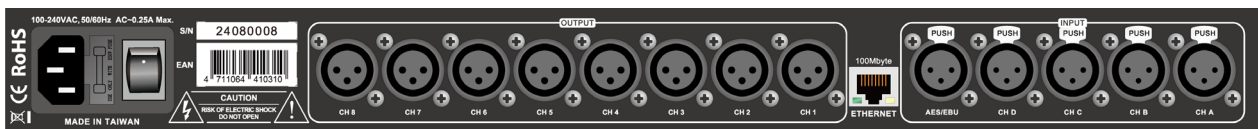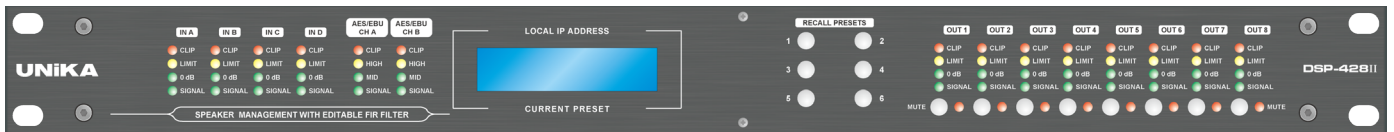# UNiKA
PROFESSIONAL AUDIO

# DSP-428II Digital Speaker Management

## Basic-Quick Start Manual

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## Introduction

DSP-428II is a four-input + eight-output digital signal processor, suitable for professional audio systems or high-end home audio and home theater speaker systems.

Enlarger. Using the most advanced audio-specific components and high-level algorithms, its unparalleled audio quality and functions meet the highest standards in the industry.

The DSP-428II digital processor adopts the latest generation 3-core processing architecture. Compared with the previous generation, the conversion rate remains at 64bit, but the sampling rate is increased to 96KHz, and it has an 8x384-order FIR filter.

In order to improve the convenience of use, the new panel only retains 6 preset buttons and output channel mute buttons, and the one-page display retains the current IP address and default name.

The dedicated UNiKA DSP CONTROL control and monitoring software supports 32bit/64bit Windows 8 or above operating systems and MAC OSX. It also uses high-efficiency 100MBps Ethernet connection. When connecting and calculating more FIR filters through the dedicated software, you can Reflects higher efficiency and response speed. Users can directly connect the device through a computer via a network cable, or connect to the Internet through a general network switch or router. It is recommended to use a router with built-in DHCP function, which can automatically assign IPs to all devices on the network.

DSP-428II also has a unique feature, that is, its channel delay can be set to 2 seconds, and the interval of each step is as low as 0.01 milliseconds. In addition, when conducting FIR RTA testing, the input source of the test microphone can be a computer built-in microphone, a USB microphone, or the NBB system imported into UNiKA through a Dante Virtual Sound Card as a high-end microphone amplifier to connect to a professional-grade test microphone.

⚠ DSP-428II does not have built-in pink noise for use by its built-in RTA. Users can download general-purpose noise software from the Internet. These noise software may include white noise and pink noise.

## Network Assignment

When using UNiKA DSP Controller for network control, a large amount of data flow needs to be transmitted between the device and the computer. In order to avoid Data congestion and delay, DSP-428II only provides 100Mbps RJ-45 network port.

The factory IP of the device is 169.254.XXX.XXX. If you use a computer to connect directly or through a network switch, make sure that the computer has never been connected.

Connect to the intranet router. Because the network segment of the intranet router is 192.168.XXX.XXX, the computer's IP will be assigned to the same network segment.

network segment. At this time, you need to turn on the power of DSP-428II first and then restart the computer. The IP of the computer will automatically change to 169.254.XXX.XXX. most

The best connection method is to connect the DSP-428II and the computer through a wired or wireless router, so that the IPs of both will be automatically assigned.

192.168.XXX.XXX. If you use a switch to connect, you can also connect the LAN port of the router to the LAN port of the router.

All devices on the switch will be assigned 192.168.XXX.XXX.

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## UNiKA DSP Controller Software

If you are an expert sound engineer, you need to download the UNiKA DSP Controller special control software first to perform various functions of DSP-428II.

settings. The software includes Windows 64x/32x and MacOS versions. The Windows version only supports Windows 8/10/11 systems; MacOS supports Ver.10.5 and above systems, MacOS software supports both Inter processor and the latest M1 and M2 processor systems.

⚠ The DSP Controller control software includes the complete settings of the processor and the measurement and operation of the FIR filter. This operation requires the assistance of a professional sound engineer. If you are a general user, please ask a professional sound engineer to set and download the presets, and then switch between the 6 preset modes on the panel as needed. If you need to use DSP Controller for remote control or switching default modes, please download the Windows or MacOS version from the following link:

**https://www.unikapro.com/support/download/**

The software login password for general users is: **1234**

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## Rear panel functions and wiring instructions



Figure 1　　　　　Figure 5　　　　　Figure 2　Figure 3　Figure 4
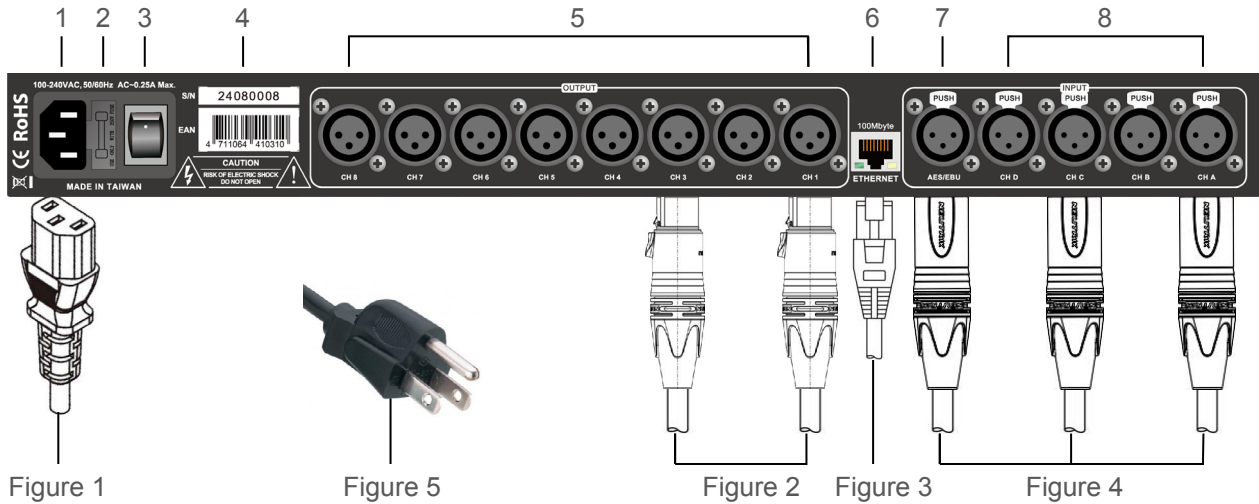
1. AC power input socket: Before use, please insert the IEC AC power cord attached to the machine (Figure 1), and plug the other end into the AC power supply socket.

2. Fuse holder: Built-in 0.5A/250V fuse. During normal use, please do not remove it at will to avoid incorrect power supply.

3. Main power switch: After correctly inserting the AC power supply, press the switch to the upper position to turn on the power of the device; before unplugging the power cord, press the switch to the lower position to turn off the power of the device.

4. Factory label: Paste the factory serial number and EAN international product Bar-code label here. In order to ensure that the equipment can be returned to the factory smoothly for maintenance, please do not tear the label.

5. Signal output : The 8 sets of signal outputs are XLR male sockets. Please insert the female plug of the XLR cable (Figure 2) and connect the other side to an amplifier or active speaker.

6. Network socket (RJ-45/100Mbs): Plug the included or optional Cat-5e network cable into this socket. The other end can be directly connected to a computer, network switch, network router, etc. Up to 255 DSP-428II units can be controlled simultaneously through a network switch or router.

7. AES/EBU input : This XLR female socket can be inserted into the AES/EBU stereo signal, which can be assigned to any input channel 1-4 through the UNiKA DSP Controller software. The connected cable is an XLR male plug (Figure 4), and the conductor can use a general balanced signal cable or an AES/EBU dedicated cable.

8. Signal input : The 4 sets of signal inputs are XLR female sockets. Please insert the male plug of the XLR cable (Figure 8) and connect the other end to a mixer or other peripheral equipment. Such as graphic equalizer.

9. **Warning: To prevent electric shock, please do not remove the upper cover of the equipment by yourself.**

10. **In order to allow the device power supply to be properly grounded to prevent leakage, do not remove the grounding pin of the AC power plug (Figure 5).**

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## Front panel operation and status display LCD/LED instructions
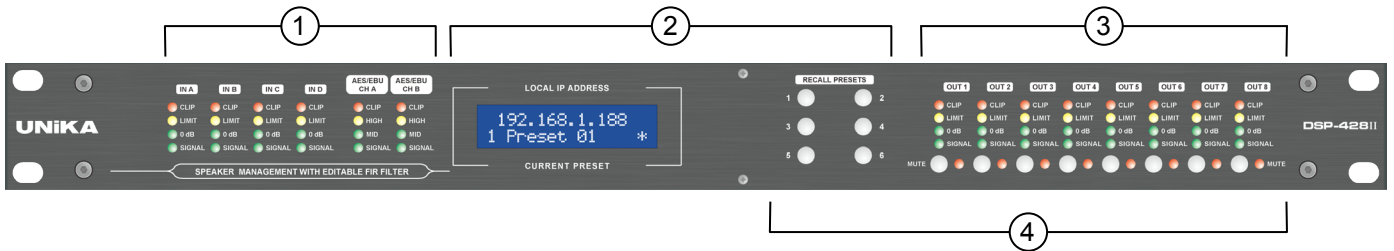


① **The input level indicators of the A-D input channels and AES/EBU channels**
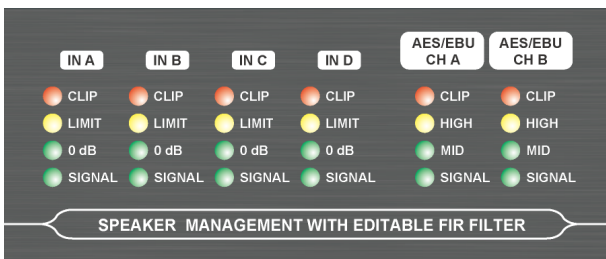


- The actual level at 0dB position of A-D channel is 1Vrms

- AES/EBU LED level value-HIGH=-1dB/MID=-20dB/SIGNAL=-60dB

- When the LIMITER limiter is activated, the LIMIT light will always be on or flash.

- When the signal is overloaded, the CLIP light will be always on or flashing. Please reduce the audio source signal level.

② **The display content of the LCD monitor and the call preset button**
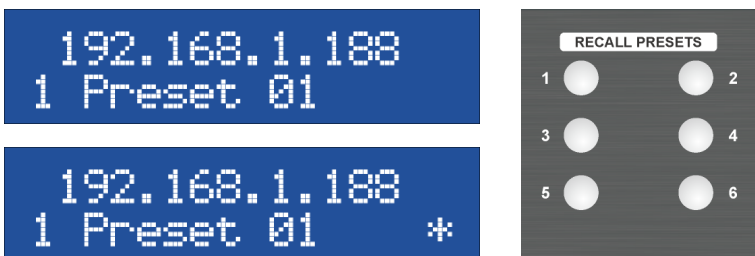


- The upper row of LCD displays the network IP of the current device

- The lower row of the LCD displays the preset currently used by the device, which corresponds to the 6 preset call buttons on the right.

- When the "*" symbol appears in the lower right corner of the LCD, it means that the device is connecting to the computer through the network for editing.

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③ **The output level indicator and mute button/indicator of OUT 1-8 channels**



- Actual level at L0dB position is 2Vrms

- When the LIMITER limiter is activated, the LIMIT light will always be on or flash.

- When the signal is overloaded, the CLIP light will be always on or flashing. Please reduce the audio source signal level.
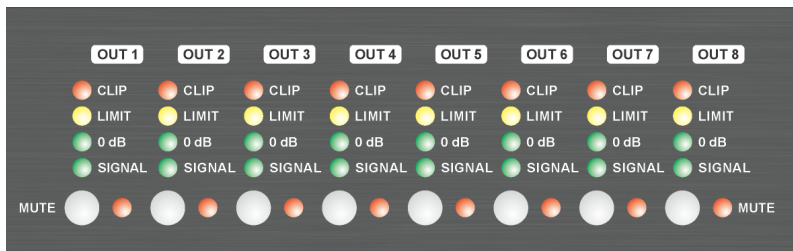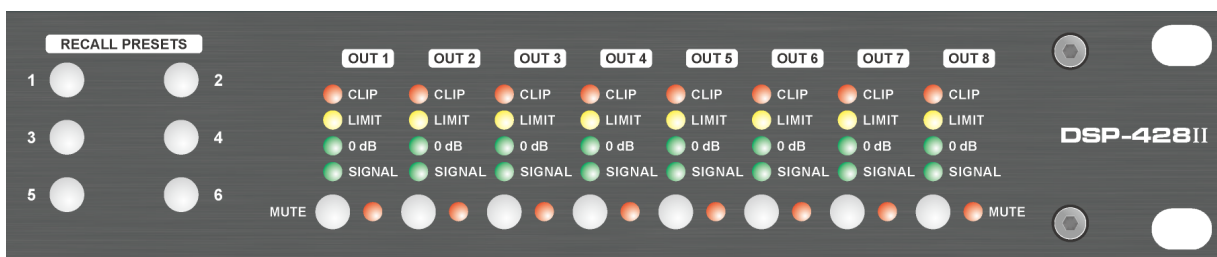
- After mute control of any channel 1-8, whether it is manually pressed or through the control software, the red indicator light on the right side will light up.

④ **Lock Button**



When the PRESET 6 button is pressed for 3 seconds, the MUTE indicators of the OUT 1-8 channels will flash once. From then on, the PRESET 1-6 buttons and the OUT 1-8 MUTE buttons will be locked. This is for use The default mechanism was tampered with during the period. To unlock, just press the PRESET6 button for another 3 seconds. The MUTE indicator light of OUT 1-8 flashes once to unlock.

# DSP-428II Technical Specifications

| Inputs | |
|---|---|
| Analog Inputs (electronically balanced) | 4 |
| Dynamic Range | typ. 125dB(A) |
| Max. Input Level | +24dBu |
| Input Impedance (balanced) | 21kΩ |
| Input Impedance (single ended) | 10.5kΩ |
| Digital Inputs | 1x AES/EBU |
| 0dB at the LED level indicator | 1Vrms |
| **Outputs** | |
| Analog Outputs | 8 |
| Dynamic Range | typ. 120dB(A) |
| Maximum Output Level | +12dBu |
| Noise floor at lowest signal level setting | < -104dBu(A) |
| Source Impedance | 235kΩ |
| 0dB at the LED level indicator | 2Vrms |
| **System** | |
| Input-to-output latency | 350μs |
| Gain | 0 +/-0.5dB |
| Dynamic Range (unity gain) | > 116dB(A) |
| T.H.D. (@0dBV, 1KHz, unity gain, DSP only) | <0.005% |
| Frequency response | 10-40KHz +/-0.5dB |
| **DSP** | |
| Number of processors | 3 |
| Sample rate | 96KHz |
| FIR | 8 x 384 taps |
| Presets | 100 |
| Delay | 2000ms (in)     50ms (out) |
| PEQ (each input and output) | 10 bands |
| Grouping EQ (each input) | 5 bands |
| Crossover (each input, LPF and HPF) | 24 dB/Oct |
| Crossover (each output, LPF and HPF) | 48 dB/Oct |
| Filtered Compressors (each input and output) | 4 bands |
| Limiter (switchable true RMS / Zero Attack, each in and out) | 1 bands |
| **Power Supply** | |
| Universal Power Supply | 100-240 VAC, 50/60Hz |
| Power Consumption | 20W max. |
| Fuse | 0.5A/250V |
| **Others** | |
| Dimension (W x H x D) ex. Rack Ears | 445 x 44.5 x 145 mm |
| Nelt Weight | 2.0kg |
| Shipping Dimension (W x H x D) | 553 x 70 x 243 mm |
| Shipping weight | 2.65kg |
| Content of Master Carton | 6 pieces |

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