

BROADCAST[®]
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Installation and Operation Manual



SS 4.1 MLR/TERM G2 NET **4x1 Switcher/Router with Mechanical Latching Relays**

Firmware Version 1.15 and above

Manual update: 8/9/20

If you need a firmware upgrade, contact Broadcast Tools®

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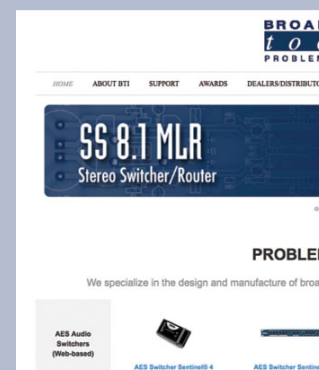
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INTRODUCTION

Thank you for your purchase of a Broadcast Tools® SS 4.1 MLR/TERM G2 NET transparent four input, one output switcher/router (referred to as the SS 4.1 MLR/TERM G2 NET throughout this manual). We're 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® SS 4.1 MLR/TERM G2 NET.

SAFETY INFORMATION

Only qualified technical personnel should install the SS 4.1 MLR/TERM G2 NET. 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 SS 4.1 MLR/TERM G2 NET 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 SS 4.1 MLR/TERM G2 NET. 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

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BROADCAST TOOLS® BRAND PRODUCTS!

Broadcast Tools is a Veteran Owned Business



Designed , Manufactured, and Supported in Washington 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.

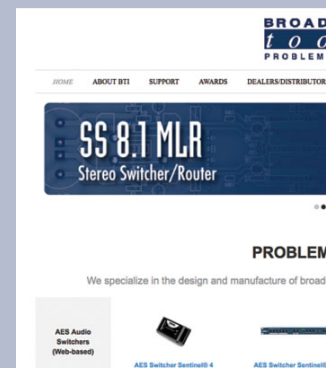


NOTE:

This manual should be read thoroughly before installation and operation.

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Product Overview

The SS 4.1 MLR/TERM G2 NET is a transparent four input, one output stereo switcher/router with mechanical latching relays. The SS 4.1 MLR/TERM G2 NET is perfect for all types of passive signal switching via front panel switches, contact closures, or Ethernet (TCP/UDP) commands. Switching is accomplished with mechanical latching gold contact relays, which means that the unit can route a signal in either direction and it will keep routing signal even after losing power. Due to the passive nature of the switching, any input level and impedance can be used. Inputs may be balanced or unbalanced, while output levels, impedance, distortion, noise, and balancing will match that of the selected input.

Features/Benefits

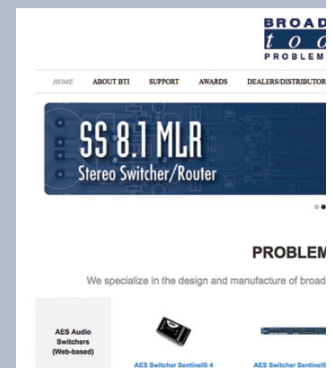
- Front panel input channel selection push buttons with active channel LED indicators.
- The audio “MUTE” function allows the user to turn off all audio.
- Front panel Enable switch can be configured to provide a safety lock to the front panel selection push buttons.
- Ethernet port with support for TCP or UDP command control.
- PC-based GUI control via the free NetSwitch III switcher control/scheduler program.
- Relay outputs for remote channel status.
- Internal silence sensor with front panel LED indicator; separate SPST silence sensor alarm relay, adjustable alarm delay and restore duration.
- Eight input GPI/trigger port (PIP or Remote Control) with LED indicator.
- Audio/signal switching via mechanical latching sealed relays utilizing 2-form-C bifurcated - crossbar silver alloy with gold overlay contacts.
- Removable euro-block screw terminal connectors are used for audio/signal I/O and remote-control connections. Necessary mating plugs are supplied.
- The power-up source selection feature allows the user to select which source is active at power up, including the last source selected.
- If power is lost, the last selected channel is passed to the output.
- Fully RFI proofed.
- Surge protected internal power supply, includes 9 VDC universal desktop power adapter with IEC inlet and domestic power cord.
- Up to three units may be mounted on the optional RA-1 rack shelf. Desktop and wall mounting is also possible.

Applications

Switching/routing applications include: Analog and/or AES audio sources, studio selection, audio processing selection, EAS audio switching, RS-232, RS-422 or RS-485 data signals and telephone lines.

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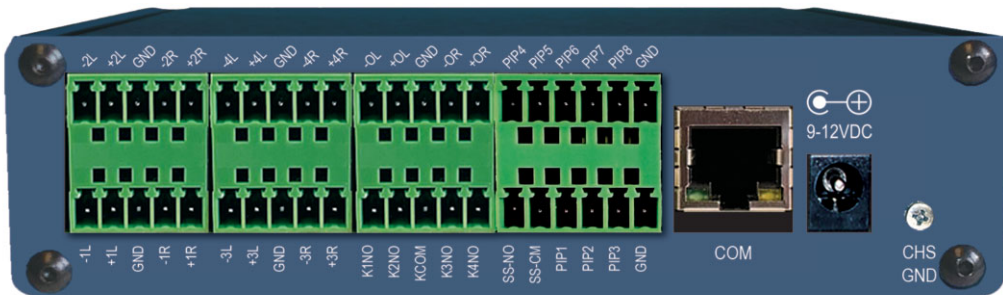
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Installation

Inspection

Please examine your SS 4.1 MLR/TERM G2 NET 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 contains the SS 4.1 TERM G2 NET, a 7-foot BLUE straight-through CAT 5 cable, a 7-foot GRAY crossover CAT 5 cable, and a 9.0 VDC universal desktop power supply with IEC AC inlet and domestic power cable. Manuals can be downloaded from our web site.



Surge Protection

The SS 4.1 MLR/TERM G2 NET 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 SS 4.1 MLR/TERM G2 NET 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 SS 4.1 MLR/TERM G2 NET to a UPS standby power system. A UPS, like the BE600M1 from APC helps to minimize the risk to the SS 4.1 MLR/TERM G2 NET and provides power during a power outage.

NOTE: If power is lost, the last selected channel is passed to the output.

Power

Connect the 2.1mm barrel type center positive power connector into the unit and the 9 VDC power desktop supply with IEC inlet into a 100-240 Vac 50-60 Hz power source. A domestic IEC power cable is included.

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

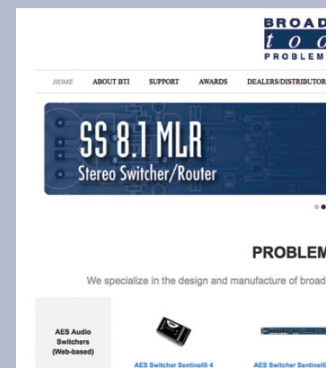
Chassis Ground screw (CHS GND): The #6-32 sized chassis ground screw should be tied to the station (house) or system ground.

I/O Connections

The rear panel contains all the input, output, RJ45 Ethernet (COM), and remote-control connectors. All audio I/O and remote-control connections use pluggable screw terminals with mating connectors

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INSTALLATION

Signal Inputs and Output

The SS 4.1 MLR/TERM G2 NET interfaces to external equipment through removable euro-block screw terminals. The terminals accommodate wire sizes from 16 - 28 AWG solid or stranded wire. Before installing a wire, remove the euro-block screw terminal plug and turn each capture screw fully counterclockwise. Strip each conductor to a length of 0.25" and insert the conductor fully into the terminal. Turn the capture screw fully clockwise to secure the conductor.

Input 1 (Top row, TB1)					Input 4 (Top row, TB2)					Output (Top row, TB3)				
2L-	2L+	Gnd	2R-	2R+	4L-	4L+	Gnd	4R-	4R+	OL-	OL+	Gnd	OR-	OR+
1L-	1L+	Gnd	1R-	1R+	3L-	3L+	Gnd	3R-	3R+					
Input 2 (Bottom row, TB1)					Input 3 (Bottom row, TB2)					See Relay Outputs (Bottom Row, TB3)				

Input sources that are NOT selected are terminated with a 10K ohm resistor. If you do not require this load applied to the deselected sources, they may be removed from each channel. Each channel has a pair of resistors. Removal information: Channel 1 = R30 & R31. Channel 2 = R32 & R33. Channel 3, R34 & R35 and Channel 4 = R36 & R37. If the SS 4.1 MLR/TERM G2 NET is used for applications other than switching audio, the Silence Sensor and ACT detection circuit should be disabled. To disable, remove RP2 from its socket.

Output Silence Sensor

The SS 4.1 MLR/TERM G2 NET is equipped with an analog silence sensor which can monitor the 4.1's output for silence and provide a silence alarm via contact closure output (K5), an LED indicator (SS LED), and data string. The silence sensor provides an alarm status and does not cause the 4.1 to automatically switch between inputs. The silence sensor is disabled by default and is configured via the setup menu or burst commands.

Remote Control Inputs

The SS 4.1 MLR/TERM G2 NET has eight status inputs that may be configured for PIP ("triggers") or remote-control operation and accept momentary contact closures (sustained, if break before make); open collector or TTL/CMOS input logic levels. In addition to the PIP/remote control inputs located on TB4, the silence sense tally SPST relay contacts are also present, labeled SS-NO (normally open) and SS-CM (common.)

Top Row, TB4

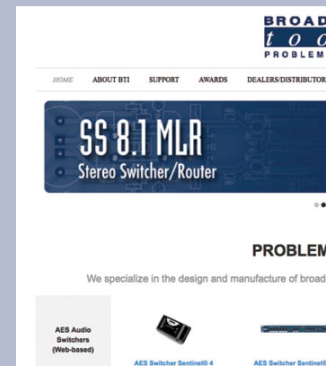
PIP4 IN-4	PIP5 MUTE	PIP6 STEP	PIP7	PIP8 EAS	DGND
SS-NO	SS-CM	PIP1 IN-1	PIP2 IN-2	PIP3 IN-3	DGND

Bottom Row, TB4

The operation mode is set by the SW9-7 Dipswitch, when SW9-7 is OFF the unit is in remote control mode and when SW9-7 is ON the unit is in PIP mode. The PIP/remote control connections to the switcher are found on the top and bottom rows of the connector TB4. Each channel may be selected by a momentary contact to ground. Each channel is pulled high (5-volts) through a 22K resistor.

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In remote control mode the inputs are triggered by momentary closure to (pulsing) to ground (low.) For example, pulsing the “MUTE” input to ground will mute the output of the SS 4.1 MLR/TERM G2 NET until a front panel source switch is pressed, a different remote control input is activated, the unit is powered up and/or a serial command is received from a PC or other device.

Pulsing the “STEP” input to ground will step the unit one source for each low to high transition on this input. Automatic timed sequencing may be accomplished by holding the step input low. The unit will now step to each source at a user programmable rate from 1 to 99 seconds (10 seconds by default). The last step channel is user programmable and is set to 4 by default. This feature may be used to sequence through multiple station air monitor signals for a program on-hold feed.

The SS 4.1 MLR/TERM G2 NET is also capable of being used for EAS audio insertion. This feature is enabled by setting the EAS controlled input channel to the desired audio input channel via the setup menu (see the Ethernet Operation section of this manual for more information.) Once an input channel has been designated the SS 4.1 MLR/TERM G2 NET will automatically switch to that input for the duration of a sustained closure to ground on the “PIP8/EAS” remote control input. When an EAS controlled input channel is configured PIP8 is disabled.

Relay Outputs

The SS 4.1 has four normally open relay outputs that are used to indicate channel selection status. K1 closes when input 1 is active, K2 for Input 2, etc. The status relay output for the selected channel will connect to the relay common providing a return for an LED indicator, TTL/CMOS logic, or relay. Note: For wiring information, refer to the grid below, silk-screen text on the rear panel of the product or the fractional schematic(s) in the appendix.

K1NO (Input 1)	K2NO (Input 2)	COMMON	K3NO (Input 3)	K4NO (Input 4)
-------------------	-------------------	--------	-------------------	-------------------

Relay Outputs (Bottom Row, TB-1)

COM (LAN/NET Ethernet Port/RJ45 Jack)

This 10/100 Ethernet port is used to connect the SS 4.1 MLR/TERM G2 NET to a computer for configuration and control via telnet/TCP, or UDP socket connections. See the “Ethernet” and “Programming” sections of this manual for more information.

Resetting Ethernet Settings to Defaults

Network Defaults may be restored by depressing the recessed front panel Def. (Defaults) push button, applying power to the unit, and holding down the push button for five seconds after power up.

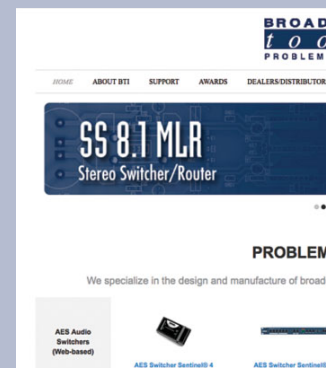


CAUTION!

Installation of the SS 4.1 MLR/TERM G2 NET in high RF environments should be performed with care. The station ground should be connected to the designated chassis ground terminal using a 20 to 24-gauge wire.

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INSTALLATION

Operation



Input, Mute and Enable switch push buttons

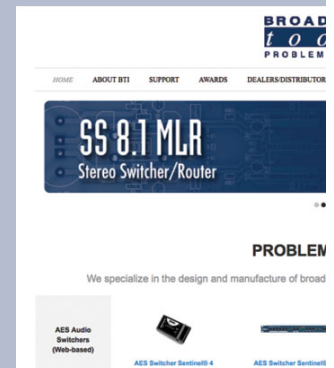
You can select between the two inputs and mute via the SS 4.1's front panel push buttons labelled "1", "2", "3", "4". "Mute" respectively. Each input push button has a built-in LED indicator which will illuminate when the channel is selected. When an input channel is selected, the previous channel is deselected (interlock mode). The "Enable" (safety/interlock) push button can be configured to require the user to hold down the "Enable" push button while selecting any of the other front panel push buttons to prevent accidental switching.

LED indicators

- "PWR/HB" LED: Lit when power is applied and blinks when serial data is active. (Green)
- "PIP" LED: Flashes to indicate PIP/trigger activity (Yellow).
- "SS" LED: Lit when output silence is detected, when enabled. (Red)
- "Link" LED: Lit when a TCP connection over Ethernet is active (Red).
- Input (1-4) Switch LEDs: Lit when the channel is selected/routed to the output. (Green)
- "Mute" Switch LED: Lit when the output is muted. (Green)
- "Enable" Switch LED: Lit when the Enable Switch is configured for operation. (Green)

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Configuration

Configuration Jumpers

JP2: Disabled = Front panel enable switch defeated.

Enabled = Front panel ENABLE push button active and the enable LED is illuminated.

NOTE: The enable push button must be held closed to operate any of the other front panel push buttons and isn't associated with any of the remote-control functions.

Configuration Dip-switch Setup

Follow the tables below for SW9 dip-switch configuration options.

Unit ID	SW9-1	SW9-2	SW9-3
ID 0 *	OFF	OFF	OFF
ID 1	ON	OFF	OFF
ID 2	OFF	ON	OFF
ID 3	ON	ON	OFF
ID 4	OFF	OFF	ON
ID 5	ON	OFF	ON
ID 6	OFF	ON	ON
ID 7	ON	ON	ON

Baud Rate	SW9-4	SW9-5
2400	ON	OFF
9600 *	OFF	OFF
19200	OFF	ON
38400	ON	ON

Power Up	SW9-6
User selected	ON
Last source selected *	OFF

Note: To select an input at power-up with SW9-6 ON, hold down the push-button for the desired input channel or mute until the front panel LED's flash.

Operation Mode	SW9-7
Remote Control	OFF
PIP*	ON

Remote control operation mode: Pulse 1-IN to select channel 1, pulse IN-2 to select channel 2, pulse IN-3 to select channel 3, pulse IN-4 to select input 4, pulse the "M-IN" (mute) pin to turn off all channels.

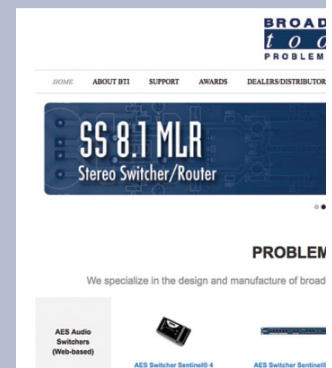
PIP mode: activity on any of the PIP inputs will generate a serial status string in the PIP format. For use with automation software.

Note: After changing any dipswitch, please repower the unit.

Note: * Denotes factory setting.

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Ethernet Commands

The switcher can be controlled and monitored via TCP/UDP Ethernet using burst string commands or by the embedded menu. See the “Ethernet Setup” section of the manual for information about getting started.

Where the < * > Denotes start of string character
 < u > Unit ID (address, 0 through 7)
 < ii > Input channel (01, 02, 03, 04 or M (MUTE)).
 < o > Output channel (1)

*uui - Turn on input ii
*uMA - Mute output
*uMM - Go to setup menu, see menu operation section of the manual for more information.

Examples: *004 This string would turn on channel 4 for unit ID 0.
*0MM Accesses the setup menu. (NOTE: The setup menu times out after 60 seconds of keyboard inactivity).

*POLL Returns unit ID address in appropriate time slot.
*uSL Sends audio status for all inputs: SuLo,x,x,x,x<CR><LF>
*uSPii Sends PIP status for input ii: SuP,ii,x
*uSPA Sends PIP status for all inputs: SuP,A,x,x,x,x<CR><LF>

*uSS Sends status of silence sensor: SuS,a<CR><LF>
 a = 1 = not silent, 0 is silent
*uU Sends unit firmware version: <name><version><lf>
*uY Display configuration.
*uZx Echo character x to serial control port - for debugging command strings

*uCEx Enable error and good responses if x = Y (default N)
*uCDEF Reset to factory defaults.
*uCLx Lock front panel: x = L (Lock) x = U (Unlock)
*uCIIttt Sets PIP minimum pulse length ttt: 000 - 255 => off to 2.55 seconds.

*uCPS Power up audio state: save power up state now

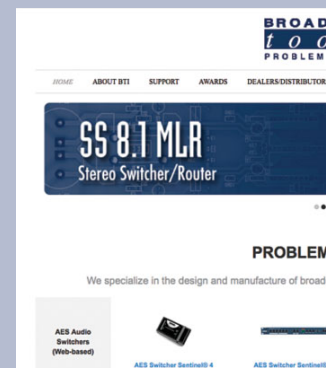
*uCSLx Sets silence sensor detection threshold to Off, -20, -25, -30 dB (0,1,2,3)
*uCSAtttt Sets silence sensor acquire delay to tttt seconds (0, 2-255)
*uCSBttt Sets silence sensor restore delay to tttt seconds (0, 2-255)

*uCSCtt Sets step interval in seconds 1-99 seconds.
*uCSSt Sets last step channel 1-4 (0 disables step feature.)
*uCSEi Sets EAS controlled input channel (i) to 1-4 or 0 for off. This allows you to assign one input channel that will be switched to with sustained closure to ground on the PIP8/EAS remote control input from an EAS encoder for EAS audio insertion with the SS 4.1 MLR/TERM.

*uDxx Delay xx seconds before processing next command.
*uDLxxx Delay xxx seconds before processing next command.

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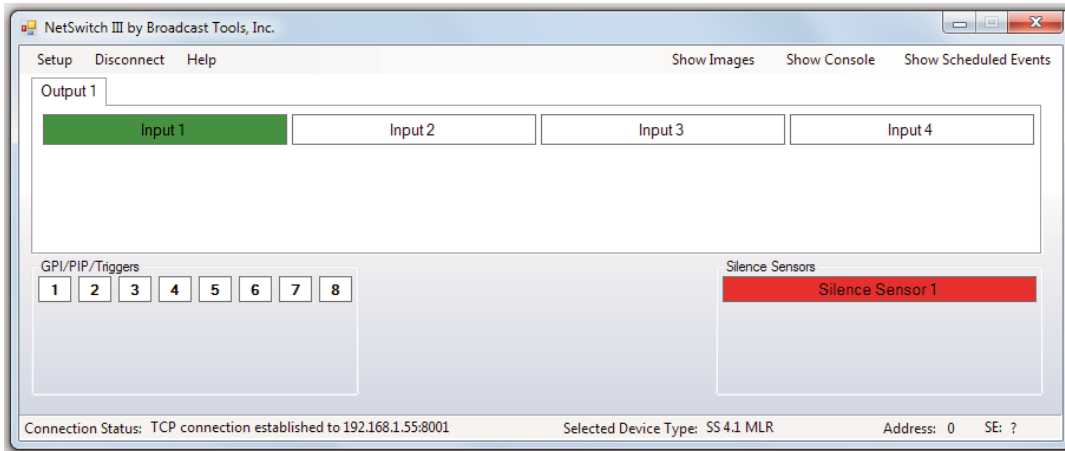


ETHERNET

NetSwitch III Switcher Control Software

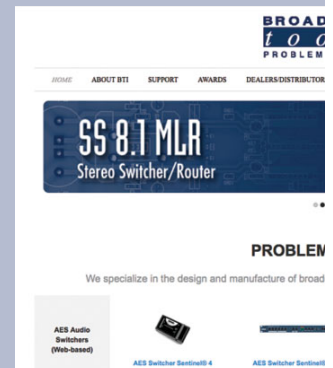
The SS 4.1 MLR/Term G2 NET can be controlled over TCP Ethernet using NetSwitch III, a free PC-based graphical control and event scheduler application for Broadcast Tools switchers. For more information:

<https://broadcasttools.com/product/netswitch-iii/>



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Menu Operation

Broadcast Tools(R) SS 4.1 MLR/TERM, v1.15 - Setup Menu

- 1 - Set PIP Minimum Hold Time(0 - 2.55 sec) - Now:0.05
- 2 - Set Silence Sense Acquire Delay (sec) - Now: 10
- 3 - Set Silence Sense Restore Delay (sec) - Now: 2
- 4 - Set Silence Sense Threshold - Now: OFF
- 5 - Set Stepping Interval (sec 1-99) - Now: 10
- 6 - Set Last Step Channel - Now: 4
- 7 - Lock/Unlock Front Panel - Now: UNLOCKED
- 8 - Set EAS Controlled Input - Now: Off

S - Turn ON audio input

M - Turn OFF audio

V - Save Audio State for Power Up

C - Show Configuration and Status

F - Set Factory Defaults

Audio Status: Present - Channel 1

Enter Selection, or Q to quit:

To enter menu mode, send the command: *0MM

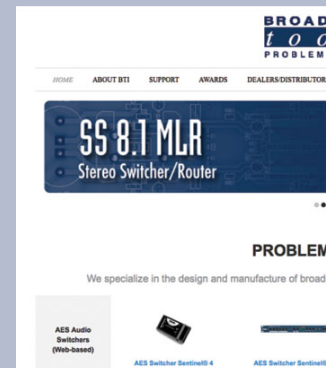
To select a menu function, simply enter the letter on the left side of the menu and wait for the prompt.

Example: Type the letter S

Response: Enter Input Channel: Entering a 1 selects input channel one.

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Ethernet Setup and Operation

Ethernet “Quick Start” Guide

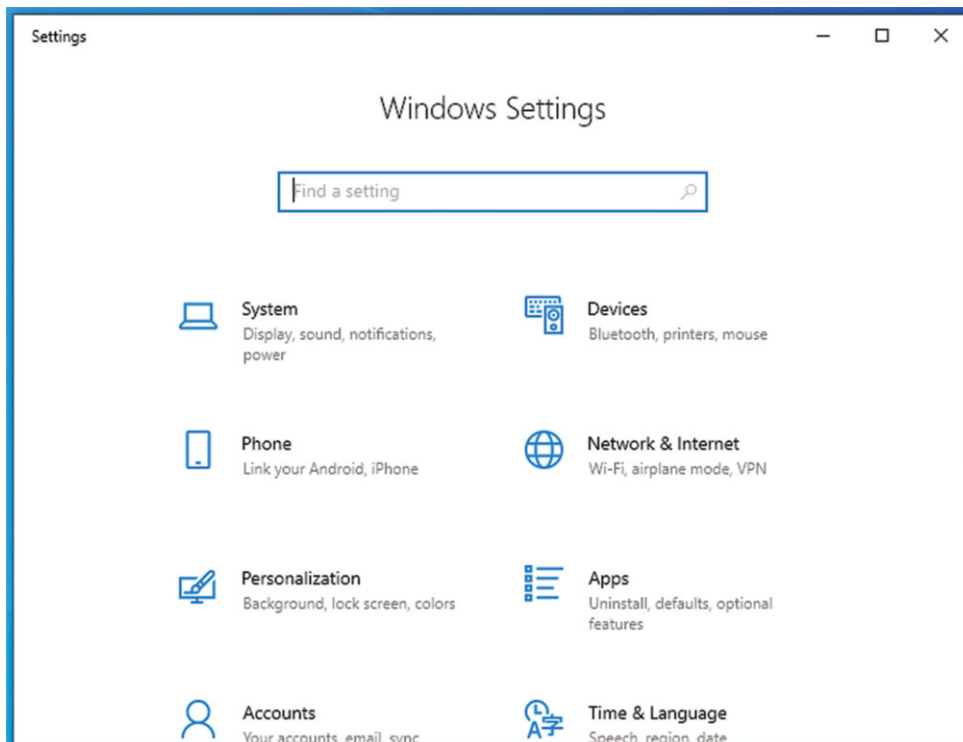
CAUTION! If you are not familiar with Ethernet enabled equipment, it may be useful to contact your IT department, network administrator or network consultant for assistance. Assigning an IP address already in use by another device may cause problems with your network!

CAUTION! Network scanning utilities such as Nmap, Tenable Nessus®, and RapidFire Tools can disrupt the operation of your Ethernet enabled device. Please remove the device’s IP address from the scanner or whitelist it.

Instructions for changing the IP address of the computer that will be used for the configuration of this product are given here. Note that these instructions are specifically for computers with the Windows* 11 operating system but will also work with Windows 7. For setup using other operating systems, refer to the appropriate OS user’s manual.

NOTE: We recommend the use of Chrome, Firefox, or Safari as your browser. Microsoft Edge and IE are NOT supported.

Step 1: Open the control panel by clicking on the Start Menu, click on Settings, then click on Network & Internet.

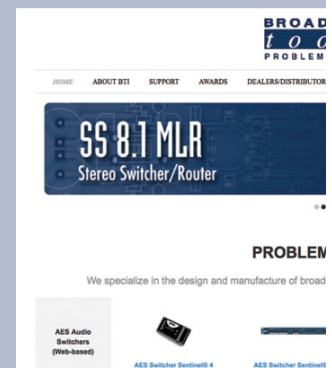


CAUTION!

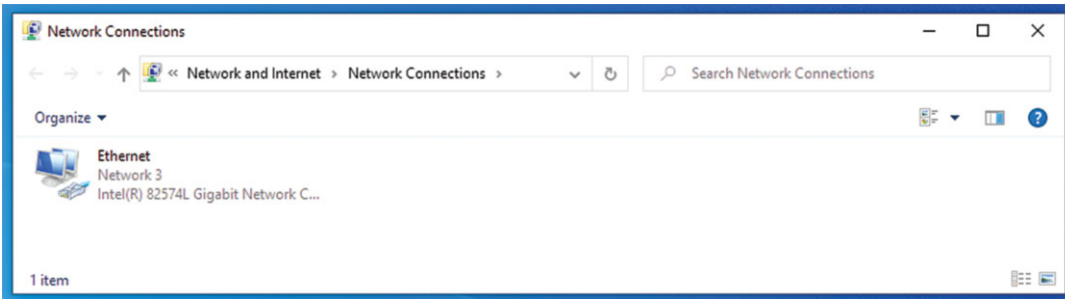
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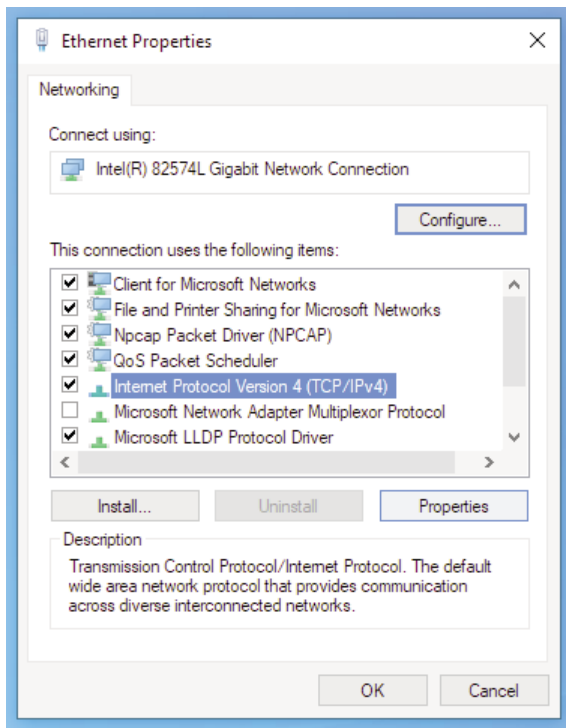
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Step 2: Under Advanced Network Settings click Change adapter settings. The Network Connections windows will pop up, as shown below.

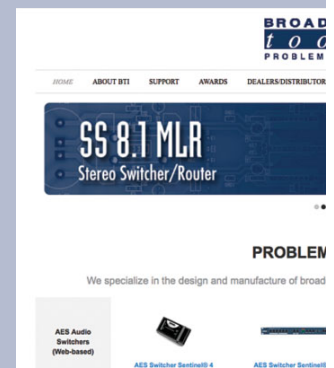


Step 3: Right click on the icon labeled Local Area Connection or Ethernet. A menu will appear. Select the option at the bottom of the menu labeled Properties. The Ethernet Properties window will appear.

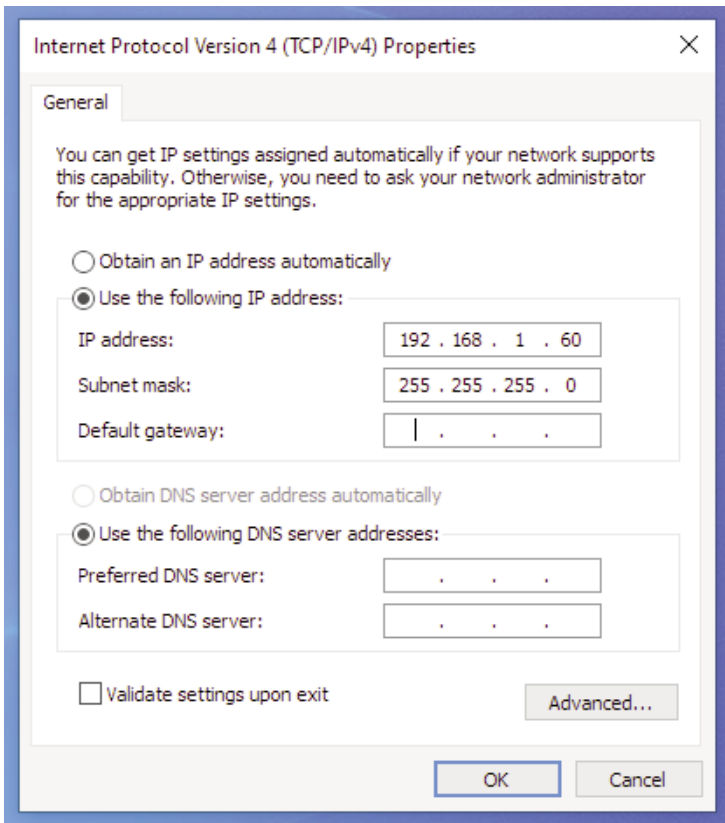


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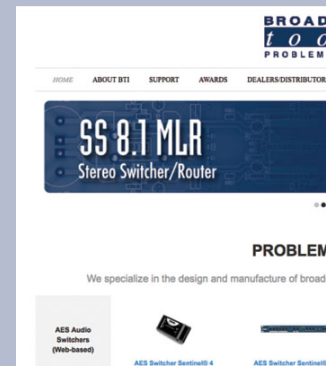
Step 4: On the Local Area Connection Properties page, double click on Internet Protocol (TCP/IPv4) to display properties.



Step 5: Before making any changes to the network settings, write down the current settings (or screen capture the page and print) so that they can be restored once the unit is configured. Next, select the radio button labeled “Use the following IP address” and type in the IP address 192.168.1.60. Type in the subnet mask of 255.255.255.0. Leave the default gateway field blank. Click OK to apply the new settings.

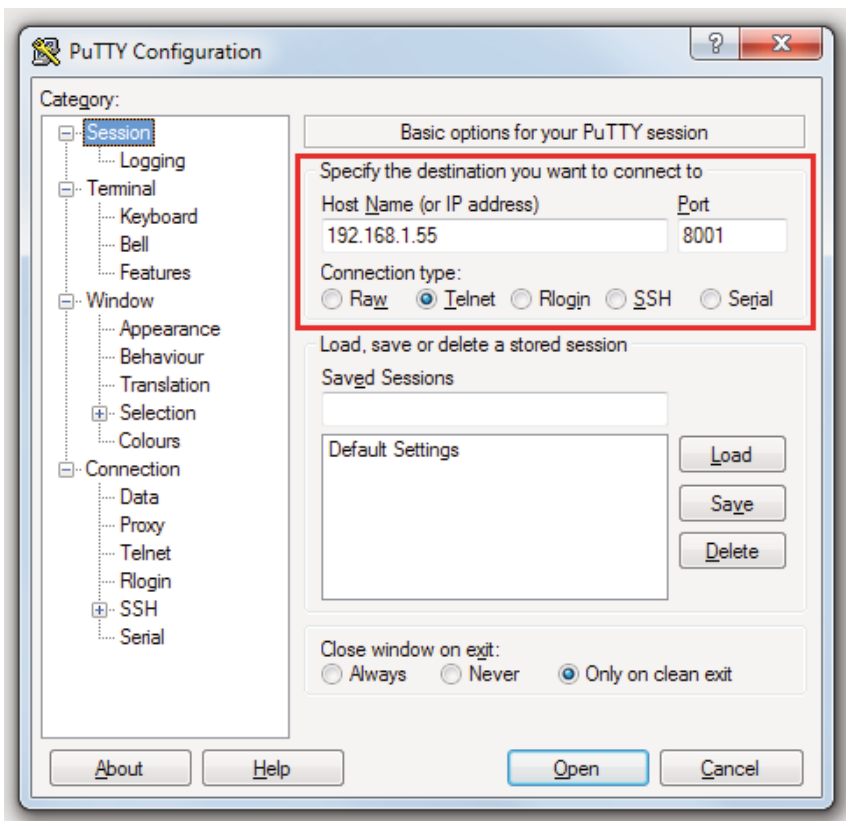
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Connecting via the Ethernet “LAN/NET” port:

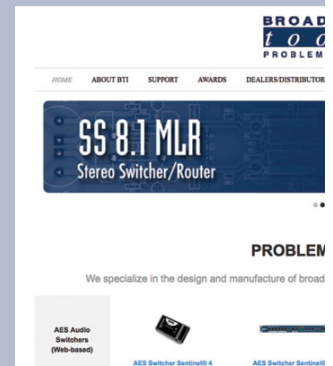
1. Connect the supplied GRAY colored XOVER cable between the PC’s Ethernet port and the products “LAN/NET” network RJ45 jack.
2. Connect the included power supply to the SS 2.1 MLR/TERM G2 NET. Verify that the green PWR LED is lit and the green “LINK” LED to the left of the “COM” Network RJ45 jack is illuminated.
3. Open terminal application PuTTY configured for a Telnet connection type to host 192.168.1.55 port 8001.

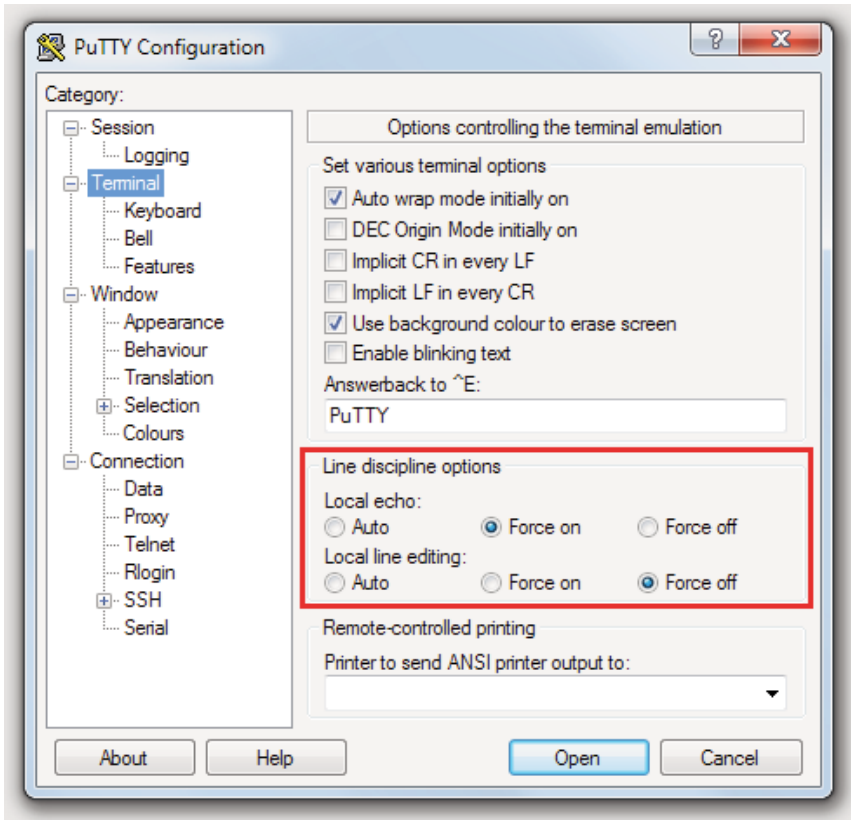


4. In PuTTY configuration > Terminal > Line discipline options set Local echo “Force on” and Local line editing to “Force off”.

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5. Click okay to connect to the SS 2.1 MLR/TERM G2 NET and type *0u into the terminal window and press return to bring up the Menu. See: “Ethernet” section of this manual.

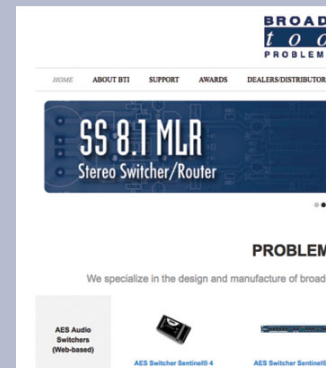
Changing network settings on the Ethernet “LAN/NET” port:

NOTE: We recommend the use of Chrome, Firefox, or Safari for as your browser. Edge and IE are NOT supported.

1. Connect the supplied GRAY colored XOVER cable between the PC’s Ethernet port and the products “LAN/NET” network RJ45 jack.
2. Connect the included power supply to the SS 2.1 MLR/TERM G2 NET. Verify that the green PWR LED is lit and the green “LINK” LED to the left of the “COM” Network RJ45 jack is illuminated.
3. Open a web browser window and navigate to the SS 2.1 MLR’s default IP address: <http://192.168.1.55>
4. When prompted to login, use the default login and password.
Login: admin Password: 1234
5. To change the network settings, choose “Local IP Config” from the side bar:

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Current Status	parameter			
Local IP Config	IP type: Static IP DNS type: Manual Static IP: 192 . 168 . 1 . 55 Submask: 255 . 255 . 255 . 0 Gateway: 192 . 168 . 1 . 1 DNS Server: 8 . 8 . 8 . 8			
Serial Port				
Expand Function				
Misc Config				
Reboot				
Save Cancel				

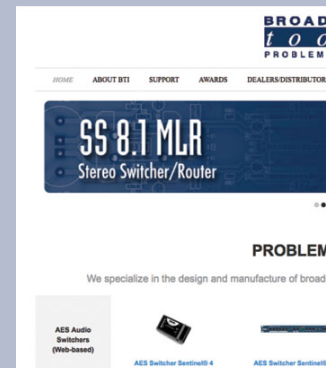
6. The default work mode is TCP Server, TCP Client, UDP Server and UDP Client are also available. To change the TCP port choose “Serial Port” from the side bar and change the “Local Port Number” setting:

Current Status	parameter	
Local IP Config		
Serial Port	Baud Rate: 9600 bps(600~460.8K) Data Size: 8 bit Parity: None Stop Bits: 1 bit Local Port Number: 8001 (1~65535) Remote Port Number: 8234 (1~65535) Work Mode: TCP Server Remote Server Addr: 192.168.1.57 [192.168.0.201] RESET: ☐ LINK: ☐ INDEX: ☐ Similar RFC2217: ☒	
Expand Function		
Misc Config		
Reboot		
Save Cancel		

7. To save changes click “Save” then when prompted click "Restart Module” and “Ok” to reboot the web server module and allow the changes to take effect.

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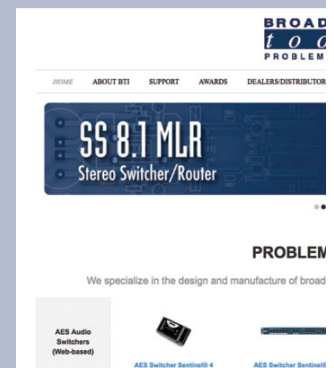


Specifications

Inputs/Outputs:	Any input level and impedance can be used. Inputs may be balanced or unbalanced. Output levels, impedance, distortion, noise, and balancing will match that of the selected input.
Switching Method:	Passive. Mechanical latching sealed relays utilizing 2-form-C bifurcated-crossbar silver alloy contacts with gold overlay.
Logic:	Flash microprocessor with non-volatile memory.
Operation/Control:	Front Panel: Momentary switches. Remote: Momentary or sustained. Ethernet: RJ45 10/100, TCP or UDP socket connections.
Status:	Front Panel: LED Indicators integrated into switches. Remote: Four channel status relays, and one silence sensor relay (SPST), 1-amp @ 30 VDC maximum. Refer to the fractional schematic and/or text on the rear panel for connection details.
Interfacing:	Audio/Signal I/O: balanced stereo, (5) 5-position pluggable screw terminal blocks, mating connectors supplied. Remote control: pluggable screw terminal blocks, mating connectors supplied. Ethernet: RJ45, Cat5 cable supplied.
Power Requirements:	9 VDC @ 1 amp power supply (CE/UL/ETL). 2.1mm ID x 5.5mm OD coaxial connector, center positive. Surge protected, universal (100 - 240 vac / 50/60 Hz) with IEC input, domestic AC cord included.
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.
Physical 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.
Weight:	2.0 lb.
Shipping Weight:	3.0 lb.
Options:	RA-1 rack shelf, holds three units (1-RU), filler panels supplied.

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SPECIFICATIONS

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.

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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**

Declaration of Conformity

The Ethernet module contained in the SS 4.1 MLR/TERM G2 NET conforms to the following standards:

Manufacturer's Name & Address:

SS 4.1 MLR/TERM G2 NET:
Broadcast Tools, Inc.
131 State Street.
Sedro Woolley, WA 98284-1503 USA

PUSR:

Jinan USR IOT Technology Limited
Floor 12 and 13, CEIBS Alumni Industrial Building, No. 3 Road of Maolingshan,
Lixia District, Jinan, Shandong, China
Declares that the following product:

Product Name Model:

PUSR USR-K6 Ethernet module
Conforms to the following standards or other normative documents:

Electromagnetic Emissions:

FCC Part 15, Subpart B, Class B

Manufacturer's Contact:

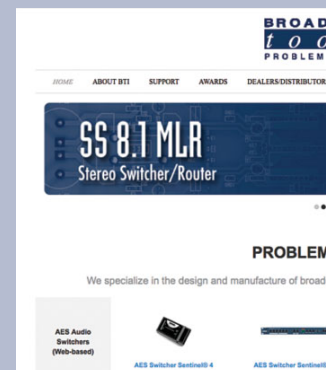
SS 4.1 MLR/TERM G2 NET
Broadcast Tools, Inc.
131 State Street
Sedro Woolley, WA 98284-1503 USA
Tel: 360.854.0608 Fax: 866.783.1742

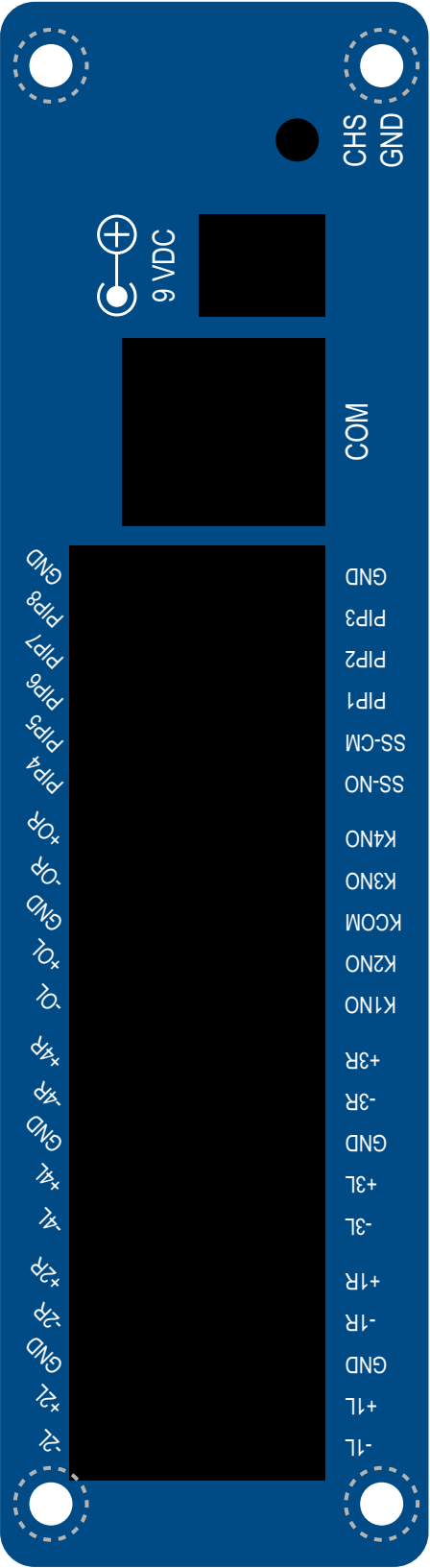
PUSR

Jinan USR IOT Technology Limited
Floor 12 and 13, CEIBS Alumni Industrial Building, No. 3 Road of Maolingshan,
Lixia District, Jinan, Shandong, China
Tel : +86-531-88826739 Fax : +86-531-88826739-808

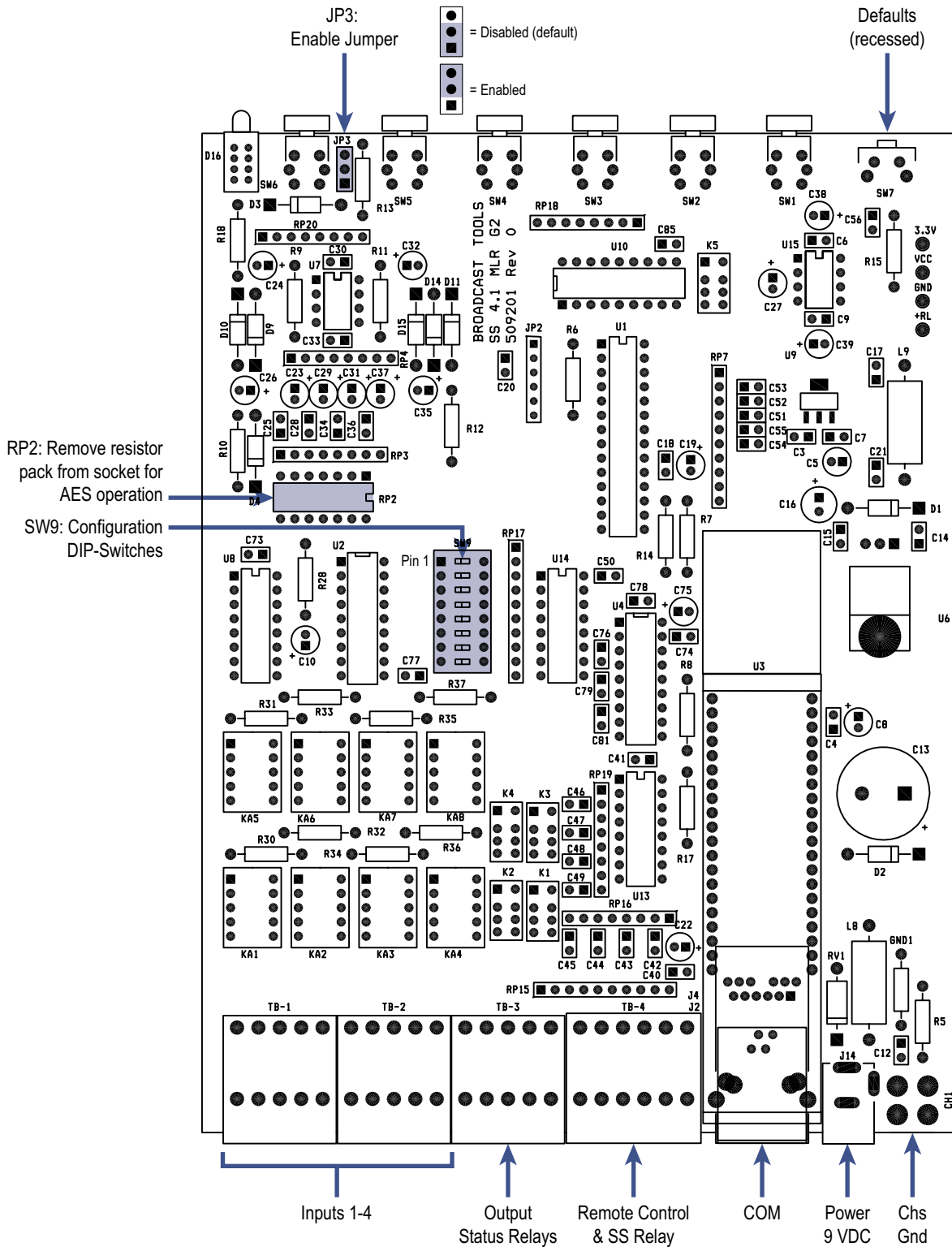
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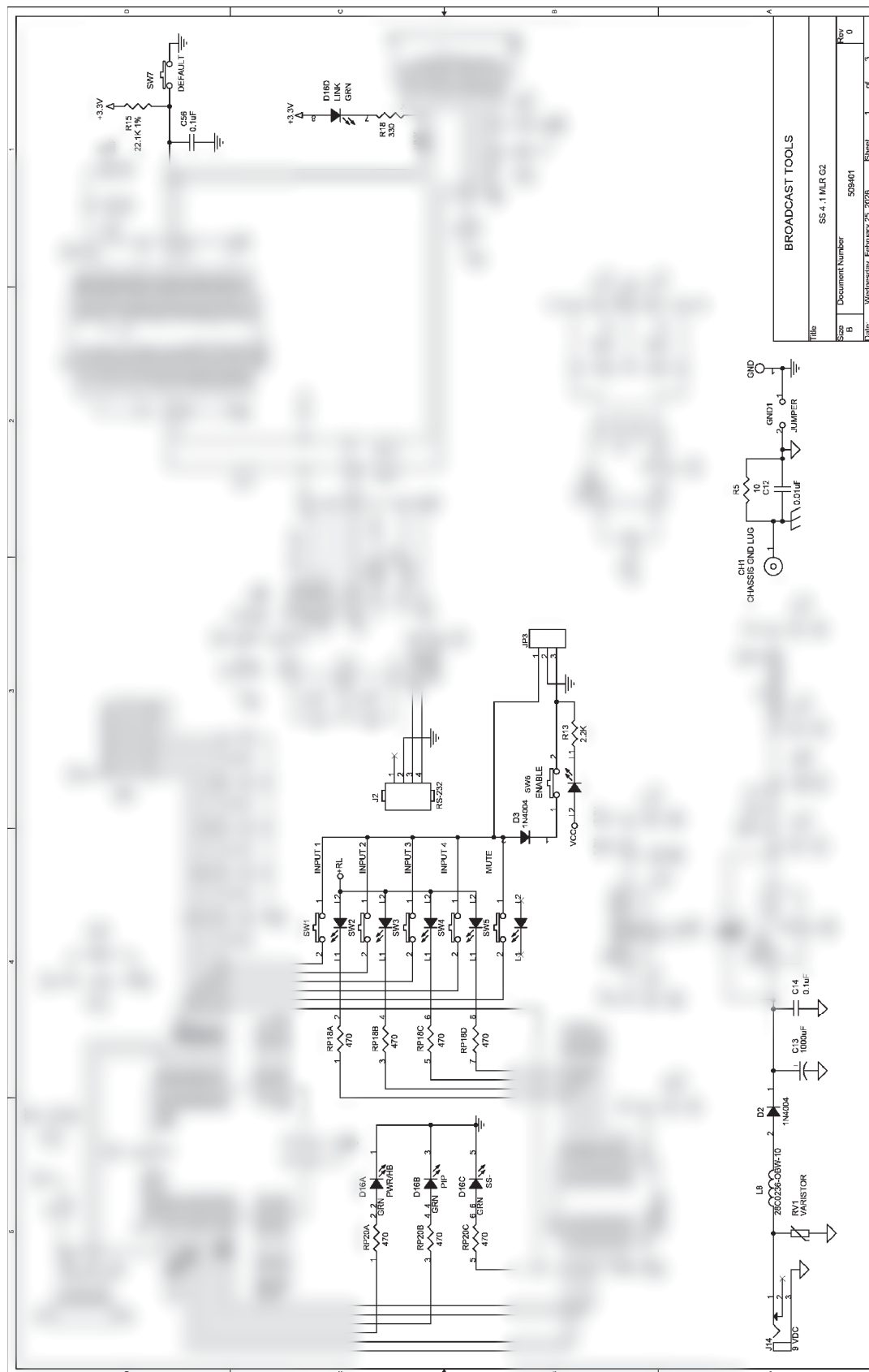




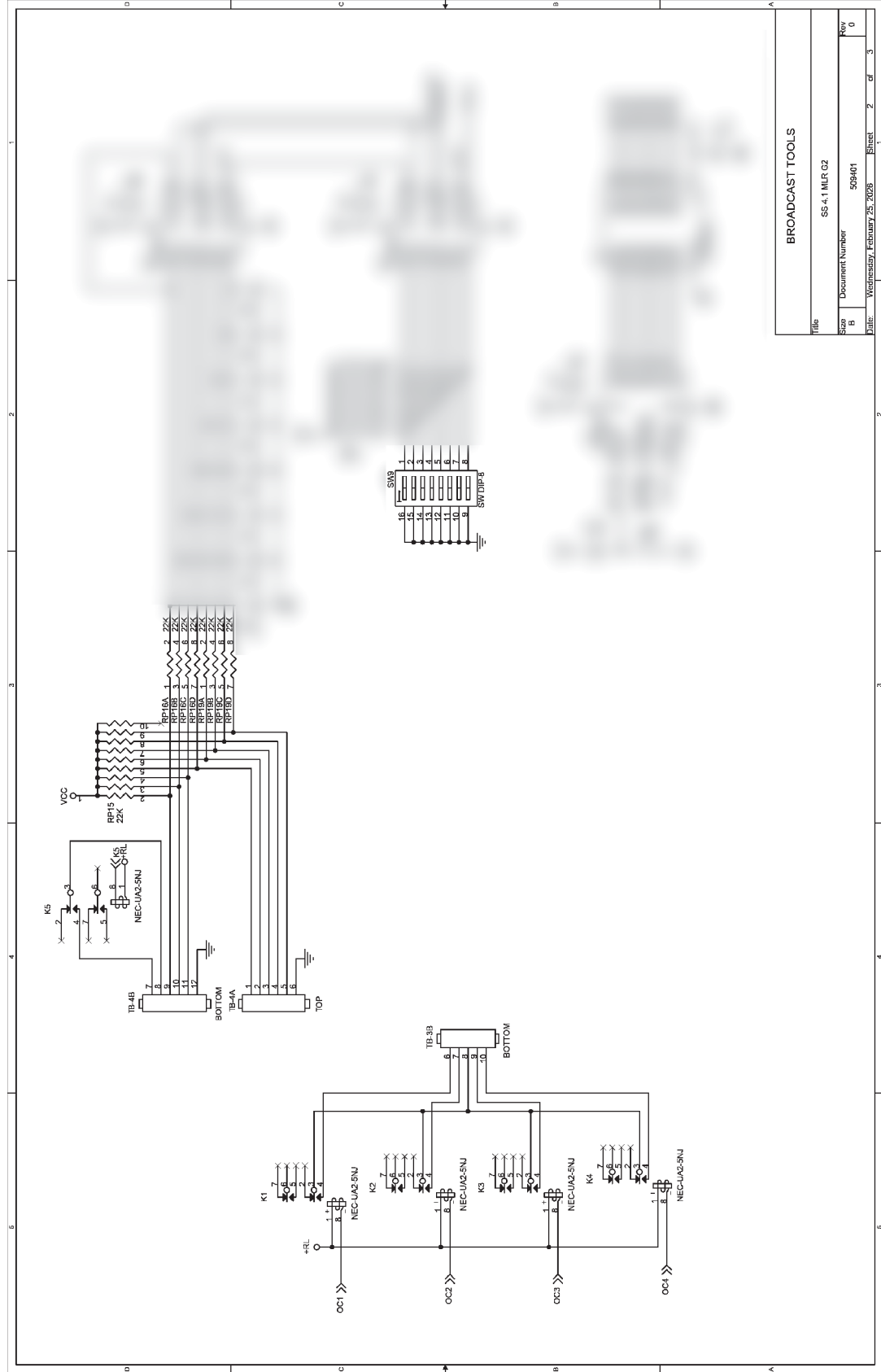
Component Layout



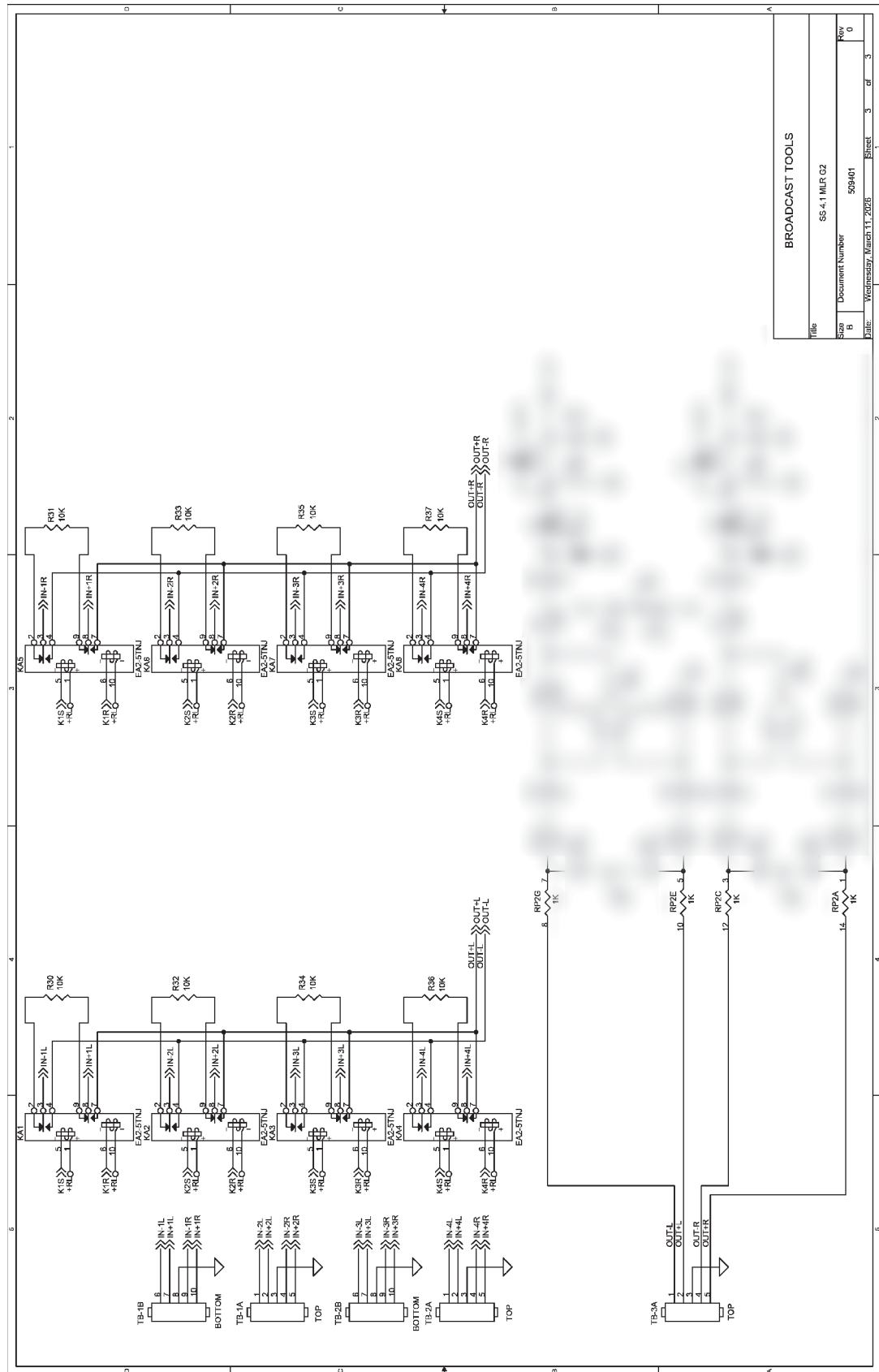
APPENDIX



Fractional Schematic



Fractional Schematic



APPENDIX

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BROADCAST TOOLS			
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Size	Document Number	559401	Rev
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Date	Wednesday, March 11, 2026	Sheet	3 of 3