Digital Audio Processor

User Manual

Content

1. Instruction

In order to avoid equipment damage caused by improper operation. Please read this user manual before using, it will shows you the use safety of the equipment and warranty terms.

2. Safety Information

⚠**Warning**: Unplug the power cable of the device during lightning weather.

⚠**Warning**: When the device is not used for a long time, should pay attention to moisture-proof, it is recommended that be powered up 3 hours a week.

Caution:

- **Equipment power**: Power supply must be within this range: AC100V-240V~50Hz-60Hz.
- **Equipment power consumption**: 35W
- **Power core protection**: Properly wiring, avoid trampling or heavy objects squeeze.
- **Maintenance**: All repairs must be carried out by certified maintenance personnel. Do not try to open the device to avoid the danger of electric shock.
- **Vent**: The devices have air vents or holes in their shells to prevent overheating of sensitive components. Don't block the vent with anything.

Power Related Content:

- Please make sure that the plug is tightly plugged and the cable is tightly connected, otherwise it may cause failure.
- Do not use loose power socket or damaged power cord, otherwise it may cause electric shock or fire.
- Do not touch the plug with wet hand under any circumstances, otherwise there is danger of electric shock.

- Do not plug multiple devices into one socket, otherwise it may cause fire.
- Do not press the heavy objects on the power cord to prevent bending, pulling or winding of the power cord.

❖ **Additional safety information**：

- User must read and understand all safety and operating instructions before using the package equipment；
- User shall keep the safety instructions for future use;
- The equipment shall not be subjected to water droplets or splashes（Do not place objects containing liquids such as flower bottles）
- The equipment is only suitable for safe use in areas below 2000m sea level
- The equipment is only suitable for safe use in non-tropical climate conditions.

3. Product Introduction

This device is a high-performance digital audio processor. The sampling rate is up to 48KHz. Audio processing is performed by 32bit ADC and 24bit DAC and high-speed DSP processing. Up to 11 band EQ for each input and output channel, there are also with HPF and LPF, all-pass filter, port input, noise gate, gain control, input compressor, output limiter, scene preset, and delay for each channel. Powerful functions such as adjustable delay up to 2000ms, equipped with network port, USB portand RS-232 can realize quick configuration and debugging. This equipment performs a series of optimizations and adjustments for high-quality sound reinforcement systems.

4. Product Characteristics：

✔ 3 model for your selection:2 input 4 outpuu,3 input 6 output,4 input 8 output;

✔ 32bit DSP processing, 48KHz sampling rate, 32bit ADC and 24bit DAC.

✔ The input processing includes: port input, noise gate, gain control, mute, phase,11-band, Xover, input compressor, 2000ms input adjustable delay, linkage adjustment and other processing functions.

✔ The output processing includes: 11-band EQ, 2000ms

adjustable output delay, gain control, mute, phase, Xover, output limit, port output, linkage adjustment and other processing functions.

- ✔ All inputs and outputs channels can be freely routing, and the name of each input and output channel can be changed.
- ✔ All input and output channels have independent phase curve adjustment function.
- ✔ Parameter settings between any channels can be freely copied, and any channel can be linked adjustment.
- ✔ All input and output channels can be auto EQ by importing channel parameters
- ✔ There are six types of equalization: peaking, notch, all pass 1st, all pass 2nd, high shelf and low shelf.
- ✔ All input and output channels have HPF and LPF, the types are: Butterworth, Bessel, Linkwitz-Riley, the slope is optional from 6/12/18/24/30/36/42/48 dB/Oct.
- ✔ All input compressor has thresholds, ratios, start-up time, recovery time and compensation gain adjustable.
- ✔ All output limiter is included: threshold, recovery time can be adjusted, brick wall type limiter, starting time is 0, absolute limit.
- ✔ The delay of all input and output channels with 2000ms delay.
- ✔ Built-in signal generator, input mode can choose pink noise, white noise, sweep frequency and 20Hz-20KHz sine wave adjustable, signal amplitude adjustable.
- ✔ The front panel has USB control port for serial port connection, input and

output level indicator and function buttons, the rear panel has RS232 control port and the 100M network port connection. One-button connection makes the user's operation easier and faster.

✔ It supports 32 preset scenes to be saved, and the device scene algorithm and each preset can be saved and loaded separately. It also has the permission management function to make the device more secure.

✔ Application: professional performances, bar, conference rooms etc.

5. Technical Parameters

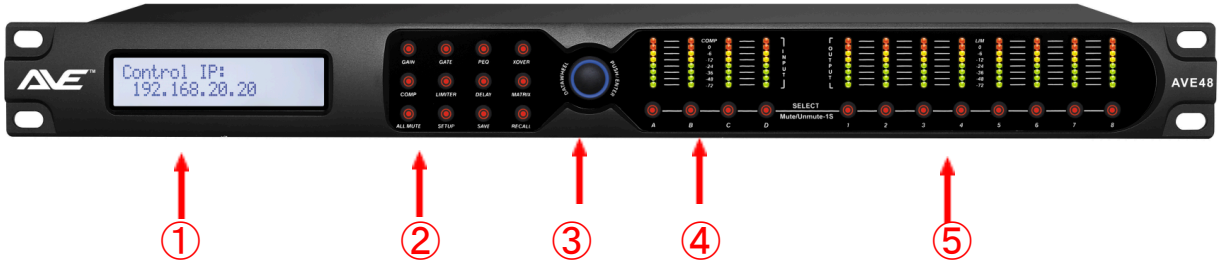
5.1 、Audio Parameters

Sampling Rate	48KHz
Analog Input	2/3/4 XLR Balance
Input Impedance	20KΩ Balance/10KΩ Unbalanced
Analog Output	4/6/8 XLR Balance
Output Impedance	180Ω Balance/90Ω Unbalanced
Frequency Response	20Hz – 20KHz±0.1dB
Default Output Level	0dBu
AD & DA Conversion	32bit ADC/24bit DAC
Maximum Input Level	18dBu
Maximum Output Level	18dBu
THD+N	≤0.002% @ 4dBu 20Hz-20KHz
Input & Output Delay	≤2000ms
Bottom Noise	≤-92dBu
Dynamic Range	≥110dB
S/N Ratio	≥110dB

5.2、Algorithm Parameter

DSP Processing: Using TI's OMAP-L138 high-performance DSP, the computing power is up to 3648 MIPS or 2746 MFLOPS per second. A variety of audio algorithms are built in, the maximum sampling rate is supported to 48KHz	
Parametric Equalizer	11 PEQ
Six Types of Equalization	Peaking, Notch, All pass 1st, All pass 2nd, High Shelf and Low Shelf
The Filter Gain Range	-30dB to +30dB, the step accuracy is 0.1dB
Input / Output Gain Range	-72dB to +12dB, step accuracy: 0.1dB
Center Frequency	Adjustable within the frequency range of 20Hz~20KHz with step accuracy of 1Hz
Filter Q value / Bandwidth	Peaking, Notch, All-pass 2nd, Q value: 0.18 ~ 144.27
High / Low Pass Filter	Butterworth slope: 6/12/18/24/30/36/42/48dB/Oct Bessel slope: 6/12/18/24/30/36/42/48dB/Oct Linkwitz-Riley: 12/24/36/48dB/Oct
Input Noise Gate	Threshold range: -100dBFS ～ 0dBFS Start control time: 1ms ~ 1000ms; Recovery time: 1ms ~ 1000ms
Input Compressor	Threshold range: -84dBFS ~ 0dBFS Ratio: 1 ~ 20 Start-up time: 1ms ~ 1000ms Recovery time: 1ms ~ 10000ms Compensation gain: -24dB ~ 30dB
Output Limiter	Threshold range: -84dBFS ~ 0dBFS Recovery time: 0-100000ms
Delay	Each input and output channel has up to 2000ms delay adjustable

1. Front Panel Introduction



1、LCD Screen

Displays the current scene, CPU utilization, IP address and running time.

2、Audio Function Key

Gain, Gate, Xover, PEQ, Delay, Matrix, Input Compressor, Out Limiter, All Mute, Copy, Save, Recall.

3、DataWheel

Data adjustment and confirmation.

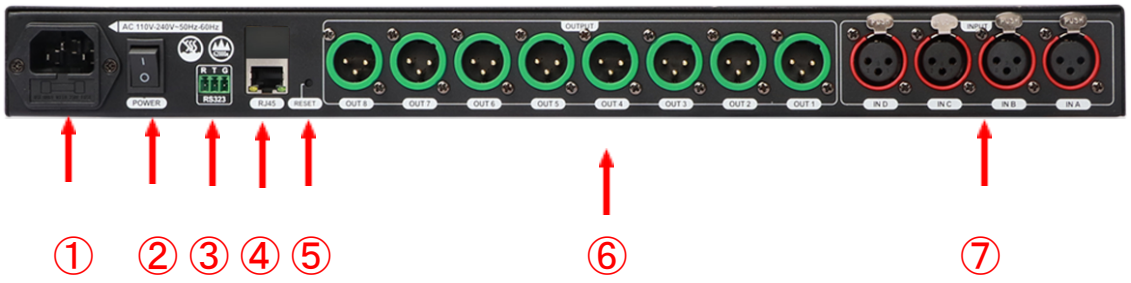
4、Input Level Indicator Light & Channel Key

Above is input level. The indicator will be light when the audio signal is input from the corresponding channel. Below is auxiliary button and mute switch.

5、Output Level Indicator Light & Channel Key

Above is output level. The indicator will be light when the audio signal is output from the corresponding channel. Below is auxiliary button and mute switch.

2. Rear Panel Introduction



1、Power Supply

Support 100V-240V~50-60Hz AC voltage, please use the standard power cable, use power outlet with grounding.

2、Power Switch

3、RS232 Interface

Use for connect with third party central control system.

4、Ethernet Interface

Connect to switch using standard 5 Ethernet network, also can connect directly to laptop.

5、 Restore Factory Configuration

RESET: Restore factory configuration button. If the button is continuously pressed while the device is powered on, until the screen is connected. When the light flashes, the device will be restored to the factory configuration and automatically restarted. Only for IP address, user name and password will be restored to factory configuration.

6、Neutrik Audio output Interface：Channel 1～8

Male-XLR input, balance audio input interface,1 is ground,2 is positive, 3 is negative.

7、Neutrik Audio Input Interface：Channel 1～4

Female-XLR input, balance audio input interface,1 is ground,2 is positive，3 is negative.

6. Device Factory Setting

Factory Setting Item	Factory Setting Value
IP Address	IP Address：192.168.20.20 IPv4 Subnet Mask：255.255.255.0 Gateway：192.168.20.1
User Name/Password/	1.admin/admin/ 2. user/user/ The user admin belonging to the Admin Group has user management rights. Users belonging to the user group do not have user management rights.

7. Software Running Environment

Operating system request: Windows Vista、Windows XP、Windows 7、Windows 8 and Windows 10.Network environment: 100m LAN or wireless router.