BROADCAST tools INC

PROBLEM SOLVED

Installation and Operation Manual

AES Switcher Sentinel® 4 » Web

For firmware versions equal to or greater than X_V1.06 / W_V1.01 / P_V1.03
Manual update: 09/24/2012

If you need a firmware upgrade, contact Broadcast Tools®

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

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

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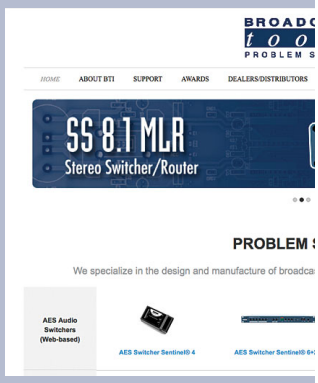

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INTRODUCTION

Thank you for your purchase of a Broadcast Tools® AES Switcher Sentinel® 4 >> Web enabled four input, dual output AES audio switcher (referred to as the AES Switcher Sentinel® 4 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® AES Switcher Sentinel® 4.

SAFETY INFORMATION

Only qualified technical personnel should install Broadcast Tools products. 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 Broadcast Tools product 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 Broadcast Tools product.

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.

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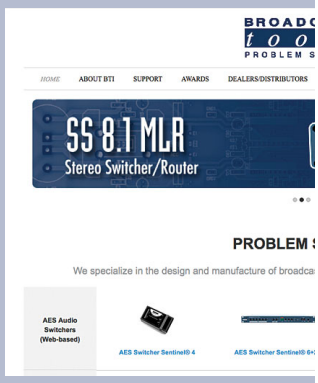

Product Overview

The AES Switcher Sentinel® 4 is perfect for AES digital audio switching via the web and/or local control. The AES Switcher Sentinel® 4 can be controlled and monitored locally and/or remotely over any IP network, including private networks, IP-based industrial control networks, and the Internet. Users can operate the product using a web browser, web-enabled mobile device, front panel switch and/or contact closures. Email notification may be configured to alert up to eight recipients when alarms are detected. The user may also enable a sound effect to play on their PC speaker when an alarm is generated. The active AES output is monitored for activity and may be configured to perform user defined action sequences if activity is lost and switch to a defined back-up source. Logging of system status, along with the site ID may be emailed in time spans from once an hour to once a day. SNMP support with alarms available as SNMP traps.

Features/Benefits

- Front panel channel step push button with active channel led indicators.
- Web channel selection switches and active channel indicators.
- TCP control command interface.
- Front panel active AES activity led indicator.
- Internal AES activity sensor monitors the output and displays active operation. User defined action sequences may be enabled to switch a failed channel to a back-up source.
- The audio “MUTE” switch allows the user to turn off the AES output when activated.
- The power-up feature allows the user to select which source is active at power up, including the last source selected.
- Protocols: TCP/IP, UDP/IP, ARP, ICMP, SNMP, TFTP, Telnet, DHCP, BOOTP, HTTP, and AutoIP.
- Eight alarm email recipients.
- Logging of all user selected input status with site ID information which may be emailed from once an hour to once a day, along with hourly snap-shot functionality.
- Plug-in euro-block screw terminals for audio I/O connections.
- RJ-45, 10/100base-T LAN/Ethernet interface.
- Fully RFI proofed.
- Surge protected power supply. Domestic power supply provided.
- Four units may be mounted on one RA-1 1-RU shelf.

Applications

AES audio switching via the Internet, front panel and/or contact closures.

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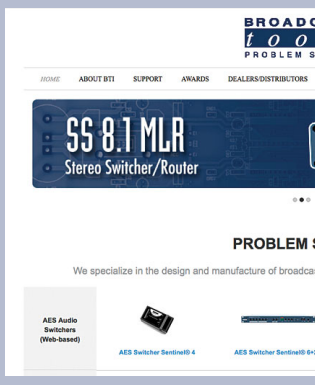

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Inspection

Please examine your AES Switcher Sentinel® 4 carefully for any damage that may have been sustained during shipping. If any damage is noted, please notify the shipper immediately and retain the packaging for inspection by the shipper. The package should contain the AES Switcher Sentinel® 4, this manual and/or CD, 7 foot BLUE straight-through CAT 5 cable, 7 foot GRAY crossover CAT 5 cable, and the 7.5 to 9.0 VDC wall transformer. Manuals may also be downloaded from our web site.

Installation

The AES Switcher Sentinel® 4 interfaces to external equipment through removable euroblock screw terminals. The terminals accommodate wire sizes from 16 - 28 AWG solid or stranded wire. Before installing a wire, remove the euroblock 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.

Surge Protection

The AES Switcher Sentinel® 4 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 AES Switcher Sentinel® 4 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 AES Switcher Sentinel® 4 to a UPS system. A UPS helps minimize the risk to the AES Switcher Sentinel® 4 and provides power during a power outage.

"NET" network RJ45 connector

Connect one end of the supplied CAT5 (straight or crossover) cable to the desired ETHERNET (WAN/LAN) or PC port.

DC POWER connector

This is the connector used to power the unit. Never use any type of power supply other than the specified power supply.

AES audio "INPUTS" connections

Connect your AES audio sources to any and/or all of the four AES channels labeled "INPUTS" 1-/+, 2-/+, 3-/+ and 4 -/+. CG, denotes chassis ground. This ground is tied to the power supply ground through 0.1uf capacitors, eliminating most ground loops. One of the CG terminals should be tied to the station ground, while the shields of the AES input and output cables should be tied to the remaining "CG" terminals.

CAUTION!

Installation of the AES Switcher Sentinel® 4 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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AES audio "OUTPUTS" connections

Connect the load to the terminals labeled "OUTPUTS" OP1-/+ and OP2-/+. Each output provides an independent transformer isolated output of the selected input. Shields should be tied to the "CG" terminal(s) ONLY.

Remote control "STEP" input and ground connection.

Connect a momentary (ONLY) contact closure between the "STEP" terminal and GND. Each rising edge transition will increment through all four input channels and mute. Holding the input low for two seconds or longer, will toggle the unit between auto and manual modes.

Please refer to the appendix for connector, LED and switch layouts.

Front panel Step and Web control switches

The front panel channel "Step" switch will allow the user to step through the four channels and mute, as long as the unit is in manual operation. The step switch may also be used to switch between auto and manual mode. To toggle between the two modes, depress the front panel "STEP" switch for approximately two seconds. Watch for the AUTO led to illuminate when in auto mode and the "AUTO" led to extinguish in manual mode.

The Monitor & Control web page allows the user to select either manual or automatic operation. When in manual mode, each web switch represents an input to be routed to the switcher's two outputs. Each web switch has an associated indicator, which will illuminate when that particular source is routed to the outputs. When a source is selected, the previous source will be deselected, (interlocked operation). The web page is also equipped with a MUTE switch and LED indicator used to turn the AES audio off.

LED Indicators

- Input Led's: Illuminates indicating the selected input channel or mute.
- "PWR/HB" Led: Blinks when valid power and the control processor is running.
- "AES ACT" Led: Illuminates when AES activity is present at either output.
- "AUTO" led: Illuminates when in AUTOmatic mode.

NOTE:

Please observe proper phasing.

NOTE:

Only use the "GND" terminal next to the step terminal.

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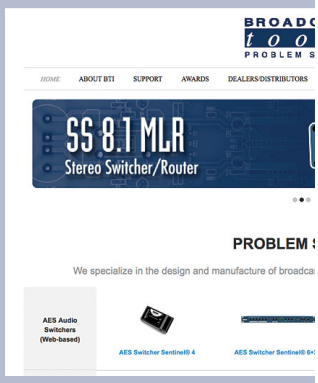

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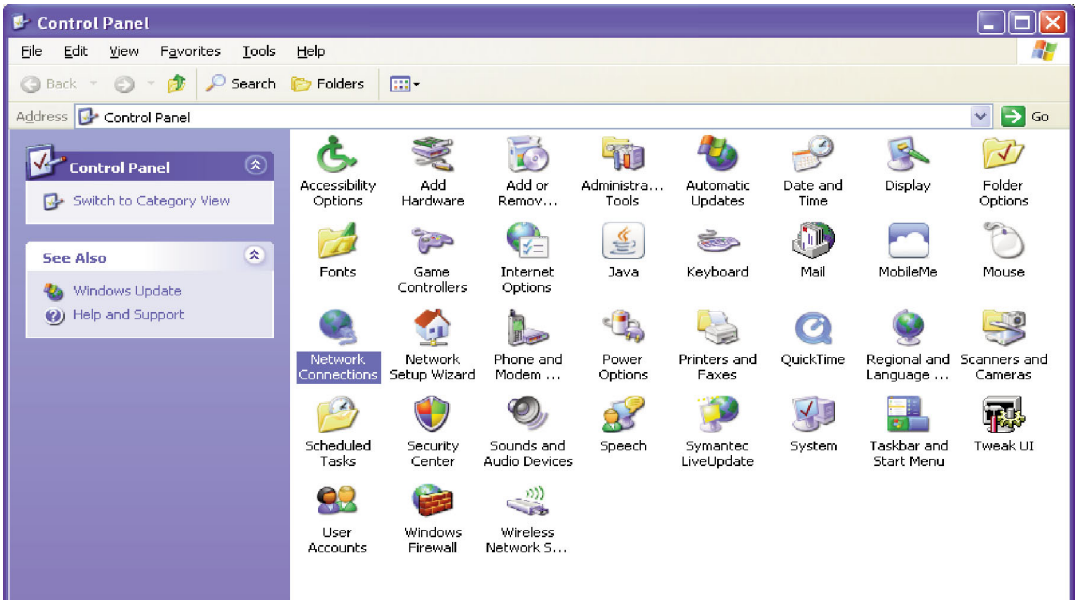
Web Setup/Operation

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 help. Assigning an IP address already in use by another device may cause problems with your network! 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 XP operating system. For setup using other operating systems, refer to the appropriate OS user's manual.

Step 1: Open the control panel by clicking on the start menu, click on settings, then click on Control Panel. (Note that the control panel shown is in "Classic View". If control panel is in "Category View" select the "Classic View" option before proceeding.)



CAUTION!

Never download firmware updates or changes to the xport webserver unless instructed to do so by broadcast tools®. Doing so deletes all software and voids all warranties from broadcast tools, inc.

NOTE:

We recommend using the following browsers: Firefox, Safari and/or Chrome.

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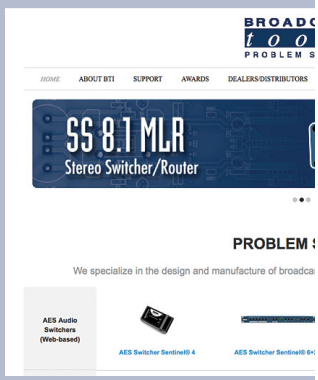

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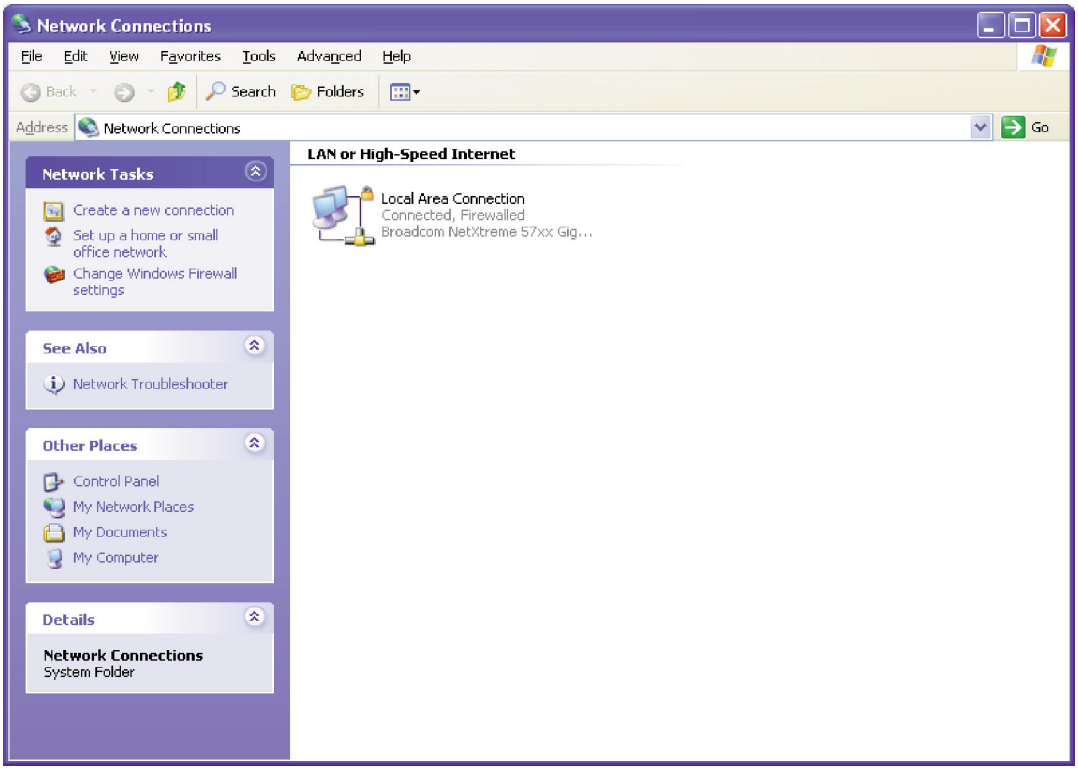
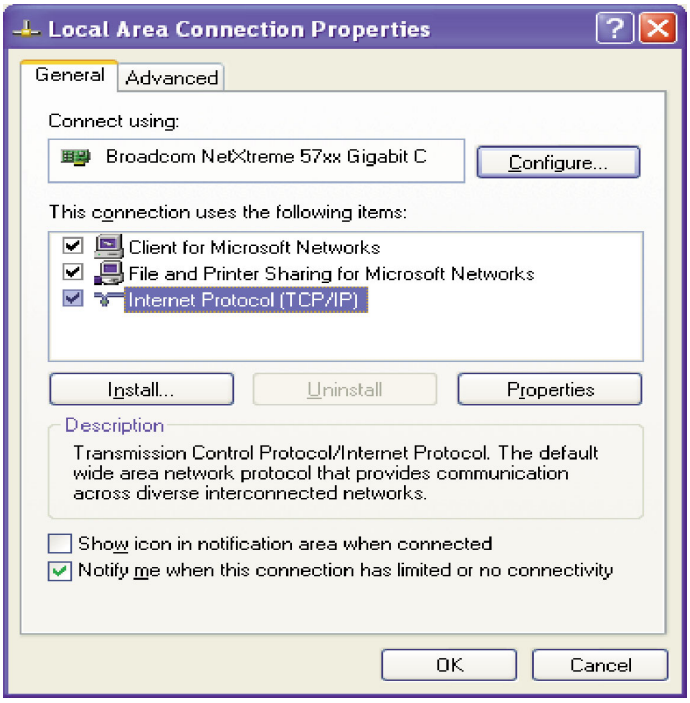
Step 2: Double click on the icon labeled Network Connections. The following menu will pop up.



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



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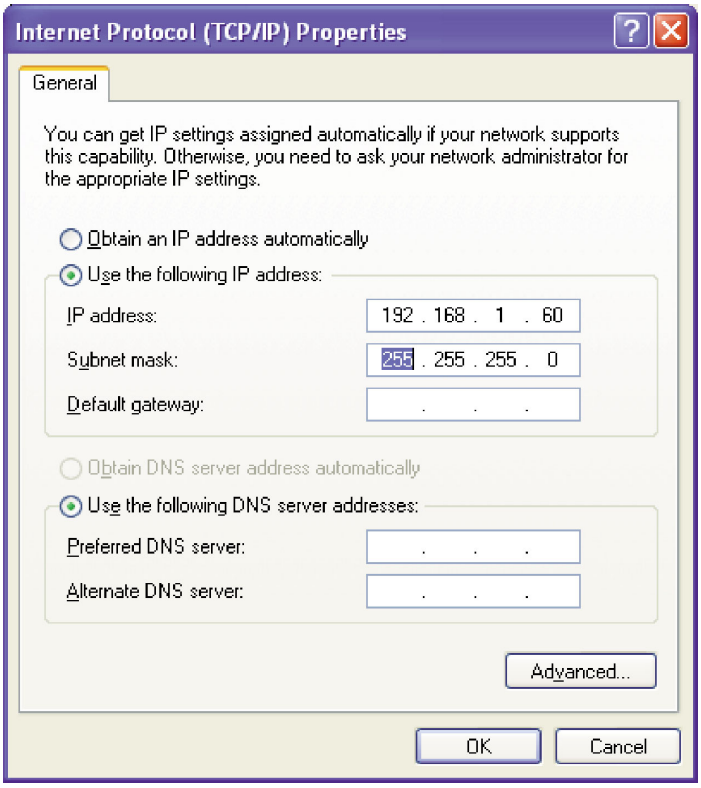
Step 4: On the Local Area Connection Properties page, double click on Internet Protocol (TCP/IP) to display properties.



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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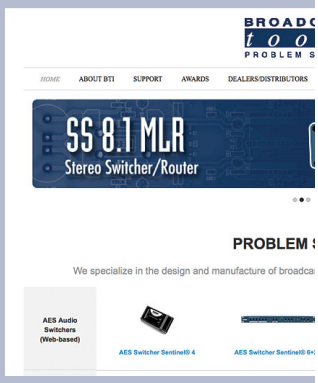

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Opening the LOGIN Web Page

1. Connect the supplied GRAY colored XOVER cable between the PC's Ethernet port and the products NETWORK RJ45's jack.

2. Connect the supplied DC power supply to the product's power jack labeled Power. Verify that the green POWER LED and left "LINK" LED above the "NET" Network RJ-45 are illuminated

Link LED Left Side	
Color	Meaning
Off	No Link
Amber	10 Mbps
Green	100 Mbps

Activity LED Right Side	
Color	Meaning
Off	No Activity
Amber	Half Duplex
Green	Full Duplex

3. Open the product's login page by typing the following URL into the browser: http://192.168.1.55 A username and password is required to change any parameter and are case sensitive.

Factory "Login" defaults: username: admin (lower case)
password: 1234

4. Once you are logged in, follow this manual for setup and/or operational information.

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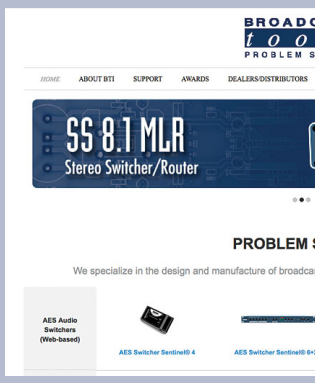

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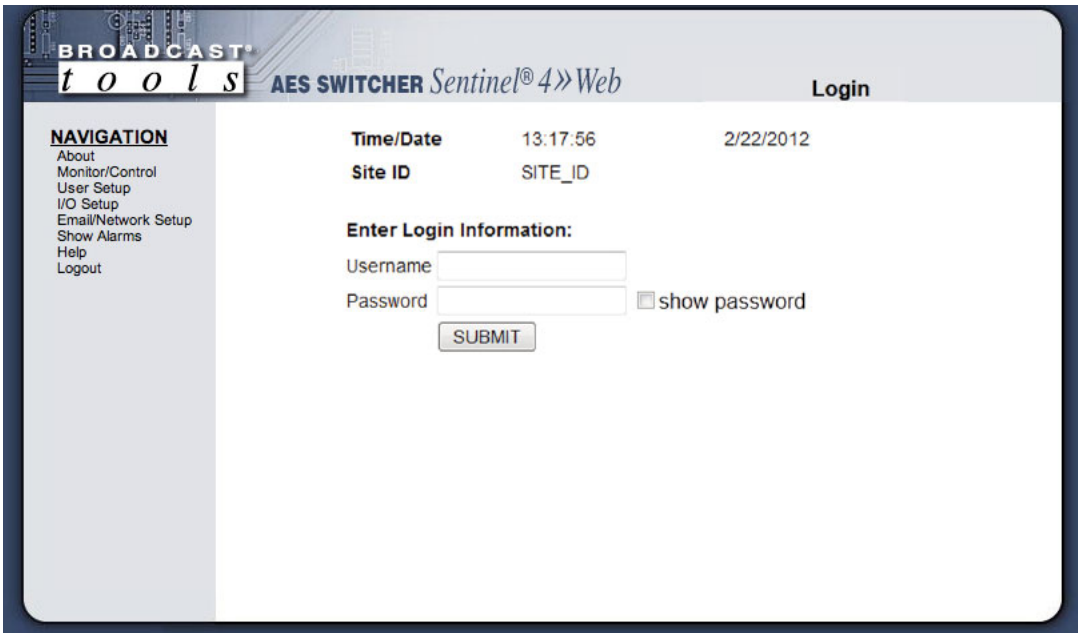
"Login" Web Page

The Login screen displays the username and password entry points, Site ID, and time/date.



After you have successfully logged in, the Monitor/Control page will be displayed. Depending on your access level, you may or may not be able to control or modify the product's configuration.

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"Monitor/Control" Web Page

The Monitor/Control page indicates switch position, switching mode, and AES activity. Control of these functions is limited to users with "admin" level access.

Queued Logs: Displays the available number of queued logs.

Active: Active LEDs indicate which input source is currently feeding both AES outputs. The "Set Active" buttons allow manual control of the switch when in Manual mode.

AES Activity: Indicates the presence of AES activity on the selected input. Green=AES activity detected, Red=NO AES activity.

Auto/Manual: LED indicates whether the device is in Auto or Manual switching mode. You can switch between the modes by clicking the "Auto" and "Manual" buttons. The behavior of the device in Auto mode is defined on the I/O Setup page.

To select other pages (if authorized), make your selection under the left hand Navigation column.

NOTE:

The user defined Site ID, Time, Date and Queued Logs are always displayed. Only "admin" level access can edit some of these items.

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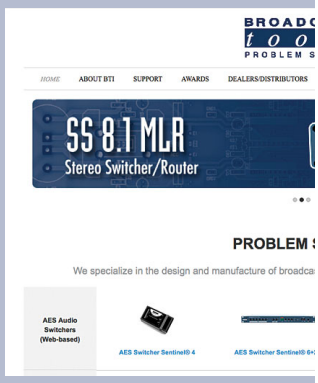

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"User Setup" Web Page

Eight Usernames and Passwords may be configured for up to three access levels.

1. "admin" allows complete product configuration access and control.

2. "Monitor/Control" allows the following access:
   About, Monitor/Control, Show log, Help, and Logout.

3. "Monitor Only" allows the following access:
   About, Monitor only, Help, and Logout.

Values on this page can only be defined by users with "admin" access level, which is the factory default.

The Site ID is displayed for the user convenience and can be changed on the Email/Network Setup page.

NOTE:

After any item has been changed, you MUST press the "Save Settings" button for your changes to be saved.

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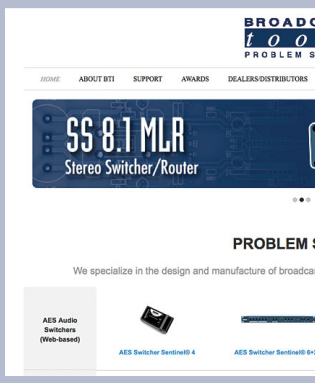

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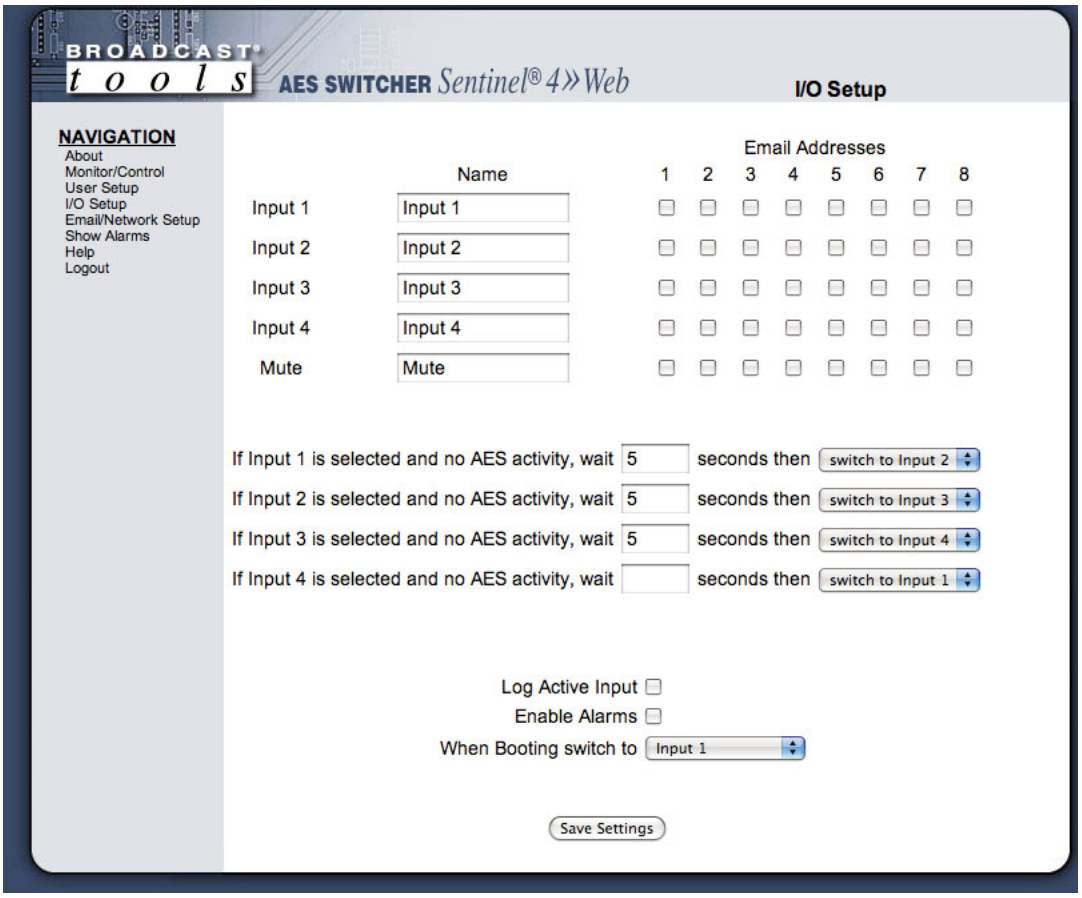
"I/O Setup" Web Page



Name: Each input can be given a custom label for easy identification.

Email Addresses: Email messages can be sent when an input source becomes active as a result of auto mode or manual control. Each input can have up to eight email address assigned to using the checkboxes labeled 1-8.

User Defined Action Sequences: The behavior of the AES Switcher Sentinel® 4 when in Auto mode (as indicated/controlled on the Monitor/Control page) is defined by the conditional statement: If (Input) is selected and no AES activity, wait (time in seconds) then (action.)

By default the AES Switcher Sentinel® 4 is configured to wait for 5 seconds after loss of AES activity on the selected input and then switch to next input in ascending order.

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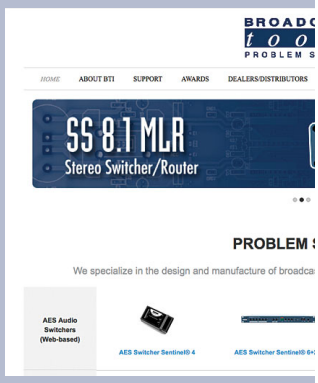

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Log Device: This enables the email logging of switch status. See the "Email/Network setup" page for email and logging settings.

Enable Alarms: When enabled the device will record all switch position changes in the event log.

When booting switch to: When the device powers up it can be set to switch to any of the inputs, or to the "last input selected."

NOTE:

After any item has been changed, you MUST press the "Save Settings" button for your changes to be saved.

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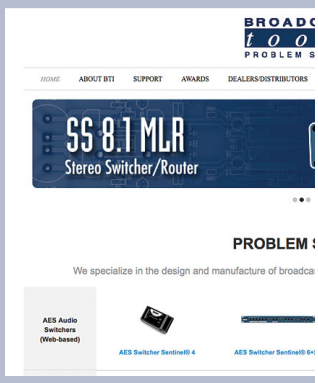
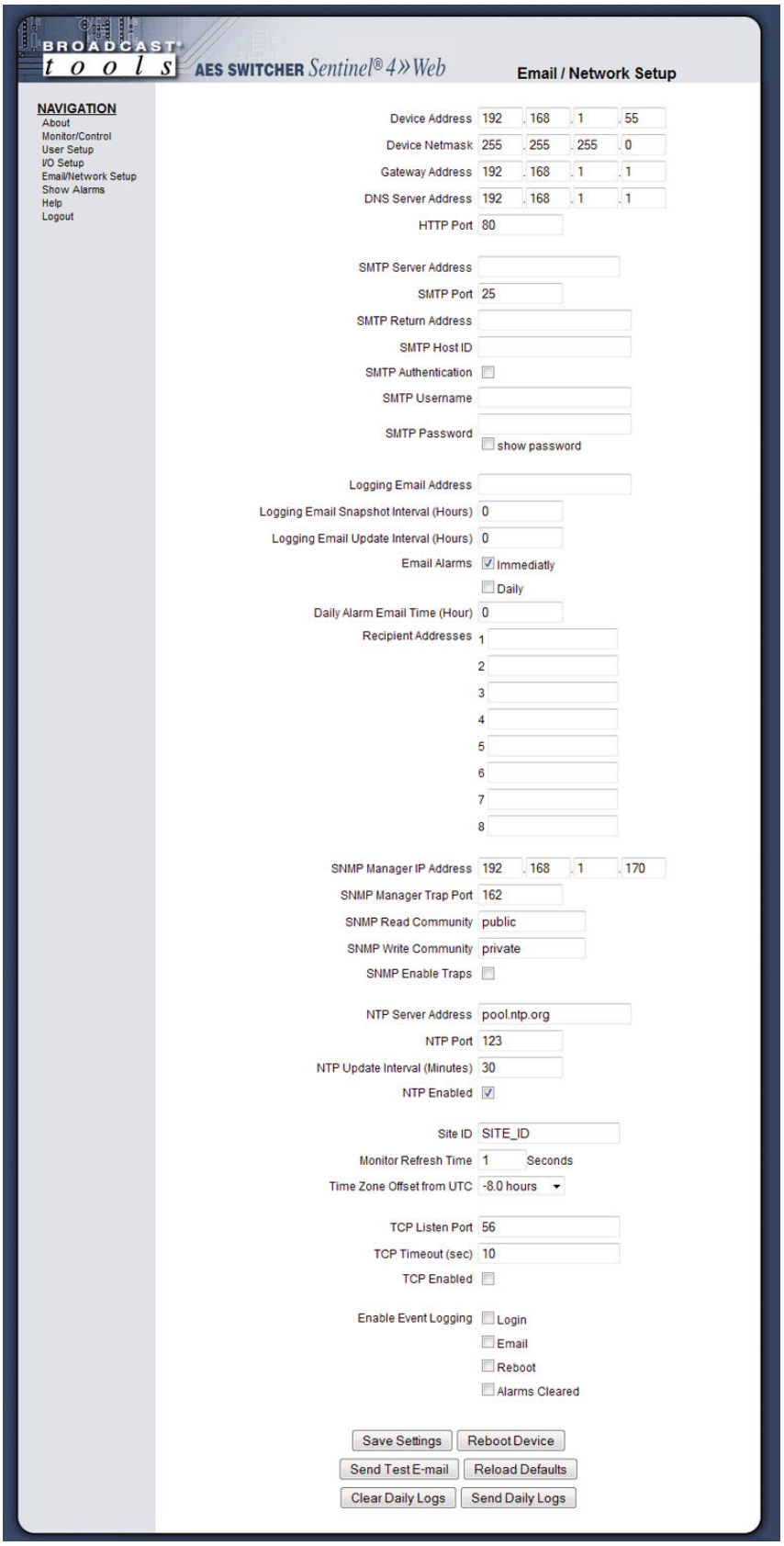


"Email/Network Setup" Web Page



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"Email/Network Setup" Web Page

Restoring Network Factory Defaults
The AES Switcher Sentinel® 4 factory defaults may be restored by depressing the recessed front panel "default" push button for five seconds while powering up the unit.

"Email/Network Setup" Web Page – Device Network Settings

Device Address:	Enter a static IP address here.	Default: 192.168.1.55
Device Netmask:	Enter the Netmask here:	Default: 255.255.255.0
Gateway Address:	Enter the Gateway IP here:	Default: 192.168.1.1
DNS Server IP Address:	Enter your DNS address here.	Default: 192.168.1.1
HTTP Port:	Normally Port 80	Default: 80

"Email/Network Setup" Web Page – SMTP Settings

SMTP Server Address:	The user can enter either an IP address in the xxx.xxx.xxx.xxx format or a URI in the form: smtp.comcast.net. In order to resolve the URI, a working DNS server must be present or its IP address entered into the system.
SMTP Port:	Normally Port 25 Default: 25
SMTP Return Address:	Enter your return email address here. If an email cannot be delivered, a message stating why will be sent to this address.

NOTE: The user must enter the following items before an email can be successfully sent: SMTP Server Address, SMTP Port, SMTP Return Address, SMTP Host ID, SMTP username and SMTP password must be supplied if authentication is turned on and the Recipient Address 1. The test email is sent to email recipient address 1.

The user should press the "Save Settings" button after entering the SMTP information before attempting an email test. If authentication fails, the email is not sent, please ensure that the username and password is correct.

SMTP Host ID:	Enter something here to identify the device.
SMTP Authentication:	When checked, Base64 SMTP authentication is used. SSL/TLS is not supported.
SMTP Username:	Enter user name here.
SMTP Password:	Enter password here.

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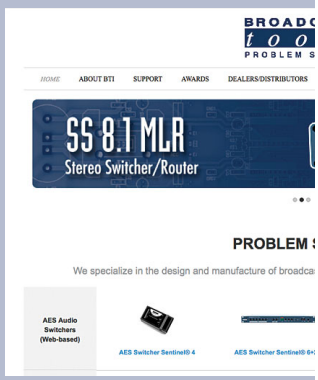

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"Email/Network Setup" Web Page – Email Logging Settings

Logging Email Address:	IP address for the "Logging" email recipient (may be different from the 8 "Alarm" Recipient Addresses. Logging emails and Daily emails are sent to this address.
Logging Email Snapshot Interval:	The period in hours that a snapshot is taken of the system when logging is enabled. An email is not sent on this interval.
Logging Email Update Interval:	The period in hours that the collected snapshots are emailed. This email may contain multiple snapshots if the Snapshot Interval is less than the Update Interval. Each snapshot will be identified by the date and time.

"Email/Network Setup" Web Page – Email Alarm Settings

Email Alarms:	Choose Immediate and/or Daily. If Immediate is selected, then an email will be sent out as soon as an alarm is generated. If Daily is selected, then each alarm is queued and the queued alarms are sent in accordance with the Daily Alarm Email Time. The number of queued alarms at any given time is displayed on the Monitor/Control page.
Daily Alarm Email Time:	The time that queued alarms are sent. Queued alarms are sent to the Logging Email Address only.
Recipient Address:	Email addresses for up to 8 addresses. These address correlate to the 8 email addresses selectable on each I/O Setup page.

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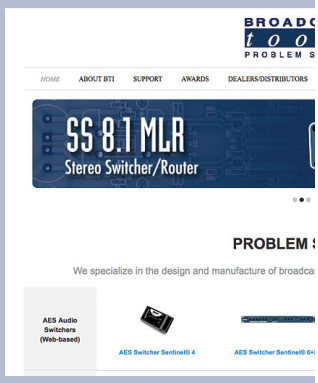

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"Email/Network Setup" Web Page – SNMP Manager Settings

SNMP Manager IP Address: This is the IP address of the SNMP manager. The system only accepts SNMP requests from this IP address, and will send traps to this IP address only.

SNMP Manager Trap Port: Port number that SNMP trap messages will be sent.

SNMP Read Community: This is the community name for Read-Only access.

SNMP Write Community: This is the community name for Read-Write access.

SNMP Enable Traps: When checked, trap messages will be sent. When Unchecked, no trap messages will be sent.

NOTE: A cold-start trap will be sent when the unit boots up if the SNMP Enable Traps is checked, otherwise trap messages are sent when a device enters or exits an alarm condition, depending on whether or not alarms are enabled.

"Email/Network Setup" Web Page – NTP Settings

NTP (Time) Server Address: Enter the NTP address here. Default: pool.ntp.org

NTP Port: Normally 123. Default: 123

NTP Update Interval (Min): Time between timing updates. Default: 30

NTP Enabled: Must be enabled for correct timing. Default: Enabled

"Email/Network Setup" Web Page – Other Settings

Site ID: This is the Site Identifier that will be sent in each email.

Monitor Refresh Time (Sec): How many seconds the Monitor page refreshes. Shorter times may increase network traffic.

Time Zone Offset from UTC: Must be set for correct timing. Default: -8

"Email/Network Setup" Web Page – TCP Control Settings

See the TCP Control Commands section for more information.

TCP Listen Port: The port at which the AES Switcher Sentinel will accept TCP control connections. Default: 56.

TCP Timeout (sec.): The time the AES Switcher Sentinel will keep a TCP connection open after inactivity. Default: 10 seconds.

TCP Enable: Enables TCP control of the AES Switcher Sentinel. Default: Off

"Email/Network Setup" Web Page – Event Logging Settings

Enable Event Logging: Enabling these checkboxes will generate an alarm, but will not send an email. If the system is configured for Daily Alarm emails, then that Daily Alarm email will contain the Event Logging items as well.

Login: Whenever someone logs into the system, the username and date/time will be logged.

Email: Whenever an email is sent, the type of email and date/time will be logged.

Reboot: Whenever the device boots, the date/time will be logged.

Alarms Cleared: Whenever the Daily Logs or Normal Alarms are cleared, the type of log cleared and date/time will be stored. When Daily Logs are sent, the Daily Logs are also cleared; this will cause an event log as well.

"Email/Network Setup" Web Page – Controls

Save Settings: After pressing the "Save Settings" button, the device will reboot (If you changed the IP address, you must navigate your web browser to the new IP address (if the HTTP port was changed from port 80, be sure to add the new port number after the IP: xxx.xxx.xxx.xxx:port #). If you didn't change the IP address, then the web page will return to the login screen after the device reboots.

Reboot Device: When you press the "Reboot Device" button, the device resets, you must navigate your web browser to the new IP address.

Send Test Email: Press this button to send a test email to recipient #1. When the email has completed, an alert box will pop-up indicating the status of the email and an error condition if the email was not sent correctly. If an email was not sent correctly, please review your SMTP settings and correct as necessary.

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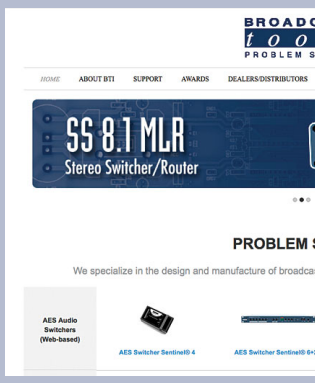

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"Email/Network Setup" Web Page

Reload Defaults: When you press the "Reload Defaults" button, the device resets to factory default settings, you must navigate your web browser to the new IP address (if the HTTP port was changed from port 80, be sure to add the new port number after the IP: xxx.xxx.xxx.xxx:port #).

Clear Daily Logs: When you press the "Clear Daily Logs" button, the daily logs stored in memory will be cleared. Keep in mind that if the Alarms Cleared Event is enabled, this event will post after the logs are cleared.

Send Daily Logs: When you press the "Send Daily Logs" button, the system will send the daily logs email and then clear those logs as if the correct time has expired.

NOTE:

After you are done making changes to the Email/Network Setup page, you MUST press the "Save Settings" button to save your changes.

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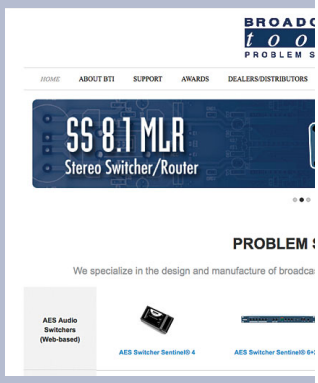

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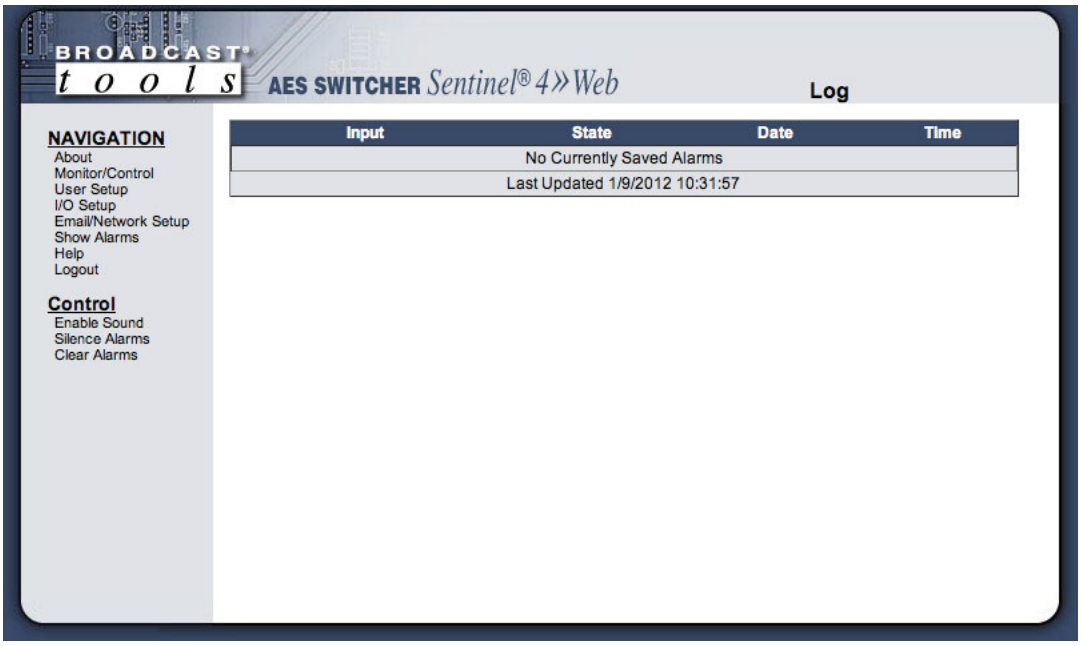
"Show Alarms" Web Page



This page displays current alarms.

With the "admin" access level, the user may control all functions.

With the "Monitor/Control" access level, the user may view the "Show Log", enable/disable PC speaker sound and silence alarms but they cannot Clear Alarms.

NOTE:

Abobe "Flash" must be installed and operating properly on your PC for the "Alarm Sound" to work when enabled.

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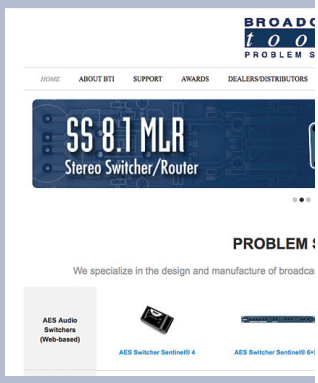

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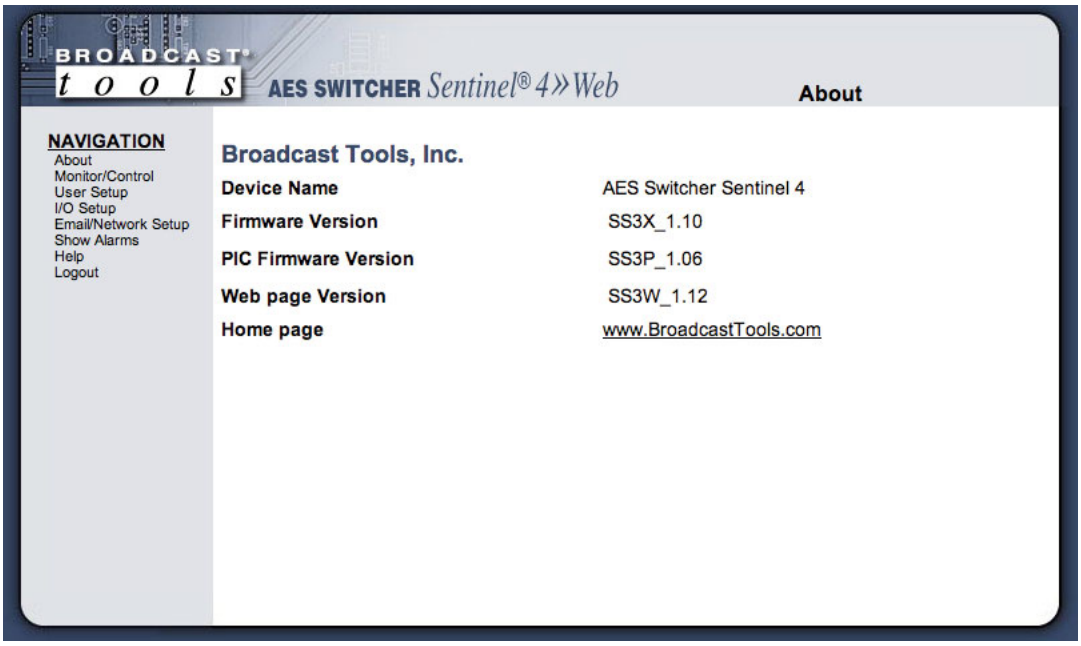
"About" Web Page



The "About" Web Page displays the product name, firmware version numbers, and Broadcast Tools® Web site link.

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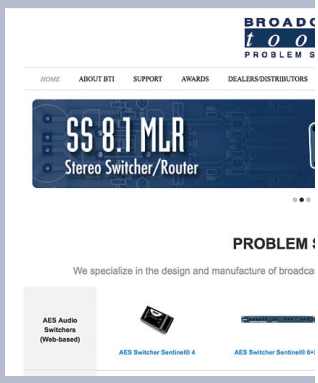

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TCP Control Commands

The AES Switcher Sentinel 4 can be configured to accept ASCII control strings over TCP. The TCP port used, TCP timeout and TCP enable check box can be found on the Email/Network Setup page. TCP must be enabled for TCP control to work.

By default the AES Switcher Sentinel uses TCP port 56 for control. A Telnet client such as PuTTY may be used to test the TCP control interface.

Audio Switch Control Commands: (Carriage return not required)

*uii - Select input "ii".
Command example: *001
Where * (asterisk) is the beginning of string, "u" is unit ID, zero on these products and "ii" is the two digit input number: 01, 02, etc.

*uMA - Mute outputs.
Command example: *0ma
Where * (asterisk) is the beginning of string, "u" is unit ID, zero on these products and "MA" is the command.

*uCAx - Auto/Manual mode.
Command example: *0cay
Where * (asterisk) is the beginning of string, "u" is unit ID, zero on these products and "CA" is the command and "x" is the modifier. Where x = y to turn Auto mode on, and x = n to turn auto mode off (manual mode).
When x = ? the unit will return C0A,1<CR><LF> if Auto mode is On and C0A,0<CR><LF> if auto mode is Off.

Information Retrieval Commands: (Carriage return not required)

*uSL - Send Audio Status.
Command example: *0sl
Where * (asterisk) is the beginning of string, "u" is unit ID, zero on these products, and "SL" is the command.
Response example: "S0L,0,0,0,1<CR><LF> says that input 4 is selected.
The response will list all inputs, "1" if the input is selected and zero "0" if not selected.
Note: Status is automatically sent each time a channel is changed.

*uSS - Send status of AES activity detector.
Command example: *0ss
Where * (asterisk) is the beginning of string, "u" is unit ID, zero on these products, and "SS" is the command.
Response example: S0S,1<CR><LF>
0 = AES activity, 1 = No AES activity.
Note: Status is automatically sent each time an error is detected.

*uU - Send unit firmware version and Site ID.
Command example: *0u
Where * (asterisk) is the beginning of string, "u" is unit ID, zero on these products, and "U" is the command.
Response example: <AES_SS4X_1.06,SITE_ID><cr><lf
Note: Unit information is automatically sent each time this information is requested.

Specifications

Ethernet Interface:	RJ-45, 10base-T or 100base-TX, auto sensing with link & activity led indicators - Full/half duplex.
Protocols:	TCP/IP, UDP/IP, ARP, ICMP, SNMP, TFTP, Telnet, DHCP, BOOTP, HTTP and AutoIP.
Inputs/Outputs:	Both outputs match that of the selected input. Terminated with 110 ohms. Termination resistors may be changed or removed for each input.
Switching Method:	CMOS eight port input multiplexer with AES input/output transceivers and AES transformers.
Connectors:	Removable euroblock screw terminals for I/O.
Operation Control:	Front panel, remote step input selection switch and web input selection.
Status:	Front panel and web input indicators, along with valid AES activity and power LED indicators.
EMI / FCC Compliance:	See the Declaration of Conformity page. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) this device must accept any interference received, including that which may cause undesired operation.
Required power supply:	7.5 to 9.0 VDC only @ up to 1 amp. 2.1mm ID x 5.5mm OD coaxial connector. Surge protected. Domestic PS supplied.
Operating Temperature:	-40°F to +185°F (-40°C to +85°C)
Size:	6.18” x 3.70” x 1.42” (L,W,H)
Weight:	1.0 lb.
Options:	* CE certified universal power supply. * RA-1, 1-RU rack shelf. Note: Velcro may be used to secure the product to the RA-1 shelf.

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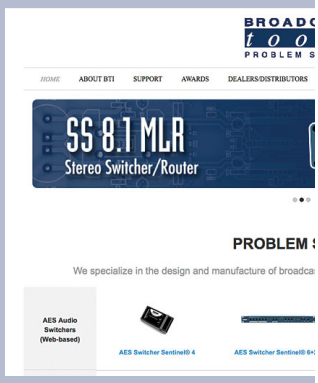

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www.broadcasttools.com **website**

Declaration of Conformity

The XPORT Device contained in the AES Switcher Sentinel® 4 conforms to the following standards: (according to ISO/IEC Guide 22 and EN 45014)

Manufacturer's Name & Address:
AES Switcher Sentinel® 4: Broadcast Tools®, Inc.
131 State Street, Sedro Woolley, WA 98284-1503 USA

XPort: Lantronix 15353 Barranca Parkway, Irvine, CA 92618 USA
Declares that the following product:

Product Name Model: XPORT™ Device Server
Conforms to the following standards or other normative documents:

Electromagnetic Emissions:
EN55022: 1998 (IEC/CSPIR22: 1993) Radiated RF emissions, 30MHz-1000MHz
Conducted RF Emissions – Telecom Lines – 150KHz – 30MHz
FCC Part 15, Subpart B, Class B
IEC 1000-3-2/A14: 2000
IEC 1000-3-3: 1994

Electromagnetic Immunity:
EN55024: 1998 Information Technology Equipment-Immunity Characteristics
Direct ESD, Contact Discharge
Indirect ESD
Radiated RF Electromagnetic Field Test
Electrical Fast Transient/Burst Immunity
RF Common Mode Conducted Susceptibility
Power Frequency Magnetic Field Test

Manufacturer's Contact:
AES Switcher Sentinel® 4
Broadcast Tools®, Inc.
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Tel: 360 . 854 . 9559 Fax: 866 . 783 . 1742

XPORT™
Lantronix:
Director of Quality Assurance
15353 Barranca Parkway, Irvine, CA 92618 USA
Tel: 949 . 453 . 3990 Fax: 949 . 453 . 3995

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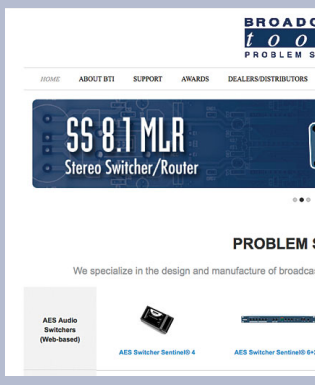
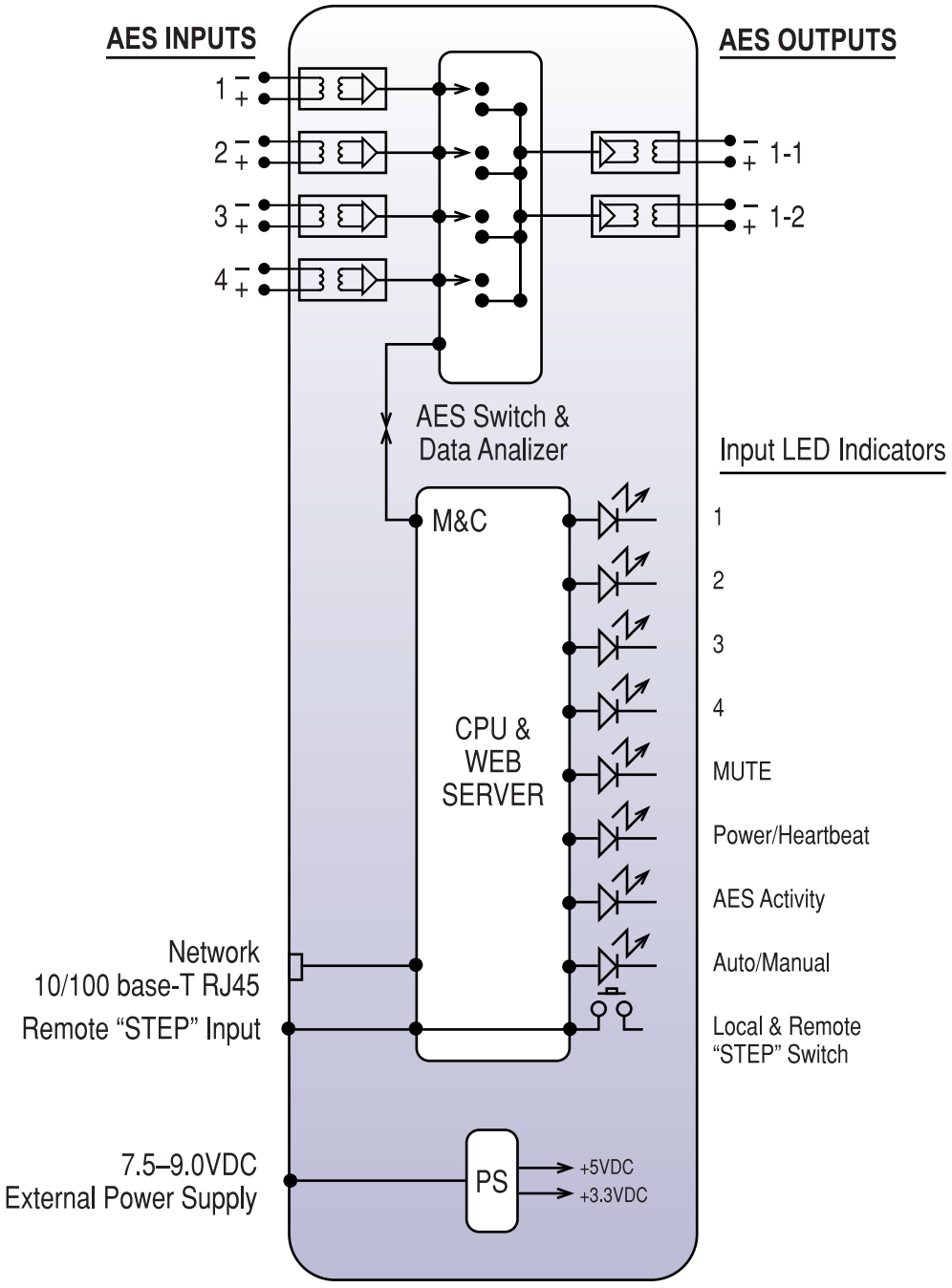


Functional Diagram



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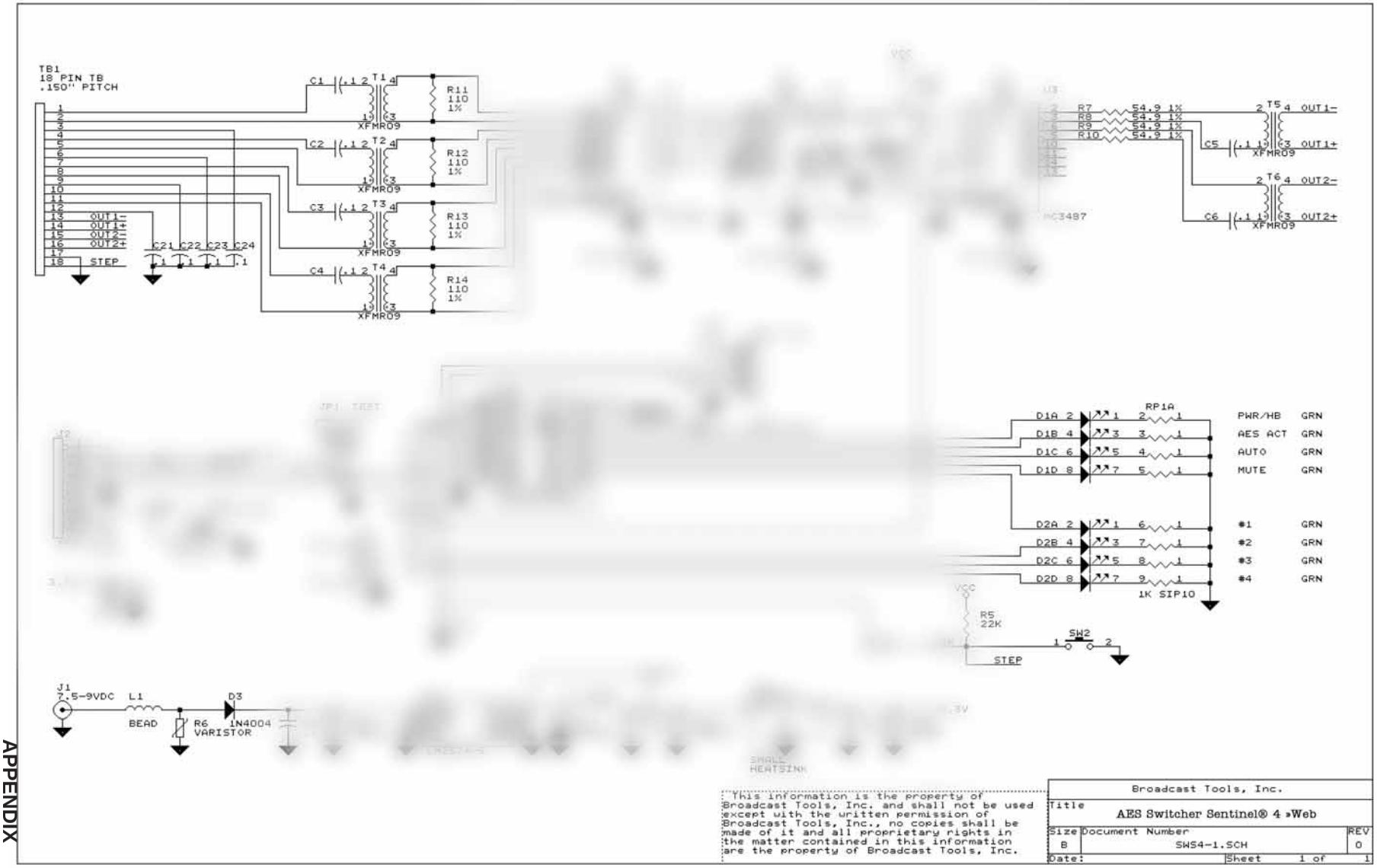
Fractional Schematic



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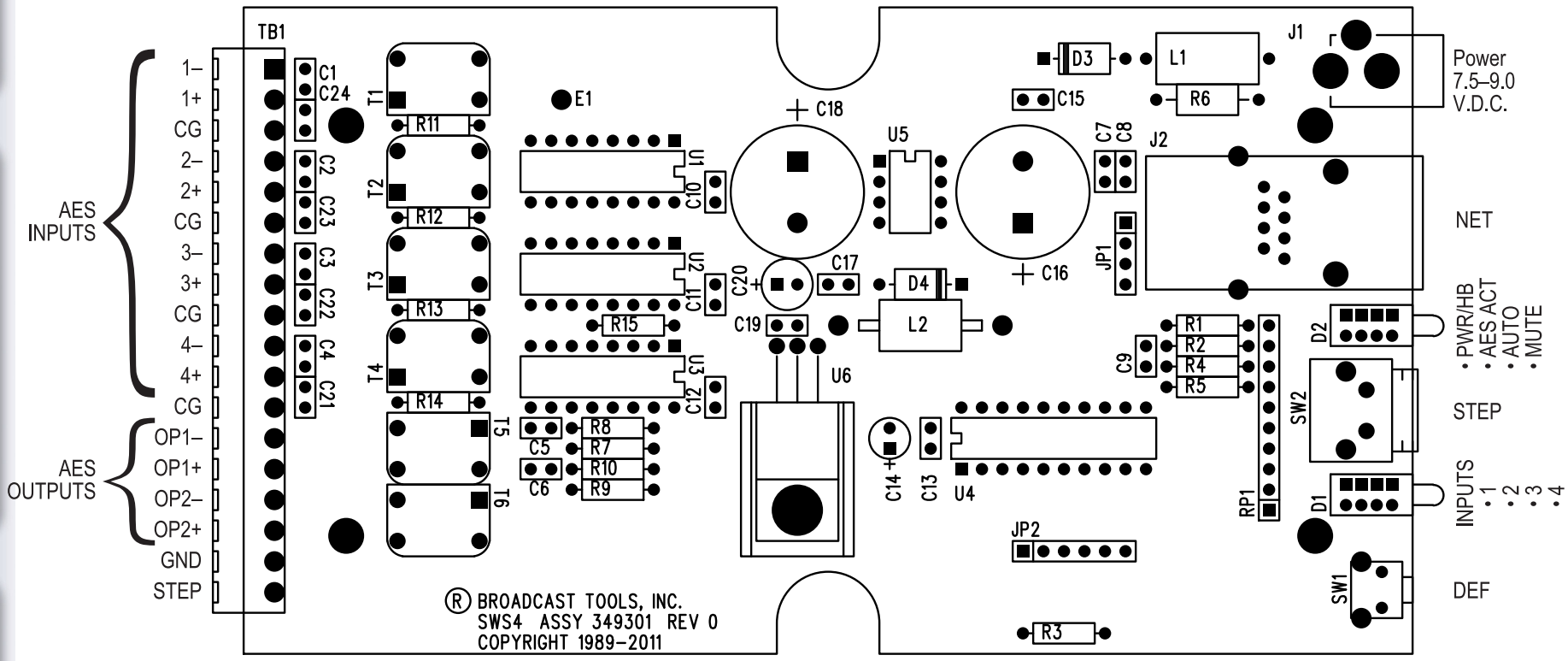
CONNECTOR and LED LAYOUT



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