**PowerMatch PM4500N amplifier**

ARCHITECTS’ & ENGINEERS’ SPECIFICATIONS

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The amplifier shall contain all solid-state circuitry, using MOSFET output devices employing Class-D topology and a current and voltage feedback loop circuit. The amplifier shall incorporate a switch-mode power supply with fast-tracking power factor correction (PFC) that will allow full-rated power from AC outlets ranging from 100–240 V, 50/60 Hz. The amplifier shall have an IEC 60320-C14, 10/15 A electrical power inlet and shall be equipped with a removable power supply cord. The amplifier shall include protection from shorted and open loads, general overheating, DC, high-frequency overloads, under/over voltage and internal faults. The amplifier shall contain four independent amplifier channels, which can be configured to allocate the 2000 watts total rated output power between 1 and 4 channels. The amplifier shall contain variable speed fans, which are automatically controlled to minimize acoustic noise. Fan airflow direction will be from the front panel to the rear panel and should not require air filtering. Rack mounting of multiple amplifiers shall be possible without extra rack spacing for ventilation. The amplifier shall be capable of continuous operation at ⅓ of rated power into 4-ohm loads, in ambient temperatures up to 104° F (40° C). The typical current draw at ⅓-rated power shall be 7.6 A with 120 VAC and 3.9 A with 230 VAC.

The power amplifier shall meet or exceed the following performance specifications:

* Analog input sensitivity for rated output: 0, +4, +12 and +24 dBu, user-selectable
* Rated output power, per channel, with all channels driven less than 0.1% THD, typical (1 kHz): Mono mode with up to 4 channels, 500 watts into 4 ohms and 300 watts into 8 ohms. V-Bridge mode with up to 2 channels, 1000 watts into 4 ohms, 8 ohms, or with 100V lines (at 1% THD), 800 watts with 70V lines (at 1% THD). I-Share mode with up to 2 channels, 1000 watts into 2 ohms. Quad mode at 1 channel, 2000 watts into 4 ohms or with 100V lines (at 1% THD), 1600 watts with 70V lines (at 1% THD)
* Frequency response (±0.5 dB at 1 watt): 20 Hz to 20 kHz
* Signal-to-noise ratio (below rated power, A-weighted with +24 dBu analog input sensitivity) >102 dB
* Total harmonic distortion (1 watt from 20 Hz to 20 kHz): less than 0.4%
* Intermodulation distortion (SMPTE 60 Hz and 7 kHz): less than 0.4%
* Channel separation (adjacent channels at 1 kHz): greater than 65 dB
* Damping factor (10–1000 Hz, 4 ohms, measured at amplifier output): greater than 1000

The amplifier shall incorporate four balanced analog inputs, with rear-panel mounting and utilizing 3-pin terminal block connectors. The analog inputs shall support up to +24 dBu input signals. The amplifier shall support a digital expansion slot capable of receiving 4 digital audio channels using optional digital expansion cards, available in proprietary and industry-standard protocols. The amplifier outputs shall terminate with an 8-pin, high-current, terminal-block connector, accepting 10-22 AWG cables. The amplifier shall include digital signal processing (DSP) optimized for loudspeaker processing, with 24-bit, 48 kHz operation. The total latency (analog input to amplifier output) shall be less than 0.95 milliseconds. The fixed-block signal processing shall include the following elements for each of the four channels: 5-band parametric input EQ, array EQ, bandpass (crossover) filters, 9-band parametric output EQ, delay, output peak and RMS-average limiter. A 4 × 4 matrix mixer shall be included for routing and attenuation of any input/output combination. A signal generator supporting tone, noise and sweep functions shall be included, which shall also enable the amplifier to measure, record, and store automated impedance sweeps on any output channel. The amplifier front panel shall contain a user interface with a 240 × 64 LCD primary display, with LED indicators for signal present, input clipping, output limiting and fault. Functions accessible from the front-panel interface shall include output configuration, fault logging, mute, input sensitivity selection, output attenuation, EQ on/off per channel and loudspeaker processing preset recall. The amplifier shall contain a PC interface with a front-panel USB connection, which will allow full amplifier setup, configuration and monitoring using ControlSpace Designer software. The amplifier shall also contain a rear-panel Ethernet interface available from an RJ-45 connector to allow serial over Ethernet communications and network control/monitoring of multiple network version amplifiers when using a PC running ControlSpace Designer software. The amplifier chassis shall be constructed of steel with a durable black finish. The dimensions of the amplifier shall allow for 19-inch (483 mm) EIA standard rack mounting. The amplifier shall be 3.5 inches (2RU, 88 mm) in height, and 20.7 inches (525 mm) in depth. The amplifier shall weigh 24.4 pounds (11.1 kg).

The amplifier shall be the PowerMatch PM4500N configurable professional power amplifier.