



PKN AUDIO



DMP 4X4

DSP Matrix Processor

User Manual

Table of Contents

1. Specifications.....	2
2. Safety Warnings.....	3
3. Product Overview.....	3
3.1 Rear Panel.....	4
3.2 Front Panel.....	4
3.3 Installation.....	5
4. Software Overview.....	6
4.1 Device Specific Features.....	7
5. Troubleshooting.....	8

1. Specifications

Connectors	4 x Phoenix Inputs (+48V Phantom capable) 4 x Phoenix Outputs 2 x RJ45 Gigabit Ethernet Port (PortA: PoE capable) Daisy-Chain Power in & out Power Adapter
Analog Audio Channels	4 In / 4 Out
Network Audio Channels	4 In / 4 Out
Maximum Levels	+14dBu @ 1kHz, THD+N ≤ 1%
Frequency Response	20Hz–20kHz, ±0.2dB
Dynamic Range	110dB (A-weighted)
Signal-to-Noise Ratio	99dB @ +4dBu, 0dB Mic Gain (A-weighted) 85dB @ +4dBu, 24dB Mic Gain (A-weighted)
THD+N	0.005% @ +4dBu, 1kHz (A-weighted)
Mic Preamp Gain	4 Steps: 0dB / 15dB / 20dB / 24dB
Phantom Power	+48V, 10mA
CMRR	≥50dB@1kHz
Channel Isolation	90dB, +4dBu (A-weighted)
Sample Rate	48/96kHz
Bit Depth	16/24/32 bit
Network Latency	1-5ms (Adjustable)
Network Protocol	AES67, ST2110, RAVENNA
DSP Processing Functions	HPF, LPF, PEQ, Delay, Phase Inversion, FIR Filter, Compressor, Limiter, Expander, Noise Gate, Signal Generator, Feedback Suppression
Power Supply Modes	Adapter / Class 1 IEEE 802.3af PoE / Daisy-Chain
Adapter Power	Rated 12VDC, 1.5A
Daisy-Chain Power	Requires adapter Max further daisy-chained units: 2
Dimensions	108 × 149 × 45mm (1/4 RU)
Weight	0.54kg

2. Safety Warnings

To reduce the risk of electric shock or fire, DO NOT OPEN the device casing, or expose the device to rain or moisture!

The product must be kept away from heat sources!

NEVER OPEN THE DEVICE!

Please refer all servicing to qualified service personnel!

Servicing may be necessary if:

1. Foreign objects or liquid might have entered the device's casing.
2. The device has been exposed to rain.
3. The device does not appear to operate normally, or there is noticeable issues with its performance.
4. The device has been dropped, or the casing is damaged.

If you have any questions, please contact your PKN Audio dealer, or write us an e-mail:

info@pknaudio.com

3. Product Overview

The **DMP 4X4** is the smaller, more compact version of the DMP 4X4R. The 4X4 is utilizing 4 analog inputs and outputs via Phoenix connectors, with the addition of 4 (or 8*) digital inputs and outputs through ethernet.

All 4 analog inputs can be used selectively to directly power any device that uses +48V Phantom power (condenser microphones, active DI-boxes etc.) directly from the front panel, or remotely through our software.

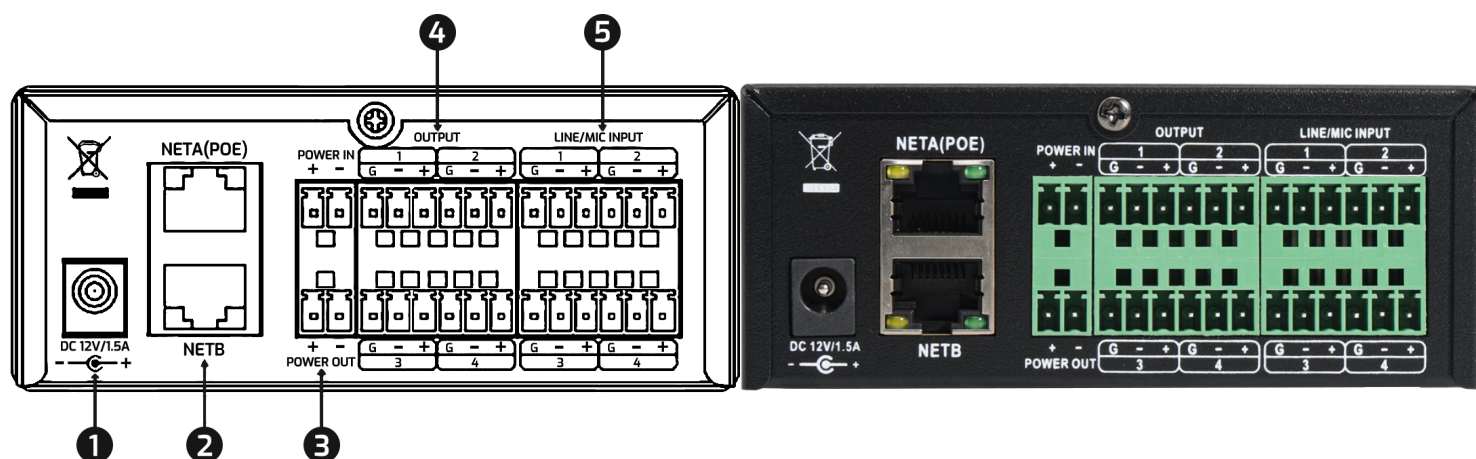
Our **DSP Matrix** series devices, including the **DMP 4X4**, natively support **AES67**, **ST2110** and **RAVENNA** protocols, and they are able to transmit lossless, ultra-low latency digital audio streams over a local area network (LAN) with Layer 3 capabilities, which can interconnect even with other mainstream AoIP devices (such as QSC, Dante, Dolby, etc.) as well.

These features are realised in the same ecosystem, and can be managed remotely from the **PKN Audio DSP Controller** Software where you can customize every DSP feature, along with analog/digital audio matrix routings.

You can download the latest software and the [DSP Controller User Manual](#) from [Our Website](#)!

*Currently the 8 Digital In-and-Out channels option is only supported in 48kHz Sample Rates, with custom firmware modifications. Please contact us at info@pknaudio.com for further details!

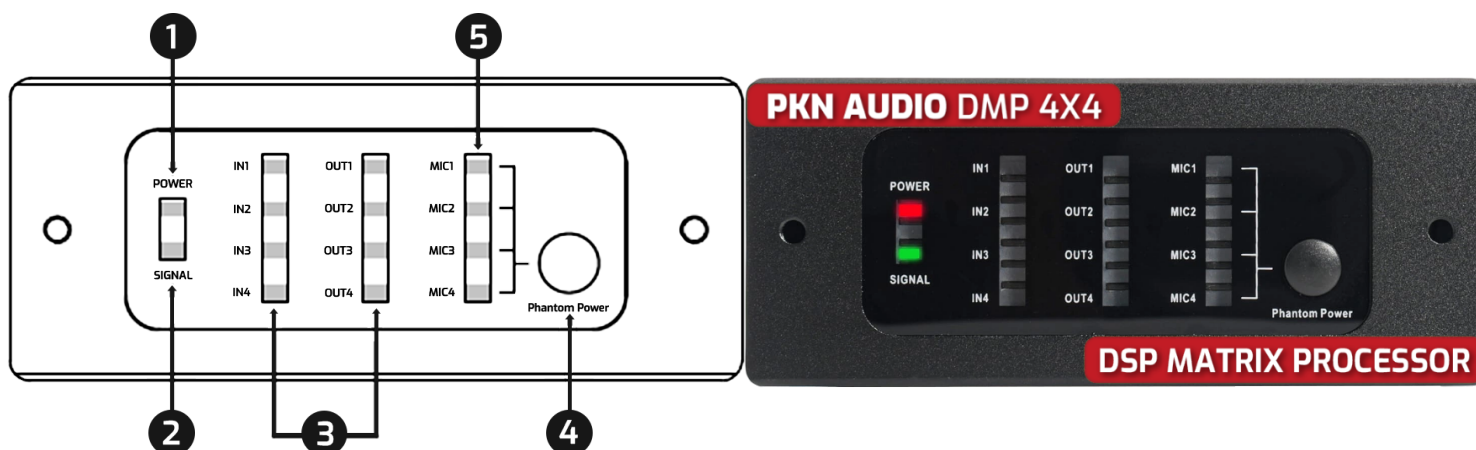
3.1 Rear Panel



1. DC 12V/1.5A Power Supply Connector
2. Gigabit Ethernet Connectors (only NET A port Supports PoE)
3. Daisy-Chain Power Connectors* (IN: receive power, OUT: send power towards another device)
4. Analog Output Phoenix Connectors (Ground, -, +)
5. Analog Input Phoenix Connectors (+48V Phantom Power capable)

*Daisy-Chain power requires the first device powered by DC12V power supply, and is capable to power 2 more devices.

3.2 Front Panel



1. **POWER indicator:** - Red: The device is powered
2. **SIGNAL indicator:** - Green: Network is connected | Orange: Disconnected from network
3. **IN/OUTPUT indicator:** - Green: Signal presence | Red: Signal clipping
4. **Phantom Power button*:** - Tap: Select channel
 - Hold for 3s: Enable/Disable +48V Phantom for selected channel
 - Hold for 5s: Device Locator (Highlights the device in the software)
 - Hold for 10s (all LEDs flash twice): Factory reset
5. **Phantom Power indicator:** - Red Blinking: Current channel is selected
 - Red Continuous: Current channel +48V Phantom Enabled

*Phantom power can also be enabled/disabled remotely via software. See: [4. Software Overview](#)

3.3 Installation

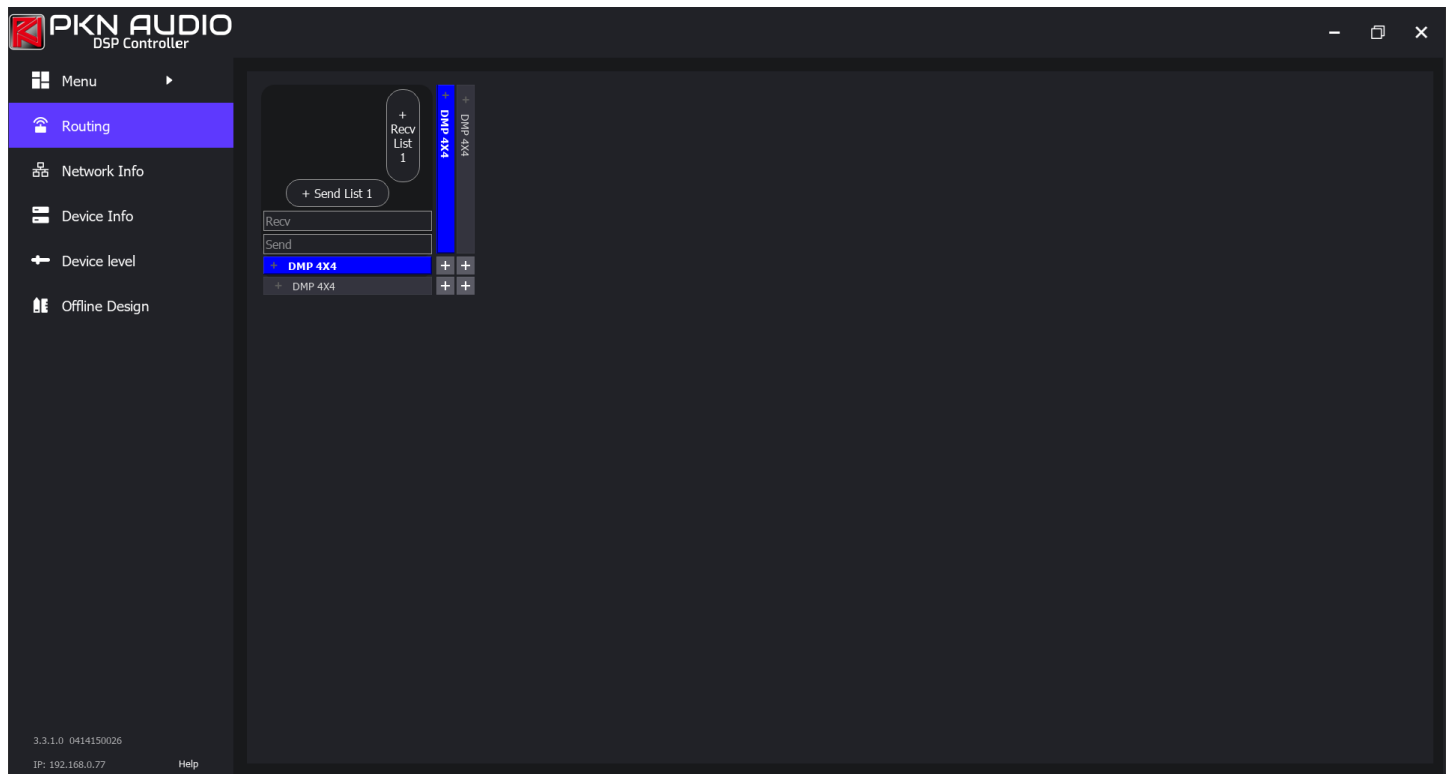
The DMP 4X4 can be powered on via PoE (Power over Ethernet, 802.3af Class 1), the supplied 12VDC, 1.5A adapter, and if the adapter is used, a following second and third device can also be powered via Daisy-Chain, through the Power In / Power Out Phoenix terminals.

Once the sufficient power is supplied, the device automatically powers on.

After the power indicator lights up, the device will take ~20 seconds to boot, then it's operational.

Make sure that the computer, running the **PKN Audio DSP Controller** is on the same network, as the device, and that in the software, the correct network card is selected.

If the devices don't show up, please consult the **5. Troubleshooting** section.



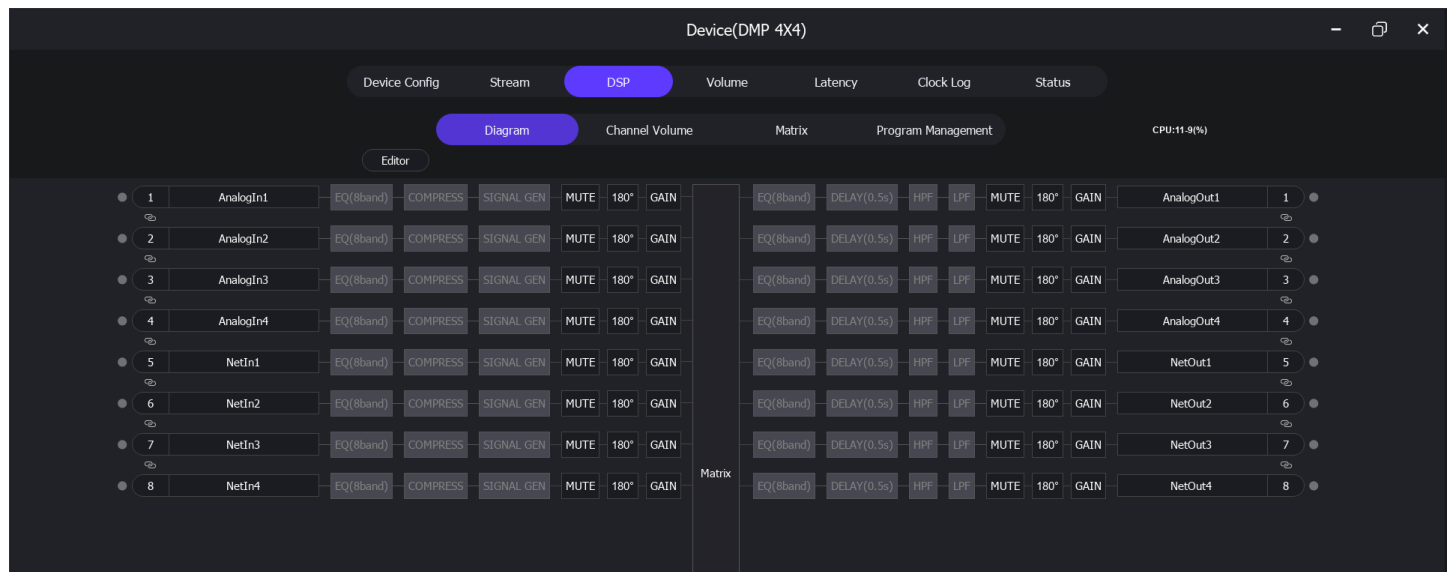
Once the device is found you can set up its network channel routings, or open the **Device Details** menu to configure it further, by double clicking it's name from any of the side menus.

4. Software Overview

The DMP 4X4 supports 4 Analog In-and-Out channels along with 4 Digital In-and-Out channels by default in 96kHz sample rates.

Currently the 8 Digital In-and-Out channels option is only supported in 48kHz with custom firmware modifications.

Please contact us at info@pknaudio.com for further details about setting it up!



Each channel's DSP functions are modifiable, by clicking on the Editor button, and the routings can be set up in the Matrix tab.

By default, the matrix is set up to route the inputs to their corresponding outputs, as the following:

Clear All Route								
Reset All Gain								
All Sharing								
	AnalogOut1	AnalogOut2	AnalogOut3	AnalogOut4	NetOut1	NetOut2	NetOut3	NetOut4
	Sharing	Sharing	Sharing	Sharing	Sharing	Sharing	Sharing	Sharing
	☐	☐	☐	☐	☐	☐	☐	☐
	Set 0	Set 0	Set 0	Set 0	Set 0	Set 0	Set 0	Set 0
	☐	☐	☐	☐	☐	☐	☐	☐
AnalogIn1	☒	☐	☐	☐	☐	☐	☐	☐
	0	0	0	0	0	0	0	0
AnalogIn2	☐	☒	☐	☐	☐	☐	☐	☐
	0	0	0	0	0	0	0	0
AnalogIn3	☐	☐	☒	☐	☐	☐	☐	☐
	0	0	0	0	0	0	0	0
AnalogIn4	☐	☐	☐	☒	☐	☐	☐	☐
	0	0	0	0	0	0	0	0
NetIn1	☒	☐	☐	☐	☒	☐	☐	☐
	0	0	0	0	0	0	0	0
NetIn2	☐	☒	☐	☐	☐	☒	☐	☐
	0	0	0	0	0	0	0	0
NetIn3	☐	☐	☒	☐	☐	☐	☒	☐
	0	0	0	0	0	0	0	0
NetIn4	☐	☐	☐	☒	☐	☐	☐	☒
	0	0	0	0	0	0	0	0

For further, more detailed informations about all software features, please consult the [DSP Controller User Manual](#).

4.1 Device Specific Features

Apart from the front panel's button, the +48V Phantom Power can also be toggled remotely, from the software in the *Device Details - Volume* tab.

Here you can set up the Microphone Gain, if necessary, choosing between 0/15/20 or 24dB:

Device(DMP 4X4)

Device Config Stream DSP **Volume** Latency Clock Log Status

Input Channel Output Channel

In1	In2	In3	In4	NetIn1	NetIn2	NetIn3	NetIn4
AnalogIn1	AnalogIn2	AnalogIn3	AnalogIn4	NetIn1	NetIn2	NetIn3	NetIn4
0	0	0	0	0	0	0	0
-12	-12	-12	-12	-12	-12	-12	-12
-24	-24	-24	-24	-24	-24	-24	-24
-36	-36	-36	-36	-36	-36	-36	-36
-48	-48	-48	-48	-48	-48	-48	-48
-60	-60	-60	-60	-60	-60	-60	-60
-60.0 dBFS	-60.0 dBFS	-60.0 dBFS	-60.0 dBFS	-60.0 dBFS	-60.0 dBFS	-60.0 dBFS	-60.0 dBFS
+12	+12	+12	+12				
0dB 0	0dB 0	0dB 0	0dB 0				
-12	-12	-12	-12				
-24	-24	-24	-24				
-36	-36	-36	-36				
-48	-48	-48	-48				
-60	-60	-60	-60				
dB	dB	dB	dB				
0	0	0	0				
Mute	Mute	Mute	Mute				
MicGain	MicGain	MicGain	MicGain				
0	0	0	0				
PhantomPower	PhantomPower	PhantomPower	PhantomPower				
OFF	OFF	OFF	ON				
	15						
	20						
	24						

5. Troubleshooting

- *The device's LEDs are dark.*

-If Power Supply is used, make sure it's the original 12V/1.5A, supplied with the product.

-If Daisy-Chain is used, make sure the cables and connectors are intact, and in the correct polarity.

-If you are using PoE, make sure the ethernet cable is connected properly on both ends, and the power supplying switch is also powered, and sufficient.

- *The software doesn't recognize the device, it doesn't show up in the GUI.*

-Check the Ethernet connector's LED status along the front panel's: Flashing GREEN means good connection, flashing ORANGE means the communication is abnormal, or there is no sufficient power to the device.

-If the status shows green, make sure that the computer's firewall or antivirus software is not blocking the software's network functions.

- *I can see the device in the software, but cannot control it properly.*

-Reboot (power cycle) the device.

-Check for static or dynamic (DHCP) IP settings.

-Make sure that the device's IP address and the computer's IP address are in the same subnet (e.g., if the device's IP is 192.168.10.123, the computer's IP should be 192.168.10.xxx), and ensure that no other devices on the network conflict with either the device's or computer's IP address.

- *There is no output.*

- Ensure the input signals are present on the software, they're not muted and the matrix connections are set up properly both in the software's main **Routing** and the Device's **DSP** → **Matrix** menus.