

# iK81

## High Power, Eight-Channel Class D Amplifier



### Features

- Eight channels of efficient Class D amplification
- Very high power density in 2U rack height
- 10,000 Watts total power output
- 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™ (AES67 compatible) digital audio network inputs
- Ethernet network for system control and monitoring via Martin Audio VU-NET™ software application
- Comprehensive protection and monitoring functions

### Applications

- Dedicated controller amplifier for the WPM, O-Line, XE300, TORUS 8 and FlexPoint systems.
- Versatile multi-channel amplification for Martin Audio loudspeaker systems

The iKON iK81 is an advanced 8-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 the Martin Audio Wavefront Precision WPM line array, the iK81 can also provide multi-channel amplification across the Martin Audio loudspeaker range.

The iK81 can deliver a full 1250 watts per channel into 2, 4 or 8 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 iK81 to provide a multitude of features that ensure maximum performance of performance of FlexPoint systems, TORUS 8 and XE300 stage 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 the WPM line array and O-Line.

The iK81 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
204	3	1.55	204	175	696

Running (all channels driven)								
Load Mode	Load (ohms)	Signal duty & Crest Factor	Input power (Watts)	Current Draw (amps)		Thermal Dissipation		
				120Vac	230Vac	Watts	Kcal/hr	Btu/hr
2 Ohm	2	1/8, cf = 4.0 (12dB)	1703	20.4	10.6	453	390	1547
2 Ohm	4	1/4, cf = 2.8 (9dB)	1652	19.8	10.3	402	345	1371
2 Ohm	4	1/8, cf = 4.0 (12dB)	938	11.9	6.2	313	269	1069
4 Ohm	4	1/4, cf = 2.8 (9dB)	2967	31.6	16.5	467	401	1592
4 Ohm	4	1/8, cf = 4.0 (12dB)	1617	20	10.4	367	315	1251
4 Ohm	8	1/4, cf = 2.8 (9dB)	1605	19.2	10.0	355	305	1211
4 Ohm	8	1/8, cf = 4.0 (12dB)	920	16.6	6.1	295	254	1007
8 Ohm	8	1/4, cf = 2.8 (9dB)	2825	33.1	17.3	325	279	1109
8 Ohm	8	1/8, cf = 4.0 (12dB)	1567	18.48	9.6	317	272	1081
100V	-	1/8, cf = 4.0 (12dB)	1551	18.3	9.5	301	259	1026
70V	-	1/8, cf = 4.0 (12dB)	1601	19.8	10.3	351	302	1197
25V	-	1/8, cf = 4.0 (12dB)	946	12	6.3	321	276	1094

#### Notes

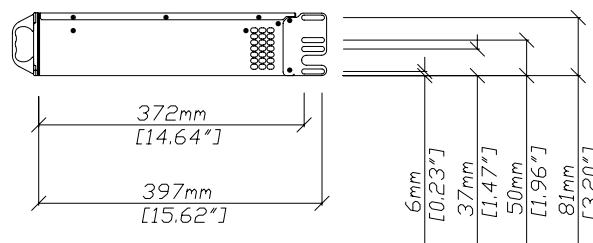
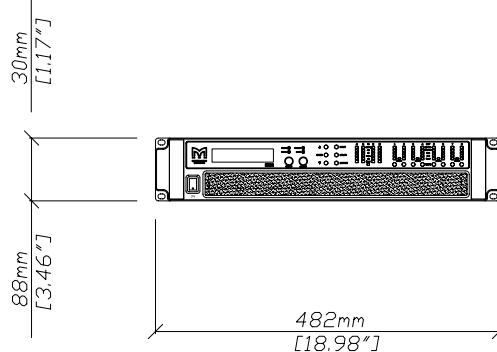
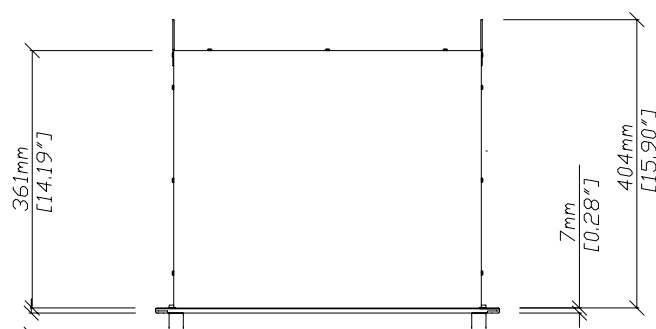
- The amplifier was configured to have no audio processing
- Measurements were performed with a Hameg HM8115-2 power analyser
- All measurements were done at 230Vac, 50Hz.
- The Current Draw figures for 120Vac are calculated

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### Technical Specifications

General	
TYPE	Eight-channel Class D amplifier
POWER OUTPUT*	1250W into 2 ohms 1250W into 4 ohms 1250W into 8 ohms 625W into 16 ohms 2500W bridged per channel pair, 4 ohms 2500W bridged per channel pair, 8 ohms
CV LINE OUTPUT*	625W, 25V line 1250W, 70V line 1250W, 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™ (8 CHANNELS) (AES67 COMPATIBLE)	2 x shielded RJ45, primary and secondary
AMPLIFIER OUTPUTS	4 x Neutrik Speakon™ NL4
Audio Performance	
DYNAMIC RANGE	>113dB, analogue input >114dB 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)
AUDIO INPUTS	4 x analogue, 1 x AES pair with link output, 8 x Dante™ inputs (4 x inputs routable to 4 x input DSP, 4 x inputs routable to output DSP)
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) 482 x (H) 2U/88mm x (D) 441mm (W) 18.98in x (H) 2U/3.46in x (D) 17.35in 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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### Loudspeaker Compatibility

The following table provides compatibility of iK81 with core Martin Audio loudspeakers.

	16 $\Omega$	8 $\Omega$	4 $\Omega$	2 $\Omega$	8 $\Omega$ Bridged	4 $\Omega$ Bridged
	625w	1250w	1250w	1250w	2500w	2500w
<b>CDD</b>						
CDD5	N/A	✓	✓	✓	N/A	N/A
CDD6	N/A	✓	✓	✓	N/A	N/A
CDD8	N/A	✓	✓	-1.1dB	N/A	N/A
CDD10	N/A	✓	✓	-2.0dB	N/A	N/A
CDD12	N/A	✓	✓	-2.8dB	N/A	N/A
CDD15	N/A	✓	-1.1dB	✗	N/A	N/A
<b>FlexPoint</b>						
FP4	✓	✓	✓	✓	N/A	N/A
FP6	✓	✓	✓	-3.0dB	N/A	N/A
FP8	N/A	✓	✓	-2.0dB	N/A	N/A
FP12	N/A	✓	-0.5dB	-3.5dB	N/A	N/A
FP15	N/A	✓	-2.0dB	✗	N/A	N/A
<b>LE Monitors</b>						
LE100	N/A	✓	✓	✗	N/A	N/A
LE200	N/A	✓	-1.1dB	✗	N/A	N/A
<b>O-LINE</b>						
O-Line	✓	✓	✓	✓	N/A	N/A
<b>SX Subwoofers</b>						
SX110	N/A	✓	✓	-2.0dB	N/A	N/A
SX210	N/A	N/A	✓	-2.0dB	N/A	N/A
SX112	N/A	✓	-1.1dB	✗	N/A	N/A
SX212	N/A	N/A	-1.1dB	✗	N/A	✓
SX115	N/A	-1.1dB	✗	✗	✓	-1.1dB
SXC(F)115	N/A	-2.0dB	✗	✗	✓	-2.0dB
SX215	N/A	N/A	✗	✗	N/A	-1.1dB
SX118	N/A	-2.0dB	✗	✗	✓	-1.1dB
SXC(F)118	N/A	-2.0dB	✗	✗	✓	-1.1dB
SX218	N/A	-2.0dB	✗	✗	✓	-1.1dB
SXH(F)218	N/A	N/A	✗	✗	✗	✗
<b>TH Series</b>						
THS	N/A	-1.1dB	✗	✗	N/A	N/A
THH(V)	N/A	-0.8dB	✗	✗	N/A	N/A
<b>TORUS</b>						
T8	N/A	✓	✓	-1.1dB	N/A	N/A
T12	N/A	✓	-1.1dB	✗	N/A	N/A
<b>Wavefront Precision</b>						
WPM	✓	✓	-2.8dB	✗	N/A	N/A
WPS	N/A	✓	✗	✗	N/A	N/A
WPC	N/A	✓	✗	✗	N/A	N/A
WPL	N/A	✗	✗	✗	N/A	N/A
<b>XE Monitors</b>						
XE300	N/A	✓	✓	✗	N/A	N/A
XE500	N/A	N/A	✗	✗	N/A	N/A