

## M•2600

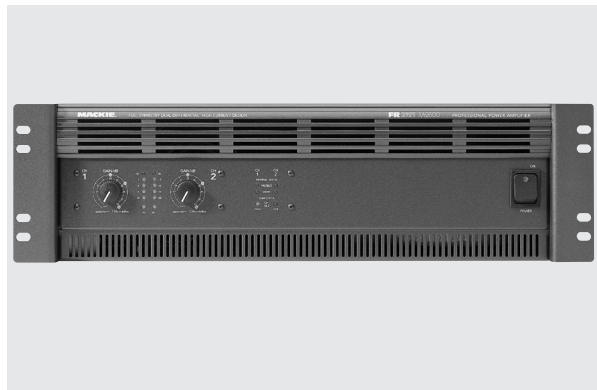
■ The Mackie Designs M•2600 is a dual channel, high output power amplifier that incorporates a number of unique features including FR “Fast Recovery” design, high continuous current output, and a T-Design constant gradient cooling tunnel for improved cooling efficiency and output device reliability.

■ The M•2600 is rated at a continuous output of 425 watts per channel into 8Ω, 700 watts per channel into 4Ω and 1000 watts into 2Ω. In bridge mode the M•800 is rated at 1400 watts into 8Ω and 2000 watts into 4Ω. Variable low-cut filters on each channel with a range from off to 170Hz enable tighter bass response. The built-in limiter helps eliminate clipping. Inputs are balanced/unbalanced 1/4" and XLR, and XLR thru outputs are switchable to send either the full-range signal, or the post-crossover low-frequency or high-frequency output, to another amplifier. Speaker connections on the M•2600 are 1/4" and Speakon® connectors, with an additional Speakon output for mono bridge operation. An amp mode switch selects stereo, mono, or bridge operation.

■ To effectively deal with clipping, an amplifier must be able to recover almost instantaneously. That is the definition of “Fast Recovery.” Rather than using negative feedback to help control clipping distortion, the M•2600 employs a very sparse amount of negative feedback. The use of Baker Clamp circuits on the positive and negative voltage amp stages prevents saturation (and latching) during periods of overdrive. In addition, a transistor senses when the Baker Clamp is active and activates the internal limiting circuits. This results in no latching, instant recovery from overdriving the amp, and a superior sound.

(continued on page 3)

## High-Current Power Amplifier



## Features

- 2600 watts max, 2000 watts continuous @ 4 ohms bridged
- Ultra-low-noise/low-distortion design
- Fast Recovery circuitry reduces distortion at clipping
- Two 2nd order, 12 dB/octave, Bessel low-cut filters with variable frequency from Off to 170Hz
- Two superior design 4th order Linkwitz-Riley active crossovers (24 dB/octave)
- Selectable crossover points of 60, 90, or 120Hz
- Limiter with on/off switch
- Balanced/unbalanced 1/4" and XLR inputs
- XLR input loop-throughs, selectable for full-range, high-pass, or low-pass output
- Speakon® and 5-way binding post output connectors
- Detented gain controls calibrated in dB and volts
- Signal present and OL LEDs
- Channel Status LEDs
- Superior T-Design cooling
- Five-year, limited warranty (U.S. only)

## RELATED PRODUCTS

M•800/M•1400/M•1400i Power Amplifiers, 1202-VLZ PRO 12-Channel Mic/Line Mixer, 1402-VLZ PRO 14-Channel Mic/Line Mixer, 1604 VLZ PRO 16-Channel Mic/Line Mixer, 1642-VLZ PRO 16-Channel Mic/Line Mixer, SR24•4-VLZ PRO 24 Channel Mic/Line Mixer, SR32•4-VLZ PRO 32 Channel Mic/Line Mixer, CFX Series 12, 16, and 20 Channel Mic/Line Mixer w/Digital Effects, C300 2-Way Loudspeaker, S500 2-Way Loudspeaker, SWA1501 and SWA1801 Active Subwoofers.

## Applications

- Live sound/music reinforcement for churches, clubs, schools, conference centers, hotels
- High level A/V playback
- Large speech systems

# M-2600 High-Current Power Amplifier

## M-2600 Specifications

### Maximum Power mid-band at 1% THD:

500 watts per channel into 8 ohms

850 watts per channel into 4 ohms

1300 watts per channel into 2 ohms

1700 watts into 8 ohms bridged mono

2600 watts into 4 ohms bridged mono

### Continuous Sine Wave Average Output Power, both channels driven (20Hz - 20kHz):

425 watts per channel into 8 ohms <0.025% THD

700 watts per channel into 4 ohms <0.050% THD

1000 watts per channel into 2 ohms <0.1% THD

### Bridged mono operation (20Hz - 20kHz):

1400 watts per channel into 8 ohms: <0.05% THD

2000 watts per channel into 4 ohms <0.1% THD

### Power Bandwidth:

20Hz to 70kHz (+0, -3dB) @ 700 Watts into 4 ohms

### Frequency Response:

20Hz to 40kHz (+0, -1dB)

10Hz to 70kHz (+0, -3dB)

### Distortion:

THD, SMPTE IMD, TIM

<0.025%@8Ω

<0.050%@4Ω

<0.150%@2Ω

### Signal to Noise Ratio

>107dB relative to rated power into 4 ohms

### Channel Separation:

>80dB@1kHz

### Damping Factor:

>350 from 0 to 400Hz

### Input Impedance:

24kΩ balanced bridging

### Input Sensitivity:

1.23 volts (+4 dBu) for rated power into 4 ohms

### Gain:

32.7 dB (voltage gain of 43)

### Maximum Input Level:

9.75 volts (+22 dBu)

### Rise Time:

<5 μs

### Slew Rate:

Voltage Slew Rate >60V/μs

Current Slew Rate >30A/μs at 2Ω

### CMRR:

>40 dB, 20Hz to 20kHz

### Transient Recovery:

<1μs for 20dB overdrive at 1kHz

### High-Frequency Overload and Latching:

No latch up to any frequency or level

### Variable Low-Cut Filter:

10Hz (Off) to 170Hz, 2nd Order Bessel

### Internal Crossover:

Switched 60Hz/90Hz/120Hz, 4th Order Linkwitz-Riley

Amplifier input is low-pass filtered when switched to subwoofer mode

Low-pass and high-pass outputs switchable to thru output jacks

### Limiter Section:

Complementary Positive and Negative Peak Detecting

### Indicators:

6 meter LEDs per channel

SIG (Signal Present), -20, -9, -6, -3, OL (Overload)

CH1 & 2

PROTECT LEDs

SHORT LEDs

TEMP STATUS

COLD/HOT LEDs

### Power Consumption:

1650 watts (18.2A) with musical program fully loaded  
(2Ω per side, or 4Ω bridged)

### AC Line Power:

US 120 VAC, 60Hz

Europe 240 VAC, 50/60Hz

Japan 100 VAC, 50/60Hz

Korea 220 VAC, 60Hz

### AC Drop-out Voltage:

At approximately 63% of rated line voltage

### Physical:

Height: 5.20" (132mm)

Width: 19.00" (483 mm)

Depth: 15.65" (398 mm)

Overall Depth: 16.67" (423 mm)

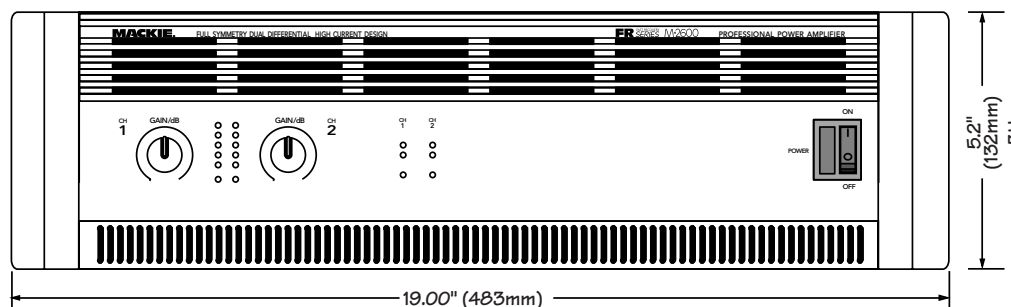
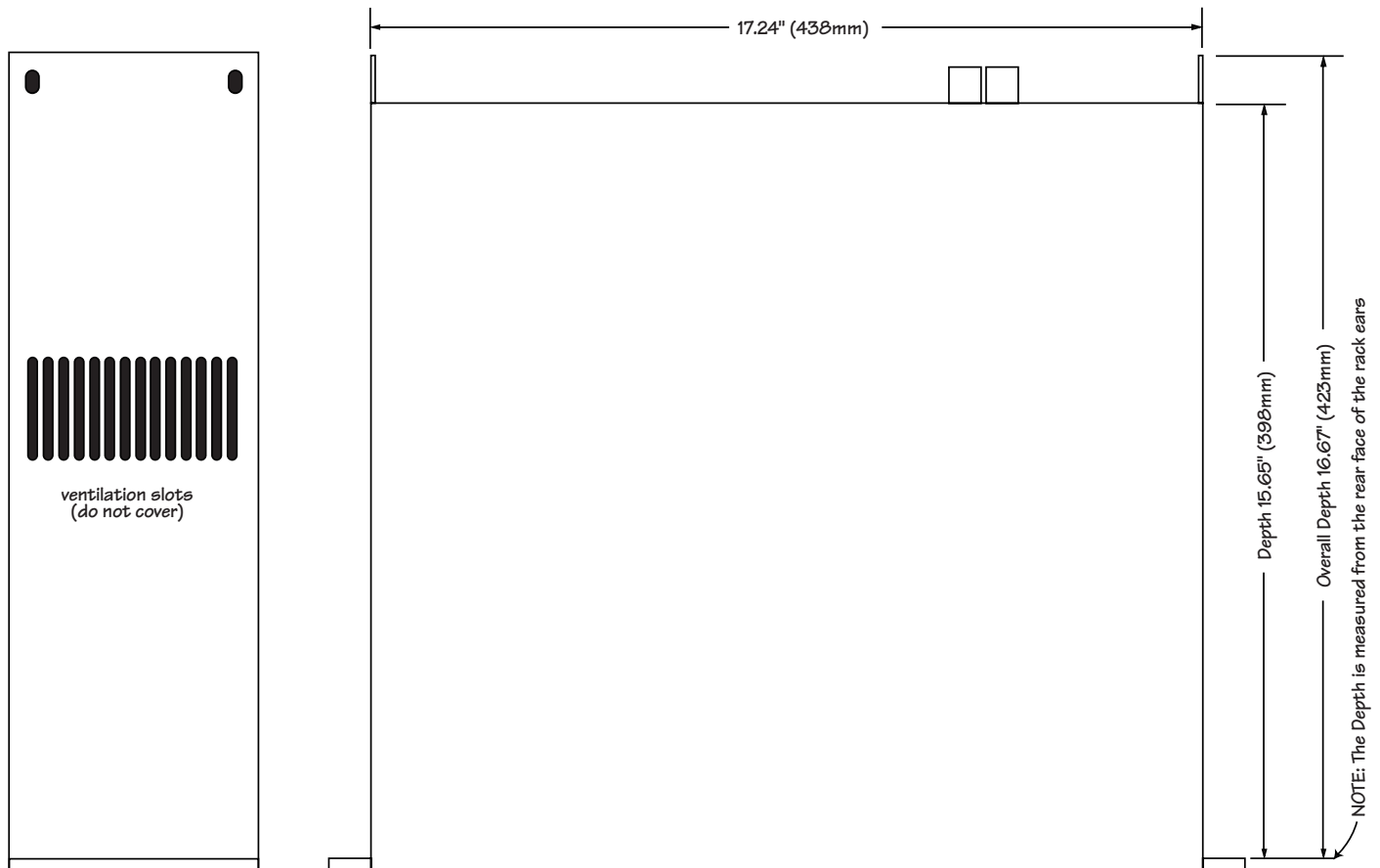
Weight: 55 lbs (25 kg)

# M•2600 High-Current Power Amplifier

(continued from page 1)

■ The M•2600 uses a unique T-Design constant gradient cooling tunnel that draws air in through the front of the amplifier and forces it through the amplifier's sides. The T-Tunnel design provides a shorter, more direct path for cool air. This allows for reduced heat build up and cooler transistor operation.

■ The amplifier has a subwoofer mode that allows you to turn on the built-in subwoofer crossover. When activated, the signals appearing at the left and right inputs are summed, directed to a low-pass filter, and routed to both output stages. A switch selects the cut-off frequency of the filter at 60Hz, 90Hz, or 120Hz.

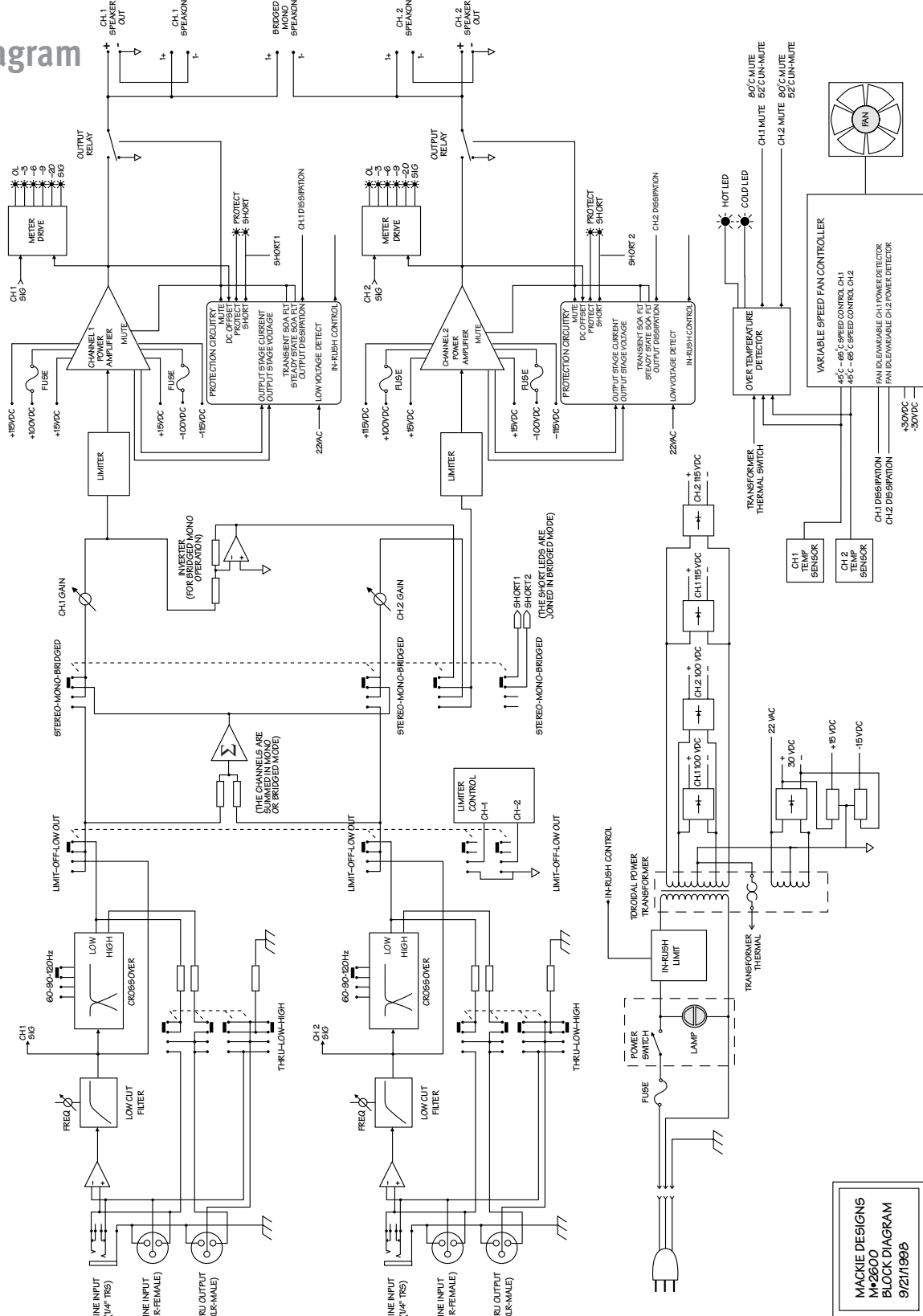


# M•2600

# High-Current Power Amplifier

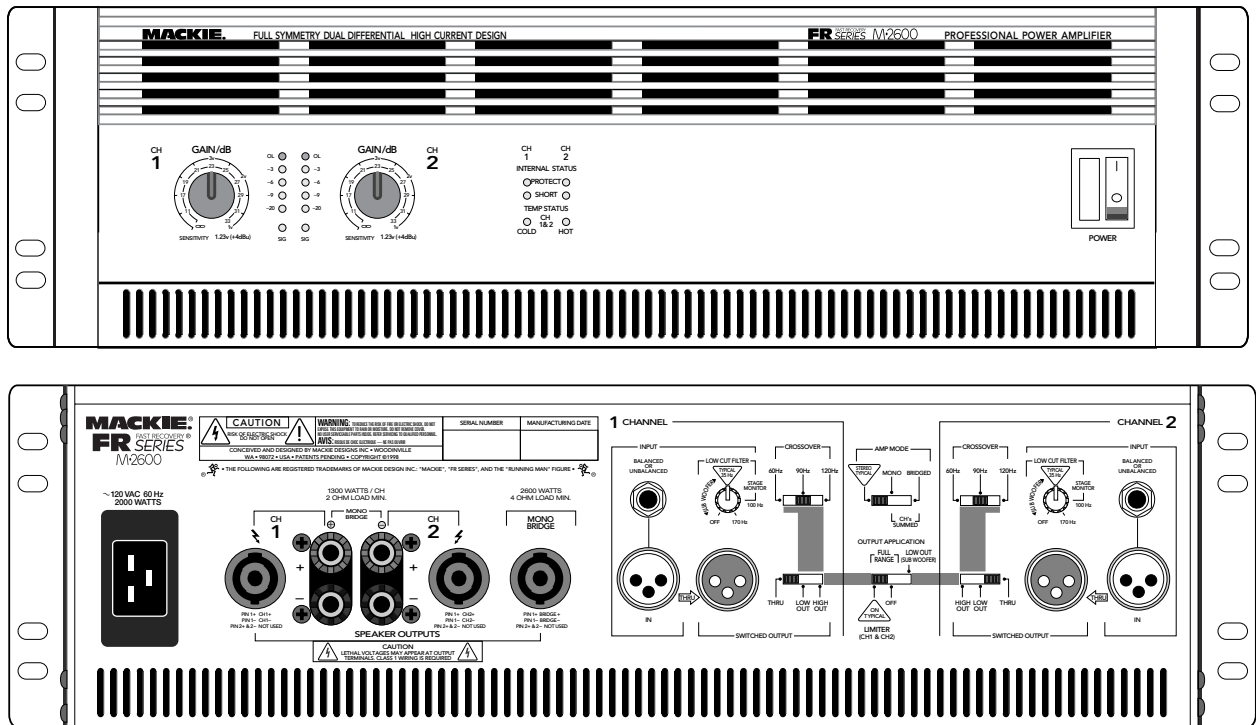
## M•2600

## Block Diagram



MACKIE DESIGNS  
M•2600  
BLOCK DIAGRAM  
9/21/1988

# M-2600 High-Current Power Amplifier



## Architects' and Engineers' Specifications

**1. GENERAL.** The amplifier shall have a free-standing frame with front and rear brackets for rack-mounting, and supplied with four resilient feet suitable for table-top placement. The amplifier shall be capable of two-channel operation, with a switch to place the amplifier into single-channel operation by bridging the outputs of the two channels.

**2. POWER OUTPUT.** The two-channel power amplifier shall deliver a rated continuous average sine wave power output over a 20Hz to 20kHz bandwidth of 425 watts RMS into 8 ohms per channel, 700 watts into 4 ohms, and 1000 watts into 2 ohms with both channels operating, with no more than 0.05% total harmonic distortion. In single-channel operation it shall deliver 1400 watts RMS into 8 ohms and 2000 watts into 4 ohms, with no more than 0.10% total harmonic distortion.

The power amplifier shall deliver a maximum continuous average sine wave power output at mid-band of 500 watts RMS into 8 ohms per channel, 850 watts into 4 ohms, and 1300 watts into 2 ohms with both channels operating, with no more than 1% total harmonic distortion. In single-channel operation it shall deliver 1700 watts RMS into 8 ohms and 2600 watts into 4 ohms, with no more than 1% total harmonic distortion.

**3. POWER SUPPLIES.** All necessary operating voltages for the amplifier shall be provided by an internal power supply. A master power switch shall be located on the front panel along with a green power-indicating light.

**4. INPUT CHANNEL CONNECTIONS.** Each monaural input channel shall have an electronically balanced line-level input, presenting no less than a 20k ohm impedance to the source. Each input shall have an input sensitivity of +4 dBu, requiring no more than 1.23V RMS to be driven to rated output into a 4-ohm load. The input connector shall appear on the rear panel as a female XLR-3 type connector. In addition, each monaural input channel shall have a parallel 1/4" TRS phone jack and a male XLR-3 type connector, which can be used as inputs or "thru" jacks for daisy-chaining the input signal to another amplifier, or a high- or low-frequency crossover output for subwoofer applications. Pin 2 of the XLR connectors, and the tip of the 1/4" TRS phone jack, shall be non-inverting.

**5. INPUT CHANNEL LEVEL CONTROLS.** Each monaural input channel shall be equipped with a gain control appearing on the front panel, each having 20 detent positions, and calibrated in dB and volts.

**6. FRONT PANEL INDICATORS.** Each channel shall have an associated six-segment LED meter appearing on the front panel, capable of displaying signal present, -20 dB, -9 dB,

(continued on page 6)

# M•2600 High-Current Power Amplifier

(continued from page 5)

–6 dB, –3 dB, and overload. Each channel shall have internal status LEDs appearing on the front panel to indicate activation of protect mode and short-circuit protection. Two temperature status LEDs shall appear on the front panel, one to indicate normal operation (COLD) and one to indicate thermal protection (HOT).

**7. PROTECTION FEATURES.** The amplifier shall provide delayed activation of the outputs at turn-on. Each channel shall have a short-circuit protection circuit for detecting excessive current flow at the output that, when activated, mutes the output for four seconds. The short-circuit protection shall continuously cycle on and off until the shorted condition is remedied. The amplifier shall have a thermal protection circuit to protect the power devices from over-temperature operation. The circuit shall activate when the internal temperature crosses the safe-operating threshold and, when activated, mute the outputs until the internal temperature cools to a safe-operating temperature, at which time amplifier shall resume normal operation. The amplifier shall have a fan to cool the heat-producing internal components, drawing cool air in from the front, and exhausting warm air out through both sides. The fan speed shall be variable, the speed being determined by the internal temperature and the signal level present at the output. The amplifier shall have an SCR crowbar circuit to protect the speakers against a catastrophic amplifier failure. The circuit shall activate in the presence of continuous DC at the speaker outputs, and shall shut the amplifier down by turning off the high-voltage rails.

**8. OUTPUT CONNECTIONS.** Each channel shall have a heavy-duty 5-way binding post speaker output connector appearing on the rear panel, with 3/4" spacing for accommodating standard double banana plugs as well as spade lugs or bare wires. Each channel shall have a Neutrik brand Speakon<sup>®</sup> output jack appearing on the rear panel in parallel with the binding post. A separate Speakon<sup>®</sup> connector shall be provided for the bridged mode mono output.

**9. AMP MODES.** The amplifier shall have a three-way switch appearing on the rear panel for selecting the mode of operation, which shall include stereo (two channels in, two channels out), mono (one channel in, two channels out), and bridge (one channel in, one channel out, bridged between both speaker outputs).

**10. OUTPUT APPLICATIONS.** The amplifier shall have a three-way switch appearing on the rear panel for selecting between limiter on, limiter off, and subwoofer mode. The defeatable electronic limiter circuit shall sense the onset of clipping and shall limit the input signal and thereby prevent the output from clipping.

**11. CROSSOVER.** Each channel shall have a 4th order Linkwitz-Riley, 24 dB/octave crossover with switch-selectable crossover frequencies of 60, 90, or 120Hz. When the subwoofer mode is selected, the two input channels shall be summed and the low-frequency output from the crossover shall be routed to the selected channel. In the full-range modes, the high- or low-frequency output of the crossover may be routed to the input thru connector via a rear panel switch.

**11. LOW-CUT FILTER.** Each channel shall have a low-cut filter with a variable frequency control appearing on the rear panel covering a range of 10Hz (OFF) to 170Hz.

**12. PHYSICAL CONFIGURATION.** The amplifier shall be rack-mountable with rear support rails for extra support, and shall have a steel chassis frame painted gray-black. The amplifier shall be 19" wide (483 mm), 5.2" (3U) tall (132mm), and 16.67" deep (423 mm), and shall weigh 55 pounds (25 kg).

**13. DESIGNATION.** The power amplifier shall be a Mackie Designs M•2600.

Electronic files for this product available at:  
[www.mackie.com](http://www.mackie.com)

This Specification Sheet	M2600_SS.PDF
Owner/Operator's Manual	M2600_OM.PDF
CADD files	M2600.DXF

Mackie Designs Inc. continually engages in research related to product improvement. New material, production methods, and design refinements are introduced into existing products without notice as a routine expression of that philosophy. For this reason, any current Mackie Designs product may differ in some respect from its published description, but will always equal or exceed the original design specifications unless otherwise stated. ©1999-2002 Mackie Designs Inc. All rights Reserved. Mackie and the "Running Man" figure are registered trademarks of Mackie Designs Inc.

Part No. 091-211-00 Rev. A 6/02

[www.mackie.com](http://www.mackie.com)

16220 Wood-Red Road NE, Woodinville, WA 98072 USA  
888.337.7404, fax 425.487.4337, sales@mackie.com

UK +44.1268.571.212, fax +44.1268.570.809, uk@mackie.com  
ITALY +39.0522.354.111, fax +39.0522.926.208, italy@mackie.com  
FRANCE +33.3.85.46.91.60, fax +33.3.85.46.91.61, france@mackie.com  
GERMANY +49.2572.96042.0, fax +49.2572.96042.10, germany@mackie.com