

iK42

High Power, Four-Channel Class D Amplifier



Features

- Four channels of efficient Class D amplification
- Very high power density in 2U rack height
- Up to 20,000 Watts total power output, depending on load impedance
- High performance 96kHz DSP on all inputs and outputs (48kHz on outputs when implementing FIR filters)
- Switch mode power supply
- Global mains operation, 85V to 240V auto-sensing
- Intuitive, user-friendly, front panel interface
- Analogue, AES3 and Dante™ digital audio network inputs
- Ethernet network for system operation, control and monitoring via Martin Audio VU-NET™ software
- Comprehensive protection and monitoring functions

Applications

- Dedicated controller amplifier for Martin Audio WP line arrays and XE monitors
- Versatile multi-channel amplification for Martin Audio loudspeaker systems

The iKON iK42 is an advanced 4-channel power amplifier which combines very high power density with superb audio performance, state-of-the-art DSP and network control. A dedicated controller amplifier for Martin Audio Wavefront Precision line arrays and XE Series stage monitors, the iK42 can also provide multi-channel amplification across the Martin Audio loudspeaker range.

The iK42 can deliver a full 5000 watts per channel into 2 ohms with all channels driven while remaining highly efficient. Its high efficiency reduces the energy drawn from the mains supply and ensures the power reserves needed to deliver superb sound under arduous live conditions.

Ethernet is used for system remote control and monitoring via Martin Audio's VU-NET software application, while a user-friendly front panel interface allows full local control of all features. Dante digital audio network inputs are also provided for digital audio distribution and control.

Powerful DSP is fully integrated into the iK42 to provide a multitude of features that ensure maximum performance and worldwide compatibility of XE monitors. It also provides up to 1000 FIR filter taps @ 48kHz on each output channel, which is essential to implement DISPLAY's wide bandwidth optimisation process in WP line array systems. The iK42 employs comprehensive protection functions to maintain safe operating conditions of both the amplifier and the loudspeakers driven — including a sophisticated loudspeaker limiter suite which incorporates peak, RMS and excursion limiting, as well as multiband limiting for passive 2-way systems.

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IKON Power Draw & Thermal Dissipation

Sleep mode (slow wake up)					
AC Mains Power Draw (Watts)	Current Draw (Amps)		Thermal Dissipation		
	120Vac	230Vac	Watts	kcal/hr	btu/hr
4.5	0.4	0.2	4.5	4	15

Standby mode (fast wake up)					
AC Mains Power Draw (Watts)	Current Draw (Amps)		Thermal Dissipation		
	120Vac	230Vac	Watts	kcal/hr	btu/hr
60	1.0	0.5	60	52	205

Running with no audio signal					
AC Mains Power Draw (Watts)	Current Draw (Amps)		Thermal Dissipation		
	120Vac	230Vac	Watts	kcal/hr	btu/hr
195	2.9	1.5	195	168	665

Running in 2 Ohm mode* (all channels driven)							
Load (ohms)	Signal duty & Crest Factor	Input power (Watts)	Current Draw (amps)		Thermal Dissipation		
			120Vac	230Vac	Watts	Kcal/hr	Btu/hr
2	1/8, cf = 4.0 (12dB)	3000	33.5**	17.5	500	430	1706
4	1/4, cf = 2.8 (9dB)	3475	28.8**	20.3	475	408	1621
4	1/8, cf = 4.0 (12dB)	1780	19.7	10.3	280	241	955
8	1/4, cf = 2.8 (9dB)	1750	19.2	10.0	250	215	853
8	1/8, cf = 4.0 (12dB)	975	11.0	5.8	225	193	767

Notes

- The amplifier was configured to have no audio processing
- Measurements were performed with a Hameg HM8115-2 power analyser
- All measurements were done at 230Vac, 50Hz.
- The Current Draw figures for 120Vac are calculated
- *The M20 does not have 4 & 8 Ohm Low Z modes
- **The EBP limiter should be set to 32A, but will not activate on any sensible program material

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Technical Specifications

General

TYPE	Four-channel Class D amplifier
POWER OUTPUT*	5000W into 2 ohms 3000W into 4 ohms 1500W into 8 ohms 10000W bridged per channel pair, 4 ohms
CV LINE OUTPUT*	1250W, 25V line 3500W, 70V line 5000W, 100V line
DIGITAL SIGNAL PROCESSING	96kHz/48kHz DSP on all inputs and outputs
COOLING	Dual vari-speed fans, front-to-back airflow
MAXIMUM AMBIENT TEMPERATURE	40°C (105°F)

Audio Inputs/Outputs

ANALOGUE IN/LINK (4 CHANNELS)	4 x female, 4 x male Neutrik™ XLR
ANALOGUE INPUT IMPEDANCE	20kΩ balanced to ground
MAXIMUM ANALOGUE INPUT LEVEL	+20dBu
AES3 IN/LINK (2 CHANNELS)	1 x female, 1 x male Neutrik™ XLR, balanced
DANTE™ (4 CHANNELS)	2 x shielded RJ45, primary and secondary
AMPLIFIER OUTPUTS	4 x Neutrik Speakon™ NL4

Audio Performance

DYNAMIC RANGE	>113dBA, analogue input >114dBA AES/Dante™ input
FREQUENCY RESPONSE	7Hz-30kHz (-2.5dB points, 4 ohm load)
TOTAL HARMONIC DISTORTION	<0.05% typical @ 1kHz, 4 ohm load
SLEW RATE	>60V per microsecond
DAMPING FACTOR	>800 at amplifier output, ref 8 ohms

Control and Monitoring Network

PROTOCOL	Ethernet
CONTROL APPLICATION	Martin Audio VU-NET™

Digital Signal Processing

SAMPLE RATE	96kHz (48kHz for FIR filter implementation)
PHYSICAL INPUTS	4 x analogue, 2 x AES, 4 x Dante™ inputs routable to four DSP drive modules
DRIVE MODULE INPUT DSP	Input signal routing, delay, gain, HPF, Phase, Mute EQ: 2 x low shelf, 6 x PEQ/bandpass and FIR shelving filters
DRIVE MODULE OUTPUT DSP	Source, delay, gain, Phase, Mute, crossover filters, limiters EQ: low shelf, 8 x PEQ / band pass and shelving filters

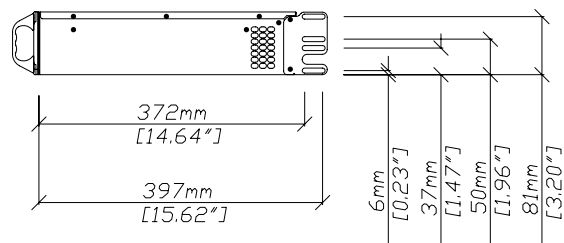
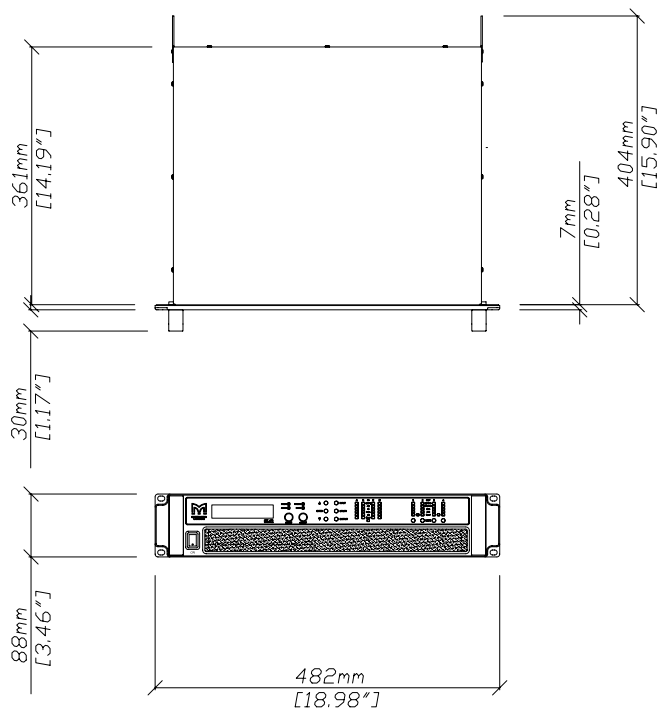
Power Supply

TYPE	High performance Series Resonant
AC INPUT OPERATING RANGE	85 – 240V ~ AC, 47 - 63Hz
MAINS INRUSH CURRENT	6A at 115V, 12A at 230V (max for <10ms)
MAINS CONNECTOR	Neutrik 32A Powercon™

Physical

DIMENSIONS	(W) 483 x (H) 2U/89mm x (D) 357mm (W) 19in x (H) 2U/3.5in x (D) 14.1in incl handles and optional rear support
WEIGHT	12.5kg (27.5lbs)

* RMS output power per channel, all channels driven with continuous program material and a nominal ambient temperature of 40°C /105°F



Trade Descriptions Act

Due to Martin Audio's policy of continuing improvement, we reserve the right to alter these specifications without prior notice. Martin Audio is committed to refining state of the art sound reinforcement, combining in-depth product and field applications research with advanced manufacturing techniques. Every Martin Audio product is built to the highest manufacturing standards and rigorously tested to ensure that it meets the performance criteria specified in the design.

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