

Models M300, M450,
and M600



M-Class Series Amplifiers

DESIGNED FOR RELIABILITY,
FLEXIBILITY, AND POWER!

BOGEN®

One Series, Various Installation Needs

Bogen's M-Class delivers on what contractors need most:
Reliability - Massive power toroid and heat sinks, heavy 14-gauge chassis, Back-Slope™ AC voltage stabilization, Clip limiters, DC voltage, over-current and thermal protection circuits.
Flexibility - 3 modes of operation: 70V Mono, Dual Mono, or Stereo; 2 modular input bays for a variety of prioritized input types.
Power - up to 600W/ch stereo or 1200W of 70V mono power with low distortion and a high slew rate.

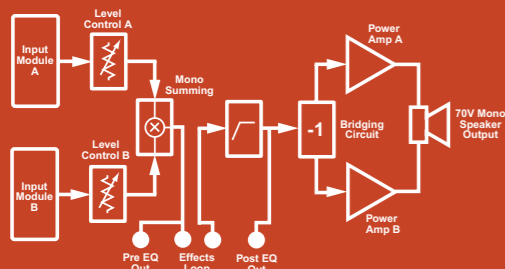
All this wrapped into 2 rack spaces of some of the best looking metal in the industry.

Three, Flexible Operating Modes

Flexible operating modes meet different installation needs.

70V Mono Mode

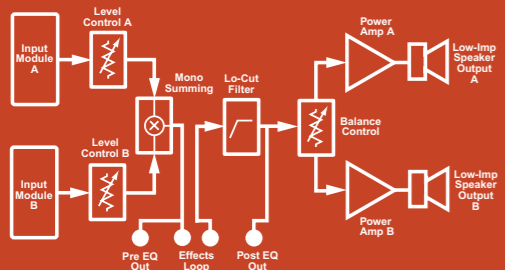
Provides a single channel of output for 70V constant voltage speaker systems. Inputs form a 2x1 mixer with the front panel controls determining the signal levels from each input.



70V Mono

Dual Mono Mode

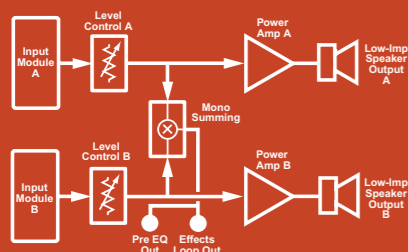
Dual mono provides the same mixer operation but with two amplifier channels for low-impedance speaker systems. A balance control is provided to adjust the overall volume level between the two amplifier outputs. Inputs form a 2x1 mixer with the front panel controls determining the signal levels from each input.



Dual Mono

Stereo Mode

In stereo mode, the front panel controls allow independent operation of the two power amp channels.



Stereo

Angled Front Panel - The top of the front panel is angled slightly, allowing easy removal of the knob cover and also allowing two units to be stacked on top of each other without empty rack spaces between them.

Clip Limit Indicator - Lights amber when amp enters clipping and limiter circuit activates or when there are excessively low impedance loads.

Recessed Volume Control (shown with cover removed) - 20-position, detented volume control, one for each channel. They are recessed in the cast aluminum front panel and are protected from casual tampering by a snap-on plastic knob cover.

Removable Fan Grilles - Secure, but easily removable for filter cleaning.



FRONT PANEL

Status Indicator -
Green - On/Normal Operation
Amber - Sleep Mode
Red - Protect (DC, Thermal, Overload)

Signal Indicator - Indicates audio signal is present.

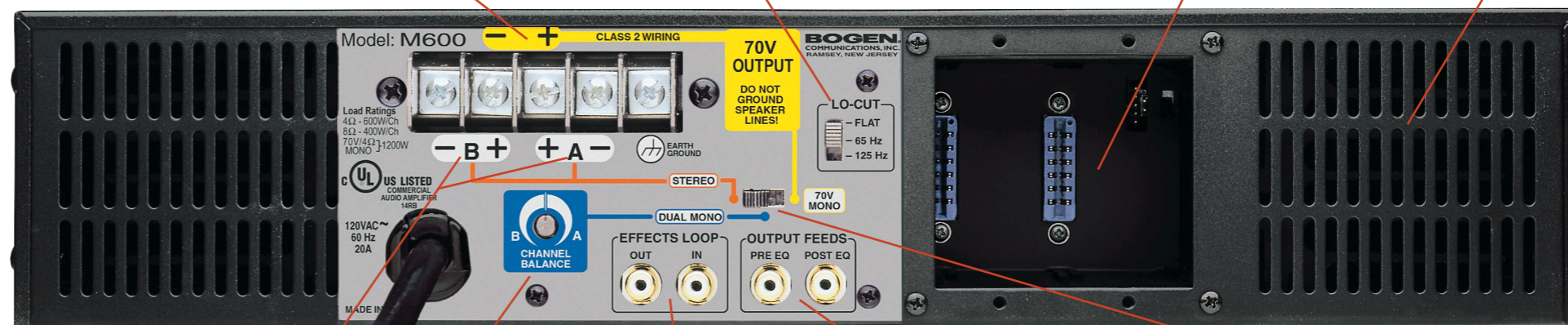
Power Switch - High-quality, magnetic circuit breaker.

70V Speaker Output - For 70V constant voltage speaker systems. Provides a single channel of amplification.

Lo-Cut Filter Switch - Select a low-frequency roll-off of 65Hz or 125Hz for transformer-coupled and horn speakers. Flat position allows full low-frequency performance.

Module Bay - The unit can accept one or two Bogen input modules. Each amplifier comes with a balanced, high-impedance stereo input module.

Cooling Fans - Two independent, variable-speed cooling fans respond only as needed to keep the amplifiers cool which reduces dust build-up.



REAR PANEL

Low-Impedance Outputs - For 4- to 8-ohm speaker loads. Unit works into loads as low as 2 ohms without overloading.

Channel Balance Control (in Dual Mono operation mode) - Allows the output level of one channel to be lower than the other channel's output level.

Effects Loop - Provides insert point for outboard signal processing equipment when the amplifier is in either 70V Mono or Dual Mono modes (modular inputs are in a 2:1 mixer configuration). (Not used in stereo mode.)

Output Feeds - In mono modes, the connectors provide output signal feeds both before and after any outboard signal processing. In stereo mode, the Pre-EQ connector provides mono mix output of the stereo input signal.

Operational Mode Selector - Choose one of three settings to meet application needs: 70V Mono, Dual Mono, or Stereo. 70V Mono provides one channel of 70V constant voltage output with the two modular inputs combined in a 2:1 mixer. Dual Mono provides 2 identical channels of low-impedance power with modular inputs combined in a 2:1 mixer.

Back-Slope™ AC Voltage Stabilization

Bogen's Back-Slope circuitry assures consistent performance and reliability by regulating the proper amount of AC energy to the amplifier's power toroid, as AC line voltages rise and fall (up to 10%), thus maintaining maximum performance. This also prevents damage to the amplifier over varying line voltages and load conditions.

Back-Slope provides these advantages:

- the output voltage of the amplifier is limited when the unit is lightly loaded
- ensures better low-frequency performance into step-down transformers
- prevents component damage to the amplifier if the power line voltage goes above its nominal value and improves the reliability of the unit
- regulates the rail voltage of the amplifier efficiently with minimal wasted heat

Protection Circuitry (Sleep Mode)

Energy-saving Sleep Mode feature reduces amplifier power consumption during idle periods. When a signal is absent for more than three minutes, the unit will go into sleep mode. During sleep mode, the unit draws less power. Instant-on wake operation automatically returns the unit to full power when an audio signal is detected, without cutting off the beginning of the signal. (Sleep mode is defeatable.)

For further safe and reliable operation, the M-Class' electronic protection includes Clip limiting, overcurrent, DC voltage, and thermal protection circuits.

Input Options & Priorities

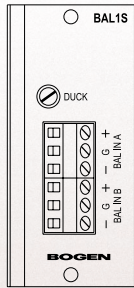
M-Class amplifiers support one or two input modules with two priority settings. Either module can be set as a High priority, making the other module the Low priority. Or, both module inputs can be mixed together. Each amplifier comes standard with a single professional-quality, stereo, high-impedance balanced input module (BAL1S). Other modules can be added as needed.

M-Class Series Features:

- 3 stereo power levels: 600W, 450W, or 300W per channel @ 4 ohms (both channels driven)
- 3 mono power levels: 1200W, 900W, or 600W for 70V speaker systems
- 3 modes of operation to choose from - 70V Mono, Dual Mono, or Stereo
- Low noise, low distortion, and high slew rate
- Flexible modular input capability (2 module capacity)
- Professional-quality, balanced, high-impedance input module (included)
- 3 selectable low-frequency roll-off choices
- 2x1 mixer function when in mono modes
- Insert connectors for outboard equipment (in mono modes)
- Post- and Pre-EQ Output Feeds (in mono mode)
- DC, overload, and thermal protection circuits
- Clip detection and limiting circuits for speaker protection
- Power-saving Sleep Mode for intermittent use applications
- Signal, Clip, Sleep Mode, and Protect indicators
- Back-Slope AC voltage stabilization for dependable performance over varying AC line voltages
- Heavy 14-gauge steel chassis with cast aluminum front panel
- Recessed volume control knobs with snap-on, protective cover
- Mounts in 2 rack spaces (3-1/2") directly stackable without need for extra space above or below
- 2 independent, continuously variable, cooling fans for dependable and quiet operation
- Easily removable front fan grilles
- Stable into 2-ohm loads

Input Modules

Each amplifier can accept up to two Bogen input modules, with user-settable priority levels. Plug-in modules support different signal processing options including the ability to interface to balanced and unbalanced high- and low-level inputs, stereo or mono, telephone PBXs, and microphones. A stereo, balanced, high-impedance, input module (BAL1S) comes standard with each amplifier. Other modules offer more advanced functionality.



BALANCED INPUT (BAL1S)

Stereo, balanced input module.
(Comes standard with M600/450/300.)

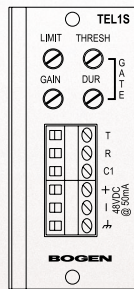
- Stereo, high-impedance, balanced inputs
- Professional-quality, low noise performance
- Mutable by higher priority modules
- Variable ducking level when muted
- Fade back from mute



BRIDGING INPUT (BRG1R)

Daisy chain multiple amplifier inputs.

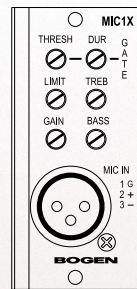
- Gain/Trim control
- Input signal available at buffered output
- Mutes lower priority modules
- Mutable by higher priority modules
- Variable ducking level when muted
- Buffered output not muted
- Bus assignable
- RCA input and output connections



TELEPHONE INPUT (TEL1S)

Interfaces to telephone system's loop start/ground start trunks or paging ports.

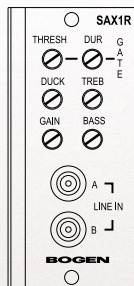
- Loop start or ground start trunk interfacing (requires external power supply)
- Dry loop interface to paging ports
- Audio-activated paging in dry loop
- Gain/Trim control
- Noise gate
- Limiter
- Mutes lower priority modules
- Mutable by higher priority modules
- Bus assignable
- Transformer-isolated
- Screw terminal connections



MICROPHONE INPUT (MIC1X)

Low-impedance, balanced microphone input.

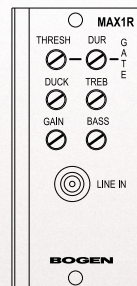
- Gain/Trim control
- Bass & Treble controls
- Noise gate
- Limiter
- 24V Phantom Power
- Mutes lower priority modules
- Mutable by higher priority modules
- Bus assignable
- Balanced, transformer-isolated
- XLR connector



STEREO AUX INPUT (SAX1R)

Stereo, unbalanced input module.

- Gain/Trim control
- Bass & Treble controls
- Gate feature mutes lower priority modules
- Mutable by higher priority modules
- Variable ducking level when muted
- Fade back from mute
- Stereo to mono summing option
- Bus assignable
- RCA connectors



MONO AUX INPUT (MAX1R)

Mono, unbalanced input module.

- Gain/Trim control
- Bass & Treble controls
- Gate feature mutes lower priority modules
- Mutable by higher priority modules
- Variable ducking level when muted
- Fade back from mute
- Bus assignable
- RCA connector



Three M-Class models - M600, M450, and M300 - respectively provide 600W, 450W, and 300W per channel into 4-ohm loads or 1200W, 900W, and 600W for 70V systems. Each amplifier is powered by an oversized toroidal transformer for solid performance.

Performance Specifications of Bogen M-Class Amplifiers

Model	M600	M450	M300
Power Output	70V Mono: 1200W @ 4 ohms 4 ohms: 600W per channel* 8 ohms: 400W per channel*	900W @ 5.5 ohms 450W per channel* 300W per channel*	600W @ 8 ohms 300W per channel* 200W per channel*
Power Bandwidth	20-40kHz, .5% THD	20-40kHz, .5% THD	20-40kHz, .5% THD
Frequency Response @ 1 watt	20-20kHz +/- 0.25dB	20-20kHz +/- 0.25dB	20-20kHz +/- 0.25dB
THD @ 1kHz rated power	less than .02%	less than .02%	less than .02%
Input Sensitivity	1.225V for 600W @ 4 ohms	1.06V for 450W @ 4 ohms	0.866V for 300W @ 4 ohms
Output Regulation, 1kHz direct	0.5dB, 8 ohms	0.5dB, 8 ohms	0.5dB, 8 ohms
Output Regulation, 1kHz bridged	1.5dB, 70V	1.5dB, 70V	1.5dB, 70V
S/N Ratio	109dB, 20k bw, ref 8 ohms F.P.	106dB, 20k bw, ref 8 ohms F.P.	103dB, 20k bw, ref 8 ohms F.P.
Cooling	Forced Air Variable Speed Fan	Forced Air Variable Speed Fan	Forced Air Variable Speed Fan
Class of Operation	H	H	AB
Temperature Range	15 to 105 degrees F	15 to 105 degrees F	15 to 105 degrees F
Protection	RF, DC and Lo freq, Temp., Low Impedance, Short Circuit, Front Panel Circuit Breaker	RF, DC and Lo freq, Temp., Low Impedance, Short Circuit, Front Panel Circuit Breaker	RF, DC and Lo freq, Temp., Low Impedance, Short Circuit, Front Panel Circuit Breaker
Minimum Load Impedance (Stereo)	3.2 ohms	3.2 ohms	3.2 ohms
AC Input Voltage Range	95-130V AC, 60 Hz	95-130V AC, 60 Hz	95-130V AC, 60 Hz
Physical Dimensions (W x H x D)	17" x 3.5" x 16"	17" x 3.5" x 16"	17" x 3.5" x 16"
Product Weight	46 lbs.	44 lbs.	41 lbs.

* Both channels driven @ nominal line voltage



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Specifications subject to change without notice.

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