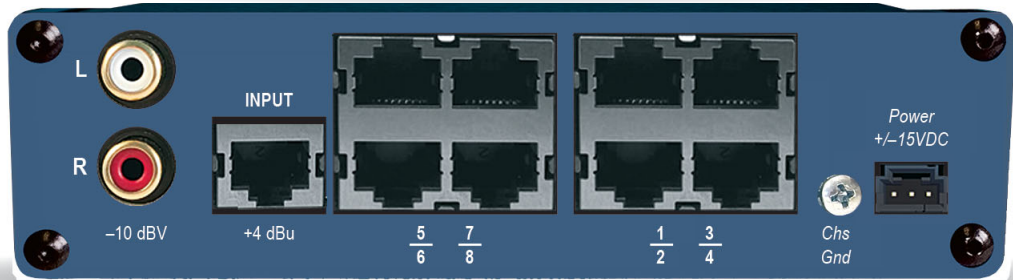
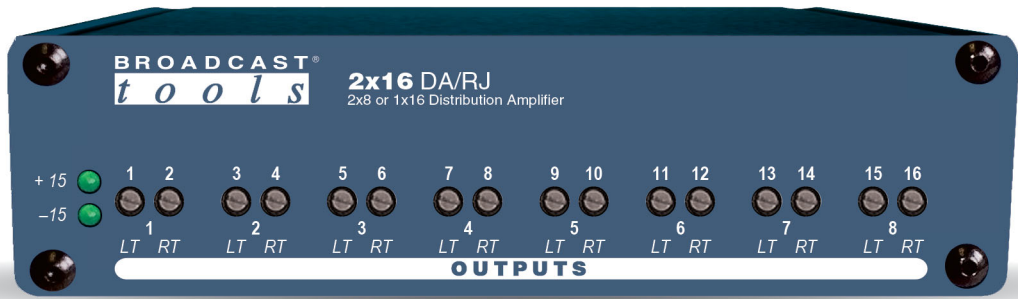


BROADCAST[®] tools INC

PROBLEM SOLVED

Installation and Operation Manual



2x16 DA/RJ *2x8/1x16 Analog RJ45 Audio Distribution Amplifier*

Manual update: 5/18/2020

If you need a firmware upgrade, contact Broadcast Tools[®]

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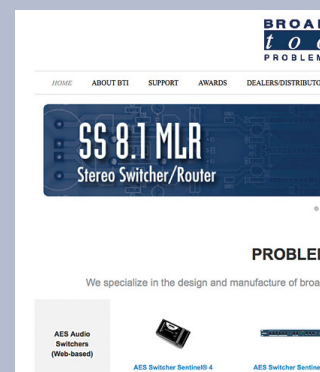
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Table of Contents

Section Title	Page #
Introduction	3
Safety Information	3
Who to Contact for Help	3
Product Overview	4
Features/Benefits	4
Inspection	4
Installation/Operation	4
Chassis Ground Screw	4
Power	4
Surge Protection	4
UPS Standby Power System	4
LED Indicators	5
Stereo/Monaural Jumper Settings	5
Audio Input Connections	5
Audio Output Connections	5
Audio Output Level Adjustment	5
RJ45 Audio Pinout	6
Unbalanced RCA Inputs	6
Specifications	7
Warranty	8
Front and rear panel drawings	Appendix
Connector and configuration jumper layout	Appendix
Fractional schematic	Appendix

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INTRODUCTION

Thank you for your purchase of the 2x16 DA/RJ Analog Stereo Distribution Amplifier, which we will refer to throughout the manual as the 2x16 DA/RJ. We are confident that 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® 2x16 DA/RJ.

SAFETY INFORMATION

Only qualified technical personnel should install the 2x16 DA/RJ. Any attempt to install this device by a person who is not technically qualified could result in a hazardous condition to the installer or other personnel or damage to the 2x16 DA/RJ 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 2x16 DA/RJ. 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
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Fax: 866.783.1742

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

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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.

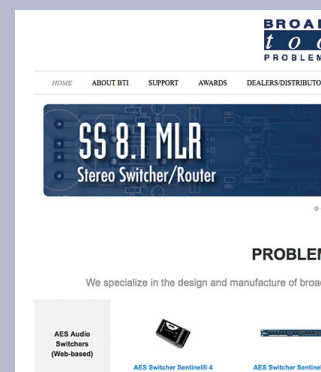


NOTE:

This manual should be read thoroughly before installation and operation.

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INTRODUCTION

Product Overview

The 2x16 DA/RJ analog stereo distribution amplifier is equipped with a stereo line level high-Z inputs, which accepts either a balanced RJ45 (+4 dBu) or unbalanced RCA (-10 dBV) source with eight active balanced low-Z stereo output amplifiers. Each output amplifier may be paired for stereo operation or each output pair may be summed for monaural operation without affecting the stereo separation of the other outputs. Each output amplifier has a recessed front panel level adjustment trimmer.

Features/Benefits

- Stereo (2x8) or monaural (1x16) output set via internal jumpers. Each output pair is independently configurable.
- Front panel 12-turn output level adjustment trimmers.
- Balanced +4 dBu RJ45 audio input and unbalanced -10/-15 dBV RCA input, eliminating the need for external input level conversion.
- Balanced RJ45 outputs: eight RJ45 audio outputs jacks with standard Cat5 audio pinout.
- Fully RFI proofed.
- Surge protected PS-1515 universal switching +/-15VDC desktop power supply with IEC AC inlet.
- 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 2x16 DA/RJ 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 2x16 DA/RJ, and a +/-15 VDC desktop power supply with domestic IEC cable. Manuals may be downloaded from our web site.

Installation/Operation

Chassis Ground screw: The #4-40 sized chassis ground screw should be tied to the station (house) or system ground.

Power

Connect the supplied PS-1515/IEC power supply's 3-pin AMP-style latching power connector to the unit and the +/-15 VDC switching power supply with IEC-inlet into a 120 Vac 50-60 Hz power source. The 15+ and -15 LEDs will light to indicate supply voltage.

NOTE: Never use any type of power supply other than the specified/supplied power supply.

Surge Protection

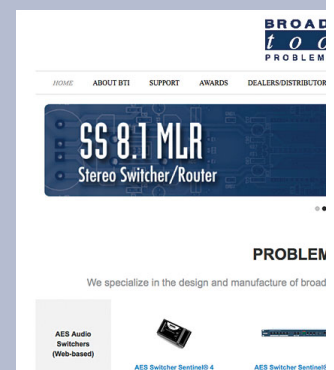
The 2x16 DA/RJ has built-in resistance to voltage changes; we recommend that you use a power surge protector or line conditioner on the incoming AC line. Lightning strikes and/or other high voltage surges may damage your 2x16 DA/RJ and connected equipment if it is not properly protected. For lightning protection devices, check out www.polyphaser.com and www.itwlinx.com.

UPS Standby Power System

We recommend that you connect your 2x16 DA/RJ to a UPS system. A UPS helps minimize the risk to the 2x16 DA/RJ and provides power during a power outage.

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OVERVIEW

LED indicators

“+15” and “-15” Power LEDs: Indicate presence of positive and negative power.

Stereo/Monaural Jumper Settings

Each stereo output pair can be set to output a monaural (mono) sum of the left and right input audio independently. Follow the silk-screened “M” and “S” labels on the PCB. If the jumper is installed in the M position, that output will be combined to monaural. For example, placing a jumper in the M position on JP1 converts output one to mono, JP2 output two, JP3 output three, etc. The factory setting is “S” for Stereo. The stereo outputs operate independently; setting one output pair to mono has no effect on the other pairs and does not degrade the integrity of the other stereo outputs.

Audio Input Connections

Connect a balanced +4 dBu audio source to the RJ45 input jack or an unbalanced -10/-15 dB audio source to the RCA input jacks. The input is labeled: “INPUT.” See page 6 for pinouts.

Audio Output Connections

The 2x16 DA/RJ provides balanced analog outputs on eight RJ45 audio jacks. Connect each load to the DA outputs, labeled "OUTPUTS" For unbalanced loads, use the "+" and GND terminals only. Do not connect the "-" terminal to ground. Shields should be tied to the “GND” terminals.

Output 5 RJ45	Output 7 RJ45
Output 6 RJ45	Output 8 RJ45

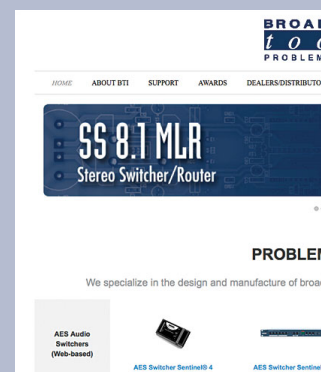
Output 1 RJ45	Output 3 RJ45
Output 2 RJ45	Output 4 RJ45

Audio Output Level Adjustment

The output level for each of the 16 channels is adjustable via front panel 12-turn trimmers labeled 1-16 for mono operation and 1-8 L/R for stereo operation. All outputs are set from the factory so that +4 dBu into the RJ45 audio input produces +4 dBu out on each RJ45 audio output. From this factory default setting the trimmers can be used to add up to +10 dB of additional gain or -5 dB of additional attenuation.

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RJ45 Audio Pinout:

Function:	Wire Pair:	RJ45 Pins:
Left+	White/Orange	1
Left-	Orange/White	2
Right+	White/Green	3
Right -	Green/White	6
n/c	White/Blue	5
DC GND	Blue/White	4
n/c	White/Brown	7
n/c	Brown/White	8
Sig. Shield	Cable Shield	Connector Shield

Please use shielded twisted pair Cat5e or Cat6 cables and connectors (STP) with the input and output RJ45 audio jacks.

Unbalanced RCA (-10/-15 dBV) Inputs and Pinout:

J1 Top = Right (Red)

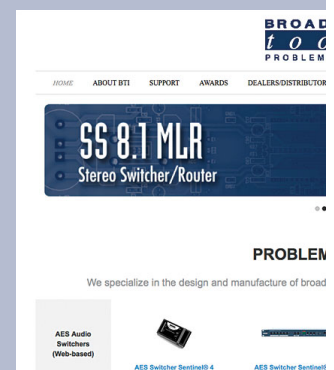
J1 Bottom = Left (White)

RCA connector center pin = Signal/Positive

RCA connector outer shell = Ground/Negative

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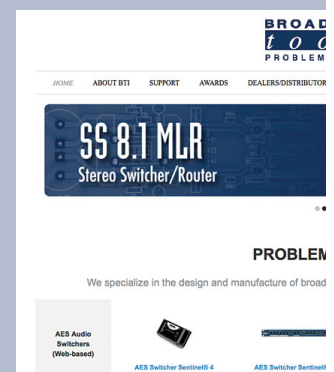


Specifications

Input Level:	-10dBv or +4dBu nominal. +25dBu max, @ 600 Ω .
Input Impedance:	20K Ω balanced, 10 K Ω unbalanced
Output Level:	+4dBu nominal, + 27dBu max, @ 600 Ω , balanced
Output Impedance:	100 Ω balanced, 47 Ω unbalanced
System Gain:	20 dB
Frequency Response:	+/- 0.1dB (22Hz – 22kHz)
Noise:	-98 dBu
THD+N	.002% (22Hz – 22kHz @ +4 dBu)
IMD	.002% (250hz/7kHz)
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.
Options:	RA-1 Rack Shelf. 1 RU. Accommodates up to 3 units, filler panels supplied.

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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

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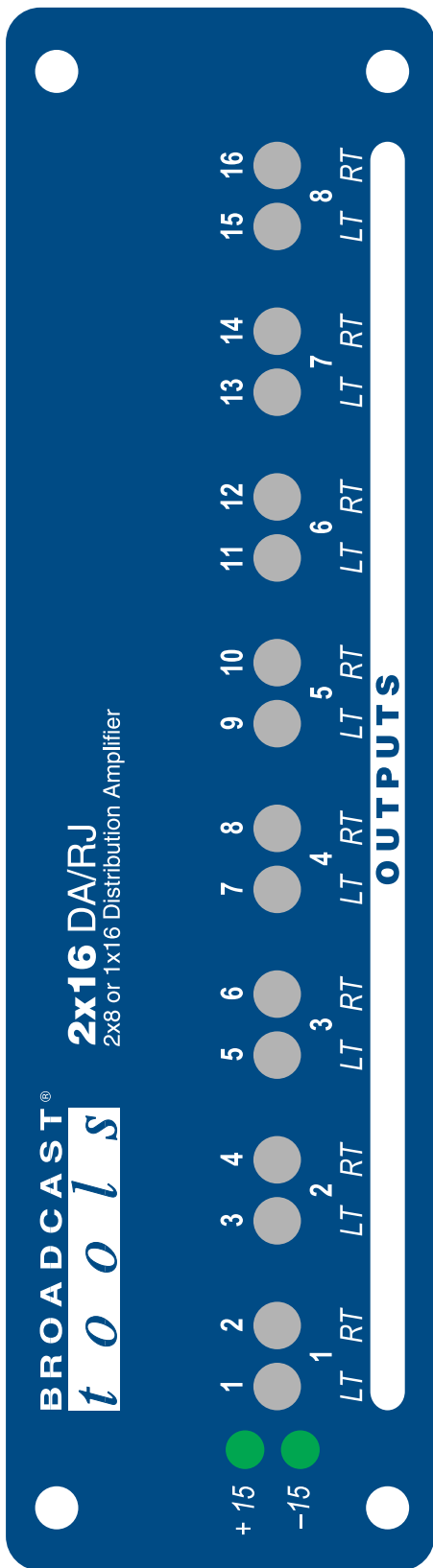
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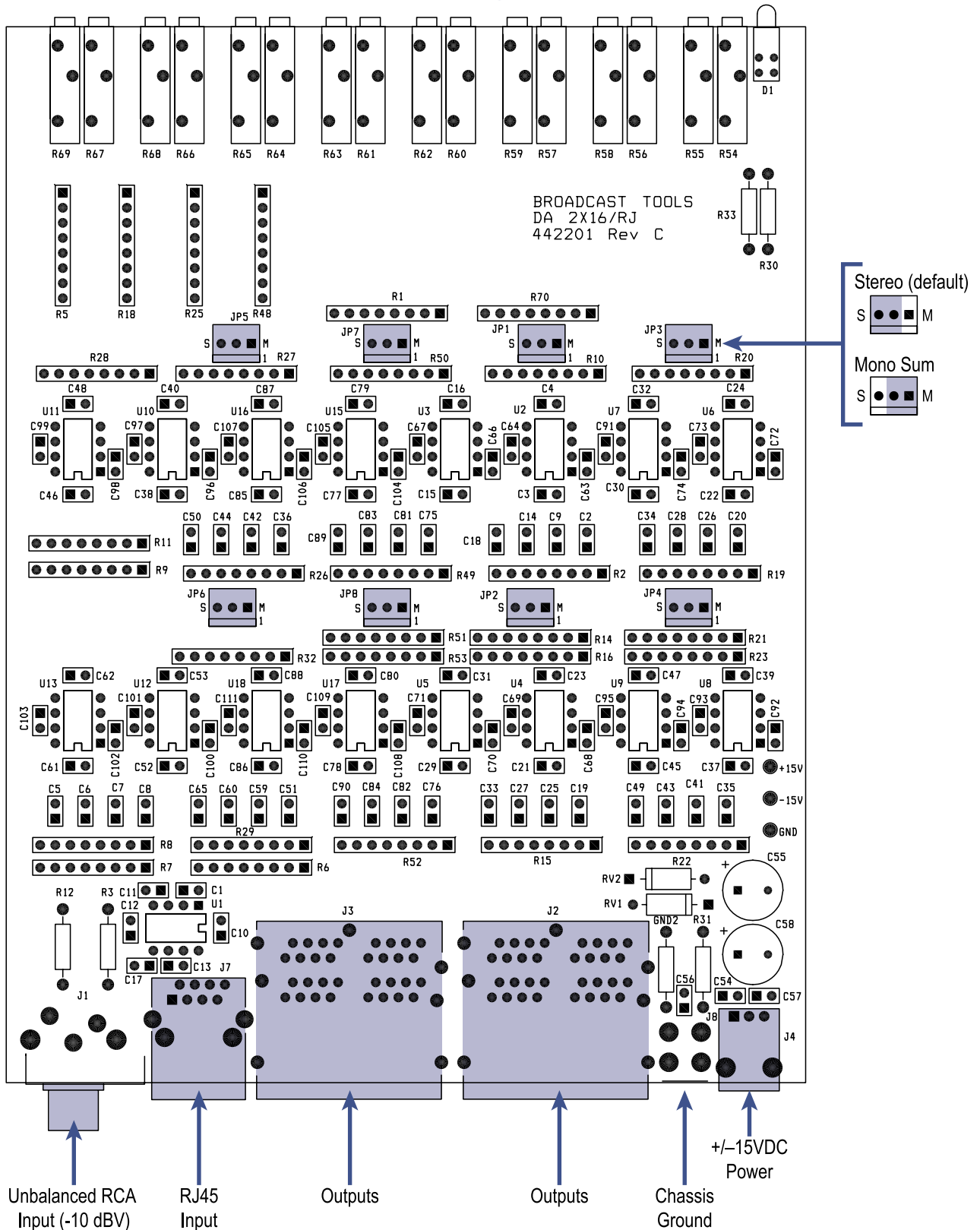
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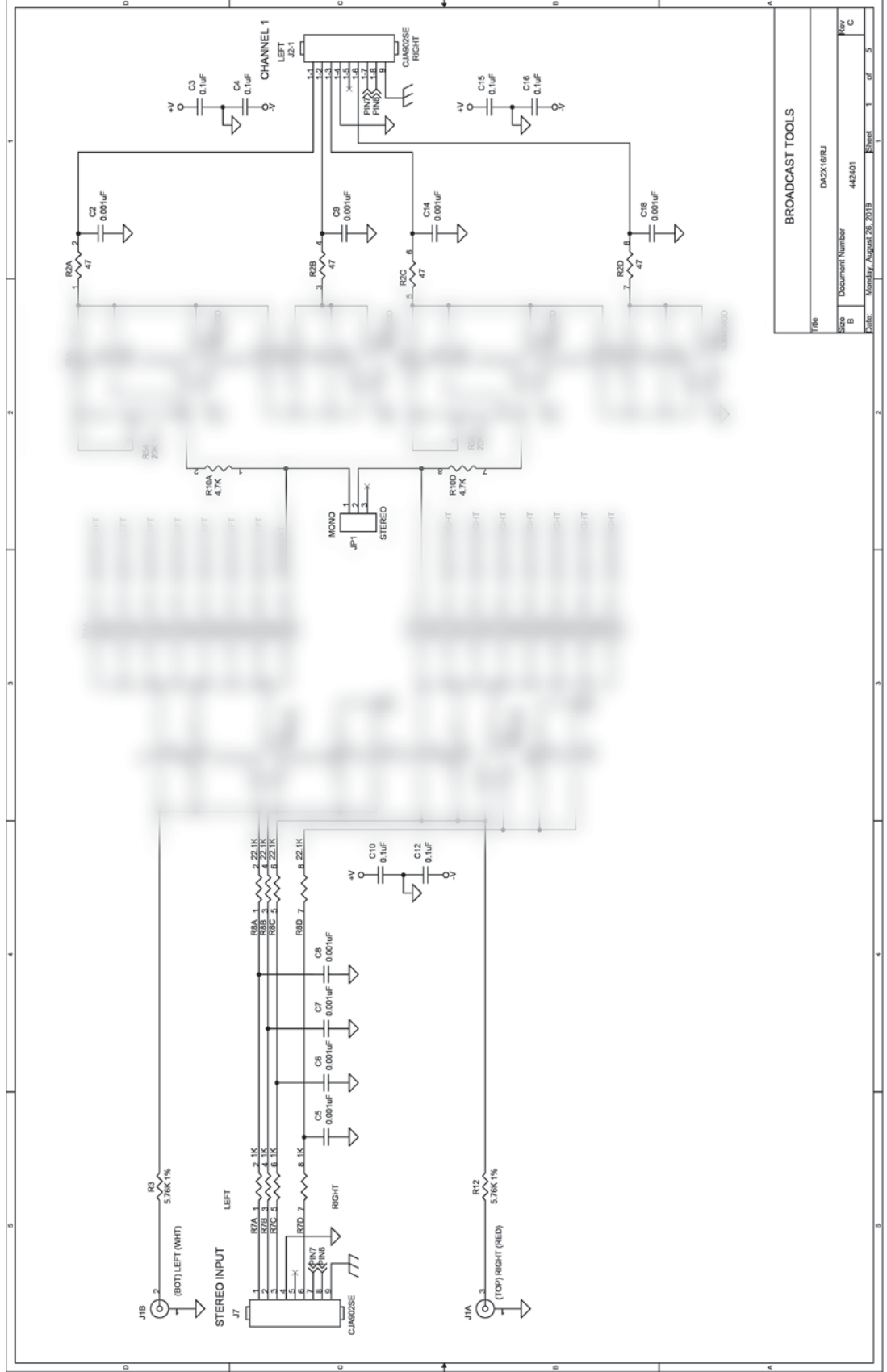
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Component Layout

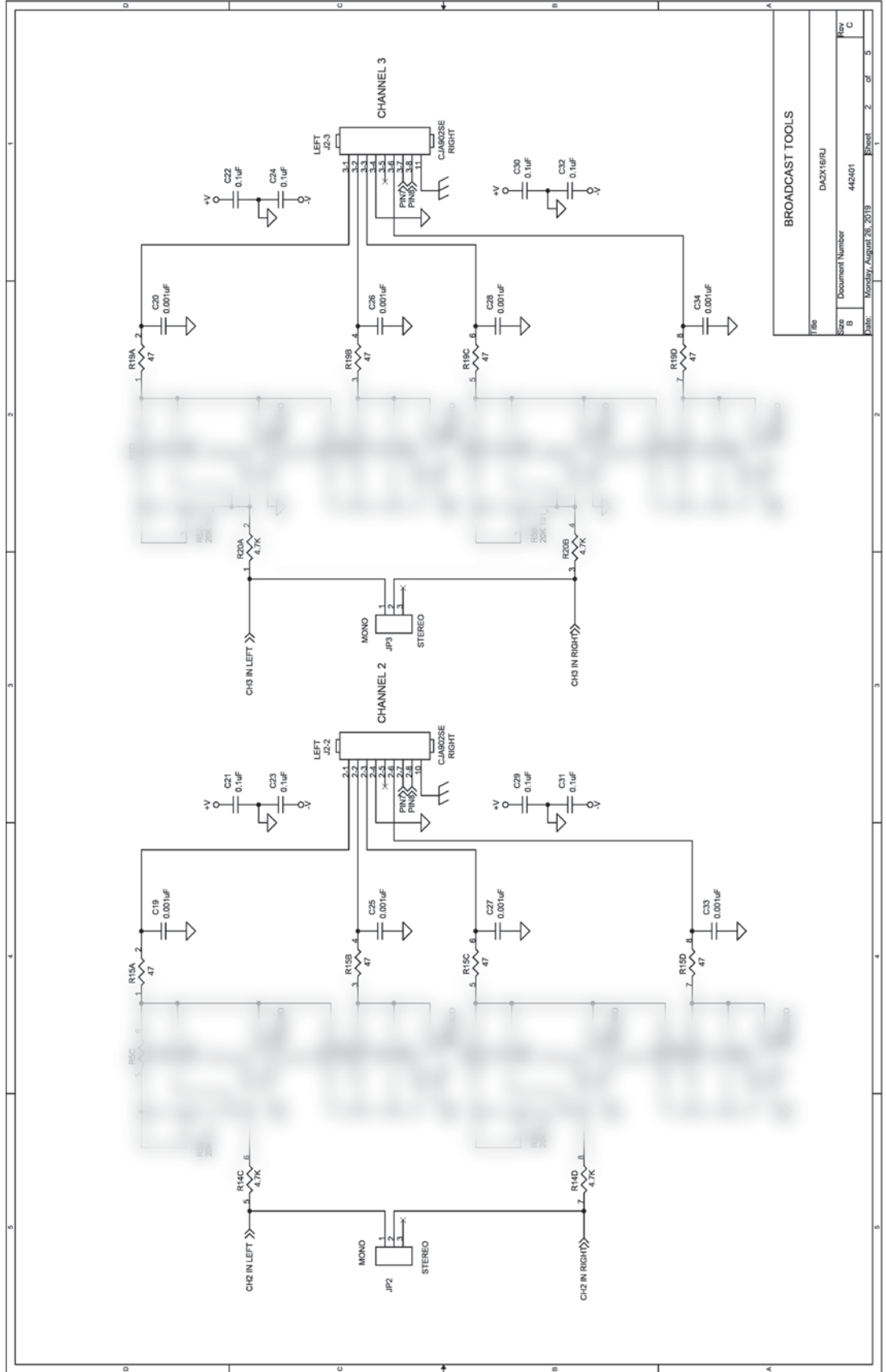


Fractional Schematic

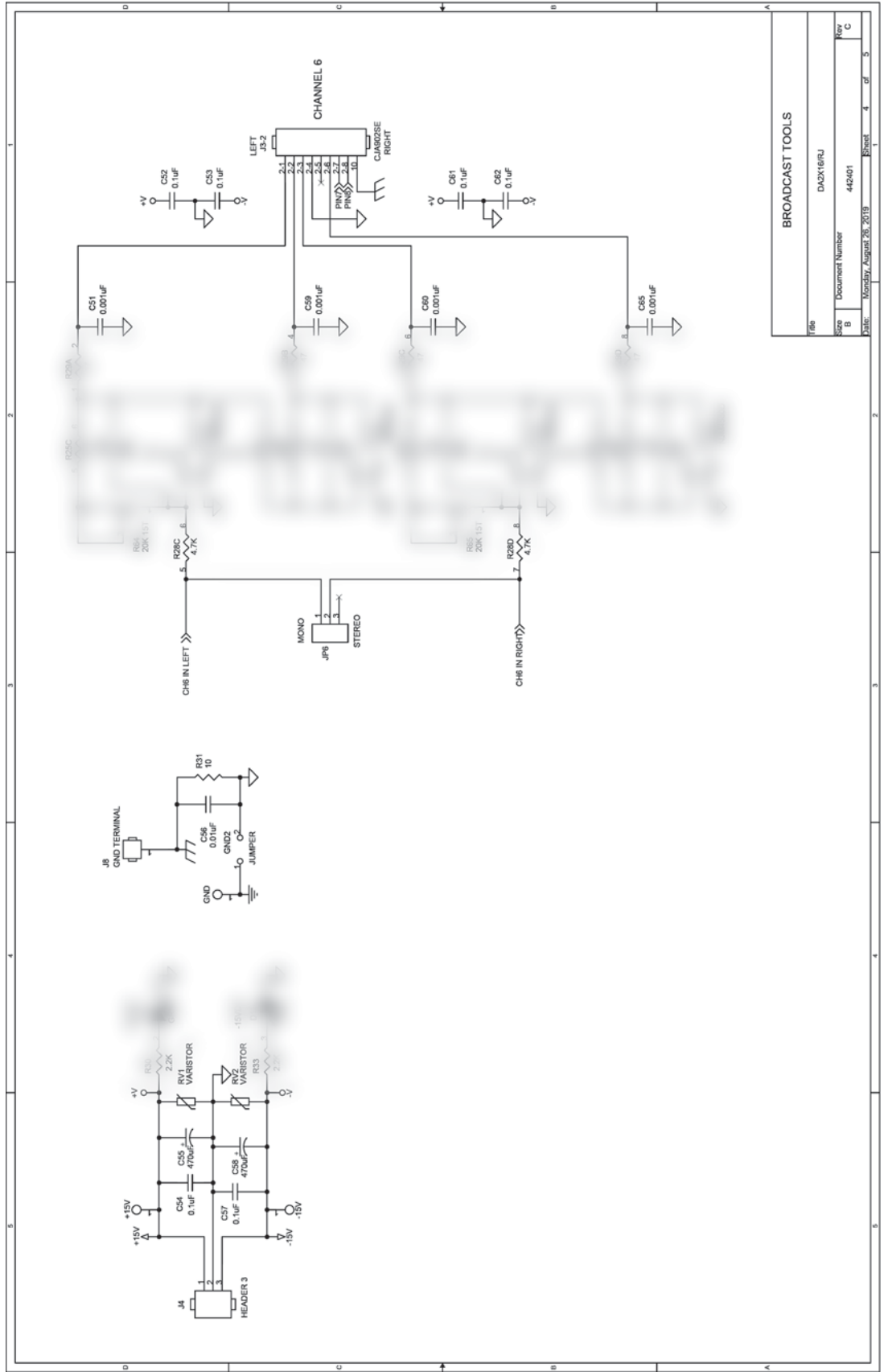


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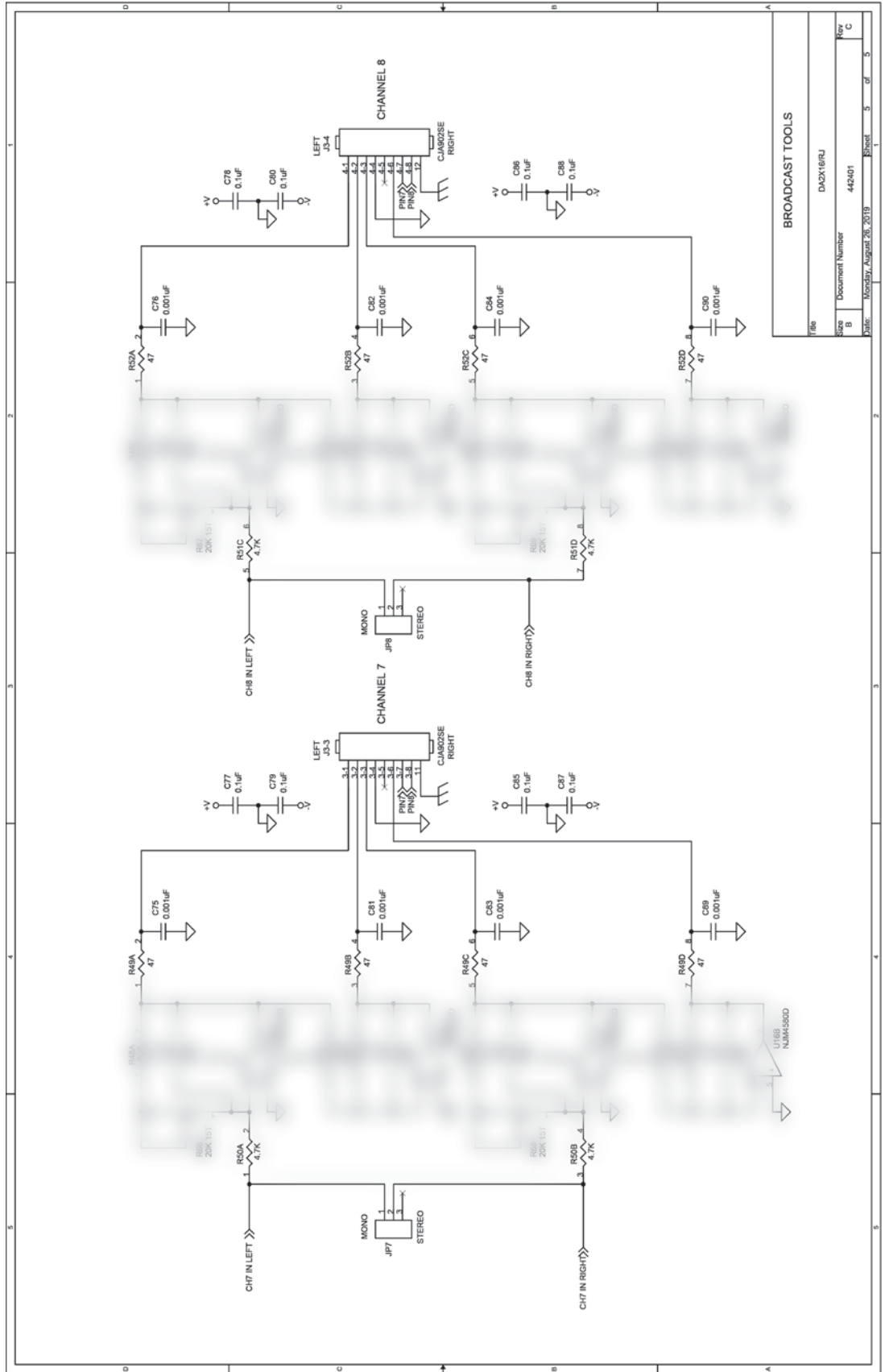
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Fractional Schematic



Fractional Schematic



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Sheet	5 of 5
Rev	C