

MA-3600VZ MA-5002VZ

M A C R O - T E C H S E R I E S



The Crown® Macro-Tech® Series is the defining standard for amplifier design today. No compromises, no gimmicks. Just brilliant engineering backed by superior manufacturing, support and an unsurpassed commitment to quality. Like all Crown amps, the defining characteristic of the Macro-Tech Series is sonic accuracy. A tight, rock-solid low end, with smooth, detailed highs and a well-defined mid-range. In short, the most accurate reproduction of an audio signal you've ever heard. And because we put the quality of sound above all else, a Crown amplifier is the most coveted amplifier in the business.

When it comes to manufacturing amps, our work is based on one simple fact: there are no shortcuts to quality. And our Macro-Techs have proven it time and time again in some of the most demanding applications in the world.

The VZ® Series is a significant leap forward in amplifier design. Our patented variable impedance (VZ) technology permits the MA-3600VZ or MA-5002VZ to dynamically adapt to signal and load requirements in real time. Whether you need current in a low-impedance sub-woofer situation, or high-voltage swings for those transient signals, the VZs deliver!

For more details about the Crown Macro-Tech Series, contact the Crown Technical Support Group at 800-342-6939 or 574-294-8200. Also, visit the Crown Audio website at www.crownaudio.com.

Specifications

Note: Specifications relate to 120 volt, 60 Hz units in Stereo mode with 8-ohm loads and an input sensitivity of 26 dB gain at 1 kHz rated power unless otherwise specified. Specifications for units supplied outside the U.S.A. may vary slightly at different AC voltages and frequencies.

Power

Output Power: See power charts below.

Load Impedance: Safe with all types of loads, even reactive ones. MA-3600VZ is rated for 2 to 16 ohms in Stereo. MA-5002VZ is rated for 2 to 8 ohms in Stereo. Both amplifiers are rated for 4 to 16 ohms in Bridge-Mono and 1 to 4 ohms in Parallel-Mono mode.

Voltage Gain to 8 ohm load at rated output at 1 kHz, maximum level setting:

MA-3600VZ:

124.6:1 ±6% or 41.9 dB ±0.5 dB at 0.775 volt sensitivity.

69.2:1 ±6% or 36.8 dB ±0.5 dB at 1.4 volt sensitivity.

20:1 ±6% or 26 dB ±0.5 dB at +26 dB sensitivity.

Features

- Crown's Grounded Bridge™ design delivers large voltage swings without using easily stressed output-transistor configurations like conventional amplifiers; the results are lower distortion and superior reliability
- Patented ODEP® (Output Device Emulation Protection) circuitry compensates for overheating and overload to keep the amplifier working when others would fail
- IOC® (Input/Output Comparator) circuitry immediately alerts of any distortion exceeding 0.05%, providing dynamic proof of distortion-free performance
- MA-5002VZ accepts Crown PIP2 modules. MA-3600VZ accepts only the PIP-Lite module when fitted with the IQ-PIP-USP2 Adapter
- Patented Variable Impedance (VZ®) power supplies for each channel provide excellent

crosstalk characteristics and the best power matching to your load; in the MA-5002VZ, three special modes are provided to control how and when the supplies shift impedance modes

- Very low harmonic and intermodulation distortion result in the best dynamic transfer function in the industry
- MA-5002VZ only: Independent error-driven compressor for each channel that can be set for fast or slow attack and release times
- Full protection from shorted, open and mismatched loads; general overheating; DC; high-frequency overloads; and internal fault conditions
- Three-Year, No-Fault, Fully Transferable Warranty completely protects your investment and guarantees its specifications

MA-5002VZ:

132:1 ±12% or 42 dB ±1 dB gain at 0.775 volt sensitivity.

71:1 ±12% or 37 dB ±1 dB gain at 1.4-volt sensitivity.

20:1 ±3% or 26 dB ±0.25 dB gain at the maximum level setting.

Required AC Mains (MA-3600VZ): 50/60 Hz; 100, 120, and 230VAC (±10%) units are available. 230VAC, 50/60 Hz units can be used with 220 and 240VAC. All versions draw 90 watts or less at idle. 100VAC and 120VAC units can draw up to 30 amps; 230VAC units can draw up to 15 amps. Current, voltage and frequency requirements are provided on unit's back panel.

Required AC Mains (MA-5002VZ): 50 or 60 Hz; 100, 120, 200, 208, 230, 240VAC (±10%). All units draw 90 watts or less at idle. Current, voltage and frequency requirements are provided on unit's back panel.

AC Line Connector:

MA-3600VZ: NEMA TT30P.

MA-5002VZ: 10 AWG cordset with NEMA TT30P plug is provided on 120VAC, 60 Hz North American units.

Performance

Frequency Response: ±0.1 dB from 20 Hz to 20 kHz at 1 watt.

Phase Response: ±10 degrees from 10 Hz to 20 kHz at 1 watt.

Signal-to-Noise Ratio: > 105 dB A-weighted or 100 dB unweighted below rated power, 20 Hz - 20 kHz.

Total Harmonic Distortion (THD):

MA-3600VZ: At full bandwidth power, < 0.05% from 20 Hz to 1 kHz increasing linearly to < 0.1% at 20 kHz.

MA-5002VZ: 1 kHz rated power, 0.05% or less true THD.

Intermodulation Distortion (IMD): (60 Hz and 7 kHz at 4:1)

MA-3600VZ: Less than 0.05% from 368 milliwatts to full bandwidth power.

MA-5002VZ: Less than 0.05% from rated power to 35 dB below rated power at 8 ohms.

Damping Factor: > 1,000 from 10 Hz to 400 Hz.

Slew Rate: (Slew rates are limited to useful levels for ultrasonic/RF protection.) > 30 volts per microsecond.

Controls

Compressor (MA-5002VZ only): A three-position back-panel switch is used to control each channel's input compressor. The "fast" setting provides an attack time of 4 milliseconds and a release time of 300 milliseconds; the "slow" setting provides an

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	*1 kHz Power
2 ohm Dual (per ch.)	1,800W
4 ohm Dual (per ch.)	1,565W
8 ohm Dual (per ch.)	1,120W
4 ohm Bridge-Mono	3,505W
8 ohm Bridge-Mono	3,140W

*1 kHz Power: refers to maximum average power in watts at 1 kHz with 0.1% THD.

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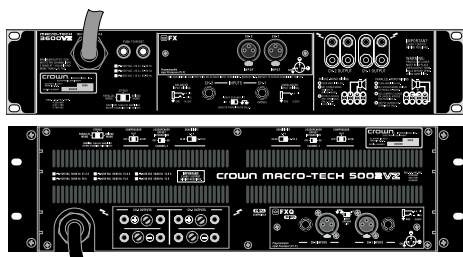
	*1 kHz Power	**20 Hz-20 kHz Power
2 ohm Dual (per ch.)	2,500W	2,155W
4 ohm Dual (per ch.)	2,000W	1,775W
8 ohm Dual (per ch.)	1,300W	1,090W
4 ohm Bridge-Mono	5,000W	
8 ohm Bridge-Mono	4,000W	3,670W

*1 kHz Power: refers to maximum average power in watts at 1 kHz with 0.1% THD.

**20 Hz-20 kHz Power: refers to maximum average power in watts from 20 Hz to 20 kHz with 0.1% THD.



MA-3600VZ MA-5002VZ



attack time of 12 milliseconds and a release time of 600 milliseconds; the "off" setting defeats output-driven compression.

Enable: A front-panel push button used to turn the amplifier on and off.

Input Ground Lift (MA-5002VZ only): A two-position back-panel switch located on the PIP2-FXQ used to isolate the input audio signal grounds from the AC (chassis) ground.

Level: A front-panel rotary potentiometer for each channel with 31 detents is used to control the output level.

Loudspeaker Offset Integration (MA-5002VZ only): A two-position back-panel switch for each channel used to turn the loudspeaker protection circuitry on and off. The circuitry protects against DC, off-center woofer cone movement, and unwanted subsonic and ultrasonic frequencies.

Stereo/Mono: A three-position back-panel switch used to select Stereo, Bridge-Mono or Parallel-Mono mode.

Sensitivity: A three-position switch used to select the input sensitivity for both channels: 0.775 volts or 1.4 volts for standard 1 kHz power, or a 26 dB voltage gain. MA-3600VZ switch is inside the PIP compartment; MA-5002VZ switch is on the back panel.

VZ Mode (MA-5002VZ only): A four-position switch for each channel inside the front-panel used to control the switching mode of the VZ power supplies.

Reset (MA-5002VZ only): A back-panel push button for each channel used to reset the circuit breaker that protects each power supply. 100 and 120 VAC units have 15 amp circuit breakers; 230 VAC units have 7.5 amp circuit breakers.

Indicators

Enable: An amber front-panel indicator that shows the on/off status of the low-voltage power supply.

Signal/IOC: A green front-panel indicator for each channel that flashes to show amplifier output. If a channel's output waveform differs from its input by 0.05% or more, the indicator flashes brightly to show distortion. This function provides proof of distortion-free performance. In Parallel-Mono mode, the Channel 2 light stays on.

ODEP: Each channel has an amber front panel indicator that shows thermal-dynamic energy reserve. Normally, each ODEP indicator is lit to show available reserve energy. The indicator will dim proportionally as the energy reserve for its channel decreases. In the rare event that a channel has no reserve, its indicator will turn off and the ODEP circuitry will limit the channel's output drive.

ILoad/ILimit (MA-5002VZ only): A two-color (green/red) LED for each channel that shows load current and limit current. They glow green to indicate load current flowing out the amplifier, and they turn red when maximum current is being delivered to the load.

Input/Output

Input Connector: Two balanced 1/4 inch TRS (6.35-mm) phone jacks on the back panel and two balanced three-pin female XLR connectors on the factory-installed PIP-FX (MA-3600VZ) or PIP-FXQ (MA-5002VZ) module.

Input Impedance (Nominal):

MA-3600VZ: 20 k ohms, balanced. 10 k ohms, unbalanced.

MA-5002VZ: Greater than 10 k ohms, balanced. Greater than 5 k ohms, unbalanced.

Maximum Input Level: 13 volts peak.

Input Sensitivity: 0.775 volt for standard 1 kHz power, 1.4 volts for standard 1 kHz power, or a 26 dB voltage gain.

Output Connectors (MA-3600VZ): Two sets of color-coded binding posts.

Output Connectors (MA-5002VZ): A multifunction, high-current output block is provided. Crown output blocks include three pairs of connectors for each channel (a total of 12 connectors). This allows multiple loudspeakers to be easily connected to each channel. High current screw terminals and color coded binding posts.

Output Impedance: Less than 10 milliohms in series with less than 2 microhenries (MA-3600VZ) or 2.5 microhenries (MA-5002VZ).

DC Output Offset: (Shorted input) ± 10 millivolts.

Output Signal

Stereo: Unbalanced, two-channel.

Bridge-Mono: Balanced, single-channel. Channel 1 controls are active; Channel 2 should not be used.

Parallel-Mono: Unbalanced, single-channel. Channel 1 controls are active; Channel 2 controls are bypassed.

Protection

Macro-Tech amplifiers are protected against shorted, open or mismatched loads; overloaded power supplies; excessive temperature; chain destruction phenomena; input overload damage; and high-frequency blowups. They also protect loudspeakers from input/output DC and turn-on/turn-off transients.

If unreasonable operating conditions occur, the patented ODEP circuitry will proportionally limit the drive level to protect the output transistor stages, particularly in the case of elevated temperature. Transformer

overheating will result in a temporary shutdown of the affected channel; when it has cooled to a safe temperature, the transformer will automatically reset itself. Controlled slew-rate voltage amplifiers prevent RF burnouts, and input overload protection is provided by current-limiting resistance at the input.

Turn On: Four-second delay with no dangerous transients. Delay time can be changed in the MA-3600VZ (contact Crown's Technical Support Group). MA-5002VZ also has "soft start" to avoid tripping the AC circuit breaker by gradually bringing the supplies up to full voltage.

Accessories

MA-5002VZ accepts Crown PIP2 modules. MA-3600VZ accepts only the PIP-Lite module when fitted with the IQ-PIP-USP2 Adapter, available in limited quantity from Crown's Parts Department.

Construction

Steel chassis with durable black power-coat finish, aluminum front panel with Lexan overlay, and specially designed flow-through ventilation from front to side (MA-3600VZ) or back (MA-5002VZ) panels.

Cooling: Internal heat sinks with forced-air cooling (MA-3600VZ) or on-demand, proportional cooling (MA-5002VZ), custom heat diffusers, and patented circuitry for rapid, uniform heat dissipation.

Dimensions: EIA Standard 19-inch (48.3-cm) rack mount width (EIA RS-310-B), 3.5 inches (8.9 cm) (MA-3600VZ) or 5.2 inches (13.3 cm) high, 16 inches (40.6 cm) (MA-3600VZ) or 15.875 inches (40.3 cm) (MA-5002VZ) deep behind the mounting surface and 2.5-inch (6.3-cm) protrusion in front of the mounting surface.

Center of Gravity: Approximately 6 inches (15.2 cm) behind front mounting surface.

Weight:

MA-3600VZ (shipping weight):

120VAC, 60 Hz Units: 63 lb, 10 oz (28.9 kg).
100VAC International Units: 63 lb, 0.5 oz (28.6 kg).
120VAC International Units: 63 lb, 10 oz (28.9 kg).
230VAC International Units: 61 lb, 15 oz (28.1 kg).

MA-5002VZ: 77 lb, 9 oz (35.2 kg) net; 88 lb, 10 oz (40.2 kg) shipping weight.



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H A Harman International Company

Crown International
1718 W. Mishawaka Rd.
Elkhart, IN 46517-9439
TEL: 574-294-8200
FAX: 574-294-8FAX
www.crownaudio.com

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Crown's Three-Year, No-Fault, Fully Transferable Warranty

Crown offers a Three-Year, No-Fault, Fully Transferable Warranty for every new Crown amplifier—an unsurpassed 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, or does not perform to original specifications, it will be repaired or replaced at our expense. About the only things not covered by this warranty are those losses normally covered by insurance and those caused by intentional abuse. And the coverage is transferable, should you sell your amplifier.

See your authorized Crown dealer for full warranty disclosure and details. For customers outside of the USA, please contact your authorized Crown distributor for warranty information or call 574-294-8200.