M28Q HDSP+ETH

Powersoft

4-Channel Power Amplifier with DSP and Ethernet for Portable and Permanently Installed Applications

☑ Touring
☑ Installation

4CH

1U · Green Audio Power · **DSP** on board · Armonía Pro Audio Suite

4-channel mode		mono-bridged mode
4 Ω / Ch	8 Ω / Ch	8 Ω / Ch pair
700 W	360 W	1,400 W

EIAJ Test Standard, 1 kHz, 1% THD

- ▶ Small to medium-scale systems, portable and installed
- ▶ Stage monitoring
- ▶ Bi-amped/tri-amped loudspeakers
- ▶ Hotels, restaurant and bars
- ▶ Amusement parks, themed entertainment
- ▶ Houses of worship, auditoriums
- ▶ Educational facilities
- ▶ Live and dance clubs
- ▶ Mobile DJ's

Equally versatile in both portable and installed system configurations and with its 4 channels delivering up to 2,800 W all neatly packed in one single rack unit weighing just over 7 kg / 16 lb, the **M28Q HDSP+ETH** is an incredibly flexible, cost-effective solution for smaller sound systems.

The **M28Q HDSP+ETH** provides unparalleled levels of control and monitoring through the Armonía Pro Audio Suite™ software, with the same user interface and on the same network as all Powersoft amplifiers. Locally, the **M28Q HDSP+ETH** lets the user access up to four presets per pushbutton on the rear panel. Furthermore, the high-performance DSP is tucked away inside and safe against accidental or intentional tampering.

Benefitting from core technologies of Powersoft's flagship K Series, the **M28Q HDSP+ETH** sets a class standard in efficiency leading to low power consumption, and consequently to less money spent on electricity, all in an eco-friendly way.

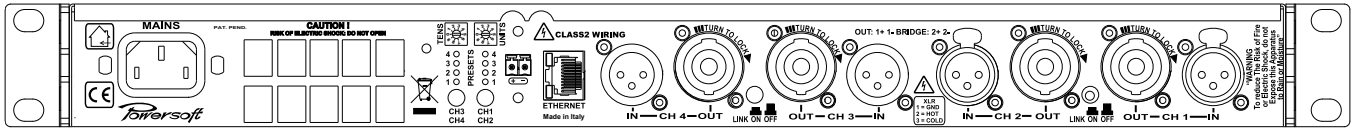The **M28Q HDSP+ETH** comes with 4 years warranty and, like all Powersoft products, is entirely designed and made in Italy.

✓ Legendary Powersoft efficiency:
- ▶ Compact and space saving: 4 channels in 1 RU at 358 mm / 14.1'' depth
- ▶ Green Audio Power®: minimal "carbon footprint" and operational cost of electricity
- ▶ Plenty of power, less weight: up to 2,800 W in 7.3 kg / 16 lb

✓ Unique Powersoft technology for efficient, reliable performance:
- ▶ Switch mode power supply, internally switchable 230/115 V nominal
- ▶ Fixed frequency switch mode amplifier output stages
- ▶ Patented amplifier output filters with ripple cancellation network

✓ Direct PC/network connection:
- ▶ Ethernet interface for system setup, monitoring and control
- ▶ Fully manageable via Armonía Pro Audio Suite™ software
- ▶ On the same network as all the other Powersoft amplifiers

✓ Top-grade DSP on board:
- ▶ Dual 24-bit A/D & D/A with high dynamic range; crossover filters for bi-amped and tri-amped systems; separate input and output EQ's with numerous filters of various types up to 48 dB/oct; peak, RMS, and frequency dependent RMS limiters; delay for driver time alignment
- ▶ Comprehensive system/load monitoring

✓ Four presets on board with selection button

✓ Optimized for 4 Ω loads, thus ideally matching real-world scenarios in targeted applications

✓ Fully protected circuit design:
- ▶ AC protection: shuts down power supply when AC mains voltage is outside operating range
- ▶ Clip limiter: prevents severely clipped waveforms from reaching loudspeakers, while still maintaining full peak power output
- ▶ DC protection: protects against infrasonic signal at the outputs
- ▶ VHF protections: protects the loudspeakers against destructive non-audible, non-musical high frequency signals
- ▶ Short circuit protection: protects the amplifier from short circuit or similar events on the outputs; with automatic protection reset
- ▶ Thermal protection: mutes outputs once output devices reach 75 °C / 167 °F; automatic unmute once temperature is down to 65 °C / 149 °F

✓ Temperature controlled continuous variable speed fan, front to rear airflow

✓ Recessed stepped level attenuators

✓ Full four years warranty

✓ Also available as M28Q without DSP and Ethernet port

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4-Channel Power Amplifier with DSP and Ethernet for Touring and Install Applications

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Specifications

General

		4-channel mode		mono-bridged mode
	Number of channels	4		
	Output power	4-channel mode		mono-bridged mode
	EIAJ Test Standard, 1 kHz, 1% THD	4 Ω / Ch	8 Ω / Ch	8 Ω / Ch pair
		700 W	360 W	1,400 W
	Max output voltage / current	85 V_{peak} / 60 A_{peak}		

AC Mains Power

		@ 230 V		@ 115 V	
	Power supply	Universal, regulated switch mode			
	Operating voltage / Inrush current	115 V / 230 V (factory selection) ± 15%, 50 Hz - 60 Hz / < 26 A_{RMS}			
	Consumption / current draw	@ 230 V		@ 115 V	
	Idle	62 W	0.51 A	64 W	0.6 A
	1/8 of max output power @ 4 Ω	580 W	3.74 A	580 W	7.48 A
	1/4 of max output power @ 4 Ω	1,066 W	6.52 A	1,066 W	13.04 A

Thermal

	Environmental operating temperature	0° - 45° C / 32° - 113° F	
	Thermal dissipation	Fan, continuously variable speed, temperature controlled, front to rear airflow	
	Idle	212 BTU/h	53 kcal/h
	1/8 of max output power @ 4 Ω	785 BTU/h	198 kcal/h
	1/4 of max output power @ 4 Ω	1,249 BTU/h	315 kcal/h

Audio

Gain	32 dB, 30 dB, 28 dB, 26 dB, 24 dB, 22 dB, 20 dB, 18 dB, 14 dB, 4 dB, -∞, user selectable
Frequency response	10 Hz - 30 kHz (1 W @ 8 Ω, ± 3 dB)
S/N ratio (amplifier section)	109 dBA (20 Hz - 20 kHz, A weighted)
Crosstalk separation	>70 dB @ 1 kHz
Input sensitivity @ 8 Ω	1.34 V / 4.76 dBu
Max input level	6 V / 17.8 dBu
Input impedance	10 kΩ
THD+N / SMPTE IMD	≤0.05% @ 1/2 of full power
DIM100 IMD	typ. <0.005% (<0.02% @ >0.1 W)
Slew rate	40 V/µs @ 8 Ω, input filter bypassed
Damping factor @ 8 Ω	>5000 @ 100 Hz

DSP

A/D converter	CS5381, 2 channels, 24 bit / 48 kHz, 120 dB SNR
D/A converter	CS4398, 2 channels, 24 bit / 48 kHz, 120 dB SNR
Frequency response @ -3 dB	7 Hz - 22 kHz
THD	< 0.01% (20 Hz - 20 kHz)
Presets	Bank of 4 presets, management and upload via Armonía Pro Audio Suite™
Delay for time alignment	10 ms per output
Crossover filters	Butterworth, Linkwitz-Riley, Bessel, 6 dB/oct to 48 dB/oct
Output equalizer	up to 12 biquad fully parametric per channel: peaking, hi/lo shelving, hi/lo pass, band pass, band stop, all pass.
Input equalizer	up to 5 biquad filters (PEQ, shelving, band pass, band stop, all pass)
Limiters	Peak limiter, RMS limiter, frequency dependent RMS limiter
Damping control	< 120 Hz, range ± 2 Ω
System Delay	up to 170 ms for 2 IN/2 OUT or 340 ms for 1 IN/2 OUT

Front Panel

Indicators	4 LEDs per channel: 3 × green, 1 × red 2 status LEDs: 1 × green, 1 × yellow
Controls	1 stepped level attenuator pot per channel; mains switch
Maintenance	Dust filter foam behind front panel

Rear Panel

Audio signal input connectors	4 × balanced Neutrik® XLR female
Loudspeaker output connectors	4 × Neutrik® Speakon NL4MD
Network data port Ethernet	1 × RJ45 with activity LED with 2 rotary address switches
DSP preset selection	2 × Pushbutton (stepping through bank of 4 presets); 2 × 4 LED preset indicators
Aux voltage	1 × 2-pin Phoenix type MC 1.5/2-ST-3.81
AC mains	IEC C13 16 A connector; AC mains cord with 3-pin plug 15 A for US, IEC Schuko 16 A for every other nation
Controls	2 × link switch, linking analog inputs 1 & 2 and 3 & 4

Construction

Dimensions	W 483 mm / 19'', H 44.5 mm / 1 RU, D 358 mm / 14.1''
Chassis	1 mm (0.04'') steel chassis and steel removable dust cover, 3 mm (0.12'') steel front panel, screw hole protection, steel side reinforcement & rear support
Weight	7.3 kg / 16 lb