



Dynamic Audio Solutions

User's Manual

UTA DSP Series

DIGITAL POWER AMPLIFIER WITH BUILT-IN DSP



Important Precautions



This symbol is used to alert the operator to follow important operating and precautions detailed in documentation.



This symbol is used to warn operators that uninsulated "dangerous voltages" are present within the equipment that may pose a risk of electric shock.

1. Save the carton and packing materials even if the equipment is arrived in good condition. Should you ever need to ship the device (back to the factory), you can only use the original manufacturer's packaging.

2. Read all documentation before operating your equipment. Retain all documentation for future reference.

3. Follow all instructions printed on unit chassis for proper operation.

4. Do not spill water or other liquids into or on the unit, or operate the unit while standing in liquid.

5. Make sure power outlets conform to the power requirements listed on the back of the unit.

6. Do not use the unit if the electrical power cord is frayed or broken. The power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.

7. Always operate the unit with the AC ground wire connected to the electrical system ground. Precautions should be taken so that the means of grounding of a piece of equipment is not defeated.

8. Mains voltage must be correct and same as that printed on the rear of the unit. Damage caused by connection to improper AC voltage is not covered by any warranty.

9. Have gain controls on processors turned down during power-up to prevent amplifier or speaker damage if there are high signal levels at the inputs.

10. Power down and disconnect units from mains voltage before making connections.

11. Never hold a power switch in the "ON" position if it won't stay there itself.

12. Do not use the unit near stoves, heat registers, radiators, or other heat producing devices.

13. Do not block fan intake or exhaust ports. Do not operate equipment on a surface or in an environment which may impede the normal flow of air around the unit, such as a bed, rug, weather sheet, carpet, or completely enclosed rack. If the unit is used in an extremely dusty or smoky environment, the unit should be periodically "blown free" of foreign matter.

14. Do not remove the cover. Removing the cover will expose you to potentially dangerous voltages. There are no user serviceable parts inside.

15. Do not connect the inputs / outputs of processor or consoles to any other voltage source, such as a battery, main source, or power supply, regardless of whether the processor or console is turned on or off.

16. Non-use periods: The power cord of equipment should be unplugged from the outlet when left unused for a long period of time.

17. Service information: Equipment should be serviced by qualified service personnel when:

A. The power supply cord or the plug has been damaged;

B. Objects have fallen, or liquid has been spilled into the equipment;

C. The equipment has been exposed to rain;

D. The equipment does not appear to operate normally, or exhibits a marked change in performance;

E. The equipment has been dropped, or the enclosure damaged.

18. To obtain service, contact your nearest AUDIOCENTER service centre, distributor or dealer.

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◆ Introduction

UTA DSP Series is a two-channel / four-channel digital power amplifier that integrates Class D power amplification technology with high-precision DSP digital signal processing, enhancing audio performance and ease of operation. It comes with IIR filter, FIR filter for precise audio tuning and optimization.

Users can configure and control the amplifier rapidly via the display and USB interface on the front panel and the Ethernet. Thanks to its exceptional performance and user-friendly software interface, the UTA DSP Series amplifier is the perfect choice for professional audio systems.

◆ Application

- Performance halls
- Live Shows
- Multi-function Halls
- Stadiums
- Auditoriums

◆ Technical Features

● Centralized Management and Maintenance

Provide UDP network connections to enable configuration and firmware upgrades, unify software updates, parameter configuration, and maintenance, thereby improving operational efficiency.

● Preset manager

Provide channel and machine preset management, one click calling of presets, simplify operations, and improve the work efficiency of on-site application engineers.

● Advanced DSP audio processing technology

1. IIR filters

We provide various filters such as Bessel, Butterworth, Linkwitz Riley, etc., supporting high pass, low-pass, and parametric equalization, making it easy to achieve -48dB/octave band adjustment and phase control.

2. FIR filters

Enhance audio impact to ensure dynamic richness and better sound experience. Linear phase response preserves the original transient characteristics of the signal, producing finer and more accurate audio.

● BrainCore ® Technology integration

Through Limita™ Processing technology provides precise digital processing to ensure the safe and reliable operation of the system.

● High-Efficiency Class D Power Amplifier

The UTA DSP Series utilizes Class D amplification technology, with an efficiency exceeding 90%, which significantly reduces energy loss during power conversion. This not only decreases heat generation but also lowers energy consumption while maintaining excellent sound quality.

● Global Universal Power Supply and PFC Technology

Global voltage 100-240 V adaptive, PFC regulated power supply, plug and play, energy-saving and stable.

● Intelligent silent cooling

Built in stepless speed regulating fan, automatic speed regulation, quiet and undisturbed.

◆ Unpacking

Please inspect the UTA DSP Series Digital Power Amplifier carefully immediately after unpacking. If you find any damage, notify your supplier /dealer immediately. Only the shipper may file a damage claim with the carrier for damage incurred during shipping. Be sure to save the carton and all packing materials for the carrier's inspection. If you ever need to ship the unit back to AUDIOCENTER or an authorized service center, you should use only the original manufacturer's packaging.

Installation

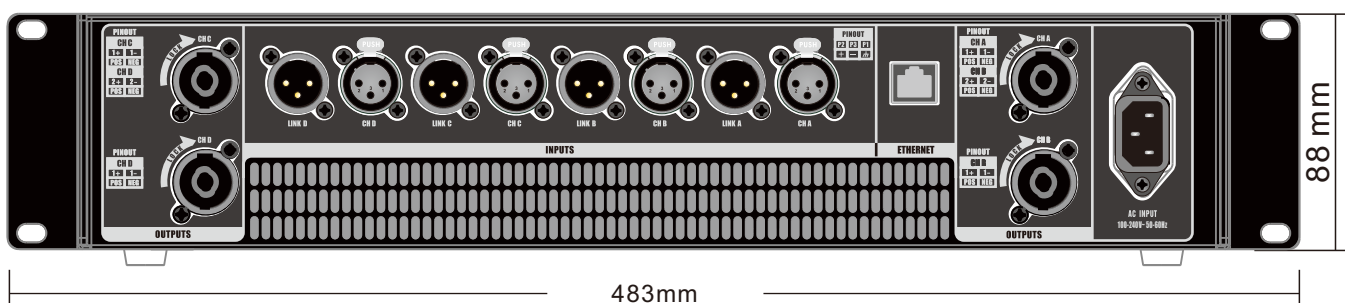
UTA DSP Series Digital Power Amplifier is two-rack-space high. Four front-panel mounting holes are provided on each Digital Power Amplifier .All mount in standard 19-inch racks.

◆ Front Panel

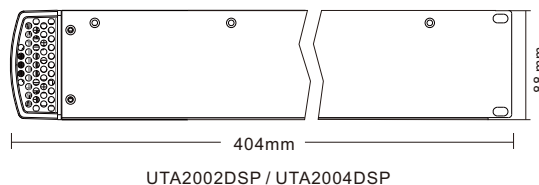
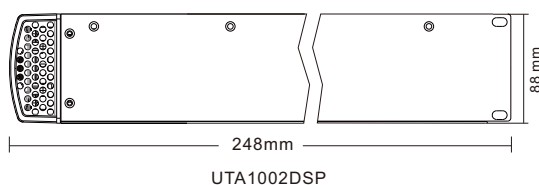


◆ Rear & Side Panel

Rear Panel

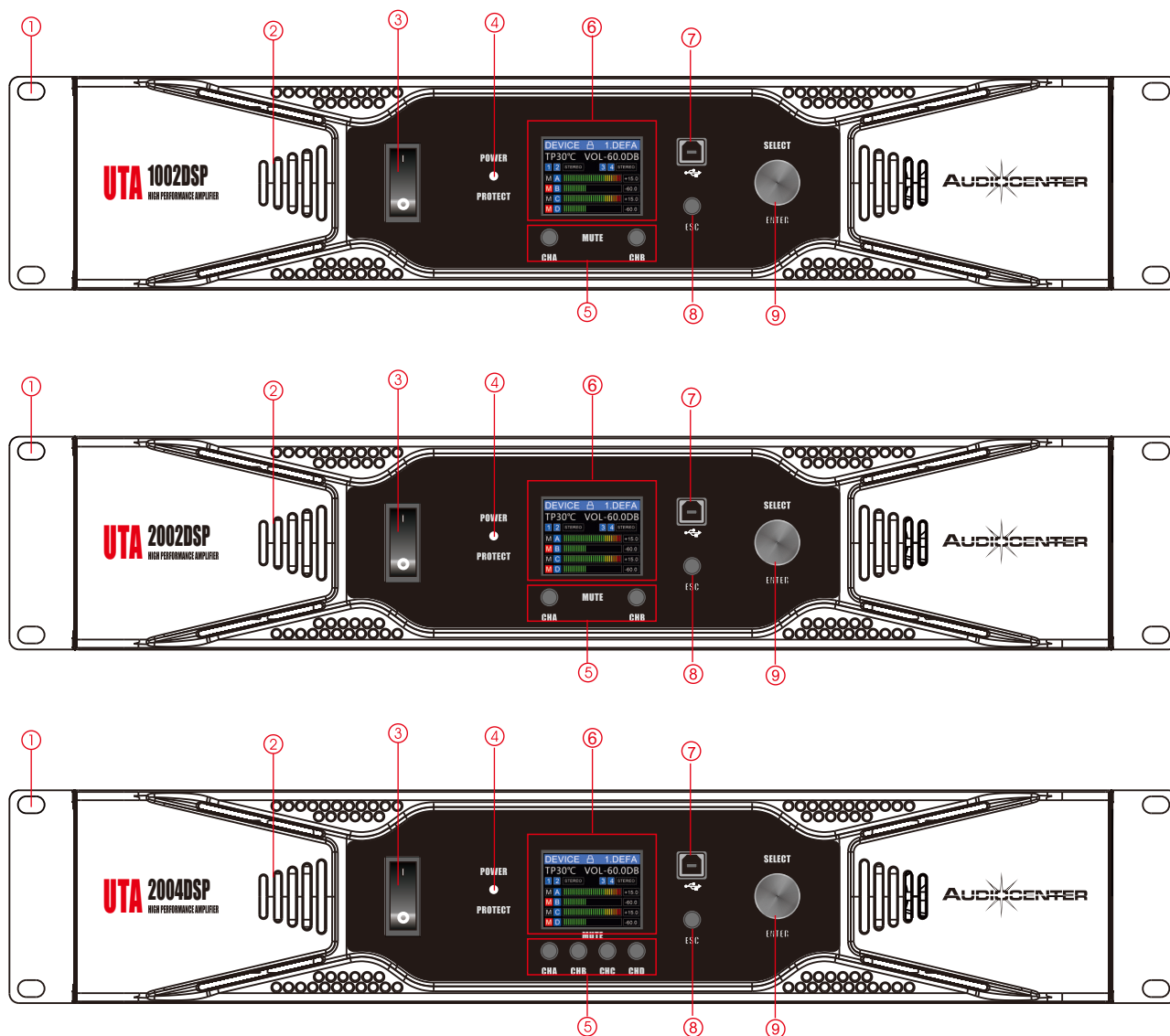


Side Panel



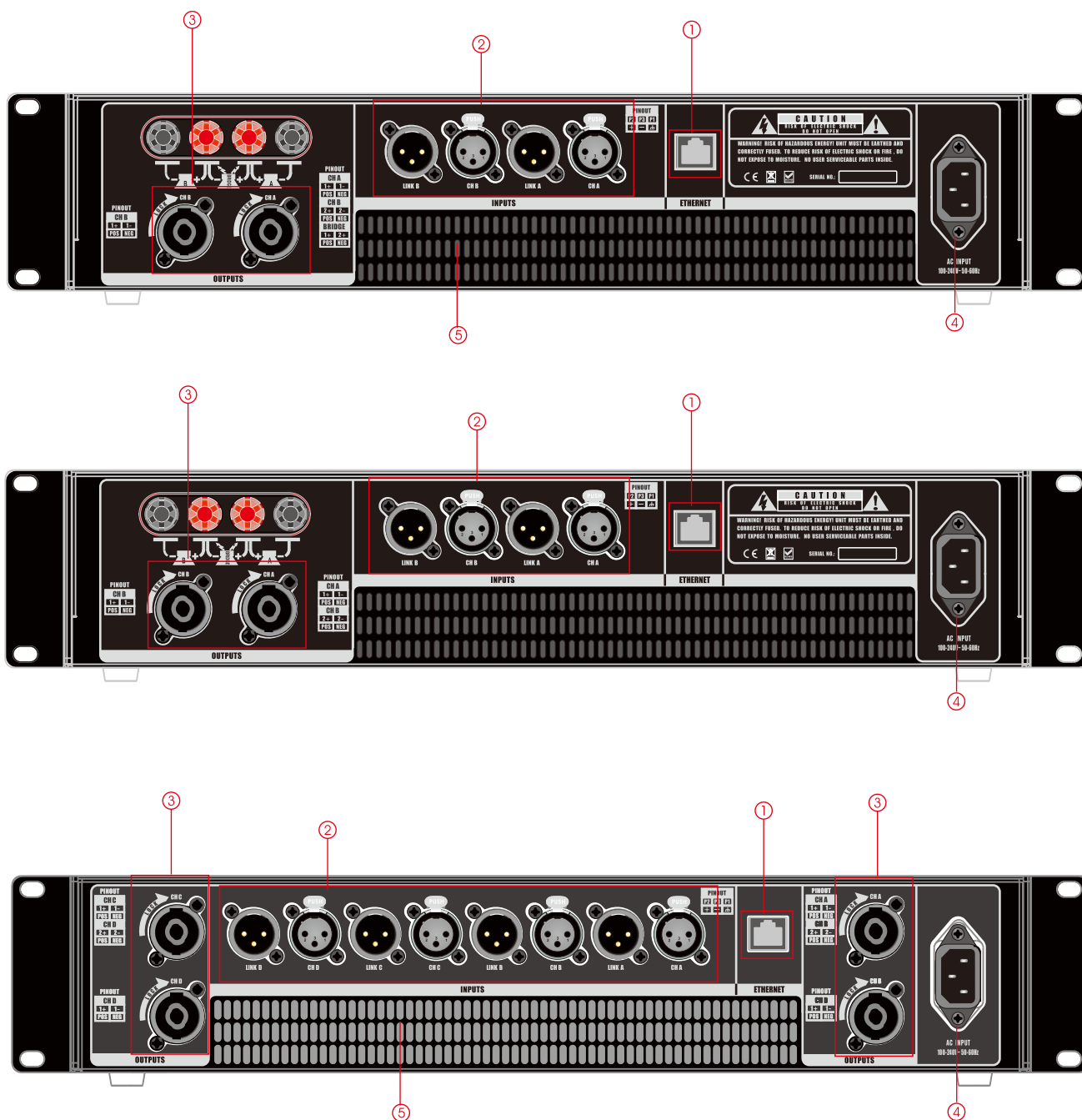
◆ Introduction of Front & Rear Panel Function

Front Panel



1. Mounting holes: There are two front panel mounting holes on each flange.
2. Air cooling intake: Pay attention not to block this intake opening.
3. Power switch: When not in use, please keep the power switch turned off.
4. Power/protection indicator light: When the light is on in white, the power amplifier has been turned on; when it is on in red, it indicates that the power amplifier is in protection mode.
5. Input channel mute shortcut key: Press the corresponding channel button once to mute the input channel, and press it again to cancel the mute.
6. 2.0-inch high-definition display screen.
7. USB interface: Type-B interface, plug-and-play connection, used for connecting to computer control software.
8. ESC return key: Press once to return to the previous menu.
9. Selection/confirmation key: Operate in conjunction with the display screen, used for standalone debugging

Rear Panel

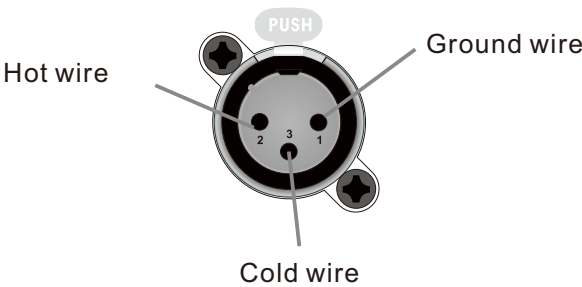


1. UDP network control interface;
2. Analog input interface;
3. Output terminals: Amplifier output interface, using SPEAKON connectors;
4. Power socket: AC power input, using a IEC connector;
5. Fan exhaust port: The fan uses a front-to-back airflow pattern, with air passing through the heat sink and being expelled from the rear panel. Please ensure that the exhaust port is clean and unobstructed to maintain free air circulation.

◆ Connect

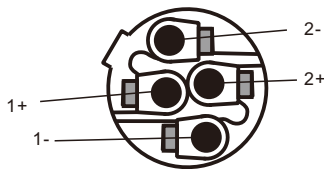
Audio input connection ① :

For the XLR connectors on the rear panel of the UTA DSP series, connect them to the balanced output of the mixing console (either analog signal or AES signal). The polarity of the jacks is shown as follows:



Audio input connection ② :

This product utilizes Speakon output connectors (NL4) for speaker connections.



UTA1002DSP has bridge function, while UTA2002DSP and UTA2004DSP do not have bridge function. Please pay attention to the foot allocation as shown in the figure below.

CH	PIN	UTA1002DSP		UTA2002DSP UTA2004DSP	
		SINGLE	BRIDGE	SINGLE	BRIDGE
CHA	1+	CHA+	BR+	CHA+	/
	1-	CHA-	/	CHA-	/
	2+	CHB+	BR-	CHB+	/
	2-	CHB-	/	CHB-	/
CHB	1+	CHB+	/	CHB+	/
	1-	CHB-	/	CHB-	/
	2+	/	/	/	/
	2-	/	/	/	/
CHC (UTA2004DSP)	1+	/	/	CHC+	/
	1-	/	/	CHC-	/
	2+	/	/	CHD+	/
	2-	/	/	CHD-	/
CHD (UTA2004DSP)	1+	/	/	CHD+	/
	1-	/	/	CHD-	/
	2+	/	/	/	/
	2-	/	/	/	/

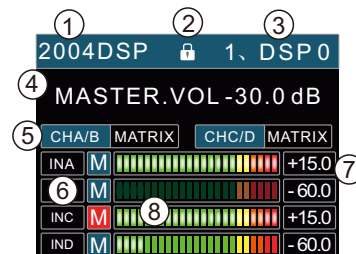
⚠ WARNING

Do not touch the pins of unused channels, nor allow them to short circuit. Unused pins also carry high voltage.

Display Operation Instructions

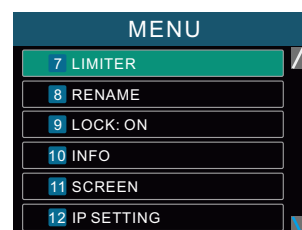
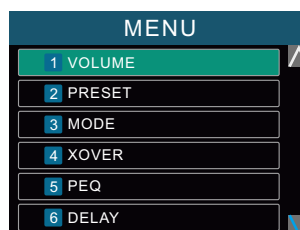
1. Main Interface

- | | |
|-------------------------------|--|
| 1. Device Model | 2. Display Lock |
| 3. Current Preset | 4. Master Volume |
| 5. Channel 1/2 Operating Mode | 6. Current Channel Sensitivity |
| 7. Channel Volume | 8. Input Channel Level Display
(can be switched to Output Channel
Level Display by pressing the ESC key) |



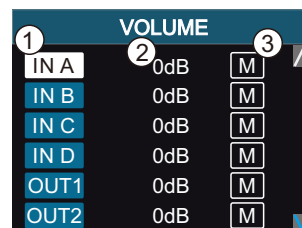
2. Menu Interface

The following settings can be made through the menu interface:
VOLUME ; PRESETS;MODE;X OVER;PEQ;DELAY;
LIMITER;RENAME;LOCK:OFF;INFO;SCREEN;IP SETTING



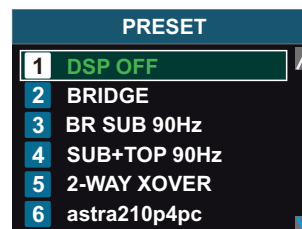
3. Volume Setting Interface

- Channel
- Volume
- Mute



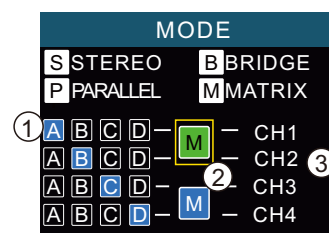
4. PRESET

The preset settings saved in the amplifier can be called, where 1 to 5 are the default preset settings of the amplifier, 6 to 30 are user-defined preset settings (note: display screen operation can only call preset settings, To save the preset, it needs to be operated through PC software).



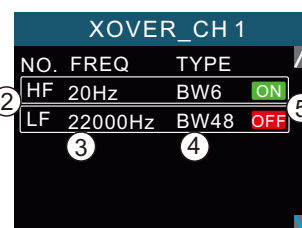
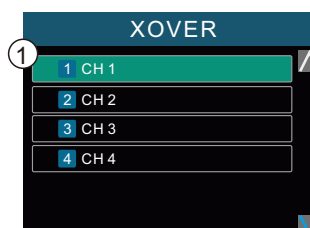
5. MODE

- Input Channel Routing Selection
- Current Operating Mode
- Output Channel



6. X OVER

- Channel Selection
- High pass filter(HF) / Low pass filter(LF)
- X OVER Frequency Selection
- Filter Type Selection
- On / OFF



7. PEQ Settings

1. Channel

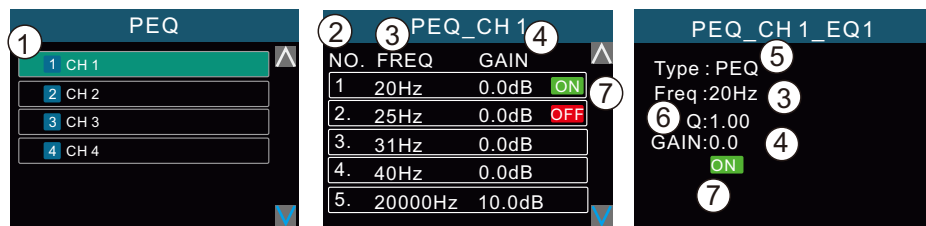
3. Frequency

5. EQ Type

7. ON / OFF
2. EQ NO.

4. Gain

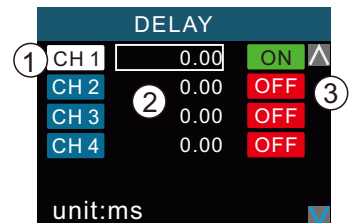
6. Q



8. DELAY

1. Channel

3. ON / OFF
2. Delay Value

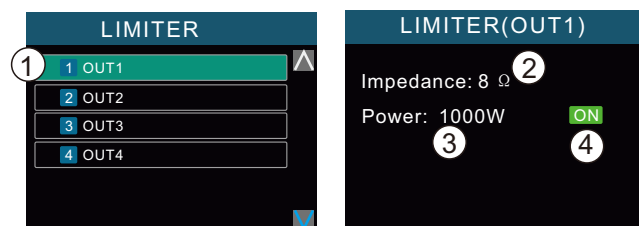


9. LIMITER

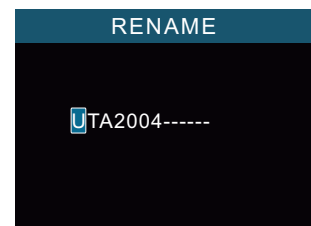
1. Channel

3. Power

4. ON / OFF
2. Impedance



10. RENAME



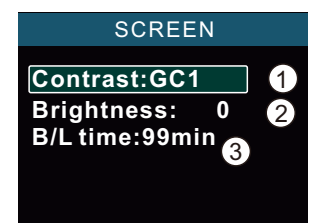
11. INFO



12. DISPLAY

1. Contrast

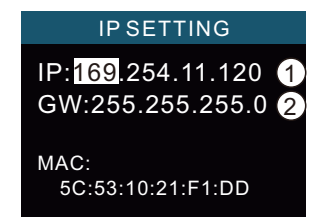
3. Auto Screen Off Time
2. Brightness



13. IP SETTING

1. IP

2. Gateway



PC operating software

UTA DSP series amplifiers provide full-featured PC management software

The software can be downloaded from the official website of Audiocenter at <https://audiocenter.co.za>

Factory preset

The UTA DSP series amplifier provides 5 different basic factory presets (preset commonly used routing and X OVER Frequency) for each model, making it easy for users to quickly set up and use on a single machine

1. UTA1002 DSP

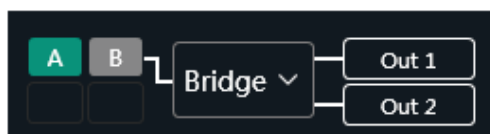
Preset 1: DSPOF

This mode is the default mode of the power amplifier when it leaves the factory. Configure the power amplifier to stereo mode and disable all processing functions



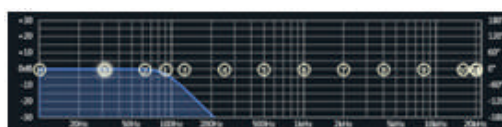
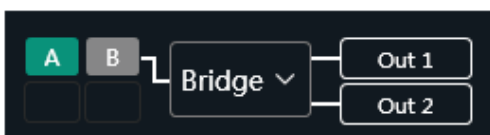
Preset 2: BRIDGE

Place the amplifier in bridge mode, with the signal input from CHA



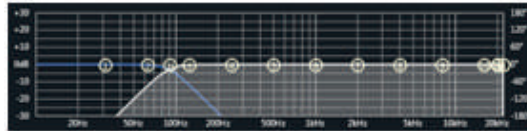
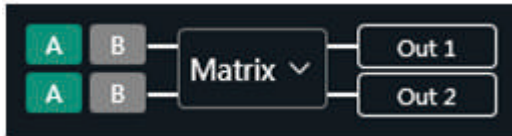
Preset 3: BR SUB 90Hz

Place the amplifier in bridge mode and set it to low-pass filter 90Hz Butterworth -24dB, with the signal input from CHA

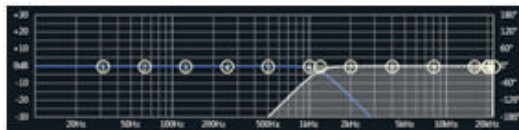
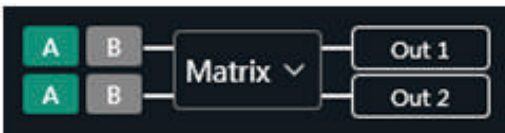


Preset 4: SUB+TOP 90Hz

The OUT1 channel is set to low-pass filtering at 90Hz Butterworth -24dB, and the OUT2 channel is set to high pass filtering at 90Hz Butterworth -24dB. The signal is input from CHA

**Preset 5: 2-WAY XOVER 1.2kHz**

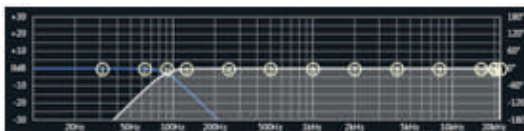
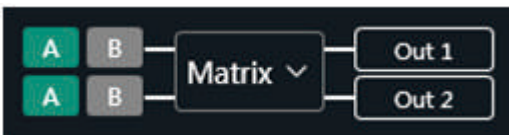
The OUT1 channel is set to low-pass filtering at 1.2kHz Butterworth -24dB, and the OUT2 channel is set to high pass filtering at 1.2kHz Butterworth -24dB. The signal is input from CHA

**2. UTA2002 DSP****Preset 1: DSPOF**

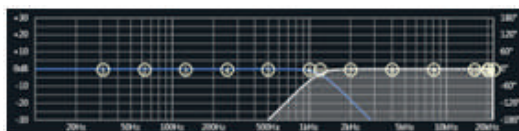
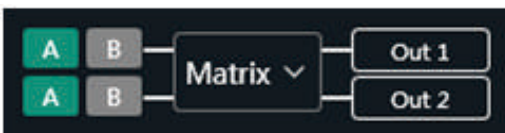
This mode is the default mode of the power amplifier when it leaves the factory. Configure the power amplifier to stereo mode and disable all processing functions

**Preset 2: SUB+TOP 90Hz**

The OUT1 channel is set to low-pass filter 90Hz Butterworth -24dB, and the signal is input from CHA;
The OUT2 channel is set to high pass filtering at 90Hz Butterworth and -24dB, with the signal input from CHA

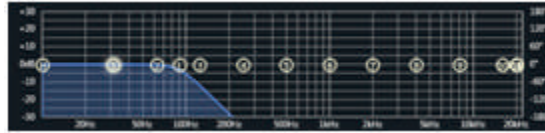
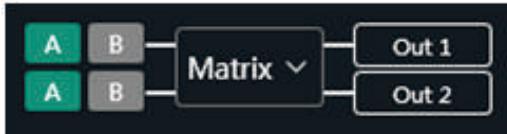
**Preset 3: 2-WAY XOVER 1.2kHz**

The OUT1 channel is set to low-pass filter 1.2kHz Butterworth -24dB, and the signal is input from CHA;
The OUT2 channel is set to high pass filtering at 1.2kHz Butterworth and -24dB, with the signal input from CHA



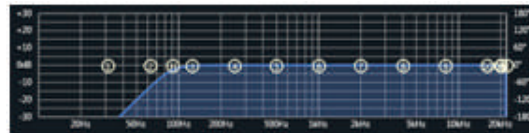
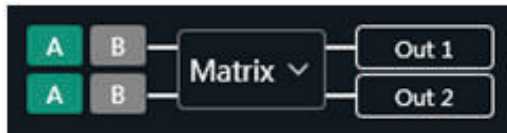
Preset 4: SUB 90Hz

Both channels of OUT1-2 are set to low-pass filter 90Hz Butterworth -24dB, and the signal is input from CHA



Preset 5: TOP 90Hz

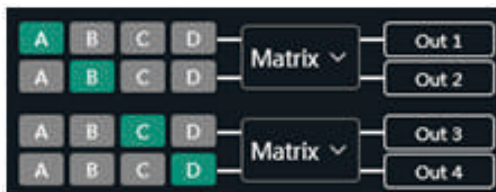
Both channels of OUT1-2 are set to high pass filtering at 90Hz Butterworth -24dB, and the signal is input from CHA



3. UTA2004 DSP

Preset 1: DSPOF

This mode is the default mode of the power amplifier when it leaves the factory. Configure the power amplifier to stereo mode and disable all processing functions



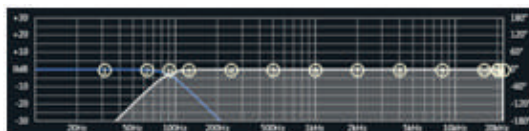
Preset 2: SUB+TOP 90Hz

The OUT1 channel is set to low-pass filter 90Hz Butterworth -24dB, and the signal is input from CHA;

The OUT2 channel is set to high pass filtering at 90Hz Butterworth and -24dB, with the signal input from CHA

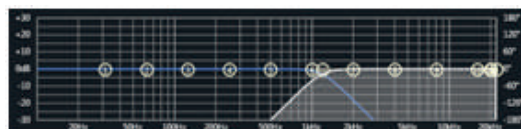
The OUT3 channel is set to low-pass filter 90Hz Butterworth -24dB, and the signal is input from CHC;

The OUT4 channel is set to high pass filtering at 90Hz Butterworth and -24dB, with the signal input from CHC



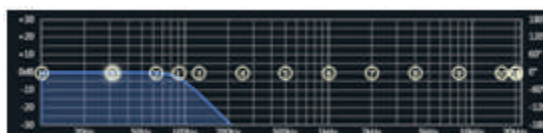
Preset 3: 2-WAY XOVER 1.2kHz

The OUT1 channel is set to low-pass filter 1.2kHz Butterworth -24dB, and the signal is input from CHA;
 The OUT2 channel is set to high pass filtering at 1.2kHz Butterworth and -24dB, with the signal input from CHA;
 The OUT3 channel is set to low-pass filter 1.2kHz Butterworth -24dB, and the signal is input from CHC;
 The OUT4 channel is set to high pass filtering at 1.2kHz Butterworth and -24dB, with the signal input from CHC;



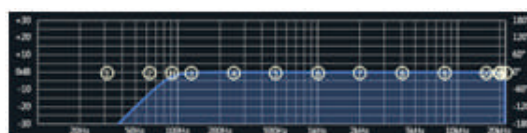
Preset 4: SUB 90Hz

Channels of OUT1-4 are set to low-pass filter 90Hz Butterworth -24dB, and the signal is input from CHA



Preset 5: TOP 90Hz

Channels of OUT1-4 are set to high pass filtering at 90Hz Butterworth -24dB, and the signal is input from CHA



◆ Specification

		UTA1002DSP	UTA2002DSP	UTA2004DSP
Output power (1kHz, 20ms burst THD+N = 1%)	8Ω Stereo	2x500W	2x1400W	4x1400W
	4Ω Stereo	2x1000W	2x2000W	4x2000W
	2Ω Stereo	2x1000W	/	/
	8Ω Bridge	1x2000W	/	/
	4Ω Bridge	1x2000W	/	/
A-Guard Protection System		DC Protection,Short circuit protection,Smart overheat management,Overheat protection, Output overload protection,Soft startup protection,Limiter protection		
DSP processing	Sampling rate	48kHz/24bit		
	Input	1: Noise Gate, Volume, Phase, Mute 2: Input EQ:15 bands EQ + HPF/LPFButterworth, Linkwitz-Riley, Bessel:6 dB/oct to 48 dB/oct) 3: Input delay: 20ms per channel		
	User	1: Volume, Phase, Mute 2: 10-segment PEQ		
	Output	1: Output EQ:15 band EQ + HPF/LPF(Butterworth, Linkwitz-Riley, Bessel:6 dB/oct to 48 dB/oct) 2: Output delay:20ms Per channel 3: Compressor and Limiter 4: Volume, Phase, Mute 5: FIR 512Taps per channel		
Analogue Input		2x analogue	2x analogue	4x analogue
USB control port		USB-B		
UDP/IP network control port		RJ45x1		
Input Connectors		Male XLR & Female XLR		
Output Connectors		Speakon+Binding Post	Speakon+Binding Post	Speakon
Input Impedance	Balanced	≥20kΩ		
	Unbalanced	≥10kΩ		
Maximum input voltage		≥22dBu		
Gain		32dB	38dB	
Frequency response(1W 8Ω stereo)		20Hz-20kHz(±1dB)		
Crosstalk(1kHz,Rated power 8Ω A weighted)		≥70dB		
S/N Ratio(Rated power 8Ω, A weighted)		≥100dB		
Damping Factor(1kHz & 8Ω)		≥500		
Intermodulation Distortion (60Hz:7kHz=4:1, half power)		≤0.1%		
THD+N(1kHz, 8Ω half power A weighted)		≤0.1%		
Output circuitry		Class D		
Power Supply		100-240V~(±10%,50/60Hz),PFC		
Power Consumption(1/8 output power 4Ω)		260W	607W	1210W
Rack space		2U		
Cooling		Front to back venting,mandatory cooling		
Dimension(W×H×D)		483×88×248mm	483×88×404mm	
Net Weight		5.0kg	7.5kg	10.5kg

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Dynamic Audio Solutions