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.
# iK42

High Power, Four-Channel Class D Amplifier

## IKON Power Draw & Thermal Dissipation

<table>
<thead>
<tr>
<th>Sleep mode (slow wake up)</th>
<th>AC Mains Power Draw (Watts)</th>
<th>Current Draw (Amps)</th>
<th>Thermal Dissipation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120Vac</td>
<td>230Vac</td>
<td>Watts kcal/hr btu/hr</td>
</tr>
<tr>
<td></td>
<td>4.5</td>
<td>0.4</td>
<td>4.5 4 15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standby mode (fast wake up)</th>
<th>AC Mains Power Draw (Watts)</th>
<th>Current Draw (Amps)</th>
<th>Thermal Dissipation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120Vac</td>
<td>230Vac</td>
<td>Watts kcal/hr btu/hr</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>1.0</td>
<td>60 52 205</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Running with no audio signal</th>
<th>AC Mains Power Draw (Watts)</th>
<th>Current Draw (Amps)</th>
<th>Thermal Dissipation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120Vac</td>
<td>230Vac</td>
<td>Watts kcal/hr btu/hr</td>
</tr>
<tr>
<td></td>
<td>195</td>
<td>2.9</td>
<td>195 168 665</td>
</tr>
</tbody>
</table>

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

**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.
**iK42**

**High Power, Four-Channel Class D Amplifier**

### 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
- **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
- **DRIVE MODULE INPUT DSP**: Input signal routing, delay, gain, HPF, Phase, Mute
- **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
- **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