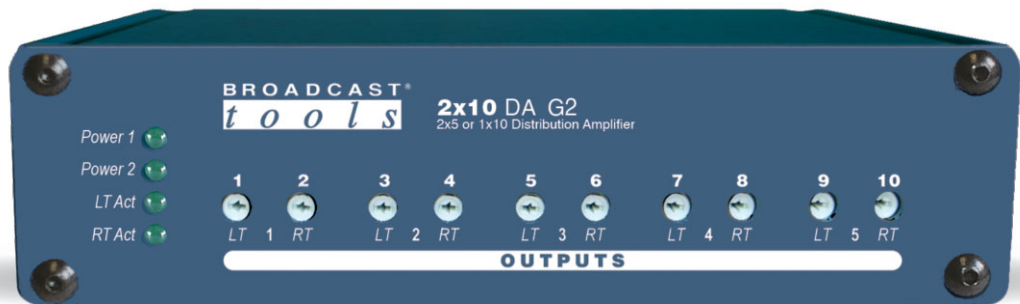


BROADCAST[®]
t o o l s **INC.**
PROBLEM SOLVED

Installation and Operation Manual



2x10 DA G2 **2x5 or 1x10 Analog Audio Distribution Amplifier**

Manual update: 3/4/2025
Rev C PCB and higher (2025)

No part of this document may be reproduced or distributed without permission.
ALL SPECIFICATIONS AND FEATURES FOR THIS PRODUCT ARE SUBJECT TO
CHANGE WITHOUT NOTICE

NOTE: We recommend the use of Chrome, Firefox or Safari as your browser.

Due to the dynamic nature of product design, the information contained in this document is subject to change without notice. Broadcast Tools, Inc., assumes no responsibility for errors and/or omissions contained in this document. Revisions of this information or new editions may be issued to incorporate such changes.

*Broadcast Tools[®] is a registered trademark of Broadcast Tools, Inc.
All Sentinel[®] labeled products are registered trademarks of Broadcast Tools, Inc.
Copyright[®] 1989 - 2025 by Broadcast Tools, Inc. All rights reserved.
No part of this document may be reproduced or distributed without permission.
Broadcast Tools is a Veteran Owned Business*

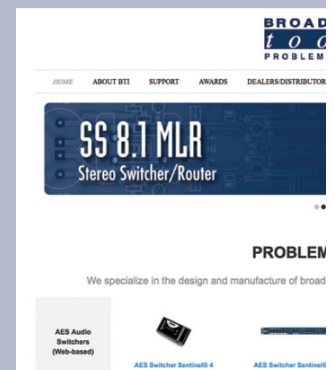
Visit www.broadcasttools.com for important product update information.

Table of Contents

| Section Title | Page # |
|---|----------|
| Introduction | 3 |
| Safety Information | 3 |
| Who to Contact for Help | 3 |
| Product Overview | 4 |
| Features/Benefits | 4 |
| Inspection | 4 |
| Installation/Operation. | 5 |
| Power | 5 |
| Surge Protection. | 5 |
| UPS Standby Power System | 5 |
| LED Indicators | 5 |
| Stereo/Monaural Jumper Settings | 5 |
| Audio Input Gain Jumpers. | 6 |
| Audio Input Connections. | 6 |
| Signal Bypass Relays | 6 |
| Audio Output Connections | 6 |
| Audio Output Level Adjustment | 6 |
| Specifications | 7 |
| Warranty | 8 |
| Front and rear panel drawings | Appendix |
| Connector and configuration jumper layout | Appendix |

WEBSITE:

Visit our web site for product updates and additional information.



CONTENTS

INTRODUCTION

Thank you for your purchase of the 2x10 DA G2 Analog Stereo Distribution Amplifier, which we will refer to throughout the manual as the 2x10 DA G2. We are confident this product will give you many years of dependable service. This manual is intended to give you all the information needed to install and operate the Broadcast Tools® 2x10 DA G2.

SAFETY INFORMATION

Only qualified technical personnel should install the 2x10 DA G2. Any attempt to install this device by a person who is not technically qualified could result in hazardous conditions for the installer or other personnel or damage to the 2x10 DA G2 or other equipment. Please ensure that proper safety precautions have been taken before installing this device. If you are unfamiliar with this type of equipment, please contact a properly qualified engineer to handle the installation and setup of the 2x10 DA G2. Broadcast Tools, Inc., is unable to support NON-Broadcast Tools software, hardware or NON-Broadcast Tools computer/hardware/software problems. If you experience these problems, please research your hardware/software instruction manuals or contact the manufacturers technical support department.

WHO TO CONTACT FOR HELP

If you have any questions regarding your product or you need assistance, please contact your distributor from whom you purchased this equipment. If you would like more information about BROADCAST TOOLS® products, you may reach us at:

Broadcast Tools, Inc.

131 State Street
Sedro-Woolley, WA 98284-1503 USA
Voice: 360.854.9559
Fax: 866.783.1742

Internet Home Page: www.broadcasttools.com
E-mail: support@broadcasttools.com

THANK YOU FOR CHOOSING
BROADCAST TOOLS® BRAND PRODUCTS!

Broadcast Tools is a Veteran Owned Business



Designed, Assembled and Supported in WA State, USA



CAUTION!

Broadcast Tools® Products, as with any electronic device, can fail without warning. Do not use this product in applications where a life threatening condition could result due to failure.

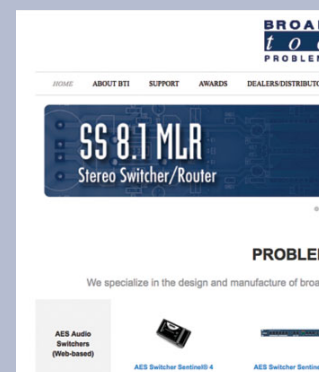


NOTE:

This manual should be read thoroughly before installation and operation.

WEBSITE:

Visit our web site for product updates and additional information.



INTRODUCTION

Product Overview

The 2x10 DA G2 analog audio distribution amplifier is equipped with a stereo line level high-Z input, which accepts either a balanced (+4 dBu) or unbalanced (-10 dBV) source and has five active balanced low-Z stereo output amplifiers. It improves on the original 2x10 DA design by adding signal bypass relays which passively route the input to output one in the event of power loss, and a second power jack for an optional second redundant power supply. The 2x10 DA G2 is configured for stereo (2x5) operation by default but can be configured monaural (1x10) output operation via internal jumpers. Each output amplifier is paired for stereo operation or may be summed for monaural operation without affecting the stereo separation of the other outputs. Each output amplifier has a recessed front panel level control trimmer.

Features/Benefits

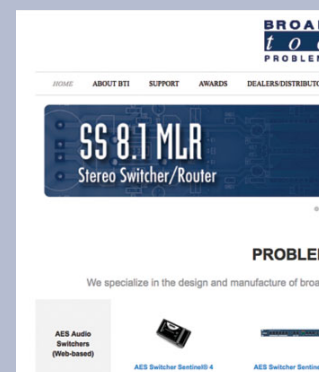
- Input gain configurable for +4 dBu balanced inputs or unbalanced -10 dBV input via internal jumpers, eliminating the need for external input level conversion.
- Stereo (2x5) outputs or monaural (1x10) outputs set via internal jumpers.
- Front panel output level adjustment trimmers.
- Removable euro-block screw terminal connectors are used for audio I/O connections. Necessary 5-position mating plugs are supplied.
- Signal bypass relays built-in, input one to output one on power loss.
- Fully RFI proofed.
- Surge protected universal switching +/-15VDC desktop power supply with IEC AC inlet included.
- Dual (2x) power input jacks allow for redundant power with an optional second power supply.
- Up to three units may be mounted on the optional RA-1 rack shelf. Desktop and wall mounting are also possible.

Inspection

Please examine your 2x10 DA G2 carefully for any damage that may have been sustained during shipping. If any damage is present, please notify the shipper immediately and retain the packaging for inspection by the shipper. The package should contain the 2x10 DA G2 and a power supply. Manuals may be downloaded from our web site.

WEBSITE:

Visit our web site for product updates and additional information.



Installation/Operation

Power

The 2x10 DA G2 has two power input jacks labelled “Power 1” and “Power 2” allowing for optional redundant power supplies. Connect the supplied PS-1515/IEC +/-15 VDC power supply’s 3-pin AMP-style latching power connector to “Power 1” and the PS-1515/IEC switching power supplies IEC power cable into a 120 VAC 50-60 Hz outlet. The front panel Power 1 LED will light to indicate supply voltage. The Power supply will accept input voltages from 95 to 235 VAC, 50-60 Hz.

NOTE: Never use any type of power supply other than the specified/supplied power supply. Check the power jack on the back of the unit to determine which power supply is required.

Chassis Ground Screw (GND): The #6-32 sized chassis ground screw should be tied to the station (house) or system ground.

Surge Protection

The 2x10 DA G2 has built-in resistance to voltage changes; we recommend that you use a power surge protector or line conditioner on the incoming AC line. Lightning strikes and/or other high voltage surges may damage your 2x10 DA G2 and connected equipment if it is not properly protected. For lightning protection devices, check out www.polyphaser.com and www.itwlinx.com.

UPS Standby Power System

We recommend that you connect your 2x10 DA G2 to a UPS standby power system. A UPS, like the BE600M1 from APC helps to minimize the risk to the 2x10 DA G2 and provides power during a power outage.

LED Indicators

“Power 1” and “Power 2” Power LEDs: Indicate presence of power on Power 1 and Power 2 input jacks, respectively,

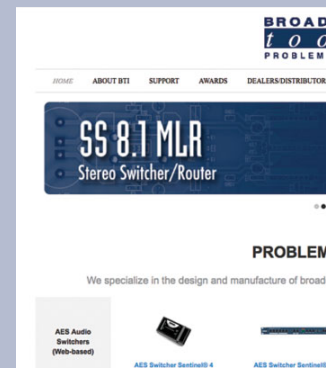
“LT ACT” and “RT ACT” LEDs: Indicate presence of left and right input audio activity.

Stereo/Monaural Jumper Settings

The 2x10 DA G2 is configured for stereo output by default. For monaural (mono) operation each output pair can be set to output a mono sum of the left and right input audio independently using internal jumpers. Follow the silk-screened “Mono” and “Stereo” labels on the PCB. If the jumper is installed in the “Mono” position, that output will be combined (summed) to monaural. For example, placing a jumper in the “Mono” position on JP1 converts output one to mono, JP2: output two, JP3: output three, JP8: output four and JP9: output five. The factory jumper setting is “Stereo.” Setting one output pair to mono has no effect on the other pairs and does not degrade the integrity of the other stereo outputs.

WEBSITE:

Visit our web site for product updates and additional information.



Audio Input Gain Jumper Settings

The input gain of the 2x10 DA G2 is set for a +4 dBu nominal balanced input signal via internal jumpers. Jumpers JP4 and JP5 set the left channel gain, while jumpers JP6 and JP7 set the right channel gain. Follow the silk-screened labels on the circuit board to change gain settings: for “+4 dBu” for professional balanced line level or “-10 dBV” for consumer unbalanced input levels.

Audio Input Connections

Connect your audio source to the bottom TB1 five-position pluggable screw terminal block. The left input is labeled: “INL- INL+” and the right input is labeled: “INR- INR+”. For unbalanced inputs, install a jumper wire between the “-” inputs and GND and connect the signal to the positive “+” input pin. Single (mono) inputs may be fed to all output channels by connecting the left and right inputs in parallel. See below for pinouts.

Signal Bypass Relays: When power is disconnected from the 2x10 DA G2 it uses internal bypass relays to passively route the input to output one, keeping output 1 active without gain adjustment or summing even when power is disconnected.

Audio Output Connections

The 2x10 DA G2 provides balanced analog outputs on five pluggable screw terminal block connectors. Connect each load to the DA outputs, labelled “OUTPUTS”. * For unbalanced loads, use the “+” and GND terminals only. Shields should be tied to the “GND” terminals. Do not connect the negative “-” output terminals to ground.

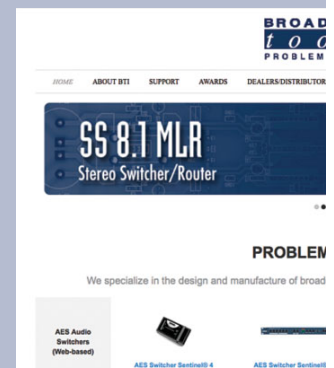
| Output 5 (Top row, TB3) | | | | | Output 3 (Top row, TB2) | | | | | Output 1 (Top row, TB1) | | | | |
|-------------------------------|-----|-----|-----|-----|-------------------------------|-----|-----|-----|-----|----------------------------|------|-----|------|------|
| 5L- | 5L+ | Gnd | 5R- | 5R+ | 3L- | 3L+ | Gnd | 3R- | 3R+ | 1L- | 1L+ | Gnd | 1R- | 1R+ |
| 4L- | 4L+ | Gnd | 4R- | 4R+ | 2L- | 2L+ | Gnd | 2R- | 2R+ | INL- | INL+ | Gnd | INR- | INR+ |
| Output 4 (Bottom row, TB3) | | | | | Output 2 (Bottom row, TB2) | | | | | Input (Bottom row, TB1) | | | | |

Audio Output Level Adjustment

The level of each of the 10 output channels is adjustable via front panel 1-turn trimmers, labeled 1-10 for mono operation, and 1-5 L/R for stereo operation. All outputs are set from the factory so that a +4 dBu in produces +4 dBu out on each audio output. From this factory default setting the trimmers can be used to add up to +11 dB of gain or -4 dB of attenuation.

WEBSITE:

Visit our web site for product updates and additional information.

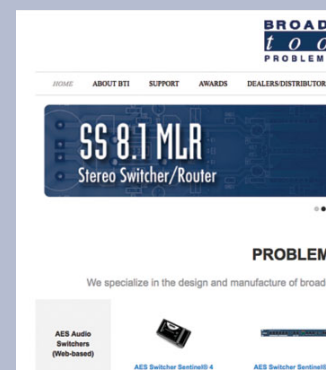


Specifications

| | |
|----------------------------|--|
| Input Level: | -10dBV or +4dBu nominal (jumper selectable). +24dBu max, 600 Ω . |
| Input Impedance: | 20K Ω balanced, 10 K Ω unbalanced |
| Output Level: | +4dBu nominal, + 24dBu max, 600 Ω , balanced |
| Output Impedance: | 100 Ω balanced, 47 Ω unbalanced |
| System Gain: | 20 dB |
| Frequency Response: | +/- 0.1dB (22Hz – 22kHz) |
| Noise: | 86 dB below nominal |
| THD+N | .005% (22Hz – 22kHz @ +4 dBu) |
| IMD | .005% (250hz/7kHz) |
| Power: | PS-1515/IEC Desktop universal switching power supply with IEC inlet. +/-15 VDC 500mA output with 3-pin AMP-style latching power connector. The Power supply will accept input voltages from 95 to 235 VAC, 50-60 Hz. |
| Dimensions: | 5.66" x 7.125" x 1.58", aluminum extrusion chassis with (4) #6-32 screw thread mounting holes for optional RA-1 rack shelf. |
| Operating Environment: | 32°F/0°C-122°F/50°C; 0%-95% non-condensing relative humidity; 10,000ft/3048m. |
| Declaration of Conformity: | Email support@broadcasttools.com for more information. |
| Options: | RA-1 Rack Shelf. 1 RU. Accommodates up to 3 units, filler panels supplied. Second redundant PS-1515/IEC power supply. |

WEBSITE:

Visit our web site for product updates and additional information.



LIMITED WARRANTY

The term “Buyer” as used in this document refers to and includes both (but only) (a) any person or entity who acquires such an item for the purpose of resale to others (i.e., a dealer or distributor of an item), and (b) the first person or entity who acquires such an item for such person’s or entity’s own use.

Broadcast Tools warrants to each Buyer of any item manufactured by Broadcast Tools that the item will be free from defects in materials and workmanship at the time it is shipped by Broadcast Tools if the item is properly installed, used and maintained.

EXCLUSIVE REMEDIES

If Broadcast Tools is notified, in writing, of a failure of any item manufactured by Broadcast Tools to conform to the foregoing Limited Warranty within one (1) year following the date of the Buyer’s acquisition of the item, and if the item is returned to Broadcast Tools in accordance with Broadcast Tools’ instructions for confirmation by inspection of the defect (which at Broadcast Tools’ election may include, without limitation, a requirement that the Buyer first obtain a Return Authorization number from Broadcast Tools, that the Buyer furnish proof of purchase in the form of an invoice and/or receipt, and that the Buyer prepay all freight charges associated with any return of the item to Broadcast Tools using such freight service as Broadcast Tools reasonably may specify), Broadcast Tools will repair or replace the defective item, or will refund the purchase price paid by the Buyer for the item. Broadcast Tools shall have the exclusive right to choose between these alternative remedies.

NO OTHER WARRANTIES OR REMEDIES

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, BROADCAST TOOLS AND ITS SUPPLIERS DISCLAIM ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE; AND THE FOREGOING ALTERNATIVE REMEDIES SHALL BE EXCLUSIVE OF ALL OTHER REMEDIES. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY HAVE OTHER RIGHTS, WHICH VARY FROM STATE/JURISDICTION TO STATE/JURISDICTION.

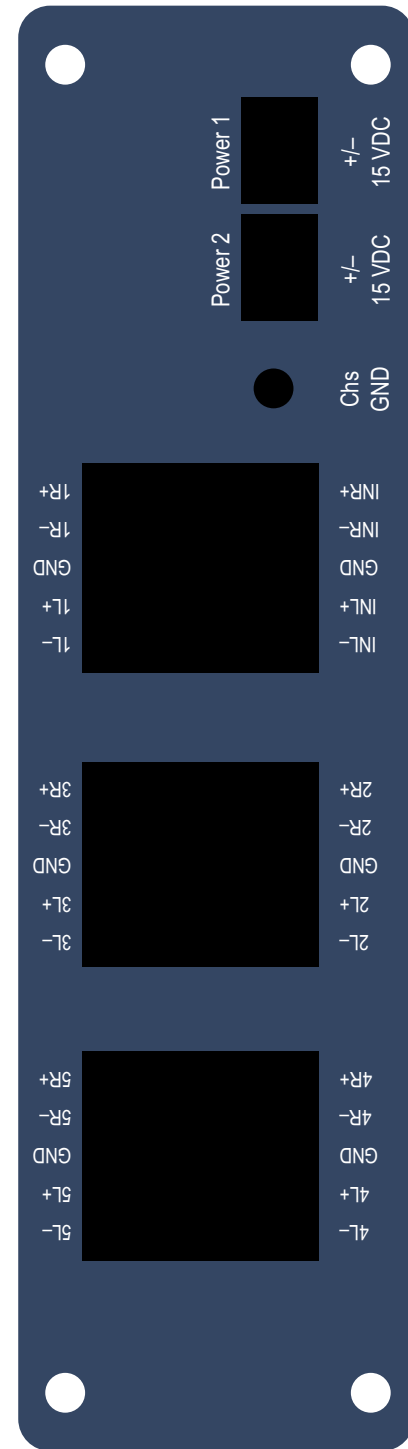
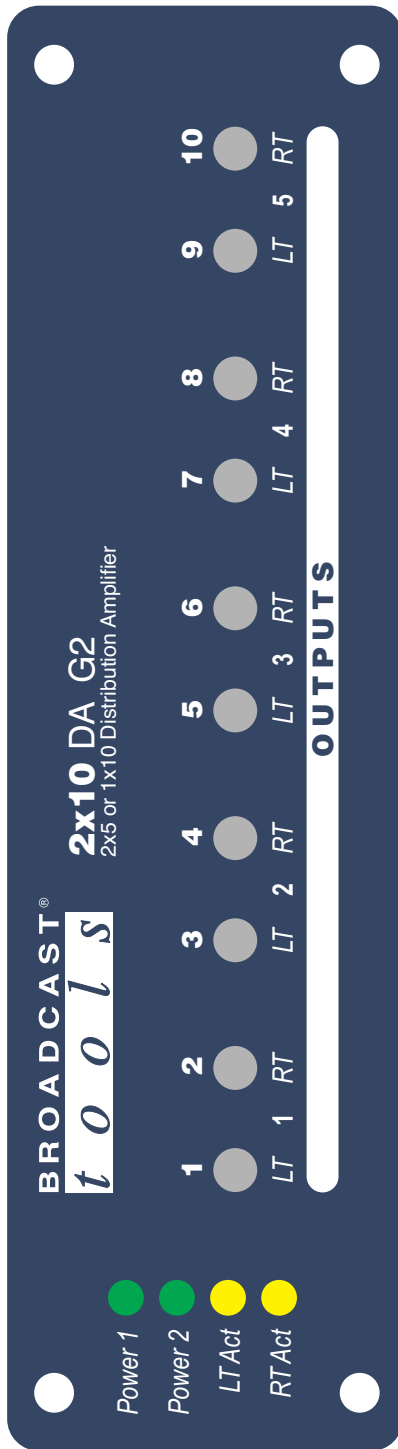
NO LIABILITY FOR CONSEQUENTIAL DAMAGES

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, NEITHER BROADCAST TOOLS NOR ANY OF ITS SUPPLIERS SHALL HAVE ANY LIABILITY FOR ANY SPECIAL, INCIDENTAL, INDIRECT, CONSEQUENTIAL OR PUNITIVE DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, ANY DAMAGES FOR LOST PROFITS, BUSINESS INTERRUPTION, LOSS OF DATA OR INFORMATION, COST OF CAPITAL, CLAIMS OF CUSTOMERS, OR ANY OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OF OR THE INABILITY TO USE ANY ITEM SUPPLIED BY BROADCAST TOOLS, EVEN IF BROADCAST TOOLS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES HAVE ANY LIABILITY FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY OR PUNITIVE DAMAGES. THIS LIMITATION OF LIABILITY APPLIES WHETHER A CLAIM IS ONE ALLEGING BREACH OF A CONTRACT OR WARRANTY, NEGLIGENCE OR OTHER TORT, FOR THE VIOLATION OF ANY STATUTORY DUTY, THE FAILURE OF ANY LIMITED OR EXCLUSIVE REMEDY TO ACHIEVE ITS ESSENTIAL PURPOSE, OR ANY OTHER CLAIM OF ANY NATURE. BECAUSE SOME STATES AND JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, THIS LIMITATION MAY NOT APPLY TO YOU.

Broadcast Tools, Inc.

131 State Street
Sedro-Woolley, WA 98284 • USA

360.854.9559 **voice** • 866.783.1742 **fax**
support@broadcasttools.com **e-mail**
www.broadcasttools.com **website**



Component Layout

