Power Amplifiers

MDA Series - MDA4-7000DM

MDA 4-7000DM is a high-performance and high-power touring-grade digital power amplifier. It has a total power output of 4x1600W under a 4-channel 4Ω load. Built-in powerful digital processor with 4 inputs and 4 outputs. The 4.3-inch high-definition touch screen clearly displays the system status, and the sufficient power is equipped with a powerful built-in DSP to enable this power amplifier to take into account both the fixed installation and the mobile performance market.

MDA4-7000DM adopts powerful Marani DSP, including 4 input and 4 output processing channels. Both DSP and AD/DA run at 96KHz sampling rate. The complete processing function provides a complete crossover solution for the speaker. With signal hot backup automatic switching function, 3 levels of priority can easily back up the input source.
From input gain/delay/noise gate/EQ/compression /FIR /to output gain/delay/polarity/X-over/FIR/EQ/RMS compressor/Peak limiter, there are up to 13 PEQ types to choose, The output crossover filter includes the classic Linquez Rayleigh/Bessel/Butterworth, and the MARANI brand unique NXF（Northed X-over Filter）, built-in FIR filter, and newly added MIR linear phase filter can make the phase of the crossover point easier to join while maintaining a very low delay. All the functions we provide are designed to help you better restore the sound.

Features

1. 4*1600W(<1%)@4Ω high power, independent power supply for each channel, 4 channels can output maximum power at the same time regardless of whether they are connected to full-range speakers or sub-low speakers.
2. The built-in MARANI DSP runs at 96k sampling rate, and the high frequency response can reach 40KHz. The brand-new circuit design makes the 4-7000 has the advantages of soft sound, powerful self-protection function, low noise and high efficiency.
3. Source priority automatic switching function, the machine is equipped with 4 analog input interfaces, 2 independent AES digital input interfaces, and 2 Dante network interfaces. Each input channel can be set to 3 priority levels to effectively ensure the reliability of system signal transmission during major events.
4. Added a new "zero delay" hard limiter to better protect the speaker unit.
5. The new impedance detection function can monitor and detect the impedance of the output channel in real time. The set impedance is lower than (wire/plug short circuit/speaker unit damaged) or higher than (open circuit/speaker voice coil blown). The set impedance will immediately alarm on the software to remind Impedance problems reduce the time to find faults and reduce the workload of on-site construction and installation.
6. The fourth generation iFIR wizard V4.0 plug-in supports automatic measurement and generation of FIR coefficients, as well as the import of FIR coefficients generated by third-party software. A new MIR linear phase filter is added to the output crossover filter, which can avoid the phase distortion caused by the traditional IIR filter.
7. Built-in dynamic loudness filter, the working principle is to self-adaptively boost the ultra-low and ultra-high frequency bands according to the equal loudness curve of the human ear, and the boost ratio is determined by the magnitude of the signal amplitude, which significantly improves the overall hearing of the small and medium-sized speaker system.
8. The control network port is independent of the dual Dante network port, and the control network system and the audio network system are separated design, which makes the system structure simpler and clearer, and the error rate of the network part is lower. Even if the control network fails, it will not affect the audio network work. With simple and intuitive management software, the success rate of one-time connection is extremely high
9. The system gain of the power amplifier can be switched by software, 2 gears are optional: 32dB/26dB. The maximum input level can be switched by software, which are +15dBu and +21dBu, which is convenient for different usage scenarios and easily matches different front and rear gain architectures.

General

Dimensions----------	482x88x470(mm) 2RU
Weight, Net / Shipping ----------	14.5 Kg / 16Kg
Preset number----------	50

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Power & Amplifier Sections

Input impedance	20KΩ	Voltage gain	26 dB /32dB
A/D dynamic range	118dB	4Ω power	4x1600W
D/A dynamic range	118dB	8Ω power	4x1500W
Maximum input level	+21dBu (when input gain is -8dB)	Minimum load	4Ω
DSP maximum output level	+12 dBu	analog input	4 XLR electronic balance
Total harmonic distortion	0.001%@ 0dBu 1kHz	AES input	4 XLR 110Ω impedance Transformer balance
Frequency response	20Hz ~ 40kHz		
Crosstalk	-85dB	Dante input	4 Redundant/AES67 (optional)
Signal-to-noise ratio	>113dB (A weighting)	Network control	RJ45

DSP & Processing

Signal generator	white noise/pink noise, level range: -40dBu~0dBu
Input & output gain	-18 dB ~ +12 dB, 0.1dB step
Noise gate	Threshold range: -85dBu~-50dBu Start-up time: 1ms~1000ms; Release time: 1ms ~1000ms
Dynamic loudness filter	Gain range: 0dB-10dB
Parametric Equalizer	Each input channel can have up to 12 optional types of PEQ, and each output channel have up to 8 optional types of PEQ
Type of PEQ include	Bell, 1st order/2th order high shelf, variable Q high Shelf filter , 1st order/2th order low Shelf filter, Variable Q low Shelf filter, 1st order/2nd order low pass filter, Variable Q low pass filter, 1st order/2 order high pass filter, Variable Q high-pass filter, band-pass filter, notch filter, 1st-order all-pass filter, 2nd-order all-pass filter with variable Q The center frequency is adjustable within the frequency range of 20Hz~20kHz with a step accuracy of 1Hz
Q value bandwidth	The Q value range of the Bell filter is: 0.4~128, with a step of 0.01, The Q value range of the F/high-pass/low-pass filter is: 0.1~5.1, the step is 0.01, and the Q value range of the band-pass/notch filter is: 4~104, the step is 1.
Equalizer gain range	-15dB～+15dB
IIR crossover filter	Butterworth slope: 6/12/18/24/36/48dB per octave, bay Searle slope: 12/24dB per octave, Linquez·Rayleigh slope: 12/24/36/48dB per octave, NXF horn filter slope: 40/45/50/50/ 55/60/65/70/75dB per octave
MIR linear phase filter	Butterworth slope: 6/12/18/24/36/48dB per octave, Bessel Slope: 12/24dB per octave, Linquez·Rayleigh slope: 12/24/36/48dB per octave, NXF horn filter slope is 40/45/50/50/55/60 /65/70/75dB per octave
FIR Crossover filter	filter type; high-pass/low-pass/band-pass/external import, Taps range: 256～512, slope Range 21～120dB per octave, time window type: Rect / Sinc / Keiser / Hanning / Hamming / Blackman /Blackman-Harris/ Blackman-Nuttal / Nuttal/ Keiser-Bessel/Sine.
RMS compressor	Threshold range: -15dBu~ +12dBu; compression ratio range: 2~32: 1; soft and hard Inflection point: 0~100% Start-up time: 0.1ms~1000ms; Release time: 100ms~15000ms Gain compensation: -12dB~+12dB
Peak limiter	Threshold range: -15dBu~ +12dBu Start-up time: 1ms~1000ms; Release time: 100ms~5000ms
Delay	The adjustable delay time of each input channel + output channel is 452ms, and the step accuracy is 10.4us;
FIR filter	Each input channel and output channel can choose to import a FIR filter with 512 taps.