



# Utility Amplifier

## GA6A Model

Installation and Use Manual

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Specifications subject to change without notice.  
54-5757-03B 0406

## Notice

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

## Important Safety Information

**WARNING:** To Reduce The Risk of Fire Or Electric Shock, Do Not Expose This Apparatus To Rain Or Moisture.

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

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 only 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 unused 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.

## IMPORTANT



**CAUTION: TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). 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 in the literature accompanying the appliance.

# Description

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The GA6A is a rugged six-watt, dual-input audio amplifier with a wide variety of smaller applications including background music, relaying communication from one room to another, or sound reinforcement.

The GA6A delivers rated power at not more than 1% total harmonic distortion from 75-15,000 Hz into transformer-coupled or direct low-impedance loads.

Inputs for a low-impedance balanced dynamic microphone and an auxiliary audio source (tuner, tape deck, etc.) can be mixed. Individual front-panel controls regulate the level of each input. Connections for 8-ohm and 25V or 70V speaker lines are provided on the rear panel output terminal strip. A 3-position switch is supplied to provide +9 dB boost, -9 dB cut at 10 kHz or flat response.

# Package Contents

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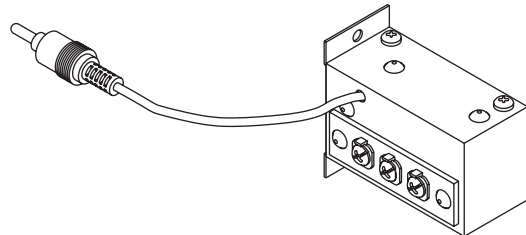
- (1) GA6A
- (1) Installation and Use Manual

# Accessories

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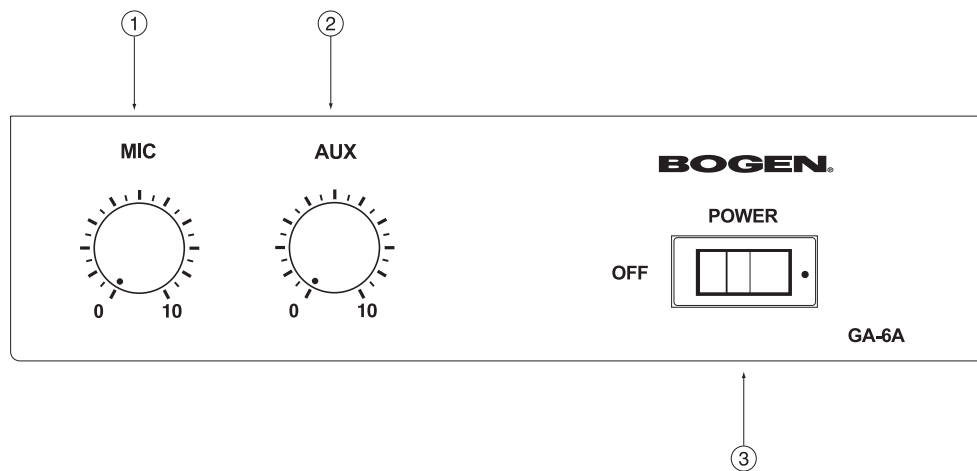
## WMT1A Matching Transformer

- Hi-Z, 10k-ohm primary impedance
- Lo-Z, 600-ohm secondary impedance, balanced with center tap
- Matches high-to-low impedance or low-to-high impedance
- Adapts line level signals to microphone inputs



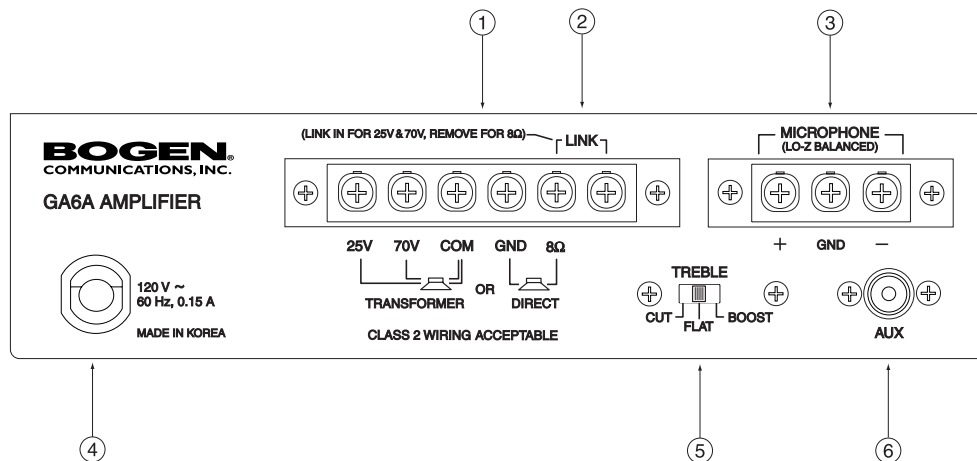
# Panel Descriptions

## Utility Amplifier Front Panel



1. **MIC Control** - Regulates the level of microphone output to speakers.
2. **AUX Control** - Regulates the level of the AUX source to speakers.
3. **Power Switch** - Controls AC power to the amplifier. Illuminates when ON.

## Utility Amplifier Rear Panel

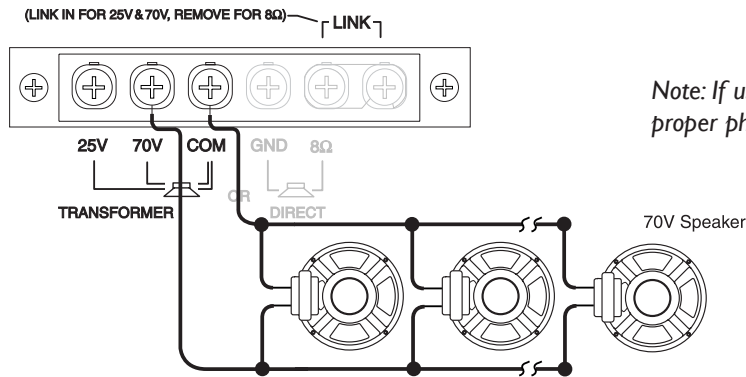


1. **Speaker Output Barrier Strip** - Output terminal strip provides for 8-ohm, 25V, and 70V speaker outputs.
2. **Shorting Link** - Used when 25V or 70V speakers are to be connected to the GA6A. Must be removed if 8-ohm speakers are to be connected to the GA6A.
3. **Microphone Terminal** - Input terminal strip for a balanced low-impedance dynamic microphone.
4. **AC Line Cord** - 120V AC, 60 Hz, 0.15A line cord terminated in a three-prong plug.
5. **Treble Control Switch** - A 3-position switch that controls the application of 9 dB of treble boost or cut at 10,000 Hz or flat response.
6. **AUX Input** - High-impedance AUX RCA jack input.

## 70V & 25V Speaker Systems

Connect the 25V or 70V speaker loads to the corresponding terminals (25V or 70V) and the common terminal. Make sure that the total wattage of all the connected speakers is less than 6 watts.

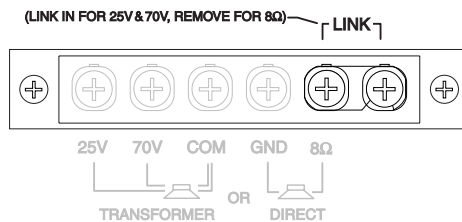
**Note:** Do not use both the 25V and 70V terminals at the same time. Use only one type of speaker (25V or 70V) for all speakers connected to the GA6A.



*Note: If using multiple speakers, check for proper phasing. See Section on Phasing.*

## Link

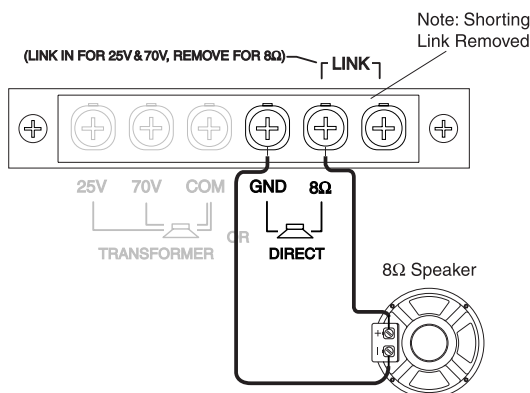
The shorting link must be in place when using 25V or 70V speakers.



## 8Ω Speaker Systems

Low-impedance 8-ohm speakers can be connected to the GA6A. When using multiple speakers, the installer must make sure that the total speaker load is not less than 8 ohms. Higher impedances than 8 ohms are safe to connect to the GA6A, but the GA6A will not deliver its full output power to these higher impedance loads.

Connect the 8-ohm speaker load to the GND and 8-ohm terminals and remove the shorting link. 25V and 70V outputs will not work in this configuration.



*Note: If using multiple speakers, check for proper phasing. See Section on Phasing.*

# Connections

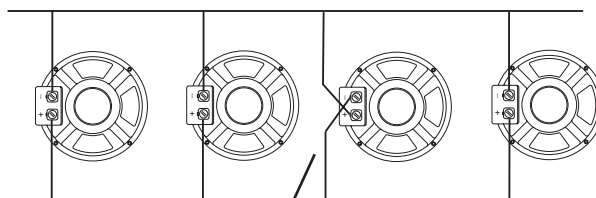
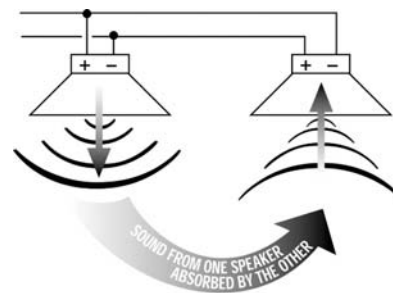
## Phasing

As the voltage on a speaker changes from plus to minus, the speaker cone moves from pushing out to pulling in. If you reverse the polarity, the speaker responds in the opposite manner.

If a speaker is pushing out and an adjacent speaker is pulling in, some of the pressure caused by the speaker pushing out will be absorbed by the speaker pulling in. These two speakers are operating out of phase.

In a paging system, all the speakers should be in phase so that they all push out at the same time. Out of phase speakers operate perfectly well and will not cause any harm to a paging system, but will tend to diminish the bass response in the area around the out of phase speaker.

The important thing is to wire all the same polarity (+ or -) connections together. This will ensure that the speakers in the system all work in unison. All paging speaker connections have a polarity indicator. It may be a color code, plus (+) and minus (-) symbols, or a red dot.



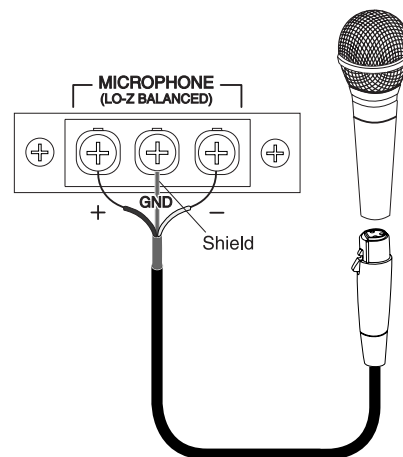
Out-of-phase speaker connection.

## Microphone Input

Connect a low-impedance dynamic microphone (these microphones connect using 3 wires and do not require a power source) to the microphone terminals as shown.

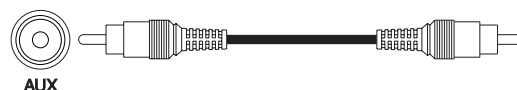
**Note:** Condenser microphones will not work with the GA6A because the GA6A does not supply phantom power, which is required for these microphones to operate.

Use two-conductor shielded cable for a balanced input and connect the shield to the ground terminal.



## Auxiliary Input

Use a shielded RCA cable to connect to the high-impedance AUX input. The center of the connector is hot and the outside is ground.

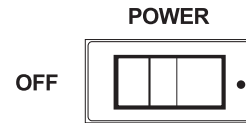


## Power and Grounding

The AC line cord should be plugged into a three-wire, grounded outlet providing 120V AC, 60 Hz. It is important to ground the unit. If a three-wire outlet is not available, use an adapter to convert a standard two-wire outlet for use with three-wire plugs. Connect the grounding pigtail on the adapter to the screw securing the wall plate. If the wall plate screw is not grounded, it will be necessary to connect a grounding wire from the GND terminal on the rear of the amplifier to a suitable ground.

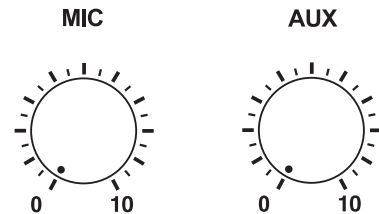
## Power

The AC line cord should be plugged into a three-wire, grounded outlet providing 120V AC, 60 Hz. The power switch illuminates when unit is switched ON.



## MIC Control

Controls the amount of MIC signal heard at the output. Clockwise increases the signal.

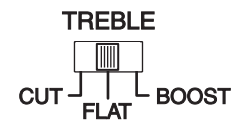


## AUX Control

Controls the amount of AUX signal heard at the output. Clockwise increases the signal.

## Treble Control Switch

Provides a stepped increase or decrease in high frequency (above 10 kHz) heard at the output. The "Cut" position can help reduce high frequency feedback. The "Flat" position provides no modification to high frequency response. The "Boost" position provides more clarity and intelligibility to speech.



## Overload Protection

The amplifier output is protected against overload and shorted speaker lines by a thermostat enclosed in the power transformer. If the breaker opens, the amplifier will have no output. Set the Power switch to OFF and wait a reasonable time for the breaker to reset. If the breaker trips again, have the trouble investigated by a qualified technician.

# Specifications

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<b>Power Output:</b>	6 watts RMS
<b>Frequency Response:</b>	30 Hz - 12 kHz +0 dB, -3 dB
<b>Total Harmonic Distortion:</b>	Less than 1% at rated output power
<b>Inputs:</b>	Lo-Z MIC, balanced; AUX
<b>Sensitivity:</b>	MIC 0.3 mV; AUX 0.2V
<b>Hum &amp; Noise:</b>	MIC -50 dB; AUX -70 dB
<b>Output Impedance:</b>	8 ohms, 25V and 70V speakers
<b>Tone:</b>	Treble boost at 10 kHz 9 dB, treble cut at 10 kHz 9 dB (switch selected)
<b>Controls:</b>	MIC, AUX, illuminated POWER switch, tone switch
<b>Terminations:</b>	Outputs & microphone: screw terminals Auxiliary: RCA phono jack
<b>Protection:</b>	Power thermal protection
<b>Power Consumption:</b>	120V AC, 60 Hz, 16W
<b>Dimensions:</b>	8-1/2" W x 6" D x 2-5/8" H (21.6 x 15.2 x 6.7 cm)
<b>Shipping Weight:</b>	5 lb. (2.3 kg)

# Warranty

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The GA6A is warranted to be free from defects in material or 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 will be repaired or replaced by Bogen, at our option, provided the product is shipped insured and prepaid to: Bogen Factory Service Department, 50 Spring Street, Ramsey, NJ 07446, USA. The 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.

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