

# Power Amplifiers

MDA Series - MDA4-1000M

MDA4-1000M is a highly flexible, powerful and intelligent 4-Channel power amplifier delivering up to a total of 4x1000W @4 ohms, or able to drive 70V Constant Voltage Lines, in Direct Drive without using internal transformers. It provides a full set of value added features such as high output power, efficient cooling system, on board DSP and USB/Ethernet for monitoring and control via PC software. MDA4-1000M includes a highly efficient Switch Mode Power Supply, the 4 output stages use the Class D module and also equipped with a full set of circuit protections. Furthermore the Clip/Limiter function provides output monitoring to prevent speaker damage with gentle gain reduction at clip threshold, in addition to the efficient heat dissipation system and Over-Heat protection which themselves ensure uncompromised reliability.

MDA4-1000M is more than just an amplifier. It is also a capable and sophisticated loudspeaker processor, thanks to its powerful MARANI® DSP running 96kHz/24bit [96 bits precision for the internal intermediate processes] and high performance 24bit AD/DA Converters. It offers 4 channels of slope up to 48dB/Oct IIR HP/LP crossover filters, or up to 512 taps FIR filters, RMS compressor, parametric Eqs, alignment delay, white/pink noise internal generator, everything needed to optimize a loudspeaker system. Moreover, MDA4-1000M allows a 12dB headroom process. User can also set the parameters, select input source, load presets, etc with the extraordinary touchscreen LCD in front panel. Apart from regular analog and digital source input, DANTE is also optional.



## Features

### Outstanding Performance

High power output: 4 x 1000W @4 Ohm or 70V Direct Drive; Highly efficient Switch-Mode Power Supply ;Class D Amp module-full bandwidth PWM modulator with ultra low distortion; Excellent sonic performance with 24bit high end converters coupled with 96kHz sample rate Full protection circuitry; Support DANTE audio (optional); Warm Backup is available, by setting source priority and activating "Autoswitch" function in PC SW

### Top-Grade DSP Engine

12 band parametric equalization per input channel  
4 band parametric equalization per output channel  
Each band can be switched to Bell, Lo/Hi-Shelving Q FIR or IIR Filters for X-Over; FIR filters up to 512 taps, with selectable type and the Out Band attenuation, whose coefficient can be imported from or exported to external applications IIR filter with slopes from 6 ~ 48 dB/Octave,

including Butterworth, Bessel, Linkwitz-Riley and customized ;topologies; Each input channel includes a Pink/White noise internal generator, noise gate function, RMS compressor Each output channel is equipped with a precise Peak Limiter with selectable ratio, attack/release time ;Adjustable Delay time up to 500.998ms for input channel, and 340.998ms for output channel

### Direct PC/Network Connection & Control

Front panel USB connector for direct PC communications; Ethernet interface and M-LAN connection for system setup, monitoring and control via manageable remote PC software Front panel interactive touchscreen LCD display for parametric setting, input source selection, preset loading and so on Simultaneous control up to 32 units via PC software 50 Preset Selection

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## Power & Amplifier Sections

Number of Channels -----	4
Max Output Power per Channel- -----	1000W @ 4ohm, or 70V Direct Drive
Output Circuitry -----	Class D Amp Module- full bandwidth PWM modulator with ultra low distortion
THD+N -----	<0.01%
Signal To Noise Ratio -----	>105 dB (A-weighted, AES-17 filter)
Damping Factor -----	>580 (8Ω load, 1kHz and below)
Power Supply -----	Independent Switch mode Power Supply
Operating Range -----	90 - 245 VAC (50/60Hz);
Consumption / Current draw and -----	18.7 W / 0.268 A / 63.82 BTU/h (Idle)
Thermal dissipation @ 230 V ---	1172 W / 8.8 A / 4000 BTU/h (1/8 max. power@4Ω)
Protections -----	Over-Current, Over/Under Voltage, Output DC and Over-Temperature
Maximum Input/Output Level ---	+13dB

## Audio

Analog Input-----	4 x XLR electronically balanced, +13dBu
Frequency Response (DSP) -----	20 Hz - 20 KHz; -0.5dBu at 20 Hz and 20 kHz

## DSP & Processing

DSP Engine -----	MARANI® DSP: 24 x 32 bit filter processing, 54bit accumulation registers, 96 bit precision on intermediate processing data
Parametric Equalization -----	12 band PEQ per input, 4 band PEQ per output, filter gain range from -15 to +15 dBu
Filter Type-----	Bell, Shelving, HP/LP, Band Pass, Notch Filter, All Pass
FIR for Phase Correction -----	Asymmetrical 512 Taps, allowing also FIR latency Adjustment/reduction. Coefficients can be generated by Pc Sw embedded Wizard tool, imported by external third party applications, and exported to third parties applications
Center Frequency -----	Selectable with a 0.5dBu resolution step from 20Hz up to 20kHz
Filter Q/BW -----	Bell: Q from 0.4 up to 128, steps: 100; Shelving: Q from 0.1 up to 5.1, steps: 100 Bandpass/Notch: Q from 4 up to 104, steps: 100
Input&Output Gain-----	-12dB ~ +12dB, resolution: 0.1dBu
IIR Crossover section HPF/LPF -----	Butterworth 6/12/18/24/36/48dB per octave; Bessel 12/24dB per octave; Linkwitz-Riley 12/24/36/48dB per octave.
FIR Crossover section HPF/LPF -----	Hp/Lp/Bp filters, Taps from 256 up to 512, Attenuation up to -120dB, Window type as Rect / Sinc / Keiser / Hanning / Hamming / Blackman / Nuttall / Sine
Noise Generator-----	Type: White/Pink Noise; Level: -40dBu ~ 0dBu
Input RMS Compressor -----	Threshold from -16dBu up to +14dBu; Ratio: 2:1~32:1; Knee: 0~100%; Attack time from 5ms up to 200ms; Release time from 0.1sec up to 3sec
Output Peak Limiter -----	Threshold from -16dBu up to +14dBu; Attack time from 1ms up to 900ms; Release time from 0.1sec up to 5sec
Internal Overflow Process-----	12dB Headroom
Delay -----	Each input has up to 500.998ms delay, each output has up to 340.998ms delay
Ground Noise -----	-86 dBu

## General

User Preset -----	50
Dimensions -----	482 x 314.5 x 88 (mm)
Weight, Net /Shipping -----	11.80 kg/ 13.00 kg