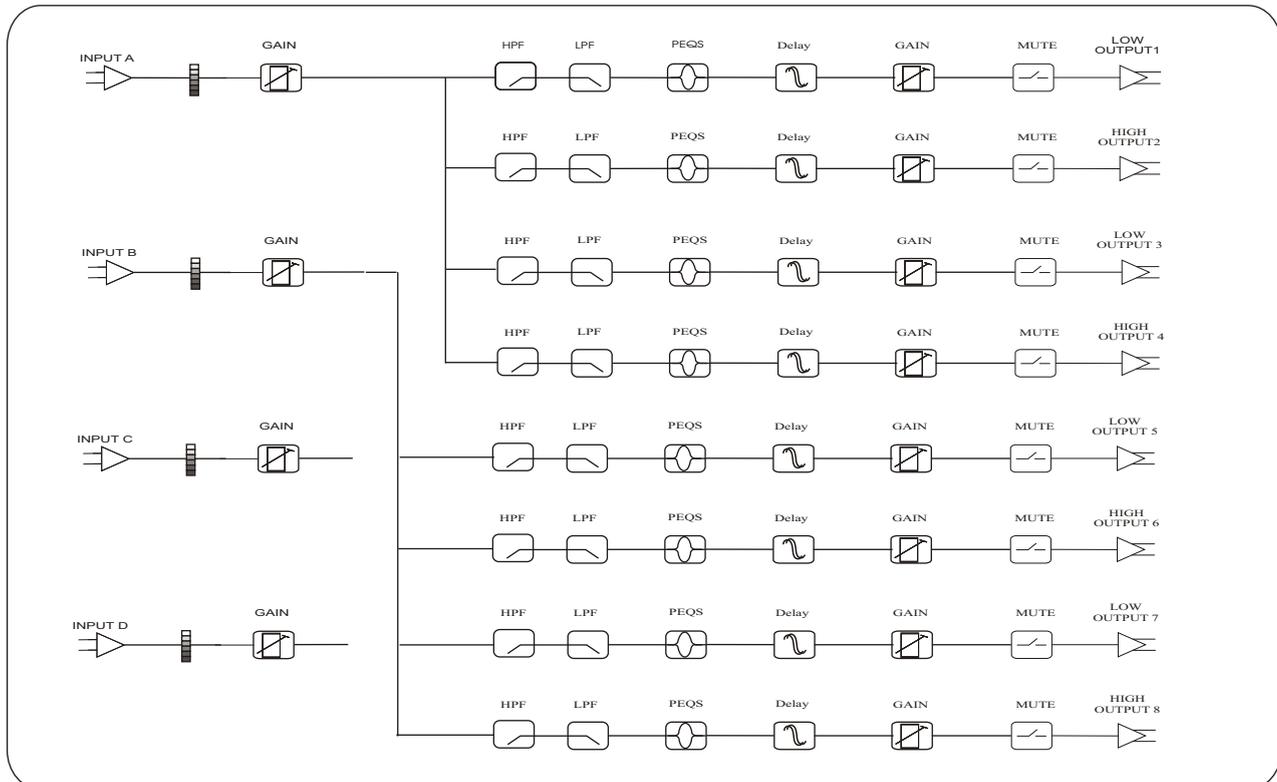
2 x 3-way, and 2 Aux



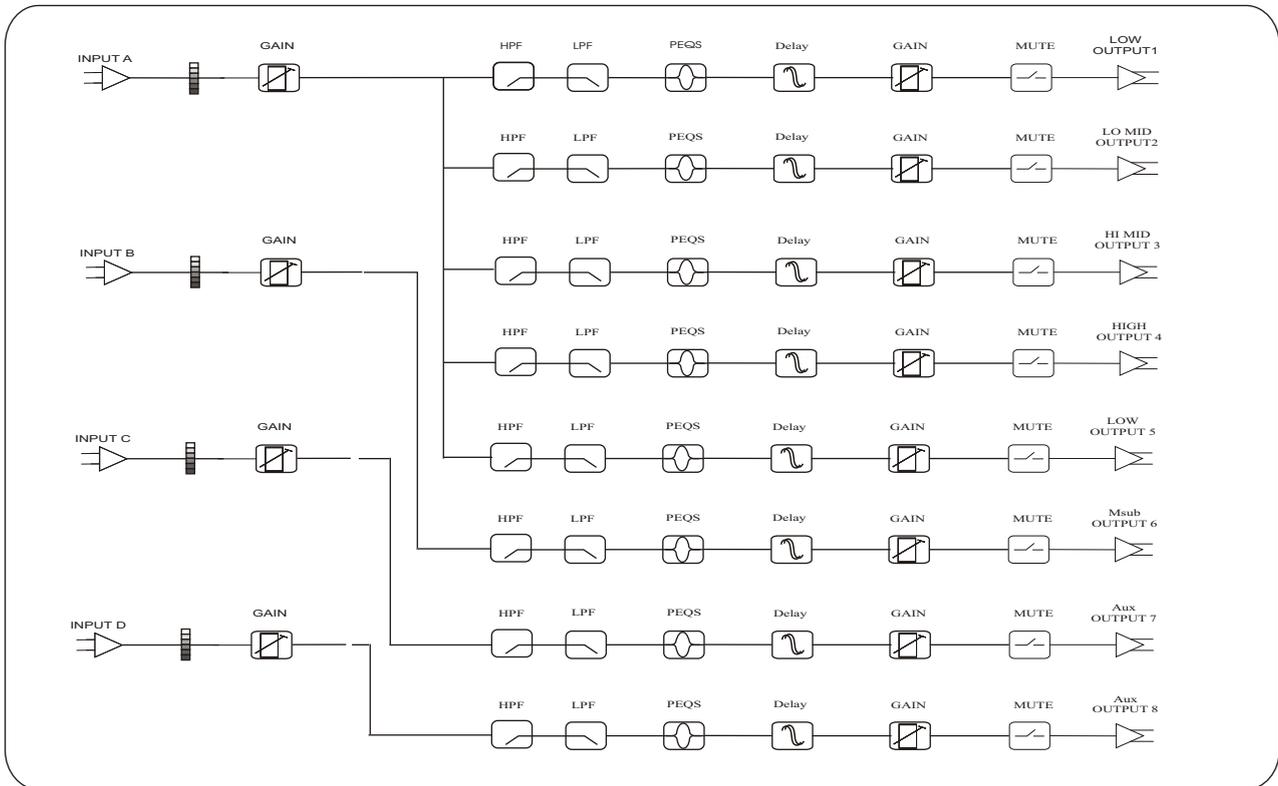
2 x 3-way + mono sub



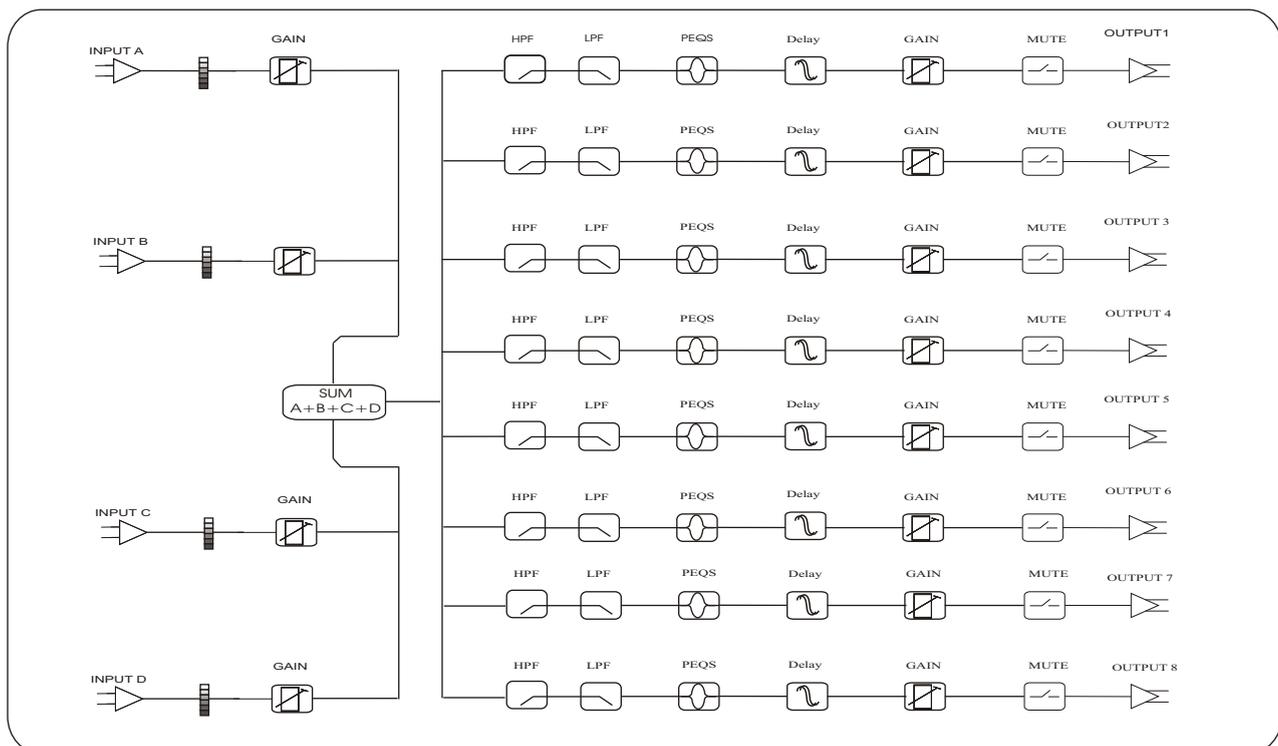
2 x 4-way Crossover



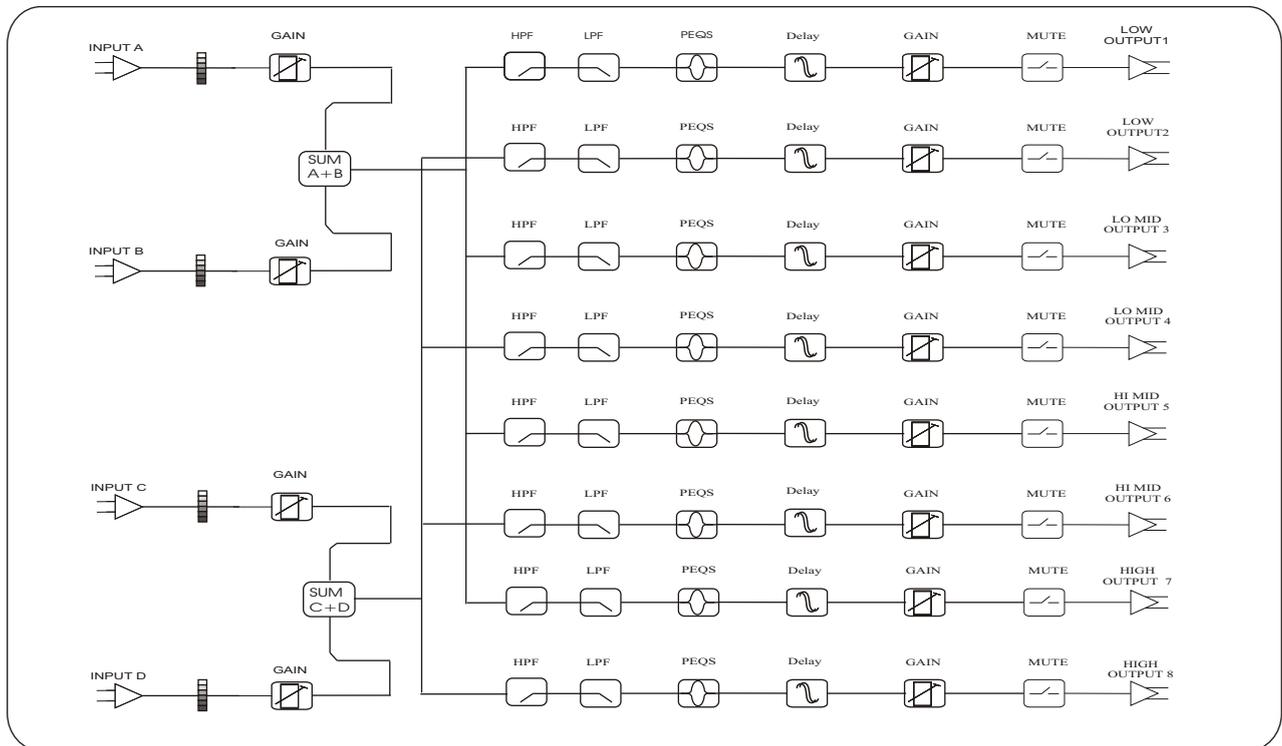
1 x 5-way, and 3 Aux



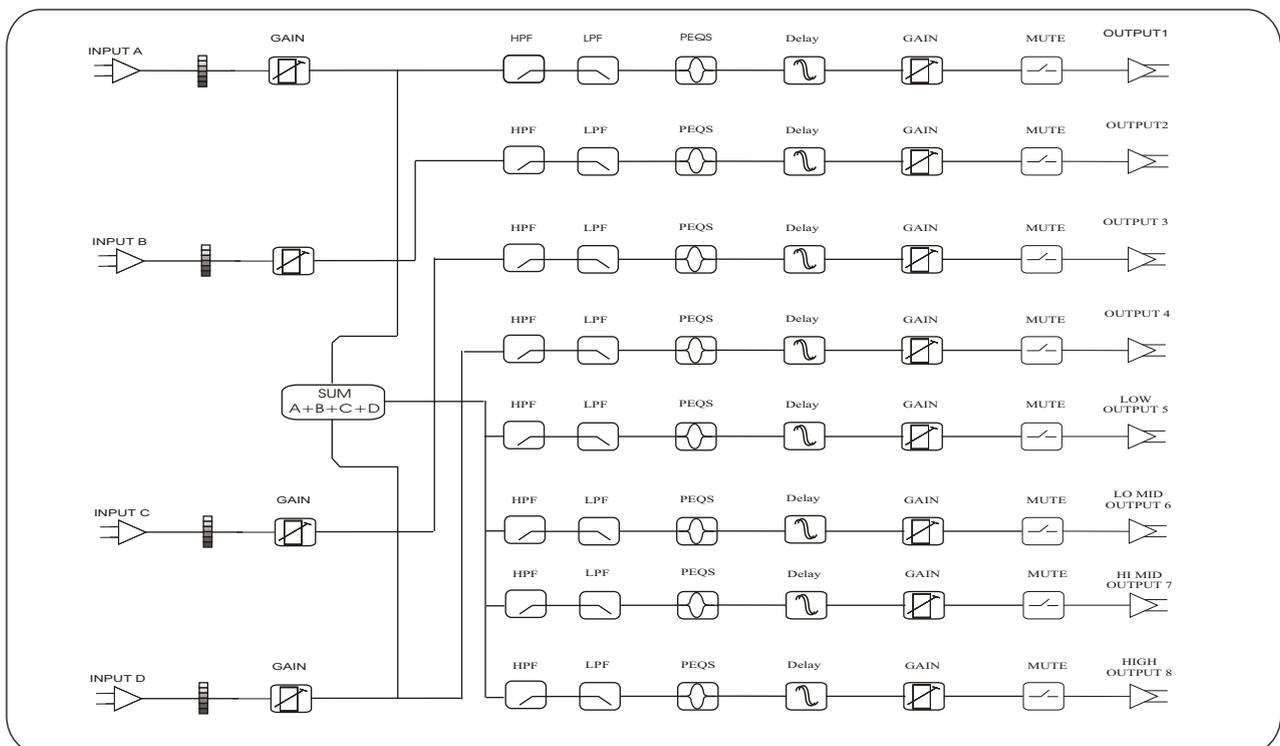
Mono Distribution



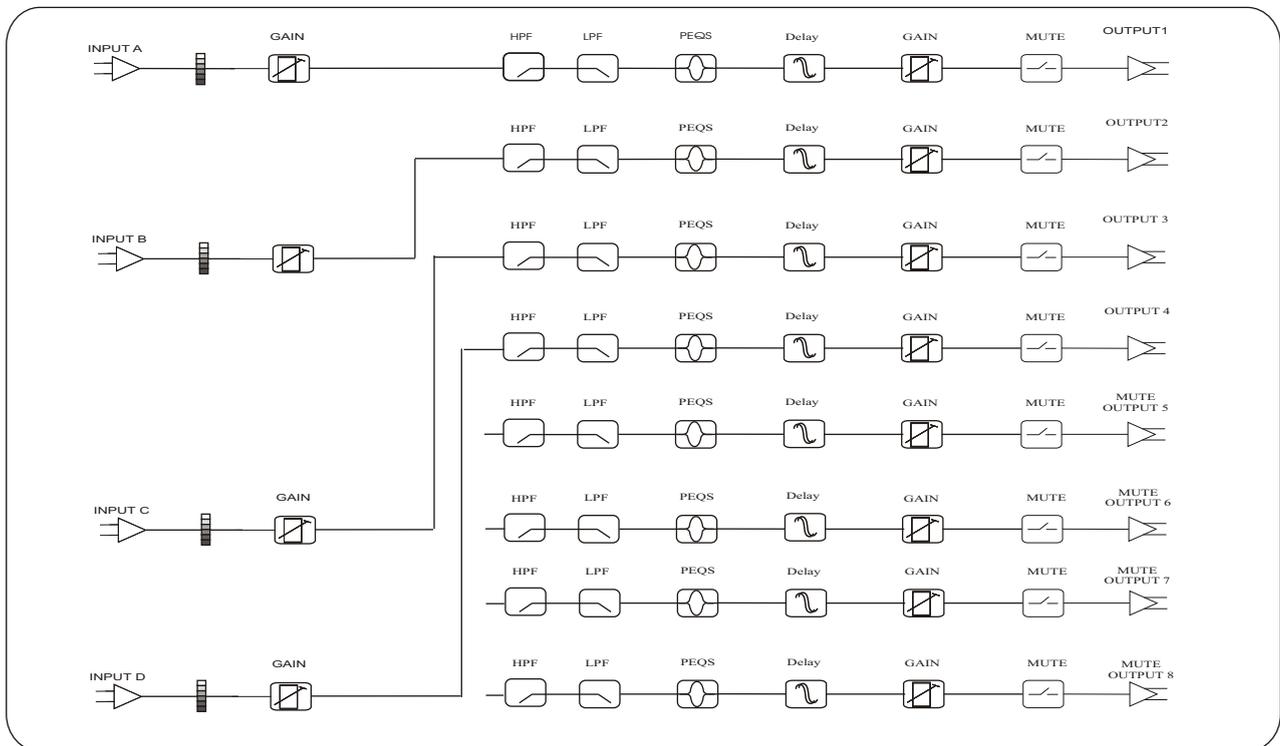
Stereo Distribution



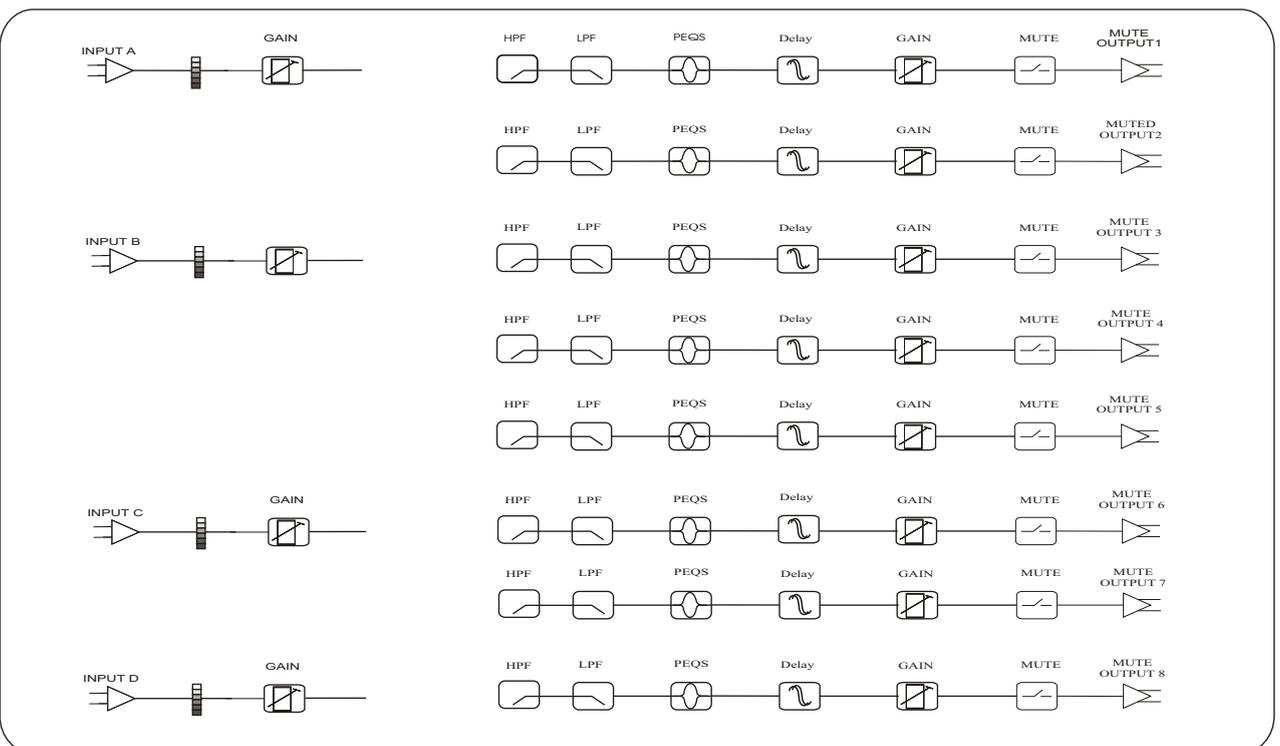
LCRS with mono subs



4 x 4 Processor



Muted, Flat Startup



Input	
Impedance	10K Ω
CMRR	>50dB (30Hz~20KHz)
Output	
Impedance	<50 Ω
Maxim output electrical level	V _{pp} =4V , V _{pp} =7.6V
Frequency Resp.	20Hz~20.0kHz
Dynamic Range	
Distortion	0.01%(THD)
Mixman Delay	7ms
Output gain	-40dB~+6dB ± 0.5 dB
Input gain	-40dB~+6dB ± 0.5 dB
Parametric Equalizer	
Filter	
Gain	± 12 dB in 0.1dB steps
Central Freq.	20Hz~20kHz 360 ISO
Q value	0.5~128
Shelving	
Lo-shelf:	20Hz~1kHz
Hi-shelf:	1kHz~20kHz
Shelf gain:	± 12 dB in 0.1dB steps
HPF&LPF	
Filter	
Frequency (high pass)	<10Hz~16.0kHz
Frequency (low pass)	35Hz~22.0kHz
Response curve	Butterworth 6dB、18dB、24dB、48dB Bessel 12dB、18dB、24dB、48dB Linkwitz-Riley 24dB、48dB
Limiter	
Level	-40~+3dB
Attach time	1~100ms
Holding time	0~100ms
Decay time	10~1000ms
LCD	2 \times 20
Input LED	-30dB,-24dB,-12dB,-6dB,-3dB, 0dB, Clip
Output LED	-30dB,-24dB,-12dB,-6dB,-3dB,Limit,Clip
Connectors	
Input	XLR-3F
Output	XLR-3M
USB	
Power	90~240V/AC 50Hz
Weight	3.6KG
Size	480mm \times 44mm \times 220mm

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