

PS-400

P S S E R I E S



The Crown PS-400 power amp is designed, built, and available exclusively for professional sound systems.

The PS-400 features a low frequency interrupt (user defeatable by internal modification) which detects dangerous levels of sub-audio output. This sophisticated circuit tracks low-frequency amplitude to determine the allowable proportion of sub-audio output.

Built around the Crown *multi-mode*® circuit design, the PS-400 provides utmost reliability and sonic accuracy at all listening levels. The *multi-mode* circuit, a three-stage AB+B design, functions at low levels as a nonswitching Class A amp. At middle power levels, the two-stage drivers continue as Class A devices with the output stages in Class B. At high power levels, the *multi-mode* circuit drivers function in the AB mode, with output stages adding more Class B power. The *multi-mode* design uses output devices efficiently and powerfully, minimizes amp distortion whether audible or test-bench detectable, and provides long-term reliability.

Specifications

Feature Summary

Distortion Indicator: Advanced IOC® (Input/Output Comparator) alerts the user in the unlikely event that distortion of any kind exceeds 0.05%.

Exceptionally Low Distortion: Advanced *multi-mode* AB+B design results in exceptionally low distortion.

Bridged-Mono Mode: Bridged-Mono mode is provided for double output voltage.

Passive Cooling System: Convection cooling with massive heatsinks and thermal-coupled chassis.

No-Fault Warranty: A 3-year standard "No-Fault" warranty¹ which may be extended for an additional three years. Includes round-trip shipping.

Performance

Note: The following performance measurements were made in Stereo mode with both channels driven into an 8 ohm load.

Frequency Response: ± 0.1 dB from DC (0 Hz) to 20 kHz at 1 watt.

Phase Response: $+0^\circ$, -15° from DC (0 Hz) to 20 kHz at 1 watt.

Signal to Noise Ratio: 112 dB (20 Hz to 20 kHz) at full output.

Total Harmonic Distortion (THD): $<0.001\%$ from 20 Hz to 400 Hz and increasing linearly to 0.05% at 20 kHz at 165 W.

Intermodulation Distortion (IMD): $<0.05\%$ from 10 mW to 0.25 W and $<0.01\%$ from 0.25 W to 165 W.

Slew Rate: 16 V per microsecond.

Damping Factor: >400 from DC (0 Hz) to 400 Hz.

Power

Output Power

Note: Maximum average power at 1 kHz with 0.1% THD.

Stereo: 330 W per channel into 4 ohms. 190 W into 8 ohms.

Bridged Mono: 660 W into 8 ohms.

Load Impedance: Rated for 16, 8, 4 ohm use.

Safe with all types of loads, even reactive ones.
Required AC Mains: 50-400 Hz AC with selectable transformer taps for 100, 120, 200, 220 and 240 V ($\pm 10\%$) operation.

AC Line Connector: Standard three-wire grounded connector.

Controls

Power: A push-button located on the front panel to turn the amplifier on and off.

Level: A signal level control for each channel, located on the front panel.

Stereo-Mono: A two-position switch located on the back panel selects between Stereo and Bridged-Mono modes of operation.

Indicators

Power: An amber indicator which shows the unit has been turned on.

IOC: Normally off, these red indicators flash in the rare event the output waveform differs from that of the input by 0.05% or more.

Signal Presence: These green indicators flash synchronously with the input signal to show its presence.

Input/Output

Input Connector: Unbalanced ¼-inch phone jack for each channel and three-terminal barrier block.

Accessory Input: Eleven-pin radial socket accepts optional active or passive balanced input module (or user options).

Input Impedance: Nominally 30 K ohms.

Input Sensitivity: 1.76 V for rated power into 8 ohms.

Output Connector: Color coded binding posts (banana jacks) and four-terminal barrier block.

Output Impedance: <7 milliohms in series with <3 microhenries.

Output Monitor: ¼-inch stereo phone jack on front panel.

Chassis Ground: Two-terminal barrier block with shorting strap.

Construction

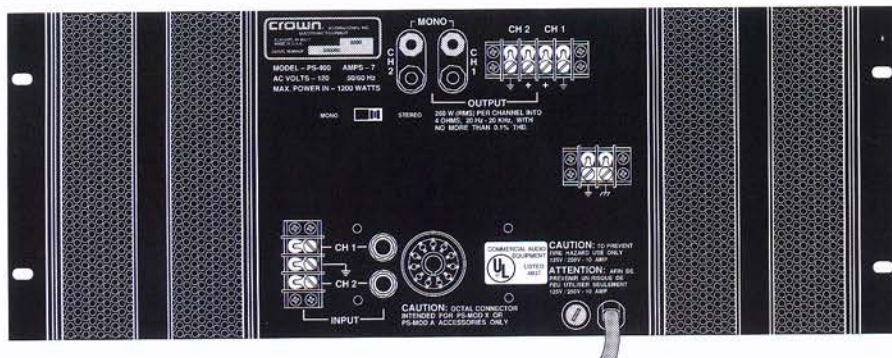
All aluminum construction for maximum heat conduction and minimum weight. Carbide black front panel with splatter-coat black chassis and top cover.

Dimensions: 19 in. (48.3 cm) wide, 7 in. (17.8 cm) tall, 10.1 in. (25.7 cm) deep behind front mounting surface.

Weight: 55 lbs. (24.9 kg).

Mounting: Standard EIA 310 front-panel rack mounting.

¹Please contact a Crown representative for full details.



| Configuration & Load (ohms) | FTC Continuous Average Power at 0.1% THD (See note 1) | | Max Average Power at 0.1% THD (See note 2) | Single Cycle Tone Burst Watts at <0.05% THD (See note 3) | | | 40 mS Tone Burst Watts at <0.05% THD (See note 4) | | | EIA Watts at 1% THD (See note 5) |
|--------------------------------|---|-------|--|--|-------|-------|---|-------|-------|----------------------------------|
| | 20Hz-20kHz | 1 kHz | | 20 Hz | 50 Hz | 1 kHz | 20 Hz | 50 Hz | 1 kHz | |
| Stereo (both channels powered) | 4 | 260 | 330 | 310 | 350 | 420 | 265 | 315 | 305 | 315 |
| | 8 | 165 | 190 | 185 | 200 | 225 | 165 | 185 | 185 | 190 |
| | 16 | 100 | 105 | 105 | 105 | 115 | 95 | 105 | 100 | 105 |
| Bridged-Mono (balanced output) | 8 | 520 | 660 | 640 | 700 | 820 | 585 | 640 | 605 | 660 |
| | 16 | 360 | 385 | 380 | 395 | 435 | 350 | 375 | 360 | 400 |

Architect's Specifications

The power amplifier, being of two channels, shall deliver a minimum of 165 watts into 8 ohms with both channels operating, or 260 watts into loads of 4 ohms each with both channels operating. When strapped into mono, it shall be capable of delivering 360 watts into a 16 ohm load or 520 watts into 8 ohm loads. The amplifier's outputs shall have internal protection against possible shorted, mismatched and open circuits. The circuitry shall incorporate voltage amplifiers whose slew rate is controlled to protect the overall amplifier against RF burnout. The PS-400 shall provide (in dual channel operation) a voltage gain of 20.6 ±2% or 26.3 ±2 dB at maximum gain, have an input sensitivity of 1.76 volts ± 2% for full rated output and be capable of driving any load safely – including completely reactive loads (.775 V input sensitivity optional). Hum and noise shall be 112 dB below rated output from 20 Hz to 20 kHz. Intermodulation distortion shall be less than 0.05% from 0.01 watts to 0.25 watts, and less than 0.01% from .25 watts to 165 watts into 8 ohms, per channel. The dimensions shall allow for standard 19" (48.26 cm) EIA rack mounting. It shall be 7" (17.78 cm) high and 10 1/8" (25.72 cm) deep from the mounting surface. It shall weigh 55 pounds (24.9 kg) net. The power requirements shall be 50-400 Hz AC with taps for 100, 120, 200, 220, or 240 V ±10%. At idle the amplifier shall draw 30 watts or less. The amplifier shall be class AB+B (multi-mode) and be of completely solid state design with a frequency response from DC-20 kHz, ±0.1 dB at 1 watt into 8 ohms. The power amplifier shall be a Crown PS-400.

Crown's 3-Year No-Fault Amplifier Warranty And 3+3 No-Fault Extended Warranty

Crown International now offers a 3-Year No-Fault Warranty for every new Crown amplifier—an industry standard. With this unprecedented No-Fault protection, your new Crown amplifier is warranted to meet or exceed original specifications for the first three years of ownership. During this time, if your amplifier fails for any reason or does not perform to original specifications, it will be repaired or replaced at our expense. This includes parts, labor and round-trip shipping, even a shipping carton should you need one. About the only things not covered by this warranty are those losses normally covered by insurance and intentional abuse. And the coverage is transferable should you ever decide to sell your amp.

That's not all; for a modest fee, Crown will extend that protection for an additional three years with our 3+3 No-Fault Extended Warranty. Now that's commitment.

See your Crown dealer for full warranty disclosure and details on the No-Fault and 3+3 No-Fault Extended Warranty.

1. Continuous power in the context of Federal Trade Commission testing is understood to be a minimum of five minutes of operation. Harmonic distortion is measured as the RMS sum total as a percentage of the fundamental output voltage. This distortion specification applies for all wattages greater than 0.25 watts.
2. A 1 kHz sine wave is presented to the amplifier and the output monitored for non-linear distortion. The level is increased until the THD reaches 0.1%. At this level the average power per channel is reported.
3. A single cycle of sine wave is presented to the amplifier and monitored for non-linear distortion. The average power during the burst is reported. Speakers must be able to withstand this level if they are to be safely used with this amplifier.
4. A 40 millisecond burst or two cycles of sine wave (whichever is of greater duration) is used and the power computed as the average power during the burst. The duty cycle of this test is 10 percent. This power level is a measure of how loud an amplifier is as perceived by the hearing process.
5. EIA standard RS-490 (both channels driven)



© 1990 Crown International, Inc. • Crown International, Inc. reserves the right to make changes in specifications or products without prior notice. Crown, IOC, and Multi-Mode are registered trademarks of Crown International, Inc.



Made in U.S.A. Exported As Amcron®
 P.O. Box 1000
 Elkhart Indiana 46515-1000
 TEL: 219/294-8000
 FAX: 219/294-8329 Crown Division
 219/294-8346 Amcron Division