

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.

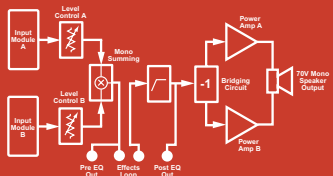
All this wrapped into 2 rack spaces of some of the best looking metal in the industry.

## Three Flexible Operating Modes

Flexible operating modes meet different installation needs.

### 70V Mono Mode

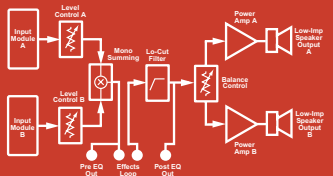
Provides a single channel of output for 70V constant voltage speaker systems. Inputs form a 2x1 mixer with the front panel controls determining the signal levels from each input.



70V Mono

### Dual Mono Mode

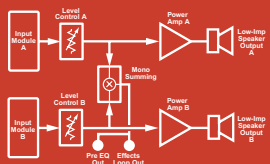
Dual mono provides the same mixer operation but with two amplifier channels for low-impedance speaker systems. A balance control is provided to adjust the overall volume level between the two amplifier outputs. Inputs form a 2x1 mixer with the front panel controls determining the signal levels from each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



Dual Mono

### Stereo Mode

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



Stereo

**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.

**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.

**Removable Fan Grilles** - Easily removable for filter cleaning.



## FRONT PANEL

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

**Signal Indicator** - Indicates that signal is present at the amplifier's output.

**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 65 Hz or 125 Hz 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, BAL2S.)

**Cooling Fans** - Two independent, variable-speed cooling fans respond only as needed to keep the amplifier 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 2x1 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 2x1 mixer. Dual Mono provides 2 identical channels of low-impedance power with modular inputs combined in a 2x1 mixer.

### **Back-Slope™ AC Voltage Stabilization**

Bogen's patented 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. One module can be set to have priority over the other, or they can simply be mixed. Each amplifier comes standard with a single professional-quality, stereo, high-impedance balanced input module. Other modules can be inserted 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
- Patented 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

## **Accessories** (Sold Separately)



**RPK86**  
Rear Rack  
Mounting Kit



**INPUT  
MODULES**  
(See Next Panel)

# Input Modules

Each amplifier can accept up to two Bogen input modules, with user-settable priority levels. Plug-in modules support different input types including the ability to interface to balanced and unbalanced high- and low-impedance inputs, stereo and mono, telephone PBXs, and microphones. A stereo, balanced, high-impedance input module (BAL2S) comes standard with each amplifier. Bogen's other modules offer more advanced functionality.

## MICROPHONE INPUTS (MIC1S, MIC1X)

*Low-impedance, transformer-balanced microphone input modules*

- Gain/Trim control
- Bass & Treble controls
- Noise gate w/Threshold & Duration
- Limiter w/Threshold control
- 24V Phantom power
- Mute send & receive\*
- Bus assignable
- Screw terminals (MIC1S)
- XLR connector (MIC1X)



## MICROPHONE INPUTS (MIC2S, MIC2X)

*Low-impedance, electronically-balanced microphone input modules*

- Gain/Trim control
- Hi-Cut/Lo-Cut controls
- Voice Enhance control
- Noise gate w/Threshold control
- Limiter w/Threshold control
- 24V Phantom power
- Mute send & receive\*
- Bus assignable
- Screw terminals (MIC2S)
- XLR connector (MIC2X)



## BRIDGING INPUT (BRG1R)

*Provides buffered input feed to other amplifiers*

- Input signal available at buffered output
- Gain/Trim control
- Ground isolated input to eliminate ground loop
- Mute send & receive\*
- Variable ducking level when muted
- Fade back from mute
- Buffered output not muted
- Bus assignable
- RCA connectors



## TRANSFORMER BALANCED INPUT (TBL1S)

*Transformer balanced AUX input module*

- Transformer-isolated line level input
- Gain/Trim control
- Bass & Treble controls
- Mute send with threshold/duration adjust
- Mute send & receive\*
- Variable ducking level when muted
- Fade back from mute
- Screw terminal connections



## TONE GENERATOR INPUT (TNG1S)

*Multiple tone generator input module*

- Select from burst/steady, slow whoop, siren, mechanical bell, Klaxon, night ringer, double chime, and doorbell tones
- Select 4 of 8 tones to trigger
- Momentary & continuous playback modes
- Microprocessor-controlled operation
- Mute send & receive\*
- Screw terminal for 4 external trigger connections



## MONO AUX INPUT (MAX1R)

*Unbalanced mono input module*

- Gain/Trim control
- Bass & Treble controls
- Variable ducking level when muted
- Mute send with threshold/duration adjust
- Mute send & receive\*
- Fade back from mute
- Bus assignable
- RCA connectors



## STEREO AUX INPUT (SAX1R)

*Unbalanced stereo input module*

- Gain/Trim control
- Bass & Treble controls
- Variable ducking level when muted
- Mute send with threshold/duration adjust
- Mute send & receive\*
- Fade back from mute
- Stereo-to-mono summing option
- Bus assignable
- RCA connectors



## TELEPHONE INPUT (TEL1S)

*Telephone interface input module*

- Loop start or ground start trunk interfacing\*\*
- Dry loop interface to paging ports
- Audio-activated paging in dry loop
- Gain/Trim control
- Noise gate w/Threshold control
- Limiter w/Threshold control
- Bus assignable & Transformer-isolated
- Mute send & receive\*
- Screw terminal connections



## BALANCED INPUT (BAL2S)

*Stereo, balanced module  
(included with M300/M450/M600)*

- Stereo, high-impedance, balanced inputs
- Dual gain 0 dB/18 dB
- Professional-quality, low noise performance
- Mutable by higher priority modules
- Variable ducking level when muted
- Fade back from mute
- Screw terminal connections



\* Module can mute or be muted by other modules.

\*\* Loop and Ground Start applications require an external 48V Power Supply - Bogen PRS48 recommended.



Three modes of operation - 70V mono, dual mono, or stereo - meet various installation needs. 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.

## Performance Specifications of Bogen M-Class Amplifiers

Technical Specifications	M600	M450	M300
<b>Power Output</b> 70V Mono 4-ohm 8-ohm	1200W @ 4 ohms 600W per channel* 400W per channel*	900W @ 5.5 ohms 450W per channel* 300W per channel*	600W @ 8 ohms 300W per channel* 200W per channel*
<b>Input Sensitivity</b> At Backplane Connector or using included Input Module (Module has Gain of 1)	1.161V for 600W @ 4 ohms	1.010V for 450W @ 4 ohms	0.840V for 300W @ 4 ohms
<b>S/N Ratio (20K BW)</b>	109 dB ref. 8 ohms, F.P.	106 dB ref. 8 ohms, F.P.	103 dB ref. 8 ohms, F.P.
<b>Class of Operation</b>	H	H	AB
<b>Product Weight</b>	46 lb.	44 lb.	41 lb.
<b>Connectors: Power Input Output</b>	20A line cord**	15A line cord	15A line cord
	2 new Bogen std. 12-pin connector modules/RCA input		
	5-pin "touch-proof" Barrier Strip, RCA Pre- & Post-EQ Output		
<b>Power Bandwidth</b>	20-40 kHz .5% THD		
<b>THD @ 1 kHz rated power</b>	less than .02%		
<b>Load Impedance</b>	4-8 ohms, 70V		
<b>Minimum Load Impedance (Stereo)</b>	3.2 ohms		
<b>Frequency Response @ 1 watt</b>	20-20 kHz +/- 0.25 dB		
<b>Output Regulation, 1 kHz direct 1 kHz bridged</b>	0.5 dB @ 8 ohms		
	1.5 dB @ 70V		
<b>Inputs (Plug-in modules)</b>	Electronically balanced, high-impedance module standard, other modular input types available		
<b>AC Input Voltage Range</b>	95-130V AC, 60Hz		
<b>Maximum AC Current</b>	20A**	15A	12A
<b>Indicators</b>	Status (On/Protect/Sleep), Clip/Limit, Signal		
<b>Temperature Range</b>	15 to 105 degrees F		
<b>Cooling</b>	Forced Air/Variable Speed Fan		
<b>Physical Dimensions (W x H x D)</b>	17" X 3-1/2" x 16"		
<b>Protection</b>	RF DC, Low-frequency, Thermal, Low-Impedance, Circuit-Breaker, Short Circuit		
<b>Special Features</b>	Sleep Mode, Back-Slope regulation, Stereo, Dual Mono, 70V Mono Operation, Toroidal Power Transformer		

\* Both channels driven at nominal line voltage 120V AC, 60 Hz.

\*\* Requires 20A, NEMA 5-20R Type Receptacle.



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