

**PROFESSIONAL AUDIO & KARAOKE SYSTEM**

AUDIO PROCESSING MODULE  
**DSP-4200/DSP-4400**

OWNER'S MANUAL

**|| DSP ||**

**KARAOKE AUDIO SYSTEM**

## SAFETY FOR USERS

All safety and operating instructions should be read before the product is operated.

**Power:** This unit can only use the same style as we show in this manual.

**Power cord protection:** Protect the power cord from being crushed, especially the power plugs.

**Humidity:** The unit should far away from water.

**Temperature:** Do not install near any heat sources. Such as radiators, stoves, heating resistance or other apparatus that produce heat.

**Electronic shock:** Be careful that no objects fall or liquid is spilled inside the unit through ventilation openings.

**Opening or moving covers:** Refer all serving to qualified service personnel. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or moving covers may expose you to dangerous voltage or other hazards.

**Cleaning:** Do not use volatile liquid. Such as alcohol, paint thinner, gasoline and so on. Clean only with dry cloth.

**Smelling:** All suspicious burning smells or smoke, please power off and pull out the plugs.

**Long term Idle:**

- 1, For your safety, please power off and pull out the plugs, avoiding fire.
- 2, Prevent water, metal, combustible or other objects from falling, avoiding fire or electronic shock. If these accident happened, please off soon, then stop using.

**Attention:** Do not put the plugs under the unit or between other objects. Do not put the power cord in the crowd. Avoiding fire or electronic shock.

## FOR CUSTOMER

Dear friend,

Thanks for choosing this model! For the product and your safety as well as give you the best sound quality.

Read and keep this User Manual before you connect or operate this device. (Check the device if it was broken by shipment after you open the box. And test each function according to this User Manual.)

If any question, please contact to the sales as soon as possible.

- 1) Please check if the bar code (Under the device) and parts are complete.
- 2) If not opened by designated service department, will not within the warranty scope.
- 3) Please save the package and parts.

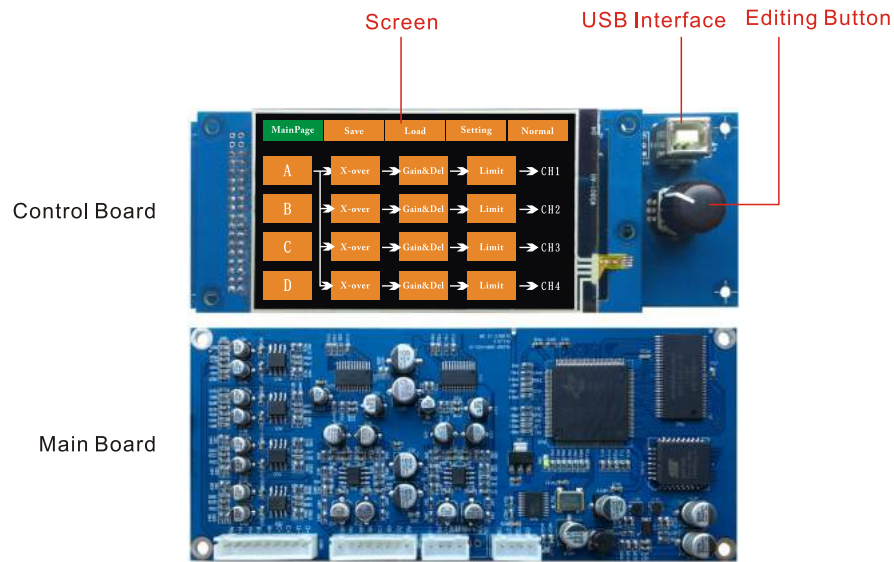
### CATALOG

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## PRODUCT SUMMARY

DSP-4200, DSP-4400 are 4 in 4 out digital processing module boards, aiming at professional amplifier. The DSP chips of them are from TI company, 32 bit floating point, 96KHz sampling frequency, 24 bit A/D & D/A converter. Embedded ARM processor operating system with 4" touch screen makes operation more easy. Free drive USB and RS485 can connect to the PC, meanwhile RS485 for distance control as long as 1500 meters supports machines' cascade. There are 8 bands PEQ, X-Over, Delay, Limiter, Gain, Polarity for every output channel, limiting and adjusting the output level to protect the output equipments.

### Module Map:

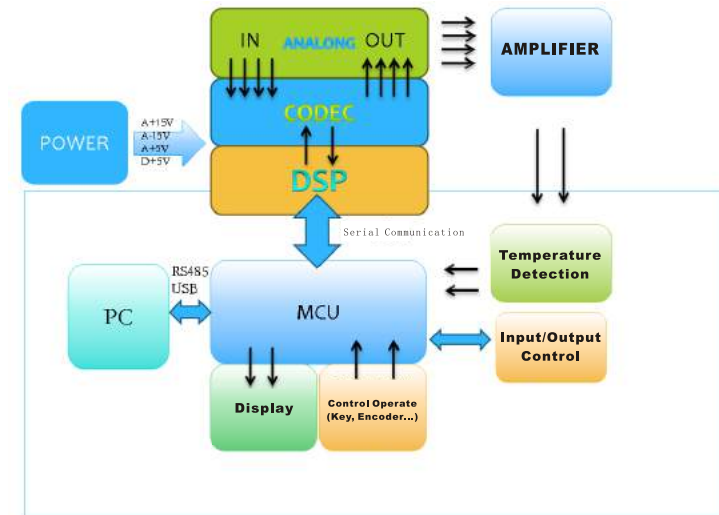


## TECHNICAL FEATURES

### Technical Features:

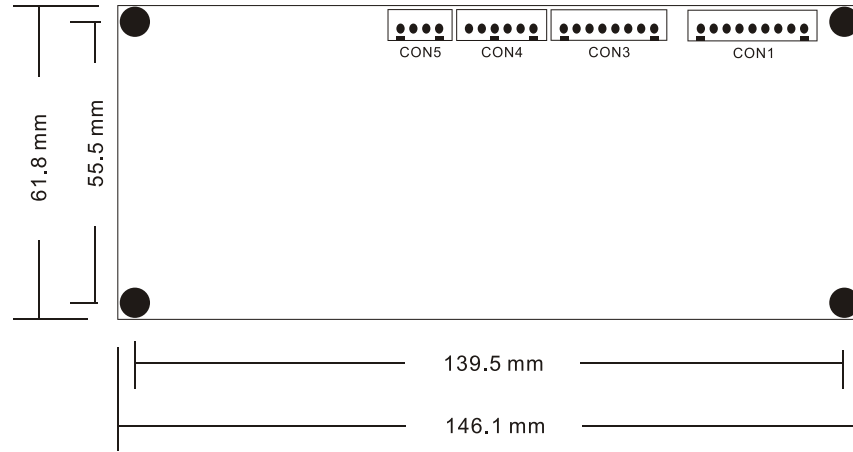
1. 4 single track input, 4 single track output, plus GPIO control.
2. 4 inch resistive touch screen.
3. 96KHz sampling frequency, 24bit A/D & D/A converter, 32 bit floating point DSP chip.
4. With professional PC software, real-time remote control by USB or RS485.
5. 4 channels input and output, output matrix model sets freely.
6. Output: Mute, 8 bands EQ, X-over, Input Source optional, Polarity, Delay, Limiter, Gain (Max Delay 1s; frequency point, slope size and slope form of X-Over adjustable; frequency point, gain and band width of EQ adjustable, with PEQ, Hi-Shelf and Lo-Shelf three optional models)

### System Framework:

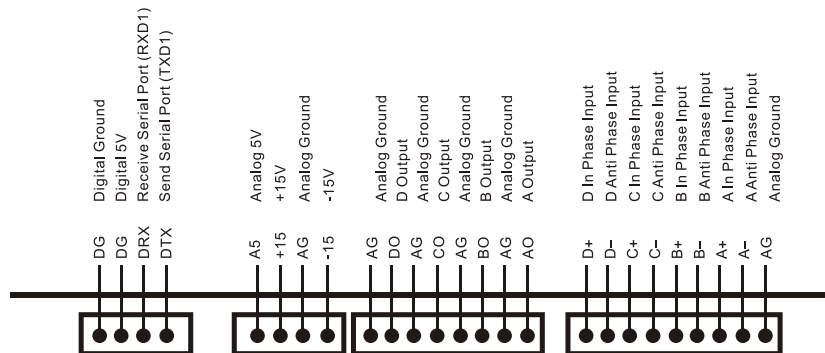


# STRUCTURE DECLARATION

Size of Board NO. DSP-AMP4400-01: 61.8X146.1mm



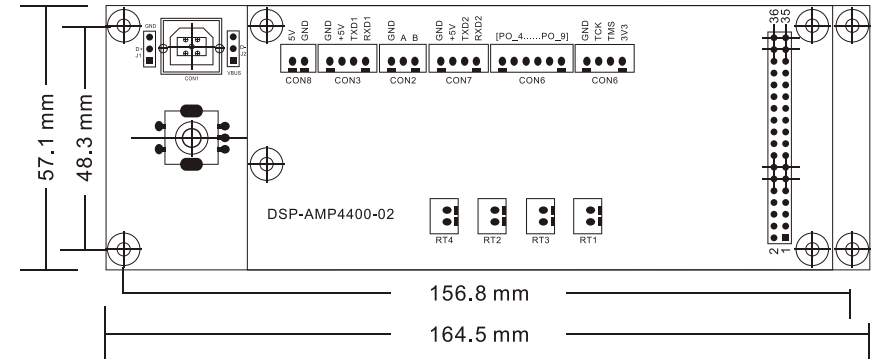
Wiring Diagram of Board NO. DSP-AMP4400-01



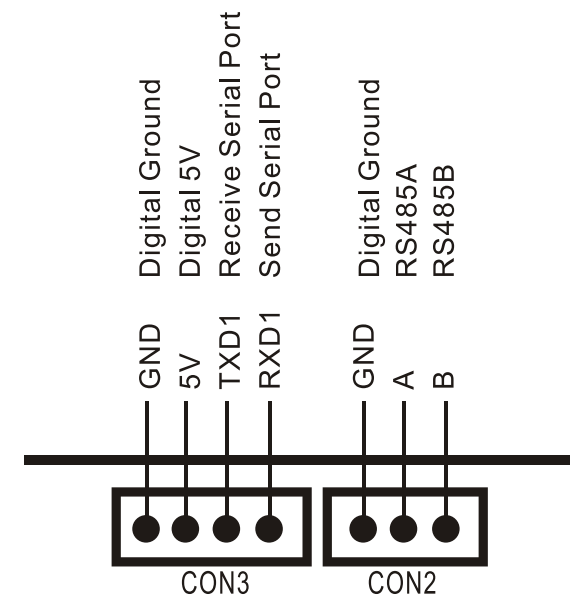
When there is 1 group of 5V power, D5 and DG shouldn't connect ( like our PCB); if there are 2 groups of 5V independent power, D5 and DG connect to Digital 5V, also removing the inductance DL8.

# STRUCTURE DECLARATION

Size of Board NO. DSP-AMP4400-02: 57.1X164.5mm

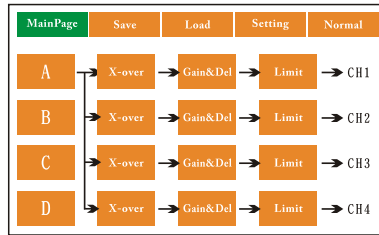


Wiring Diagram of Board NO. DSP-AMP4400-02

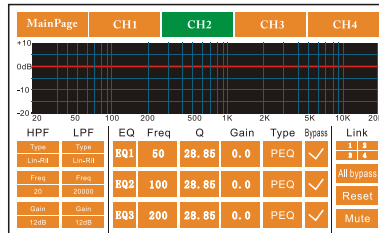


# FUNCTION INTRODUCTION OF OPERATION INTERFACE

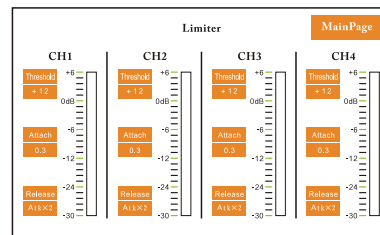
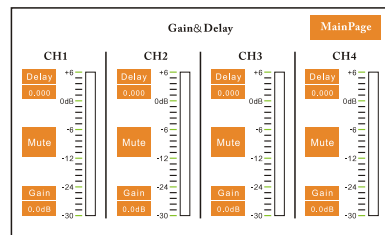
Connect and turn on the power, the main interface is the main page, pictured below:



After turning on the module, press “A” or “X-Over” on the screen, appearing the setting page of the corresponding channels, click your needed adjusting items, rotate the EDIT button to set the parameters, pictured below:

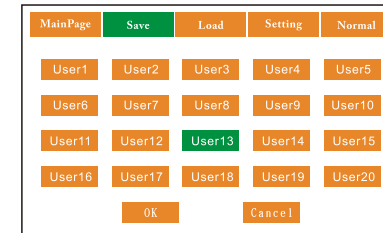


After turning on the module, press “Gain” or “Limiter” on the screen, appearing the setting page of the corresponding channels, click your needed adjusting items, rotate the EDIT button to set the parameters, pictured below:

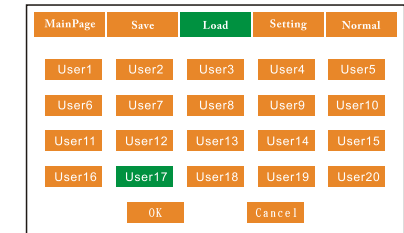


# FUNCTION INTRODUCTION OF OPERATION INTERFACE

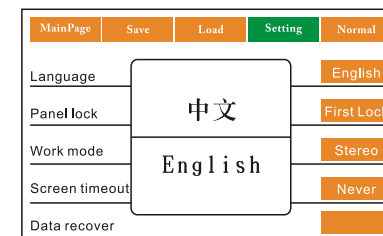
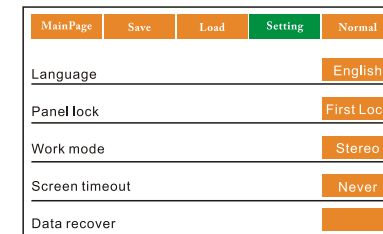
**1, Save**  
20 groups saving data.



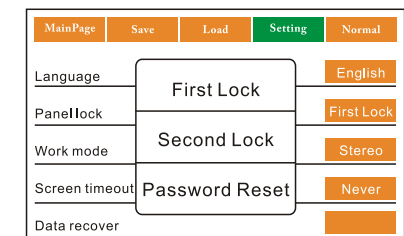
**2, Load**  
20 groups loading data.



**3, Set**

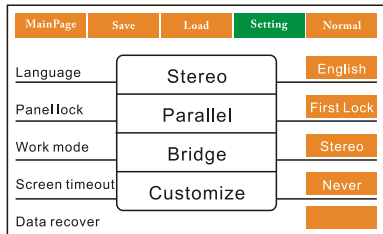


**A, Language:**  
Chinese/English Fast Switching.



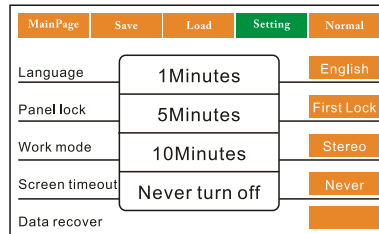
**B, Panel Lock:**  
a, One Level Lock: Mute and Gain of output channel are Adjustable.  
b, Two Level Lock: all doesn't work.  
c, Password Reset: original password is “1111”, can set new password according to customers' need.

# FUNCTION INTRODUCTION OF OPERATION INTERFACE



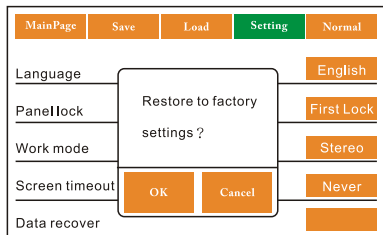
### C, Working Model

Stereo, Parallel, Bridge, Custom

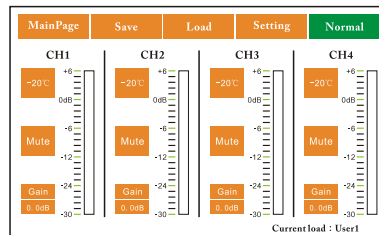


### D, Screen Standby

1 minute, 5 minutes, 10 minutes, Never Off.



### E, Factory Reset



### 4, Normal


# PC SOFTWARE USING INTRODUCTION

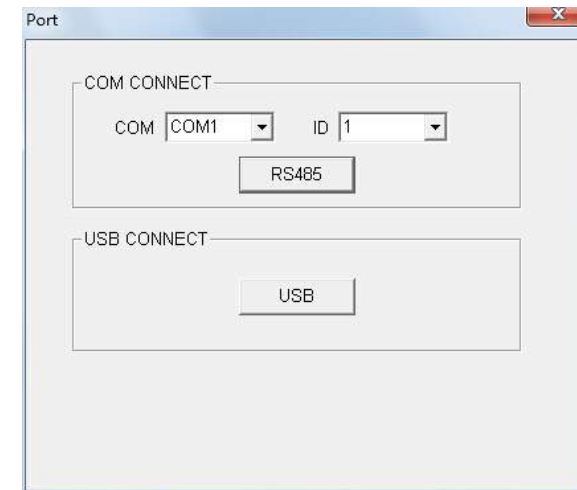
Take USB connecting for example, it supports 32 and 64 bit windows. This program includes some kinds of products' procedure, like 2 in 2 out, 4 in 2 out, 4 in 4 out and so on.

Below is the software operating introduction of DSP-4400, 4 in 4 out board.

### 1. Online Setting ( take WIN7 for example )

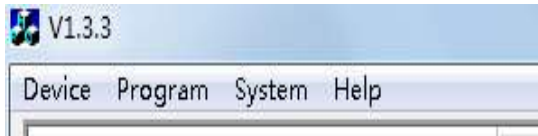
PC software of DSP-4400 controls by connecting RS485 or USB.

First, make sure connect to power, audio input output and USB cable, turn on the power and free drive software. Click the up right icon of the interface  , connection dialog box appears, like picture 1, choose the corresponding connecting way, when icon turns red, connection is done, can start control. Attention: max COM connection is 9, more will not work or effect the product property.



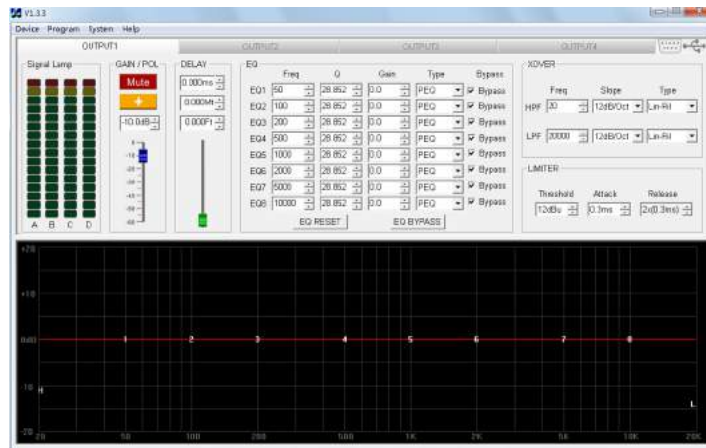
P1

2, Top Menu:



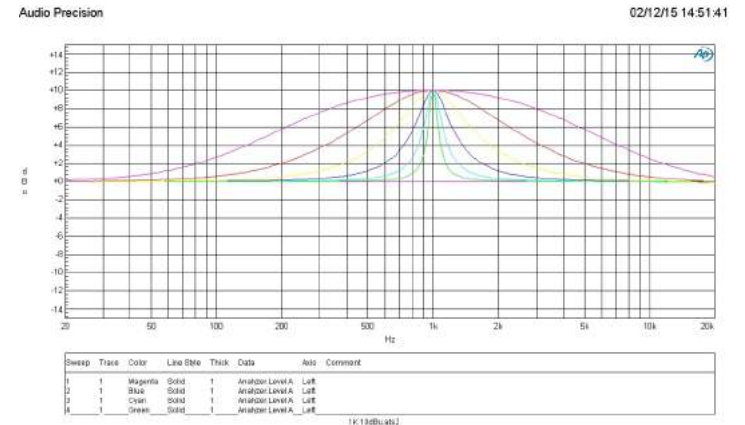
Setting: choose different kinds of products' procedure.  
 Procedure: Load, Save, Import, Export.  
 System: Setting and Language.  
 Help: the edition information of software and hardware.

3, Functional Architecture Interface of Software:

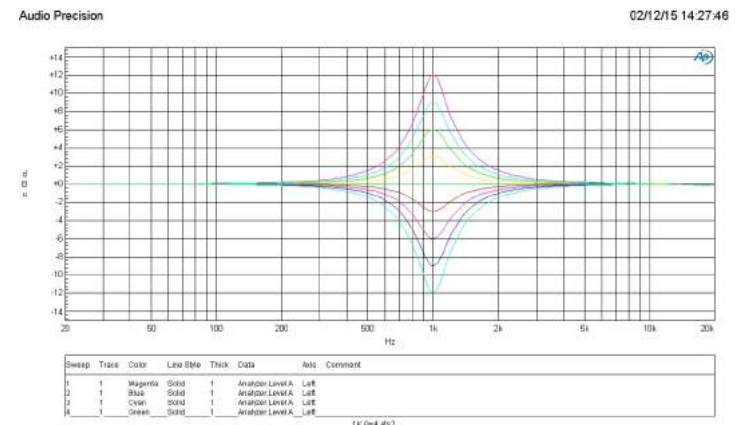


Product's function:  
 Input1-4: Gain/Polarity, Delay, PEQ, Pass, Limiter, the sub menu of every parameter can be adjusted independently.

Appendix: Curve of PEQ

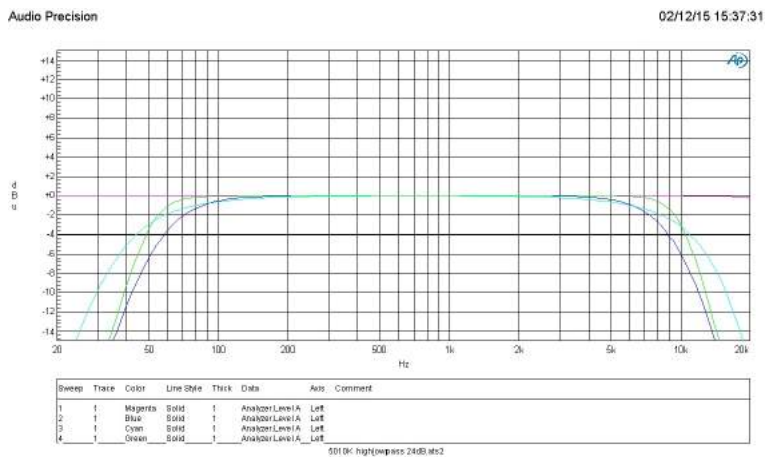


Picture 1-Curve of PEQ by the parameter filter.

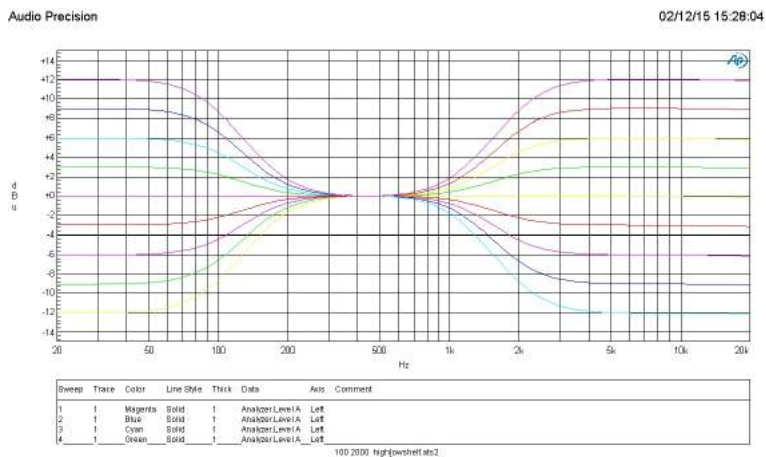


Picture 2-Curve of PEQ by the parameter filter.

# CURVE



Picture 3-Curve of High-pass and Low-pass by the parameter filter.



Picture 4-Curve of High-shelf and Low-shelf by the parameter filter.

# TECHNICAL PARAMETERS

TECHNICAL PARAMETERS	
Input/Output channel	4Input(balance)/4Output(Imbalance)
Mute	✓
Mode	stereo,Parallel,bridge
Delay	Each input channel has delay control,adj range:0-1000ms.
Polarity	In phase(+) & reversed phase(-) .
EQ	Each output channel has 8 band EQ:Modes : PEQ/Lo-shelf/Hi-shelf
X-over	LPF,HPF,PF mode:LinkwitzRiley/Bessel/Butterworth FREQ: 0Hz-20KHz, Slop: 12dB/oct, 18dB/oct, 24dB/oct, 48dB/oct
Limier	Gate level:±13dBμ,Step:0.05dBμ,Start time:03ms-100ms,<1ms,Step:0.1ms : >1ms,Step:1ms Release time: Release time can be set as twice,2/4/6/8/16/32times.
Port	Input: Balance Output: Unbalance
Parameter	200MHz 32 bit DSP chip processor,96KHz sampling freq,24 bit AD/DA conversion.
Display	4 TFT 600 × 480
Input impedance	Balance 22 KΩ
Output impedance	Imbalance 560 Ω
Input range	≥+12dBu
Frequency	20Hz-20KHz(0~-0.5dB)
S/N	>105dB
THD	<0.01% (Output=0dBu/1KHz)
Separation	>80dB(1KHz)
PC Port	Fornt has 1 port USB
Power	+15V(80mA),-15V(80mA),+5V(800mA)
Unit Dimensions	Main Board 62X146(mm) Control Board 57X164(mm)