

### DESCRIPTION

Quantum increases in the sophistication of modern sound systems have been paralleled by rapid and significant advances in the design of amplifiers intended to power these systems. The first generation of 'super amplifiers' successfully met the challenge of generating massive wattage from a single source.

As system demands continue to rise, however, output capability alone no longer represents the full measure of professional grade performance. The ALTEC LANSING Model 1270 Power Amplifier harnesses super amp brute strength to state-of-the-art computer protection circuitry. Designed to protect itself and the acoustic elements it drives, the 1270 is 800+ watts of **controlled** power in the bridged mode. It provides continuous high power demand where uninterrupted operation is requisite. Two channels may be operated independently or in bridged configuration to deliver up to 400 watts per channel at less than 0.05% THD from 20 Hz to 20 kHz.

**Error Computer** Each amplifier channel is provided with an error computer that compares channel input and output signals and detects any output errors. Detection of any error causes the appropriate peak/error indicator to illuminate. Output anomalies detected include excessive voltage, excessive current (load), excessive slew rate, and any other significant difference between the channel input and output signal.

**Amplifier Protection** The amplifier output is continuously monitored to guard against excessive current drain. An instantaneous VI limiter restricts output to 400 VA  $\pm 45^\circ$  phase shift. The amplifier is additionally protected against excessive operating temperature; logic circuitry automatically overrides low-speed fan operation and locks to the high fan speed mode. If operating temperature remains excessive, the load is disconnected by a relay and the protection indicator illuminates. When temperature falls to safe operating conditions, the amplifier automatically resumes operation.

**Load Protection** The load is protected from transients during startup and shutdown of the amplifier. During startup, the load remains disconnected through a relay during a three-second delay period. During shutdown or loss of power, the load is instantaneously disconnected by the relay. The load is similarly protected against amplifier failure, such as dc voltage at the output.

The ALTEC Model 1270 Power Amplifier has less than 0.05% total harmonic distortion (THD) while delivering more than 250 watts per channel into 8-ohm loads, or more than 400 watts into 4-ohm loads. An optional plug-in line bridging transformer module modifies the amplifier for operation with balanced inputs.

The 1270 may be operated from a 120V or 240V, 50/60 Hz ac source. An LED indicates ac power.

**SPECIFICATIONS**

**Type:** Two-channel basic power amplifier, accommodating optional plug-in line transformer module for balanced input

**Power Gain:** 52.2 dB (balanced) bridging 600-ohm line with 8-ohm load  
 55.2 dB (balanced) bridging 600-ohm line with 4-ohm load  
 58.2 dB (balanced) bridging 600-ohm line in bridge (mono) mode with 8-ohm load

**Voltage Gain:** 34.7 dB (unbalanced)

**Input Sensitivity:** 0.775V rms for rated output

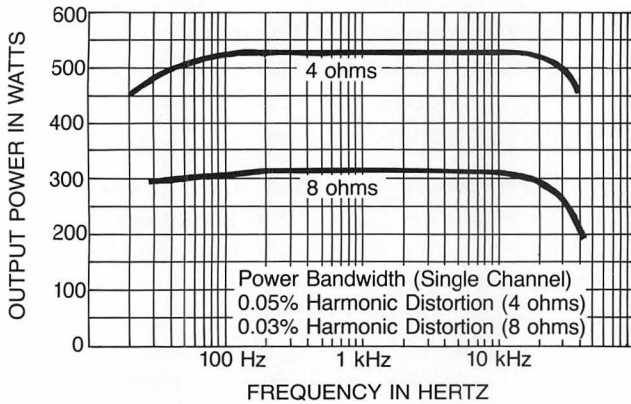
**Power Output—**

220 watts per channel into 8 ohms from 20 Hz to 20 kHz at less than 0.03% THD  
 Typically greater than 250 watts per channel into 8 ohms at 1 kHz at less than 0.01% THD

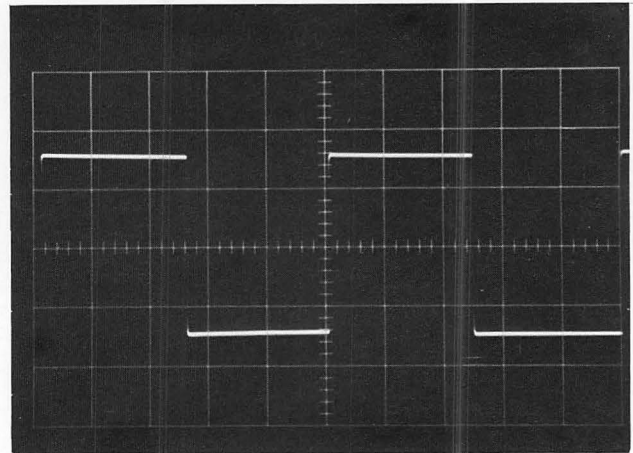
400 watts per channel into 4 ohms from 20 Hz to 20 kHz at less than 0.05% THD  
 Typically greater than 450 watts per channel into 4 ohms at 1 kHz at less than 0.02% THD

400VA per channel into 4 ohms  $\pm 45^\circ$  from 20 Hz to 20 kHz at less than 0.1% THD

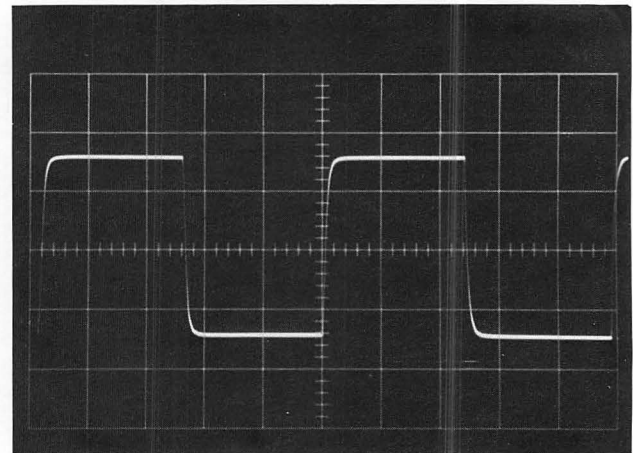
**Bridge (mono) Operation:** Greater than 800 watts into 8 ohms from 20 Hz to 20 kHz at less than 0.05% THD



**POWER OUTPUT vs FREQUENCY**



**1 kHz Square Wave Output (typical)**



**10 kHz Square Wave Output (typical)**

**NOTE:** All power and distortion tests are made at specified line voltage while maintaining a 1.414 crest factor.

**Frequency Response (direct input):**  $\pm 0.25$  dB at 1W (8 ohms) from 20 Hz to 20 kHz  
 $\pm 0$  dB,  $-3$  dB at 1W (8 ohms) from 5 Hz to 100 kHz

**Input Impedance:** 15,000 ohms (nominal for all inputs)

**Load Impedance:** 4 ohms or greater  $\pm 45^\circ$  or less  
 8 ohms or greater  $\pm 45^\circ$  or less in bridge (mono) mode

**Output Impedance:** Less than 0.1 ohm in dual mode at 1 kHz  
 Less than 0.2 ohms in bridge (mono) mode at 1 kHz

**Signal-to-Noise Ratio:** Greater than 100 dB unweighted with 600-ohm source impedance volume at maximum

**IM Distortion (single channel):** Less than 0.03% from 0.01 watt to 220 watts into 8 ohms (60 Hz, 7 kHz, 4:1)  
 Less than 0.05% from 0.01 watt to 400 watts into 4 ohms (60 Hz, 7 kHz, 4:1)

**Channel Separation:** Greater than 70 dB at 1 kHz

**Slew Rate:** 18 V/ $\mu$ sec

**Controls:** 2 stepped attenuators  
 1 MODE switch (mono or dual operation)  
 1 FAN SPEED (hi-low) select switch  
 1 ac POWER ON-OFF switch  
 1 ac power indicator (LED)  
 2 peak/error indicators (LED); indicate excessive input/output differential for each channel; shows THD greater than 1% and transient errors. Response time: 1 microsecond with 25 millisecond hold for visibility.  
 1 PROTECTION indicator (LED); indicates operation of load/amplifier protection system.

**Connections:** 2 channel input receptacles (TS phone jack type)  
 4 channel output jacks (5-way binding post type)  
 2 phone jack multiple receptacles (to connect additional amplifiers)  
 8-foot, 3-wire. 16GA power card with NEMA 5-15 plug

**Power Requirements:** 120/240V ac, 50/60 Hz 100W at zero signal 1 kW at  $\frac{1}{3}$  rated output (4 ohms) with both channels driven at 1 kHz  
 1500W at rated output (4 ohms) with both channels driven at 1 kHz

**Amplifier Protection:** Active output stage with voltage/current limiting. Temperature sensor switches to high fan speed automatically in event of excessive heat sink temperature.

**Load Protection:** Output relay delays turn-on of output power for 3 seconds. Provides instant turn-off of output power and removal of load during presence of dc voltage in output, or in event of excessive heat sink temperature

**Operating Temperature Range:** Up to  $+55^\circ$  ( $131^\circ$ F) ambient

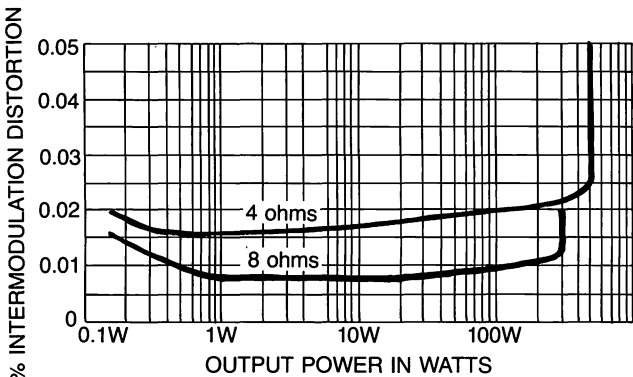
**Dimensions:** 5 $\frac{1}{4}$ " (13.3 cm) H  
 19" (48.3 cm) W  
 15" (38.1 cm) D

**Weight:** 51.5 pounds (23.4 kg)

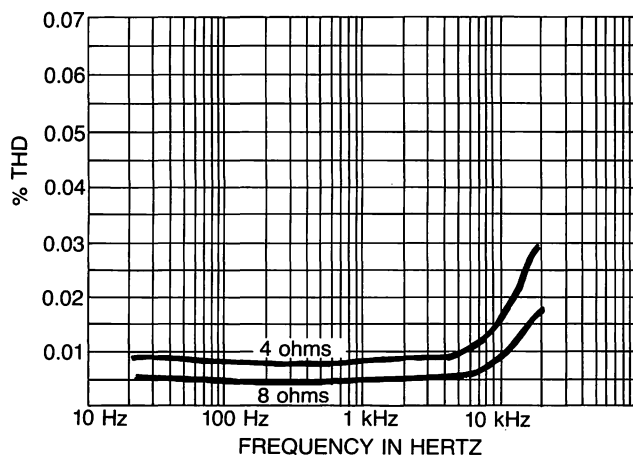
**Color:** Black

**Enclosure:** Rack mount chassis with heavy duty front handles

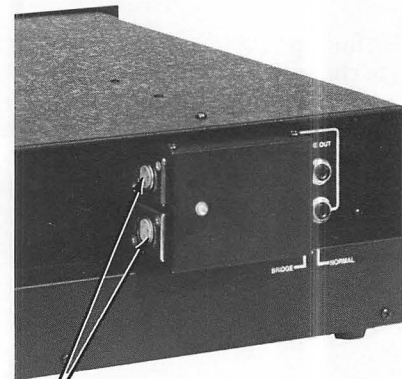
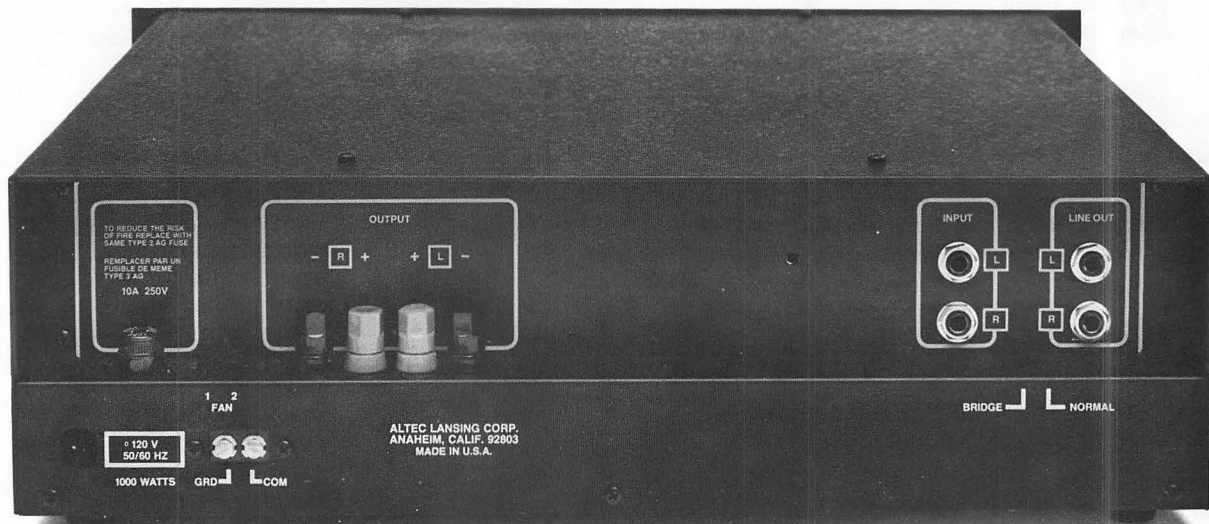
**Accessories:** Model 1270TM Dual Balanced Transformer Input Module (2-channel)



**INTERMODULATION DISTORTION vs OUTPUT POWER**



**% THD vs FREQUENCY (AT RATED POWER)**



## CHANNEL INPUT RECEPTACLES

### ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The power amplifier shall be capable of operating from a 120/240V ac, 50/60 Hz line. Circuitry shall provide protection for the output transistors and the load. An optional dual transformer input module shall be available for balanced line operation (1270TM).

The power amplifier shall meet the following criteria. Gain: 52.2 dB with accessory line transformer bridging 600-ohm line with 8-ohm load. Input sensitivity: 0.775V rms for rated unbalanced output. Single-channel driven power output: 220 watts into 8 ohms from 20-20,000 Hz at less than 0.03% THD; 400 watts into 4 ohms from 20-20,000 Hz at less than 0.05% THD. Frequency response with direct input:  $\pm 0.25$  dB at

1W (8 ohms) from 20-20,000 Hz. Input impedance (nominal): 15,000 ohms. Load impedance: at least 4 ohms/channel; at least 8 ohms in bridge (mono) mode. Output impedance: less than 0.1 ohm in dual mode at 1000 Hz; less than 0.2 ohm in bridge (mono) mode at 1000 Hz. Signal-to-noise ratio: more than 100 dB unweighted with 600-ohm source impedance volume at maximum. Channel separation: more than 70 dB at 1000 Hz. Operating temperature range: up to 55°C (131°F) ambient. Dimensions: 5¼" H x 19" W x 15" D. Weight: 51.5 pounds. Color: black. Enclosure: rack mount chassis with heavy duty front handles.

The power amplifier shall be the ALTEC Model 1270.



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