Di06/ Di10/ Di20

INSTALLATION SYSTEM AMPLIFIERS

Di Series amplifiers are lightweight eight-channel Class D models designed to give the best performance from any loudspeaker in the EM Acoustics range, with advanced DSP and networking capabilities. The form factor and features of the Di Series are geared toward sleek and efficient installation applications.

FEATURES AND BENEFITS

- Eight channels of sonically pure Class D amplification
- Unique, precise digital signal processing
- Over-designed switchmode power supply
- High power-to-size ratio
- Tamper-proof front panel
- Ethernet, RS232 and RS485 for system operation and monitoring
- Contact closure control ports and relay status outputs
- Analogue, AES3 and Dante™ audio inputs
- Powerful grouping and multi-layer equalisation
- Contractor-friendly connectors

The Di Series of installation system amplifiers offer a unique combination of high power and audio performance, seamlessly combined with advanced DSP and network control. The Di Series offers three models, physically identical eight-in-eight-out amplifiers but with varying total output power configurations of 6,000 watts (Di06), 10,000 watts (Di10) and 20,000 watts (Di20) to suit specific loudspeaker models and audio applications. The Di Series models offer extremely high power density in a convenient and flexible forma, primarily intended for installation but equally suited to mobile applications where high channel density is required.

Di Series installation system amplifiers represent an 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 Di Series amplifiers are unmatched. A state-of-the-art switchmode power supply with power factor correction ensures that a Di Series amplifier can deliver all that is required, even under demanding load conditions and across a wide range of mains supply voltages. Di06 and Di10 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.

Di Series amplifiers have both analog inputs (8) and AES3 digital inputs (2) as standard, and can be supplied with an optional Dante™ networked audio input card if required (model numbers Di06D, Di10D and Di20D). Maximum flexibility was the thought process with regards the input infrastructure – the eight-in-eight-out configuration allows the Di Series models to be highly flexible whether deployed powering front of house systems, monitor mixes, or fill loudspeakers.

The front panel has been designed to give reassurance in installation applications that settings will not be adjusted accidentally – and as such presents no control options of any kind. LED indicators give input signal level, mute and clip status, and a second set of indicators are provided for output level and limiter status. Additional indicators give further status for the amplifier including communication status, amplifier sleep and Dantetm status.

Di 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 all connections - analog input connectors and AES3 input and link connectors are provided on 6-way Phoenix connectors. The primary network communications port is provided on RJ45, and additional Phoenix connectors are provided for RS485 & RS232 communications, as well as auxiliary ports and contact-closure input and relay output connections. Output connections are provided 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.

The Di 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.

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TECHNICAL SPECIFICATIONS

GENERAL SPECIFICATIONS			
AUDIO INPUTS	8 x Analogue, 2 x AES3 and 8 x Dante™ (factory fitted option)		
DIGITAL SIGNAL PROCESSING	High performance 96kHz 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	Network command, audio detection and contact closure		
POWER OUTPUT	Di6	Di10	Di20
TOTAL OUTPUT POWER	6,000 Watts RMS	10,000 Watts RMS	20,000 Watts RMS
Crest Factor of 2 (6dB)	750W/ch @ 8 ohms	1250W/ch @ 8 ohms	1500W/ch @ 8 ohms
Crest Factor of 2.8 (9dB)	750W/ch @ 4 ohms	1250W/ch @ 4 ohms	2500W/ch @ 4 ohms
Crest Factor of 4 (12dB)	750W/ch @ 2 ohms	1250W/ch @ 2 ohms	1500W/ch @ 2 ohms
	1500W @ 8 ohms (bridged)	2500W @ 8 ohms (bridged)	3000W @ 8 ohms (bridged)
	1500W @ 4 ohms (bridged)	2500W @ 4 ohms (bridged)	5000W @ 4 ohms (bridged)
AUDIO PERFORMANCE			
AMPLIFIER TOPOLOGY	High performance Class D		
AMPLIFIER MODULATION	Low feedback, multiple loop, with feed-forward error correction		
DYNAMIC RANGE, MEASURED RELATIVE TO AMPLIFIER OUTPUT	Analogue input, better than 113dBA typical		
AES / Dante/ input, better than 114dBA typical	32dB		
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	8 x analogue, 2 x AES, 8 x Dante™ can be routed to eight 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

PROTECTIONS SYSTEMS	
	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.
SYSTEM PROTECTION	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
POWER DISTRIBUTION PROTECTION SYSTEMS	Mains inrush current limiting for soft start and anti-surge Mains average current limiting for mains breaker management Randomised initialisation when remotely powered up
MONITORING, MEASUREMENTS RECORDED AGAINST TIME	Supply current, Supply voltage, Thermal capacity, Each driver current, Each driver impedance, Protection limiting for each output
SPEAKER PROTECTION	Sustained clipping prevention DC offset protection Excessive HF energy (VHF) limiter
VX AUDIO OUTPUT LIMITERS	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)
MONITORING, DEVICE STATUS AND COUNTERS	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.

PHYSICAL	
COOLING	Dual vari-speed fans, front to back airflow. Washable, tool-less change filter media
ANALOGUE IN AND LINK	Phoenix™ pluggable terminal block (supplied)
AES3 DUAL CHANNEL IN AND LINK	Phoenix™ pluggable terminal block (supplied)
AMPLIFIERS OUTPUT	4 x Neutrik® speakON™ NL4 connectors
MAINS INPUT CONNECTOR	Neutrik® 32A powerCON™
DANTE PRIMARY AND SECONDARY	2 x shielded RJ45
RELAY OUTPUT & CONTACT CLOSURE	Phoenix™ pluggable terminal block (supplied)
LED INDICATORS	Per channel – input level, output level & status
ENCLOSURE	Standard 19" 2U (88mm), 357mm (14") deep with handles and optional rear support
NET WEIGHT	12.5kg (27.5 lbs)

REAR PANEL CONNECTORS