

MA1.6s

Light weight, high performance power amplifier

features

- ▶ Switch mode power supply
- ▶ Superior sonic performance
- ▶ Light weight
- ▶ Advanced protection circuits
- ▶ Efficient copper cooling system
- ▶ Minimum load switches (MLS™)

applications

- ▶ Live sound reinforcement
- ▶ Fixed installations



The MA1.6s is one of a range of power amplifiers that have been designed to combine reliability and high power with sonic excellence. Utilising an advanced switch mode power supply, the amplifier is characterised by a very high power-to-weight ratio in a lightweight, 2U package. The innovative technology at the heart of the MA1.6s enables it to set new standards in terms of sonic accuracy, impact and clarity.



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MAI.6s

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COOLING SYSTEM

The MAI.6s amplifier runs very cool due to a special patented copper cooling system. The amplifier's bi-polar output devices are mounted directly onto a copper heatsink (copper conducts heat twice as efficiently as aluminium) and maximum heat dissipation is achieved by turbulent airflow over the heatsink's geometric fins.

The MAI.6s amplifier features two proportional speed cooling fans which take in air from the front of the amplifier and exhaust from the rear. A horizontal pressure chamber between the heatsink and the cooling fans ensures that there is little difference in the operating temperatures of each output device. In contrast, a conventional tunnel design can result in a temperature variance of up to 40° between output devices.

SWITCH MODE POWER SUPPLY

The switch mode power supply (SMPS) is the modern solution to the problems of size and weight. Switch mode power supplies are not new - they are found in computers and televisions. However, the demands of high power audio are very different to these applications. The SMPS featured in the MAI.6s overcomes the size and weight constraints of conventional power supplies whilst at the same time avoiding the pitfalls of typical switch mode designs.

The low output impedance of the SMPS means that rail voltages do not sag under heavy load conditions. Additionally, the rail capacitors are being recharged at a much faster rate than those in a conventional power supply. The result is an exceptional fast transient low frequency performance at all power levels.

Efficiency is also maximised. With much smaller transformers than a conventional supply, there is much less loss due to transformer resistance and much less power wasted as heat in the power supply.

Regulation of the SMPS means that the power amplifier will produce the same power output, even if the AC line voltage drops by 20%.

MINIMUM LOAD SWITCHES (MLS™)

Because the SMPS is regulated, the maximum power available for the output stages can be adjusted without

increased heat dissipation or efficiency loss. This allows the user to match the output power with the loudspeaker impedance.

PROTECTION

The MAI.6s amplifier has many advanced protection features that will protect both the amplifier and the speakers connected to it, under fault conditions. All protection circuits are independent and inaudible in normal use.

CLIP LIMITERS

Clip limiters prevent dangerous clipped signals reaching the speaker. They work by monitoring the output to check for signals not present at the input i.e. distortion. If distortion exceeds 1% on an output, the limiter will reduce the input signal proportionally.

THERMAL PROTECTION

Thermal Protection circuitry prevents the amplifier from running at an unsafe temperature by muting the input signal when the internal temperature rises above 90°C.

SHORT CIRCUIT PROTECTION

The MAI.6s amplifier is completely short circuit protected. The protection circuits permit very high peak currents, but maintain the output devices within their safe operating area.

MAINS VOLTAGE PROTECTION

This operates if the mains voltage falls outside its permitted operating range. If this occurs, the power supply will shut down until the correct mains voltage is restored.

DC AND VHF PROTECTION

Both DC voltages and high power VHF signals can cause damage to loudspeakers. The MAI.6s amplifier incorporates protection circuits which are activated when damaging DC voltages or VHF signals are present at the outputs.

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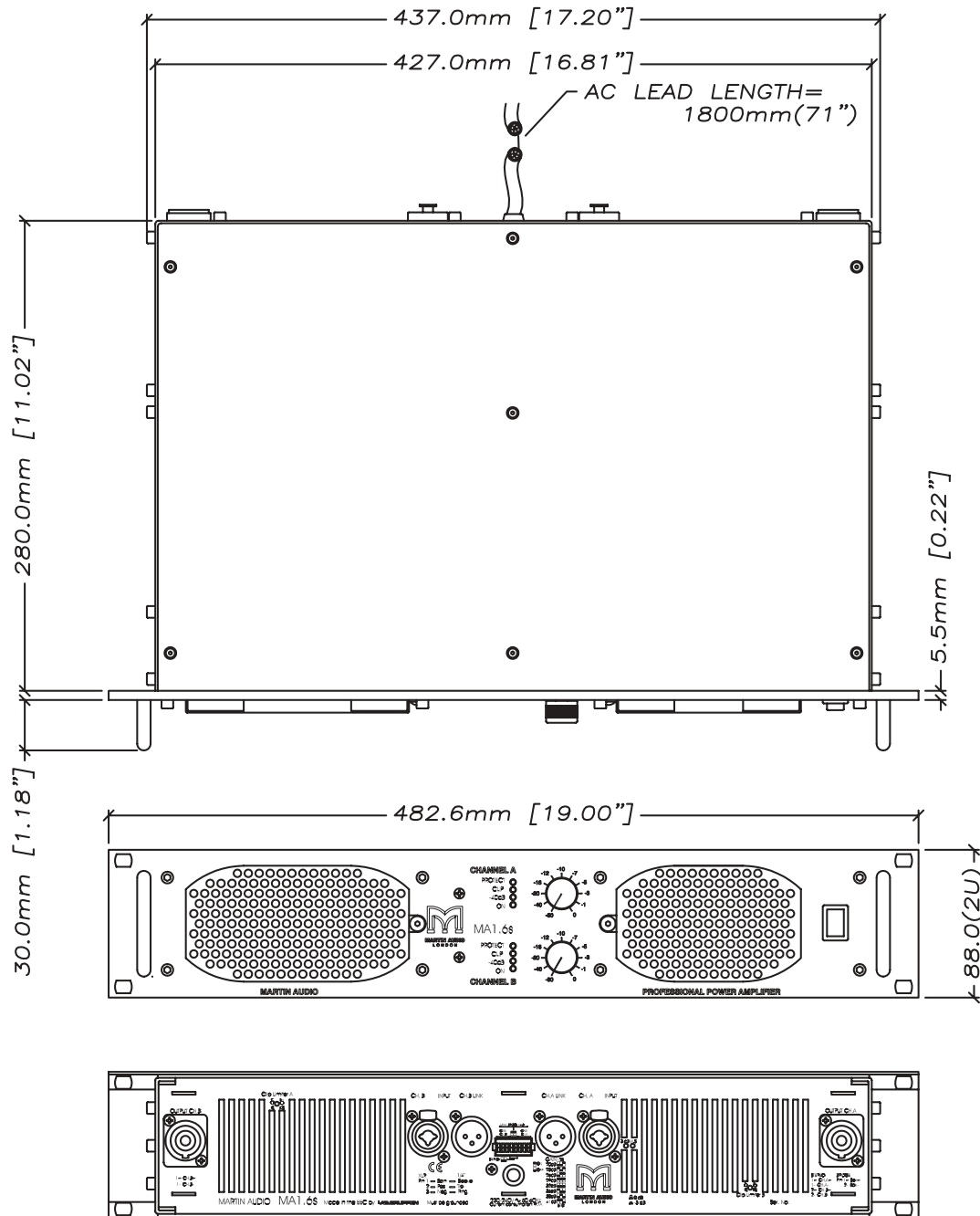


MA1.6s

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overall dimensions

electronics



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technical specifications

MAX OUTPUT POWER	
EIA AT 1 kHz AND 1% THD	
MLS in 0dB position	
8 PER CHANNEL	430 W
4 PER CHANNEL	840 W
2 PER CHANNEL	1200 W
8 BRIDGED	1680 W
4 BRIDGED	2400 W
MAX OUTPUT VOLTAGE	
8Ω LOAD	59 Vrms
PEAK VOLTAGE, NO LOAD	85 V
DISTORTION	
THD 20Hz – 20kHz AND 1 W TO FULL POWER	0.07%
THD AT 1kHz AND -1dB UNDER CLIP	0.01%
DIM AT -3dB UNDER CLIP	0.008%
HUM AND NOISE	
CHANNEL SEPARATION @ 10kHz	< -105dB
OUTPUT IMPEDANCE	70dB
SLEW RATE	30 mΩ
	60 V/μs
INPUTS	
GAIN SELECTABLE (dB)	20, 23, 26, 29, 32, 35, 38, 41
IMPEDANCE	10 kΩ
COMMON MODE REJECTION	50dB
FRONT PANEL	
GAIN CONTROLS	31 position detent
INDICATORS: PROTECT	Yellow LED
INDICATORS: CLIP	Red LED
INDICATORS: SIGNAL PRESENT (-40dB)	Green LED
REAR PANEL	
INPUT CONNECTORS	Neutrik Combo
LINK CONNECTOR	XLR-male
CLIP LIMITERS	On/off each channel
MLS SWITCH	0 or -3dB
LINK-SWITCH	CH. A-B
POWER	
OPERATION VOLTAGE	130-270V
SOFT START	Yes
PEAK INRUSH CURRENT	5 A
FULL OUTPUT POWER	180-260 V
MIN START VOLTAGE	175 V
115V OPTION	Yes
CURRENT DRAW AT 4Ω/230V	
QUIESCENT POWER (NO LOAD)	1 A rms
1/8 OF FULL POWER (-9dB)	6 A rms
1/3 OF FULL POWER (-5dB)	9 A rms
AT FULL POWER (0dB) @ 1kHz 1%THD	16 A rms
DIMENSIONS	
WIDTH	483mm (19ins)
HEIGHT	88mm (3.5ins) 2U
DEPTH (incl. handles)	325mm (12.8ins)
WEIGHT	8kg (18lbs)

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.

architectural and engineering specifications

The amplifier shall have two channels each capable of producing an output of 840 watts continuous average power at 1kHz and 1% THD EIA into a 4 ohm load with both channels driven. Each input shall be electronically balanced and have a CMRR of 50dB at any frequency between 20Hz to 20kHz. Each channel shall exhibit distortion of no more than 0.01% THD at 1kHz and -1dB under clip. Hum and noise shall be at least 105dB below full rated output power and channel separation shall be greater than 70dB at 10kHz. The input gain shall be selectable by rear-mounted switches between 20dB and 41 dB in 3dB steps. The amplifier shall have a switch mode power supply and minimum load switches (MLS™) to allow matching of the output power with the loudspeaker impedance. The front panel shall have LED indicators for each channel that will activate to show channel on, signal present (-40dB), clip and protect mode; also, individual channel gain controls each with a 31-position detent. Input to each channel shall be via individual Neutrik Combo sockets with XLR-male link connectors. Power output for each channel shall be via a rear panel mounted Speakon connector.

Dimensions (W) 483mm x (H) 88mm (2U) x (D) 325mm (19ins x 3.5ins x 12.8ins).
Weight 8kg (18lbs).

The amplifier shall be the Martin Audio MAI.6s.

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