



**DQ Series amplifiers are lightweight four-channel Class D models designed to give the best performance from any loudspeaker in the EM Acoustics product range, with advanced DSP and networking capabilities.**

## FEATURES AND BENEFITS

- Four channels of sonically pure Class D amplification
- Unique, precise digital signal processing
- Over-designed switchmode power supply
- High power-to-size ratio
- Full front panel user interface
- Ethernet network for system operation and monitoring
- Analogue, AES3, and Dante™ digital network audio inputs
- Powerful grouping and multi-layer equalisation

The DQ Series of advanced system amplifiers offer a unique combination of high power and audio performance, seamlessly combined with advanced DSP and network control. The DQ Series offers three models, physically identical four-in-four-out amplifiers but with varying total output power configurations of 6,000 watts (DQ6), 10,000 watts (DQ10) and 20,000 watts (DQ20) to suit specific loudspeaker models and audio applications. The DQ Series models offer extremely high power density in a convenient and flexible format for both mobile applications and installations alike.

DQ Series advanced system amplifiers represent the ideal solution for powering EM Acoustics loudspeakers. Each amplifier comes loaded with preset files for all EM Acoustics loudspeaker products, as well as a dedicated "linear" preset with no processor settings applied – but also blank memory slots for users to create their own setting files. Aside from the non-adjustable factory settings for each EM Acoustics product, users have access to a variety of processing functions including gain, delay and EQ (parametric and shelf) for system or venue optimisation. Power delivery is an area where the DQ Series amplifiers are unmatched. A state-of-the-art switchmode power supply with power factor correction ensures that a DQ Series amplifier can deliver all that is required, even under demanding load conditions and across a wide range of mains supply voltages. DQ6 and DQ10 amplifiers feature an automatic load sensing function which allows them to deliver maximum power into higher impedances. This makes them very cost effective and flexible in a variety of applications. The use of state-of-the-art components and a finely optimised design results in generous power reserves, thus ensuring that pristine sound quality is maintained even under the most extreme conditions, anywhere in the world.

DQ Series amplifiers have both analog inputs (4) and AES3 digital inputs (2) as standard, and can be supplied with an optional Dante™ networked

audio input card if required (model numbers DQ6D, DQ10D and DQ20D). Maximum flexibility was the thought process with regards the input infrastructure – the four-in-four-out configuration allows the DQ Series models to be highly flexible whether deployed powering front of house systems, monitor mixes, or fill loudspeakers.

The front panel provides an intuitive set of controls and indicators to enable simple and straightforward operation of all functions without the need for the remote software. A set of five LED indicators show signal level from -12dB to clip for each of the four DSP inputs. Six illuminated push buttons and two velocity-sensitive rotary encoders provide the user interface for all input and output functions, as well as utility features, in conjunction with the clear back-lit graphical display. A further set of LED indicators show output level and limiter status, and individual backlit channel mute buttons are also provided. A final set of four LED indicators give further status information for the amplifier including AES3 or Dante network audio input, device control network status, and also the presence of a system EQ overlay if activated. DQ Series amplifiers are built around a 2U all-metal chassis to ensure a lifetime of reliable performance. Low-noise variable speed fans are fitted, along with a reticulated foam dust filter which can easily be removed for cleaning. The rear panel houses the Neutrik XLR analog input and link connectors, AES3 input and link connectors, RJ45 communications port, and output connectors on Neutrik speakON™ NL4. Mains power is connected via a 32A Neutrik powerCON™ locking type connector. If fitted, the Dante™ primary and secondary RJ45 ports are also located on the rear panel of the amplifier, along with a Phoenix connector for contact-closure input and relay output connections.

The DQ Series represents a huge leap forwards in amplifier technology, and offers users significant ease of use, improved reliability and better return on investment compared to traditional amplifier/processor combinations.

## TECHNICAL SPECIFICATIONS

GENERAL SPECIFICATIONS			
AUDIO INPUTS	4 x Analogue, 2 x AES3 and 4 x Dante™ (factory fitted option)		
DIGITAL SIGNAL PROCESSING	High performance DSP on all inputs and outputs		
CONTROL, MONITORING AND SYSTEM STATUS ALARMS	Ethernet network Volt-free relay and contact closure port		
POWER SAVE MODES	Standby after user defined time with fast wake up on audio Deep ECO sleep after user defined time with wake up on command		
SYSTEM STANDBY AND WAKEUP	Front panel switch, network command and audio detection		
POWER OUTPUT	DQ6	DQ10	DQ20
TOTAL OUTPUT POWER	6,000 Watts RMS	10,000 Watts RMS	20,000 Watts RMS
Crest Factor of 2 (6dB)	750W/ch @ 8 ohms	1500W/ch @ 8 ohms	1500W/ch @ 8 ohms
Crest Factor of 2.8 (9dB)	1500W/ch @ 4 ohms*	2500W/ch @ 4 ohms*	3000W/ch @ 4 ohms
Crest Factor of 4 (12dB)	1500W/ch @ 2 ohms	2500W/ch @ 2 ohms	5000W/ch @ 2 ohms
	3000W @ 4 ohms (bridged)	5000W @ 4 ohms (bridged)	10000W @ 4 ohms (bridged)
	* Maximum power available – to achieve this the amplifier must be configured via software to deliver maximum power into 4 ohms		
AUDIO PERFORMANCE			
AMPLIFIER TOPOLOGY	High performance Class D		
AMPLIFIER MODULATION	Low feedback, multiple loop, with feed		
DYNAMIC RANGE, MEASURED RELATIVE TO AMPLIFIER OUTPUT	Analogue input, better than 113dBA typical AES / Dante™ input, better than 114dBA typical		
GAIN	32dB		
FREQUENCY RESPONSE:	<7Hz to >30kHz, 4 Ohms, -2.5dB points		
THD	<0.05% typical, 1kHz signal, AES17 filter, 4 Ohm load		
INTER CHANNEL CROSSTALK	Better than -85dBr at 1kHz and -75dBr at 10kHz		
MAX ANALOGUE INPUT LEVEL	+20dBu		
ANALOGUE INPUT SENSITIVITY RANGE	0dBu to +20dBu for full output, continuously adjustable		
ANALOGUE INPUT (FOUR CHANNELS):	Input 20k Ohm, electronically balanced, link directly connected to input		
ANALOGUE GROUND SCHEME	AES48 standard compliant		
AES3 INPUT (TWO AUDIO CHANNELS)	Transformer isolated with unique active cable equalisation for extended range		
AES3 LINK (TWO AUDIO CHANNELS)	Active AES3 signal regeneration. Automatic direct bypass to the AES3 input ensuring the audio signal will still flow even when the amplifier is powered down		
AES3 SUPPORTED SAMPLING RATES	24kHz to 192kHz (auto locking)		
DIGITAL SIGNAL PROCESSING			
RESOLUTION	40 bit, Linea Research proprietary algorithms		
SAMPLE RATE	96kHz throughout		
PHYSICAL INPUTS TO DSP DRIVE MODULES	4 x analogue, 2 x AES, 4 x Dante™ can be routed to four DSP Drive Modules		
DRIVE MODULE INPUT PROCESSING	Input signal routing, delay, gain, HPF, Phase, Mute EQ: 2 x low shelf, 6 x PEQ / band pass and FIR shelving filters		
DRIVE MODULE OUTPUT PROCESSING	Source, delay, gain, Phase, Mute, crossover filters, VX limiters EQ: low shelf, 8 x PEQ / band pass and shelving filters		
PRESET MANAGEMENT	10 snapshots for device wide setup, 50 presets for loudspeaker settings Presets can be recalled to sets of outputs or individual outputs as required		
OVERLAYS	Twelve additional independent overlays of EQ, Delay and Gain Flexible grouping for effective control of many amplifier channels in large systems		
POWER SUPPLY			
TOPOLOGY: (MAIN POWER SUPPLY)	Linea Research high performance Series Resonant		
TOPOLOGY: (AUX AND STANDBY SUPPLIES)	Low quiescent Eco-Flyback		
INTERNALLY STORED ENERGY	>600 Joules		
NOMINAL MAINS INPUT VOLTAGE RANGE	85V to 240V, Power supply automatically detects voltage and configures accordingly		
MAINS INPUT FREQUENCY RANGE	47Hz to 63Hz		
MAINS INRUSH CURRENT (MAX FOR <10MS)	6A at 115V, 12A at 230V		

## TECHNICAL SPECIFICATIONS

<b>PROTECTIONS SYSTEMS</b>	
	Under all circumstances the control and protection systems will endeavour to deliver the maximum power possible for a given set set of conditions, applying limiters only in extreme circumstances. Muting will only occur when a dangerous situation is detected, normal operation automatically resuming when the condition clears.
<b>SYSTEM PROTECTION</b>	Excessive power supply current or amplifier output current Excessive temperature per sub system: PSU, amplifier and DSP Mains voltage within acceptable limits Internal power rails producing correct output Fans operating at correct speed
<b>POWER DISTRIBUTION PROTECTION SYSTEMS</b>	Mains inrush current limiting for soft start and anti-surge Mains average current limiting for mains breaker management Randomised initialisation when remotely powered up
<b>MONITORING, MEASUREMENTS RECORDED AGAINST TIME</b>	Supply current, Supply voltage, Thermal capacity, Each driver current, Each driver impedance, Protection limiting for each output
<b>SPEAKER PROTECTION</b>	Sustained clipping prevention DC offset protection Excessive HF energy (VHF) limiter
<b>VX AUDIO OUTPUT LIMITERS</b>	Vx provides a linear phase virtual crossover and two limiter paths on each output. This unique system delivers effective protection for systems that incorporate passive crossovers Vx Limit Multiband peak limiter, two per output Vx Max Multiband overshoot limiter, two per output X-Max Driver excursion limiter T-Max Driver thermal limiter (long term power limiter)
<b>MONITORING, DEVICE STATUS AND COUNTERS</b>	Number of power cycles counted Number of mains brownout events counted Fan speeds continuously monitored Fan under-speed events counted Various protection mute events counted Driver Impedance continuously monitored
	An inbuilt notification system is provided to indicate problems to remote devices either via the network or the Volt-free changeover relay contacts accessible on the rear panel.

<b>PHYSICAL</b>	
<b>COOLING</b>	Dual vari-speed fans, front to back airflow. Washable, tool-less change filter media
<b>ANALOGUE IN AND LINK</b>	4 x female and 4 x male Neutrik™ XLR
<b>AES3 DUAL CHANNEL IN AND LINK</b>	1 x female and 1 x male Neutrik™ XLR
<b>AMPLIFIERS OUTPUT</b>	4 x Neutrik® speakON™ NL4 connectors
<b>MAINS INPUT CONNECTOR</b>	Neutrik® 32A powerCON™
<b>DANTE PRIMARY AND SECONDARY</b>	2 x shielded RJ45
<b>RELAY OUTPUT &amp; CONTACT CLOSURE</b>	Phoenix™ pluggable terminal block (supplied)
<b>FRONT PANEL DISPLAY</b>	Backlit, graphical, high contrast, daylight visible
<b>FRONT PANEL ENCODERS</b>	Two, detented, velocity sensitive
<b>FRONT PANEL PUSH BUTTONS</b>	Large, tactile, illuminated
<b>LED INDICATORS</b>	Bright, easily differentiated
<b>ENCLOSURE</b>	Standard 19" 2U (88mm), 357mm (14") deep with handles and optional rear support
<b>NET WEIGHT</b>	12.5kg (27.5 lbs)

## REAR PANEL CONNECTORS

