

Models X600, X450,
and X300



Black Max™ Series Amplifiers
C O M P A C T A N D P O W E R F U L !

BOGEN®

Power Plus Performance

Bogen's Black Max amplifiers (X600, X450, and X300) were designed to provide maximum performance in 70V constant voltage speaker systems. Dual channel transformerless outputs deliver exceptionally clean audio to speaker systems requiring up to 1200 watts of total power, or up to 600W per zone to two separate zones.

The Black Max amps offer a unique combination of electrical features:

- **Built-in Power Sequencing Inputs** eliminate current in-rush problems of large audio systems with multiple amplifiers.
- **Auto Sleep Mode** reduces the power consumption of continuously powered systems when there is no input activity.
- **Back-Slope™ AC Voltage Stabilization** circuitry assures consistent performance and reliability by regulating the proper amount of AC energy to the amplifier despite varying AC line voltages and load conditions.

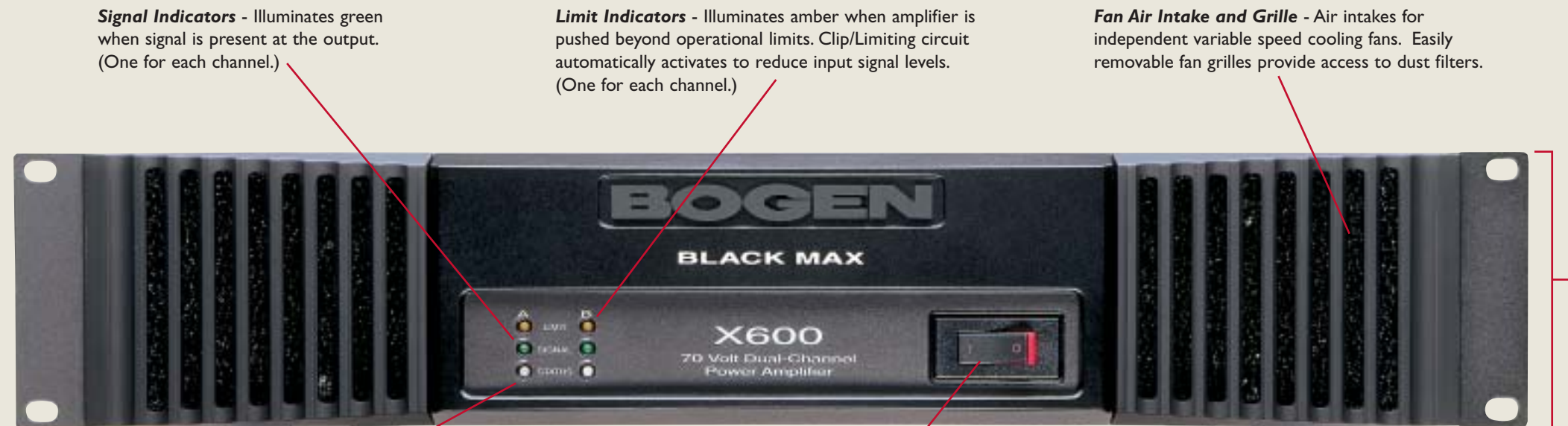
Additional Features:

- Low noise, low distortion, and high slew rate
- Continuously variable speed cooling fans
- DC, overload, short circuit, and thermal protection circuits
- Clip limiting circuits for speaker protection
- Heavy-gauge steel chassis with cast aluminum front panel

Specifications	Model X600 / X450 / X300
Power Output*	600W / 450W / 300W
Freq Resp @ 1 watt	20-20kHz +/- 0.25dB
THD @ 1kHz FRP	less than .02%
Power Bandwidth	20-40kHz .5% THD
S/N Ratio (20k BW)	104dB ref. 70V, F.P.
Class of Operation	H
Product Weight	46 lbs. / 44 lbs. / 41 lbs.
Output Regulation	1.5dB @ 70V
Physical Dimensions	17 1/4" W x 3 1/2" H x 18 1/4" D

* Per channel 70V output - both channels driven @ nominal line voltage 120V AC 60 Hz.

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FRONT PANEL

Signal Indicators - Illuminates green when signal is present at the output. (One for each channel.)

Limit Indicators - Illuminates amber when amplifier is pushed beyond operational limits. Clip/Limiting circuit automatically activates to reduce input signal levels. (One for each channel.)

Fan Air Intake and Grille - Air intakes for independent variable speed cooling fans. Easily removable fan grilles provide access to dust filters.

3-Color LED Status Indicators - **Green** - On/Normal Operation
(One for each channel.)
Amber - Sleep Mode
Red - Protect (DC, Thermal, Overload)

Power Switch/Circuit Breaker - High-quality Magnetic Circuit Breaker.

2 Rack Spaces High - Directly stackable without need for extra space above or below.



REAR PANEL

Speaker Terminals - Two separate 70V, constant voltage, speaker outputs. (Integral clamping washer accepts up to #10 spade lugs.)

Automatic Sleep Mode - Allows the unit to automatically put itself into a sleep mode when there has been no input activity for more than 3 minutes.

Fan Exhausts - Outlet for cooling fans.

Ground Terminal - Provides access to earth ground.

Lo-Cut Filter - 60 Hz roll-off prevents saturation of speaker transformers.

Input Level Control - Continuously variable input level control.

AC Power Status Indicator - Indicates the power-up status of the Black Max amplifier.

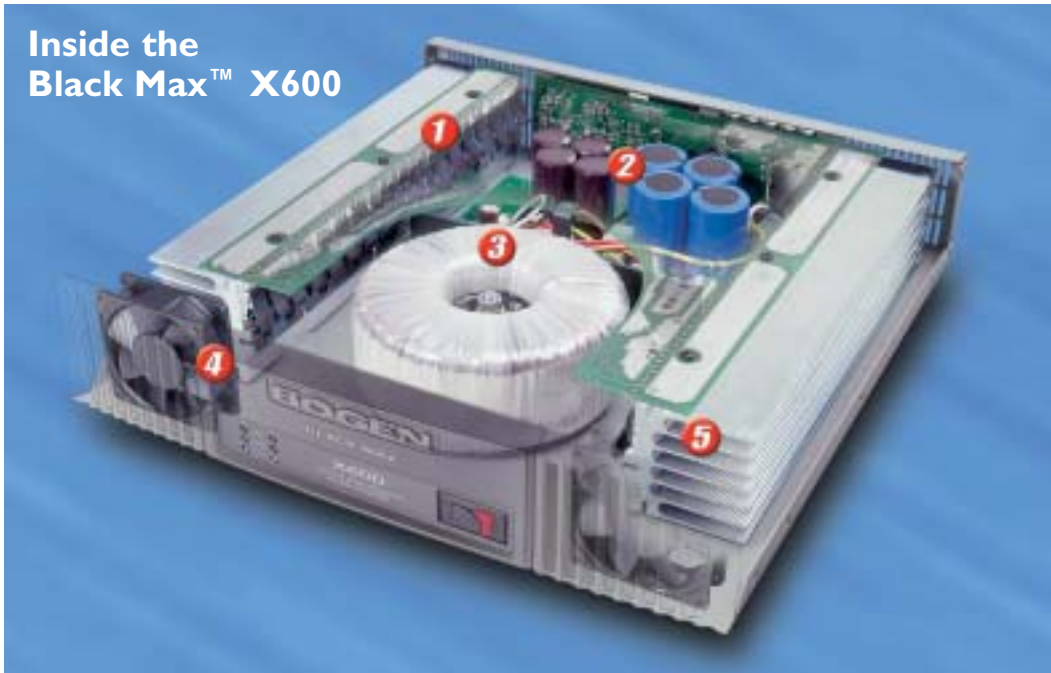
Off - AC not connected to amplifier.
Amber - Waiting for sequential trigger, power applied.
Green - Fully powered.

Power Sequencing Inputs - Daisy chain multiple Black Max amplifiers together for controlled sequential power-up. A pluggable terminal strip is provided for easy installation.

Power Sequencing Switch - Enables or disables power sequencing of amplifier.

Inputs - Balanced, high-impedance. Pluggable 3-position terminal strips allow for easy installation.

Inside the Black Max™ X600



Amplifier reliability depends on reducing stress on transistor output devices. The Black Max uses **14 large output transistors** per channel for the utmost in high reliability.



74,600 μf of capacitance filters the 110V DC power supply rails creating enormous energy reserve for low distortion, full power bass. The capacitor's 105° F temperature rating ensures long life even under the most harsh conditions.



The **Black Max power transformer** weighs in at 17 lbs. with 2k VA of power (enough to drive most power tools). Size matters in this case, because using a transformer this large keeps core temperatures low, resulting in high reliability and long life.



Amplifier reliability is all about cooling. The Black Max relies on **two 80mm high speed fans** to cool its massive heat sinks. Independent, continuous variable fan speed controls keep the noise and dust accumulation as low as possible.



The Black Max's **two large custom extruded heat sinks** add 8 lbs. to the total amplifier weight. The half-inch thick extrusion base provides exceptional heat transfer from the output devices, lowering the junction temperatures and extending their life.

