



BPA60

Power Amplifier

Installation & Use Manual

Technical Specifications

Rated Output Power:	60 watts
Total Harmonic Distortion:	Less than 2% from 50 Hz to 15 kHz
Frequency Response:	-2 dB, 20 Hz to 20 kHz
Input Sensitivity:	High-impedance, 300mV; low-impedance balanced (with optional transformer), 75mV
Hum and Noise:	85 dB below rated output
Output Loads:	8-ohm/25V, 16-ohm, 25V CT, 70V
Output Regulation:	Better than 2 dB from no load to full load
Input Impedances:	High-impedance, 50k ohms unbalanced; low-impedance, 600 ohms, balanced (with optional transformer)
Lo-cut Filter:	-10 dB at 100 Hz (switch-selectable)
Controls and Indicators:	<i>Front Panel</i> — Illuminated on/off power switch <i>Rear Panel</i> — Input level control, circuit breaker reset, lo-cut filter switch
Power Consumption:	120V AC, 60 Hz, 180W at full rated output
Thermal Emissions (full power):	204.9 BTU/hr.
Overload Protection:	Transient protection diodes, electrical circuit breaker, thermostat
Operating Temperature Range:	-4° F to 131° F (-20° to +55° C) at rated output
Auxiliary Receptacle (not switched):	Three-wire grounded*, 300W maximum, 2.5A (internally fused)
Dimensions:	15-1/4"W x 3-1/2"H x 8-1/4"D
Finish:	Black
Product Weight:	17 lbs.
Approvals:	Listed to UL Standard 60065 for US and Canada
Accessories:	Model TL600, 600-ohm line-matching transformer; Model TL100, 1:1 ratio transformer; Model RPK53 rack panel brackets

**This receptacle will be grounded only if the power amplifier has been grounded properly.*

NOTICE: Every effort was made to ensure that the information in this guide was complete and accurate at the time of printing. However, information is subject to change.

WARNING: To reduce the risk of Fire or Electric Shock, Do Not Expose this apparatus to rain or moisture.

Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases shall be placed on the apparatus.

WARNING: Only connect unit to AC mains outlet providing protective earthing connection.

NOTE: Mains plug is used as disconnect device from the mains and shall remain readily accessible and operable.

CAUTION: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

CAUTION: DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET, OR IN ANOTHER CONFINED SPACE. ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT THE RISK OF SHOCK OR FIRE HAZARD DUE TO OVER-HEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.

Always follow these basic safety precautions when installing and using the unit:

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean unit with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade, or the third prong, are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when not used for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**

CAUTION: TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE ANY FRONT/BACK COVERS OR PANELS. NO USER-SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions.

Installation

Rack Mounted Installation

The amplifier may be mounted in a standard 19" equipment rack, by using the Bogen Model RPK53 Rack Panel Kit (accessory; sold separately), which includes two brackets and the necessary hardware for installation.

NOTE: Before installing the amplifier in a rack, install any accessory transformers required. See Input Connections section.

Attach one of the RPK53 brackets to each side of the unit and secure (with screws provided) through the holes on the side panel. Each bracket measures 2" W x 3-1/2" H x 1" D.

Ventilation

The amplifier generates heat during operation. It must be properly ventilated to prevent excessive temperature rise. If other heat-producing equipment, or several amplifiers have been installed in an enclosed rack or cabinet, you must ensure that there is space above and below the amplifier(s) to allow for passive cooling. It is recommended that the amplifier be installed on the bottom of a rack or above any equipment that does not produce heat.

Power and Grounding

The three-wire AC line cord has a three-prong plug which should be plugged into a properly grounded, three-wire, 120V ~ 60Hz outlet. It is important to ground the amplifier.

Auxiliary Power Receptacle

Caution: The front panel POWER switch does not control the auxiliary receptacle.

The AUX POWER receptacle on the rear panel is a three-wire grounded outlet that may be used to supply power to accessory equipment in the sound system. Ensure that the accessory equipment does not require more than 300 watts. Equipment connected to the auxiliary receptacle will be grounded, provided the amplifier line cord has been properly grounded. The outlet is protected by an internal fuse.

Input Connections

High-Impedance Input

A high-impedance input is provided by standard RCA jacks (see Fig. 1). An input signal of 300mV is required for full rated output.

Low-Impedance Balanced Input

Caution: To avoid electric shock, be sure to disconnect AC Power Cord before removing the cover of the amplifier unit.

Warning: DO NOT perform any function requiring the removal of the cover of the amplifier unless you are qualified to do so.

A balanced input, provided at the BAL LO-Z terminal strip (Fig. 1), requires the installation of a Bogen Model TL600 line-matching transformer. Remove the top cover of the unit and install the transformer in the socket designated XT1 (see Fig. 2 on back page) on

the printed circuit board. If an unbalanced input is required, connect a jumper from the GND terminal to an adjacent input terminal.

Bridging Input

Caution: To avoid electric shock, be sure to disconnect AC Power Cord before removing the cover of the amplifier unit.

Warning: DO NOT perform any function requiring the removal of the cover of the amplifier unless you are qualified to do so.

The inputs of two or more amplifiers may be paralleled by installing accessory transformer TL100 (for up to 6 amplifiers) in the transformer socket designated XT1 (see Fig. 2) on the printed circuit board. Connect the signal source to the BAL LO-Z terminal strip and connect the cable shield to the GND terminal. For an unbalanced input, connect a jumper wire from the GND terminal to an adjacent input terminal.

Input from Another Amplifier

The BPA60 may be driven from an amplifier that provides a 25V or 70V constant voltage output. Connect the output of the driver amplifier to one of the HI-Z input jacks via a resistor network (see Fig. 3). These resistors are in addition to the normal loudspeaker load impedance on the output of the driver amplifier.

Output Connections

Caution: Follow local electrical codes when connecting amplifier output.

Figure 1 shows the location and impedance values for the output terminal strip. Class 2 wiring is acceptable for output loads.

Speakers

The BPA60 features output connectors for 16-ohm, 8-ohm/25V, 25VCT and 70V speakers. The amplifier provides outputs for 25V and 70V speakers. 70-volt speaker connections are made between the 70V and COM terminals on the output terminal strip. The COM and GND terminals of the output terminal strip are connected using a shorting clip. The shorting clip enables the amplifier output to act as an unbalanced output (one side of the output connected to ground). If desired, the output can be made to be a balanced output with no connection to ground. To balance the output, simply remove the shorting clip. All speaker connections remain the same as above. 25V speaker connections are done in the same manner.

Hum

If the connections between the signal sources and amplifier are incorrect or defective, hum-type interference may occur. Check for proper grounding, broken wires or shields, poor connector contacts, etc. Keep input cables away from speaker cables and speaker cables away from AC power lines. Where auxiliary equipment is used, it may be necessary to connect a separate ground wire from the chassis of such equipment to a suitable earth ground.

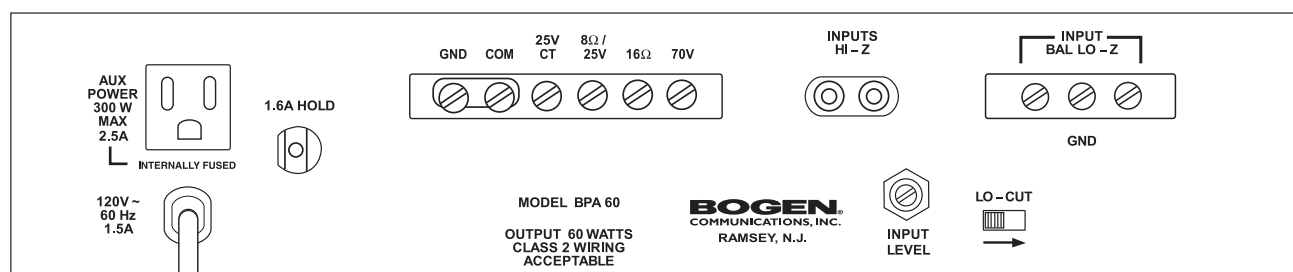


Fig. 1 - BPA60 Rear Panel Connection Diagram

Operation

Power: The Power Switch applies power to the amplifier; it does not control any associated equipment which may be connected to the auxiliary power receptacle on the rear panel. The switch lamp will illuminate when power has been applied to the unit.

Lo-Cut Filter Switch: The LO-CUT filter switch, located on the rear panel, provides 10 dB attenuation at 100 Hz.

Input Level Control: The Input Level control (screwdriver-adjustable), located on the rear panel, is used to adjust the input signal applied to the amplifier. Turn the control clockwise to increase the level.

Caution: Many loudspeakers may be damaged if overdriven. Therefore, always begin system setup with the Input Level control fully counterclockwise and gradually increase the setting to obtain the desired output level.

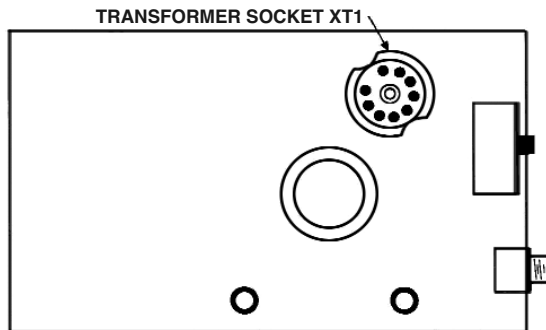


Fig. 2 - BPA60 Printed Circuit Board

Thermal Cut-Out

The amplifier is protected by a thermal cut-out which should not trip under normal conditions. If it trips, check for inadequate ventilation of the unit or overloading. The cut-out will automatically reset after cooling.

Circuit Breaker: If the AC circuit breaker opens, the power switch lamp will go out and the amplifier will have no output; however, there will be power at the AUX POWER receptacle on the rear panel. Set the POWER switch to OFF and momentarily depress the red button on the circuit breaker to reset it. Return the POWER switch to ON. If the circuit breaker trips again, do not attempt to reset it; have the trouble investigated by a qualified technician.

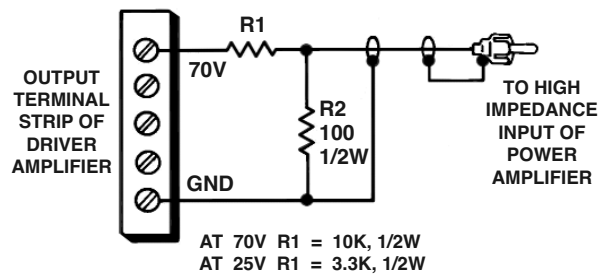


Fig. 3 - Input From Another Amplifier

Limited Warranty; Exclusion of Certain Damages

The Bogen BPA60 Amplifier is warranted to be free from defects in material and workmanship for two (2) years from the date of sale to the original purchaser. Any part of the product covered by this warranty that, with normal installation and use, becomes defective (as confirmed by Bogen upon inspection) during the applicable warranty period, will be repaired or replaced by Bogen, at Bogen's option, provided the product is shipped insured and prepaid to: Bogen Factory Service Department, 50 Spring Street, Ramsey, NJ 07446, USA. Repaired or replacement product will be returned to you freight prepaid. This warranty does not extend to any of our products that have been subjected to abuse, misuse, improper storage, neglect, accident, improper installation or have been modified or repaired or altered in any manner whatsoever, or where the serial number or date code has been removed or defaced.

THE FOREGOING LIMITED WARRANTY IS BOGEN'S SOLE AND EXCLUSIVE WARRANTY AND THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY. BOGEN MAKES NO OTHER WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED AND EXCLUDED TO THE MAXIMUM EXTENT ALLOWABLE BY LAW. Bogen's liability arising out of the manufacture, sale or supplying of products or their use or disposition, whether based upon warranty, contract, tort or otherwise, shall be limited to the price of the product. **IN NO EVENT SHALL BOGEN BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, LOSS OF DATA OR LOSS OF USE DAMAGES) ARISING OUT OF THE MANUFACTURE, SALE OR SUPPLYING OF PRODUCTS, EVEN IF BOGEN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSSES.** Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

Products that are out of warranty will also be repaired by the Bogen Factory Service Department – same address as above or call 201-934-8500. The parts and labor involved in these repairs are warranted for 90 days when repaired by the Bogen Factory Service Department. All shipping charges in addition to parts and labor charges will be at the owner's expense. All returns require a Return Authorization number. For most efficient warranty or repair service, please include a description of the failure.

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