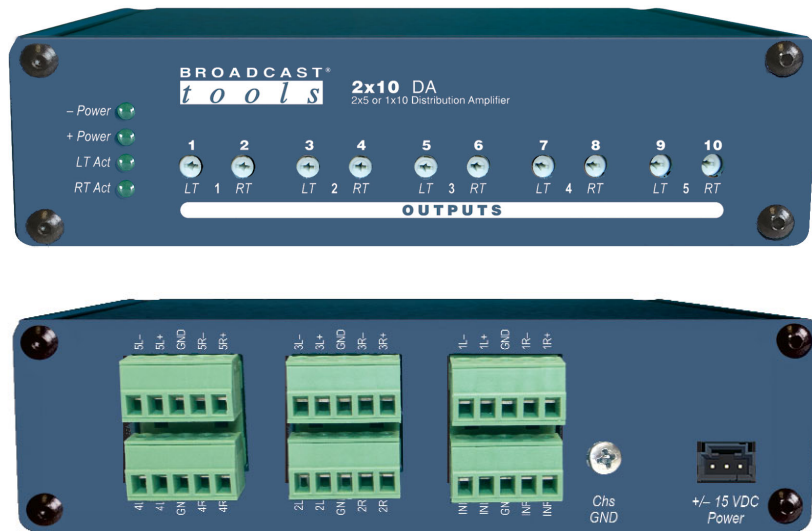


BROADCAST[®] *t o o l s* INC

PROBLEM SOLVED

Installation and Operation Manual



2x10 DA

2x5 or 1x10 Analog Audio Distribution Amplifier

9/22/2020

Including Rev B PCB (2020)

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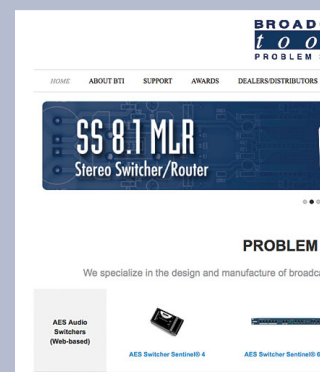
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INTRODUCTION

Thank you for your purchase of the 2x10 DA Analog Stereo Distribution Amplifier, which we will refer to throughout the manual as the 2x10 DA. 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.

SAFETY INFORMATION

Only qualified technical personnel should install the 2x10 DA. 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 2x10 DA 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.

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:

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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.

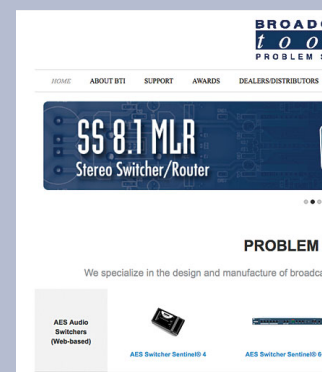


NOTE:

This manual should be read thoroughly before installation and operation.

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INTRODUCTION

Product Overview

The 2x10 DA 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. The 2x10 DA 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.
- Fully RFI proofed.
- 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 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 and a power supply. Manuals may be downloaded from our web site.

Installation/Operation

Power

PCB Rev B, power jack labelled: “+/- 15 VDC Power” Connect the supplied PS-1515/IEC +/-15 VDC power supply’s 3-pin AMP-style latching power connector to the unit and the PS-1515/IEC switching power supplies IEC power cable into a 120 VAC 50-60 Hz outlet. The front panel Power LEDs will light to indicate supply voltage. The Power supply will accept input voltages from 95 to 235 VAC, 50-60 Hz.

PCB Rev A, power jacks labelled: “16 VAC Power” Connect the supplied 16-18 VAC transformer’s plug to either of the power jacks on the rear panel and the wall transformer into the proper 120 Vac 50-60 Hz outlet. The front panel Power LEDs will light to indicate supply voltage.

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

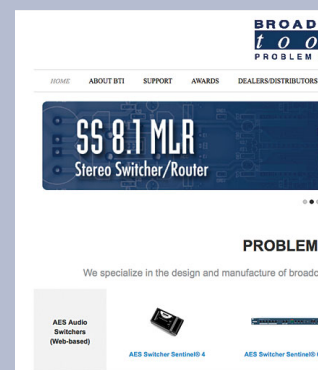
The 2x10 DA has built-in resistance to voltage changes; we recommend that you use a power surge protector or line conditioner on the incoming AC line. Lightning strikes and/or other high voltage surges may damage your 2x10 DA and connected equipment if it is not properly protected. For lightning protection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

UPS Standby Power System

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

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Installation/Operation

LED Indicators

- “+Power” and “-Power” LEDs: Indicate presence of positive and negative power supplies.
- “LT ACT” and “RT ACT” LEDs: Indicate presence of left and right input audio activity.

Stereo/Monaural Jumper Settings

The 2x10 DA 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.

Audio Input Gain Jumper Settings

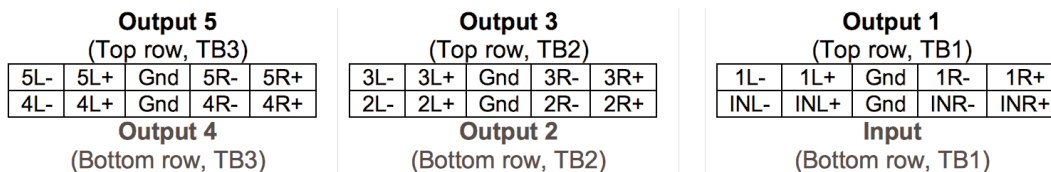
The input gain of the 2x10 DA is set for a +4 dBu nominal balanced input signal via internal jumpers. Jumpers JP4 and JP5 set the left channel gain, while jumpers JP6 and JP7 set the right channel gain. Follow the silk-screened labels on the PCB to change gain settings: for “+4 dBu” for professional 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.

Audio Output Connections

The 2x10 DA 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.



Audio Output Level Adjustment

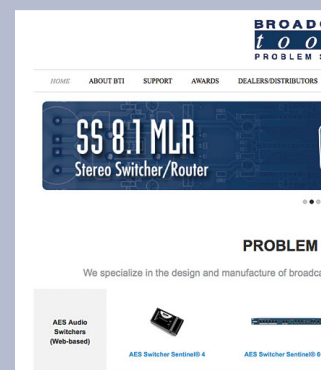
The level of each of the 10 output channels is adjustable via front panel 1-turn trimmers, labeled 1-10 for mono operation, and 1-5 L/R for stereo operation. All outputs are set from the factory so that a +4 dBu in produces +4 dBu out on each audio output. From this factory default setting the trimmers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

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	20dB
Frequency Response	+/- 0.1dB (22Hz – 22kHz)
Noise	86 dB below nominal
THD+N	.005% (22Hz – 22kHz @ +4 dBu)
IMD	.005% (250hz/7kHz)
Power	PCB Rev A, labelled: "16 VAC Power" 16-18 VAC only, 600-1000 mA wall transformer, 2.1mm coaxial plug. PCB Rev B, labelled: "+/- 15 VDC 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 (or #4-40) 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.

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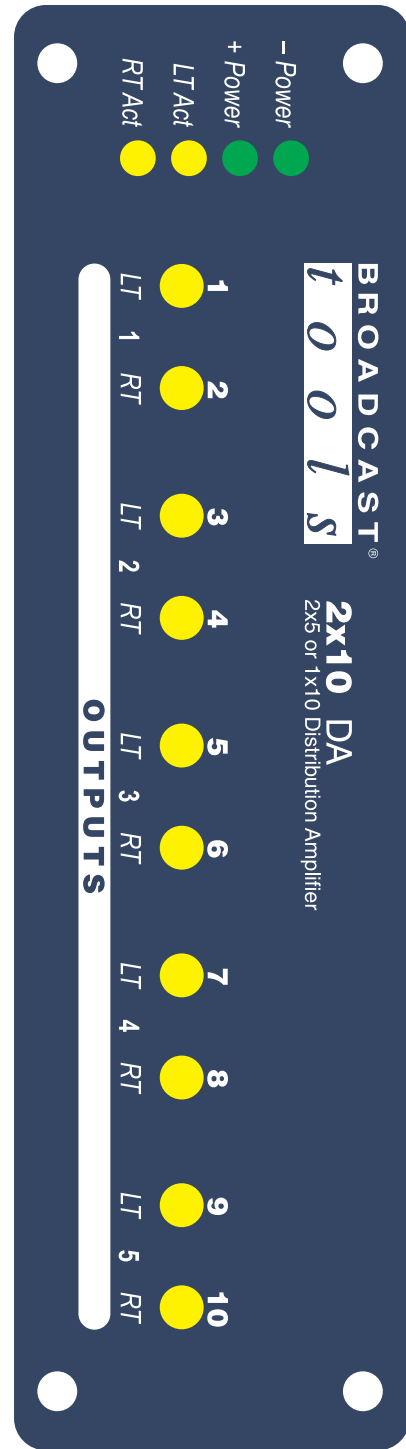
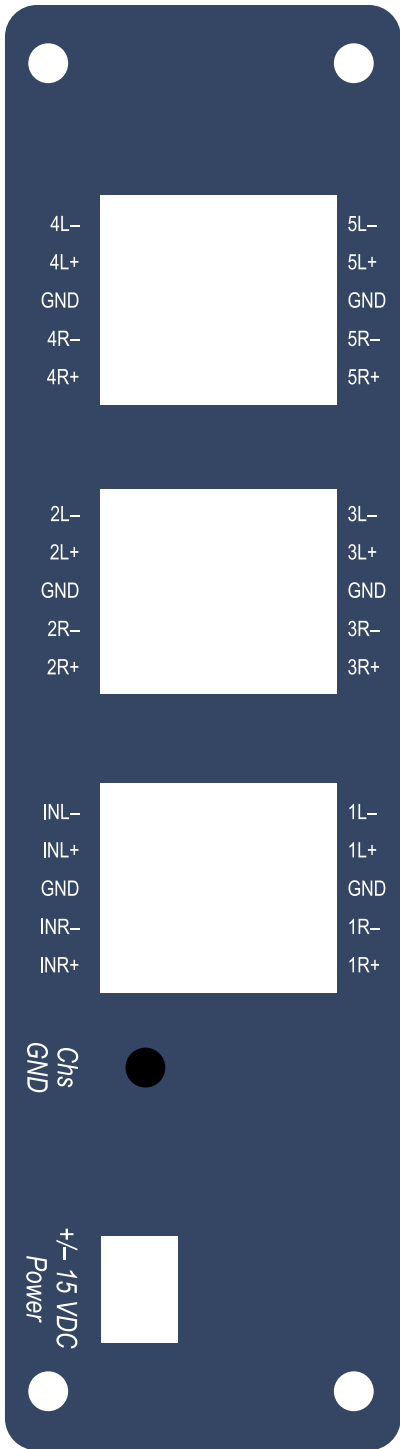
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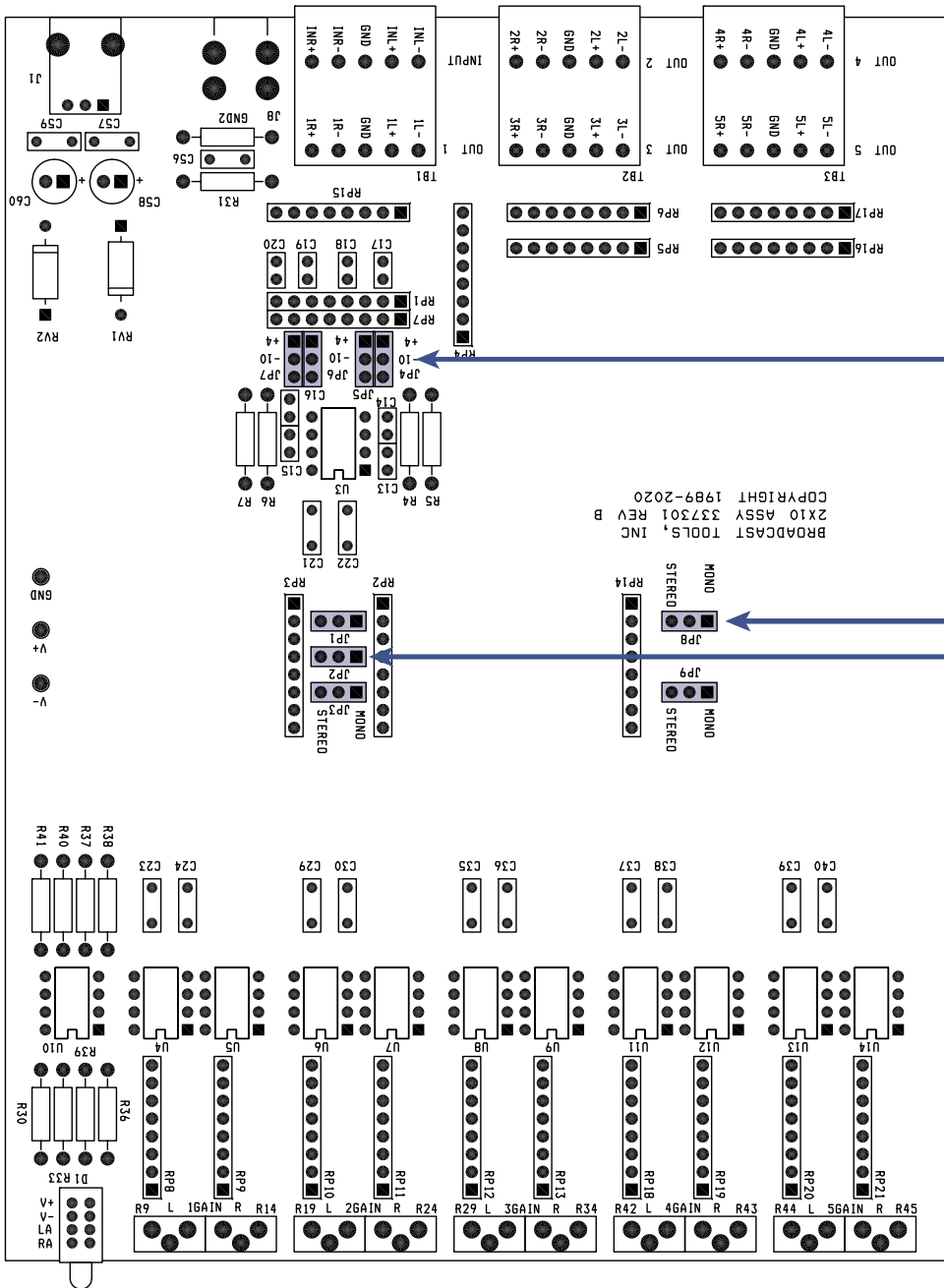
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Component Layout (PCB Rev. B)



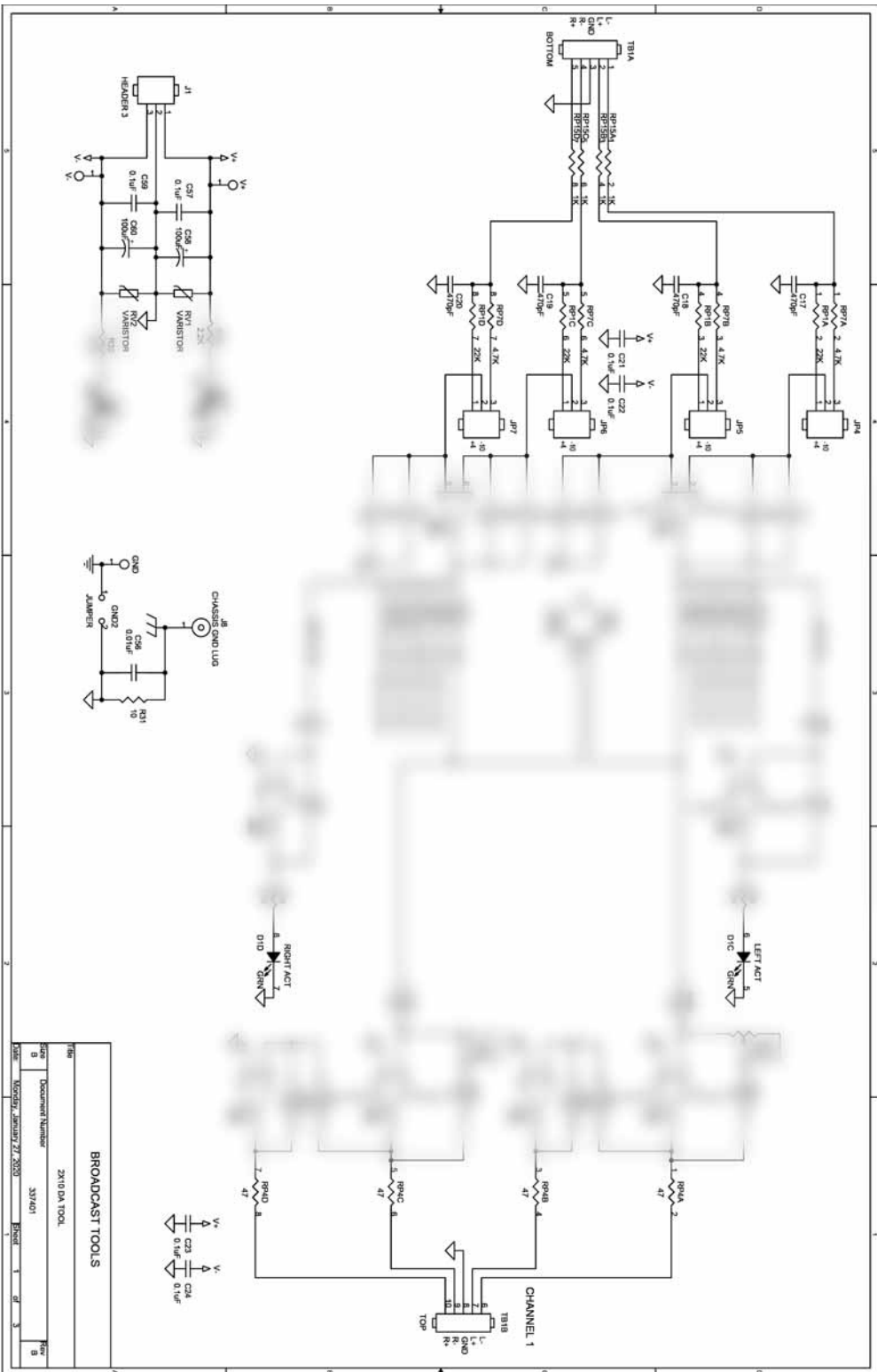
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Fractional Schematic (PCB Rev. B)



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REV	2X10 DA TOOL
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DATE	Version, January 27, 2000
REV	Sheet 1 of 3

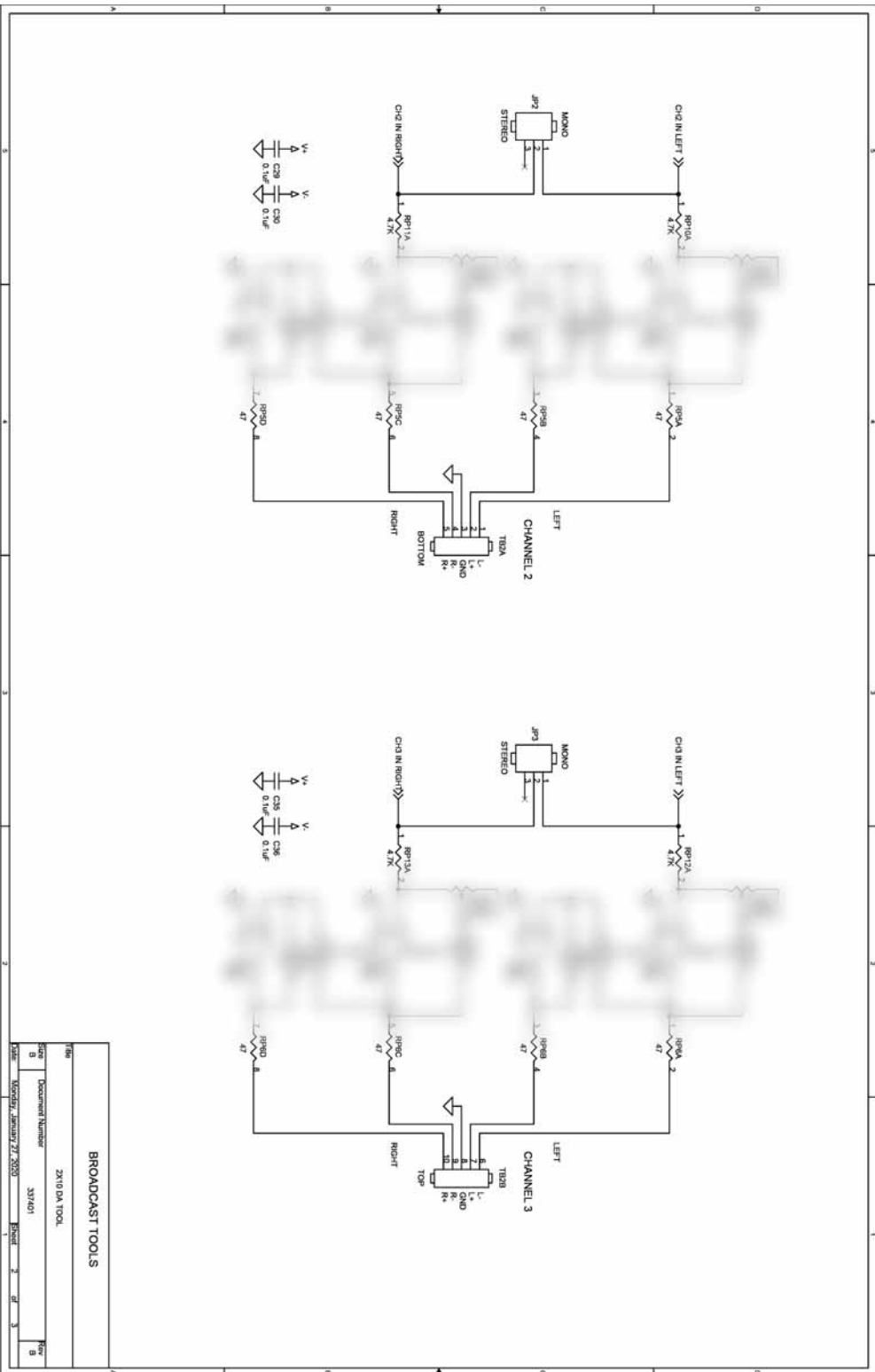
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Rev	2x10 DA TOOL
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Date	Version
January 27, 2000	Rev
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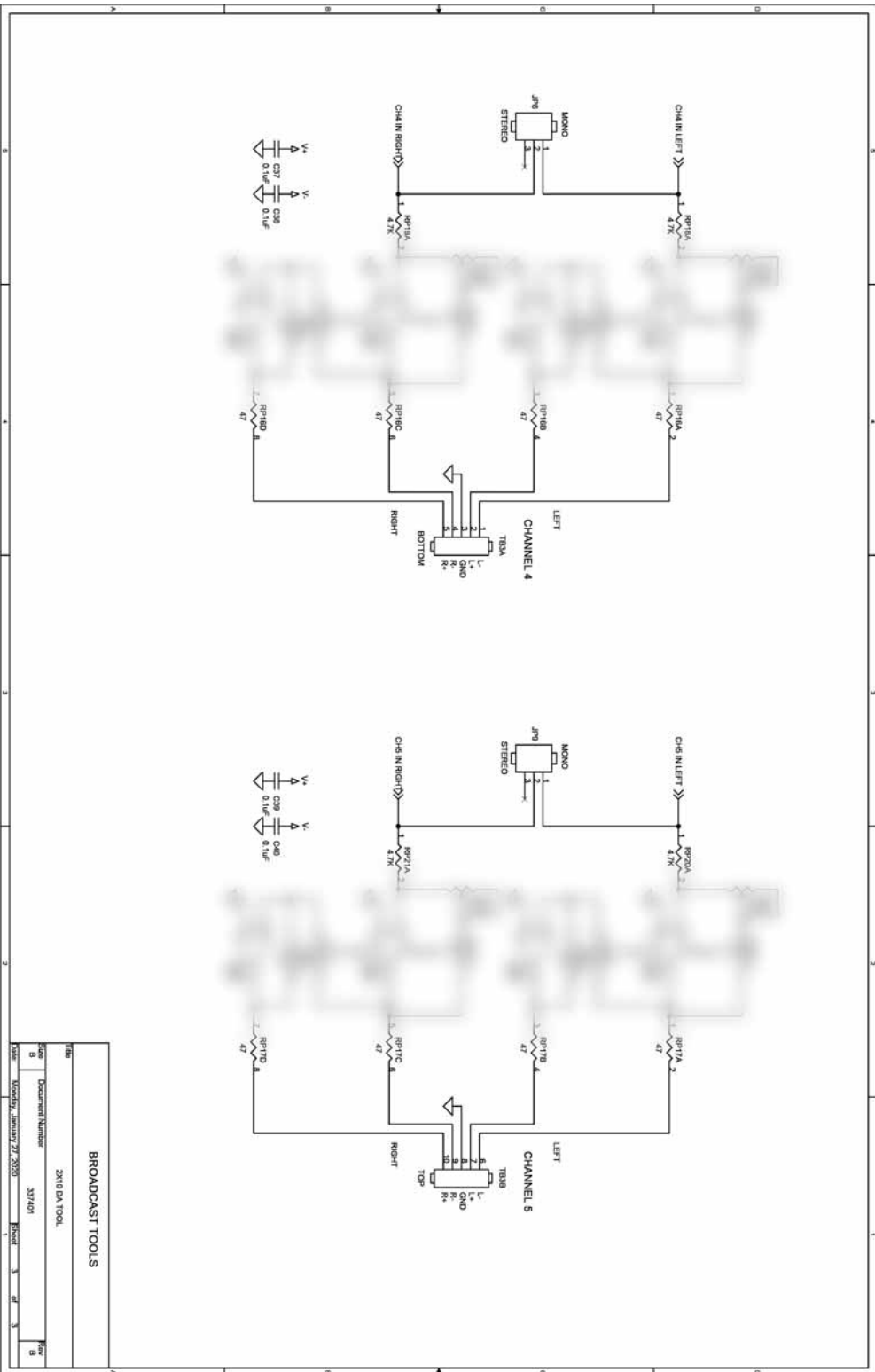
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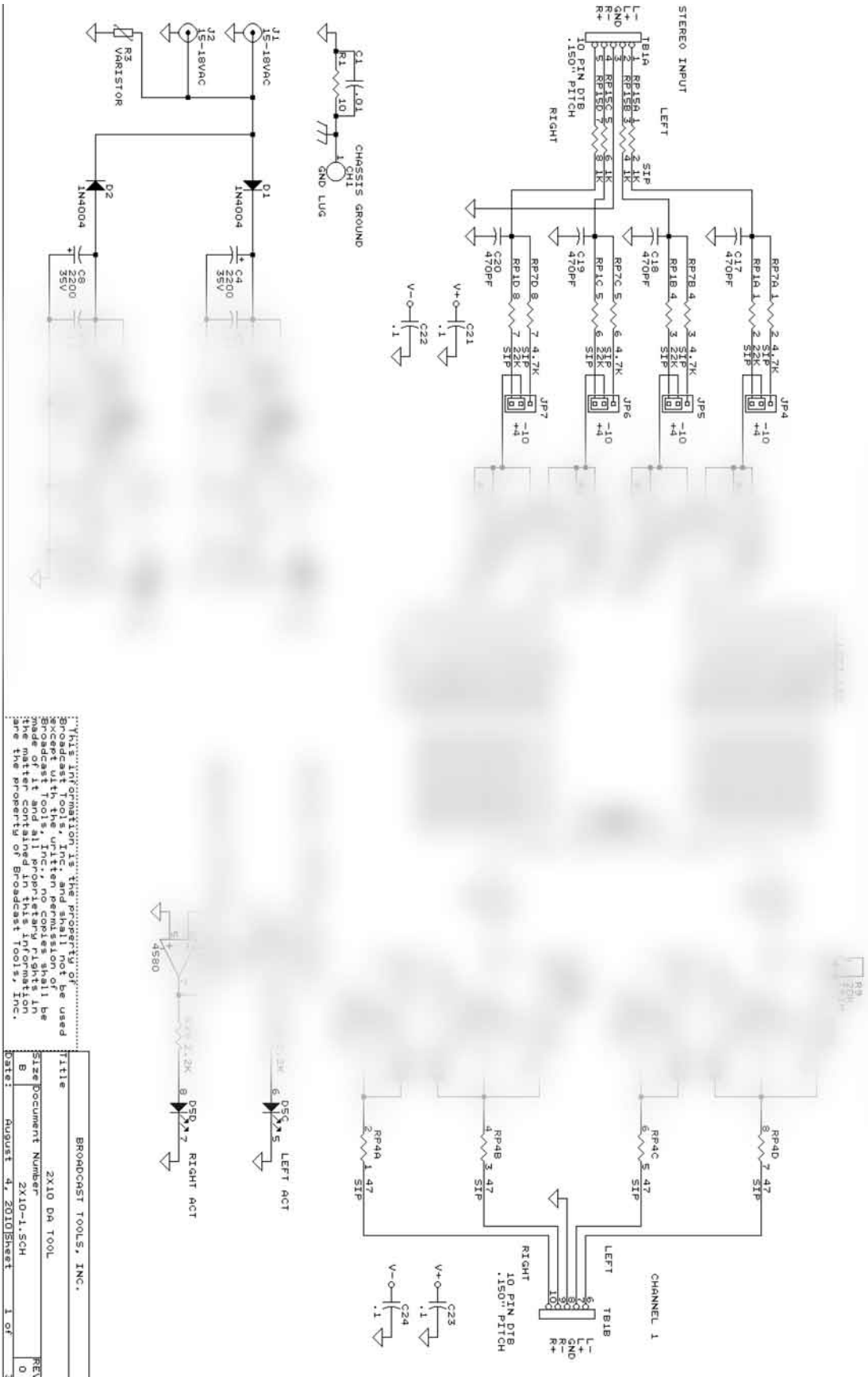
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2x10 DA Installation and Operation Manual



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