

BROADCAST[®]
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PROBLEM SOLVED

Installation and Operation Manual



Site Sentinel[®] 16 **Web Enabled Sixteen Channel Site Remote Control System**

Manual updated: 3/26/2024

For firmware versions equal to or greater than
PCB Rev D and lower: SS16X_V2.14 / SS16W_V1.40 / SS16P_V1.13
PCB Rev F and higher: SS16X_V2.23 / SS16W_V1.40 / SS16P_V1.20
If you need a firmware upgrade, contact Broadcast Tools[®]

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

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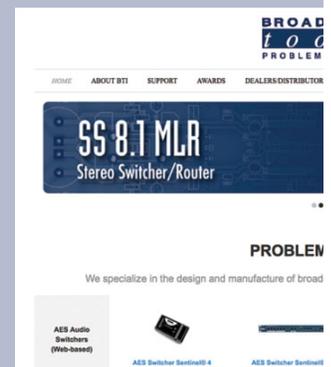
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INTRODUCTION

Thank you for your purchase of Broadcast Tools® Site Sentinel® 16 Web Based Sixteen Channel Site Remote Control System (referred to as the Site Sentinel® 16 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® Site Sentinel® 16.

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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Fax: 866.783.1742

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

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Designed, Assembled and Supported in WA State, USA



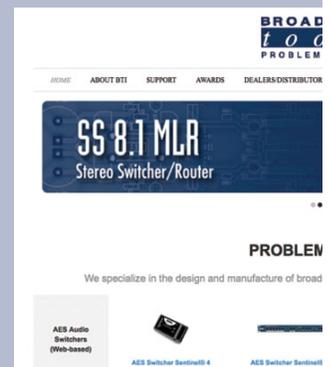
NOTE:

This manual should be read thoroughly before installation and operation.

Find a contract Broadcast Engineer in your area? Check out this link: <https://sbe.org/cce/>

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SAFETY INFORMATION

Only qualified technical personnel should install Site Sentinel® 16. 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, and/or damage to the Site Sentinel® 16 or other equipment. Broadcast transmitters can operate at voltages that are potentially lethal. Please ensure that proper safety precautions have been made 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 Site Sentinel® 16.

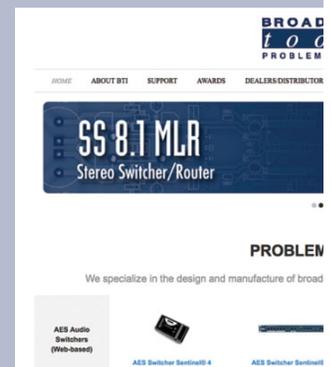
Broadcast Tools® Products, as with any electronic device, can fail without warning. Do not use this product in applications where a life-threatening condition could result due to failure. Serious injury or death can occur if a command channel is activated while you are performing maintenance on your equipment. If you are performing maintenance on your equipment, you should press the “LOCAL” button on the front panel of your Site Sentinel® 16 forcing the unit into local mode. The “LOCAL” LED will illuminate. Local mode prevents the unit from performing relay commands.

For additional safety, it is strongly recommended that, in addition to setting the Site Sentinel® 16 in to “LOCAL” mode, the remote/local switch on any transmitter or high voltage equipment should also be set to local mode.

While the Site Sentinel® 16’s relays are physically capable of handling 250 VAC, this practice is extremely dangerous and should never be attempted. The removable euroblock screw terminals are not designed to shield humans from potentially dangerous voltages. Contact with high voltages can cause serious injury or death. The maximum recommended voltage for the Site Sentinel® 16 is 30V. Switching of high voltages should only be done external from the Site Sentinel® 16 and in a manner that isolates the voltages from accidental contact with humans.

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Product Overview

The Site Sentinel® 16 is a robust, full-featured, web-enabled sixteen channel remote control featuring a desktop/mobile browser compatible web interface (HTML5.) The system is equipped with 16 - 12-bit resolution, zero to 10 vdc metering channels; four virtual metering channels; 16 optically isolated status (logic) inputs, 33 programmable relay outputs which may be configured for ON, OFF and pulsed operation; four temperature probe inputs; one internal temperature sensor; a stereo silence sensor and power failure input. The Site Sentinel® 16 was designed so that all the basic functionality you need is included to monitor and control your site equipment, including a 100 - event scheduler, macros, and a user programmable event action sequencer. Each input channel and all relays can be controlled and/or monitored over any IP network including private networks, IP-based industrial control network and the Internet. Users can operate the product using a web browser or web-enabled mobile device, while email notification (SMTP) may be configured to alert up to EIGHT recipients when alarms are detected. SMTP usernames and passwords are supported. The user may also enable a sound effect to play on the monitoring PC when an alarm is generated. 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. We have also provided SNMP capabilities to allow multiple units to be monitored with any SMNP manager software package.

Additional features include; power controller port. By pairing this feature with an optional external AC power control unit (such as the Middle Atlantic RLM-15-1CA, RLM-20-1CA or RLM30-L530-1), remote rebooting of AC powered equipment is possible.

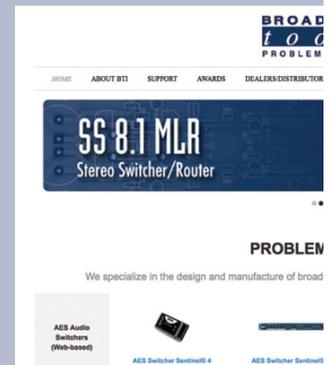
Features/Benefits

- NTP time base and/or battery-backed real time clock/calendar with accurately better than ± 2.0 minutes per year.
- Four “Virtual” metering channels.*
- Four 3.5mm temperature sensor ports allowing Fahrenheit or Celsius temperature monitoring within the range of -67°F to $+257^{\circ}\text{F}$ (-55°C TO $+125^{\circ}\text{C}$).*
- Internal chassis temperature monitoring within the range of -40°F to $+257^{\circ}\text{F}$ (-40°C TO $+125^{\circ}\text{C}$).*
- Jack for external power failure power supply.*
- Stereo input for summed monaural Silence Sensor monitoring.*
- Event-driven and time-based automatic command capabilities. This allows 50 user-defined macros to enable the Site Sentinel® 16 to make corrective actions.
- 100-event program scheduler for relay control, DST correction, macro actions and alarm muting.
- 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.
- Fifty-two front panel I/O activity LED indicators.
- Front panel local/operate switch with LED indicator.
- Plug-in euro-block screw terminals for metering, status, relays, and stereo silence sensor.
- Rear panel RJ-45, 10/100base-T LAN/Ethernet interface.
- Fused and surge protected universal power supply included.
- Fully RFI proofed.
- One RU 19” rack-unit chassis.

* Denotes independent of the metering (analog) and status/logic channels.

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OVERVIEW

Inspection

Please examine your Site Sentinel® 16 carefully for any damage that may have been sustained during shipping. If any is noted, please notify the shipper immediately and retain the packaging for inspection by the shipper. The package should contain the Site Sentinel® 16, a 7 foot BLUE straight-through CAT 5 cable, a 7-foot GRAY crossover CAT 5 cable and the 12 VDC @ 2.5 amp universal power supply, and one 3.5mm - 25 ft. external temperature sensor probe cable.

Installation

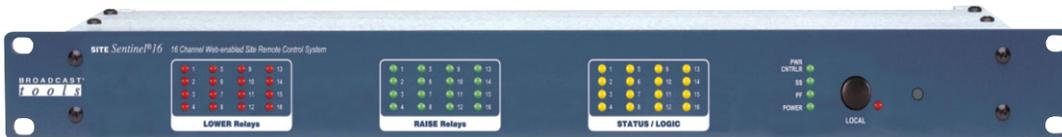
Surge Protection

The Site Sentinel® 16 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 other high surges in voltage levels will damage your Site Sentinel® 16 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 Site Sentinel® 16 to a UPS system. A UPS, like the BE600M1 from APC helps to minimize the risk to the Site Sentinel® 16 and provides power during a power outage. All operating and user parameters are stored in non-volatile EEPROM, brownout conditions and lightning induced spikes can disable or damage equipment. A UPS helps minimize the risk to the Site Sentinel® 16 and has the added benefit that it will then be able to notify you of the power outage by email.

Front panel indicators and controls



Name	Type	Description
Lower relays	16 LEDs	Illuminates when the corresponding relays are activated.
Raise relays	16 LEDs	Illuminates when the corresponding relays are activated.
Status Inputs	16 LEDs	Illuminates when the corresponding status/logic inputs are activated. May be configured for reverse logic.

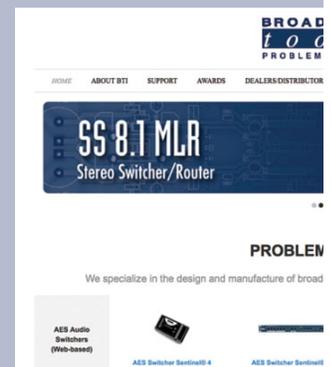


CAUTION!

Installation of Site Sentinel® 16 in high RF environments should be performed with care. Shielded cable is suggested for all monitoring and control connections with all shields tied to the station/site ground terminal. The station/site ground should be connected to the rear panel (Chs Gnd) chassis 6-32 screw using an 18 or 20-gauge wire.

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INSPECTION

Front panel indicators and controls (cont)

Name	Type	Description
PWR CNTR	LED	Illuminated when the relay is activated.
SS	LED	Illuminated when adequate audio is applied to the SS Input(s), OFF when the level is too low and flashing if in an SS alarm condition, if enabled.
PF	LED	Illuminated when power is applied, OFF when inadequate DC voltage is applied to the PF jack and flashing if a Power Failure has been detected, if enabled.
POWER	LED	Illuminated when valid power is applied to the power jack.
LOCAL	Push Button	Toggles between operate and local mode.
LOCAL	LED	Illuminated when the unit is in local mode (relays disabled).
Blank hole	Push Button	Recessed push button used to reload factory defaults.

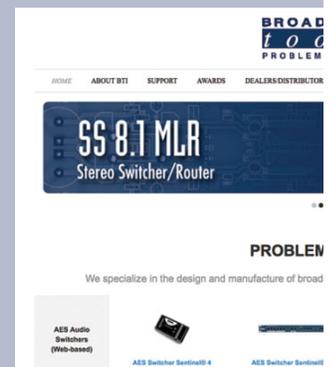
Rear panel connections



Name	Type	Description
Chs Gnd	6-32 screw	Chassis ground screw. Tie to station/site ground system.
PF	2.1mm Jack	Power failure input power jack (optically isolated). 5 -12 VDC @ 15 ma power supply optional. 2.1mm x 5.5mm.
NET	Connector	RJ45 10/100 Ethernet network connector.
SSLT	Connector	Unbalanced Silence Sensor left audio input (Top).
SS GD	Connector	Silence Sensor audio ground (Top).
SSRT	Connector	Unbalanced Silence Sensor right audio input (Top).
NOTE: Left and right electronically summed to monaural internally.		
PCNO	Connector	Power controller normally open relay contact (Bottom).

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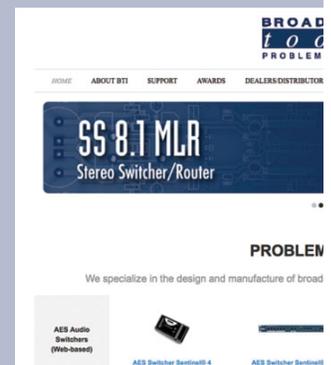
INSTALLATION

Rear panel connections (cont).

Name	Type	Description
PCNC	Connector	Power controller normally closed relay contact (Bottom).
PCJP	Connector	Power controller internal function jumper (Bottom).
MTR 1-16	Connector	Metering (analog) inputs one through sixteen (Top).
MGND	Connector	Metering (analog) ground reference terminal (Top).
ST1A - 16A	Connector	Status/logic opto-isolators. When configured for DRY, (factory default) this terminal is ground. When configured for WET (floating), this terminal is the anode via a 2.2K ohm current limiting resistor (Bottom).
ST1B - 16B	Connector	Status/logic opto-isolators. This terminal is always the cathode (Bottom).
L1NO-L8NO	Connector	Lower Normally Open, dry relay contacts (Top).
L1CM-L8CM	Connector	Lower CoMmon (wiper), dry relay contact (Top).
L1NC-L8NC	Connector	Lower Normally Closed, dry relay contact (Top).
R1NO-R8NO	Connector	Raise Normally Open, dry relay contacts (Bottom).
R1CM-R8CM	Connector	Raise CoMmon (wiper), dry relay contact (Bottom).
R1NC-R8NC	Connector	Raise Normally Closed, dry relay contact (Bottom).
L9CM-L16CM	Connector	Lower CoMmon (wiper), dry relay contact (Top).
L9NO-L16NO	Connector	Lower Normally Open, dry relay contacts (Top).
R9CM-R16CM	Connector	Raise CoMmon (wiper), dry relay contact (Bottom).
R9NO-R16NO	Connector	Raise Normally Open, dry relay contacts (Bottom).
TEMP	3.5mm Jack	Four temperature probe input jacks. 1/8" (3.5mm) T/R/S mini-jacks. One probe supplied. (Top/Bottom).
12VDC Power	2.1mm Jack	System power supply input. 12-volt DC @ 2.5 amp.
NOTE: Center positive.		
Chs Gnd	6-32 screw	Chassis ground screw. Tie to station/site ground system.

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INSTALLATION

Connecting your Site Sentinel® 16 to external equipment.

Chassis Ground (Chs Gnd) screws

Either 6-32 screws MUST be connected to the station/site ground system for the proper operation of this equipment.

Power Failure Input

Connect a user supplied 5 to 12 volts DC only power source (center positive) to the power failure input labeled PF. The barrel connector size is 2.1mm ID x 5.5mm OD. A 5 to 12 volts DC wall transformer of any current of 25 ma or more will power this input.

NOTE: The primary (120vac) of the wall transformer should be connected to the utility company side of your service. A UPS is suggested to power the Site Sentinel® 16 during power outages.

NETWORK Connector

RJ45 Ethernet jack for 10/100baseT LAN/WAN connection. Connect one end of the supplied CAT5/6 (straight or x-over) cable to the desired ETHERNET (WAN/LAN) port.

Silence Sensor Inputs

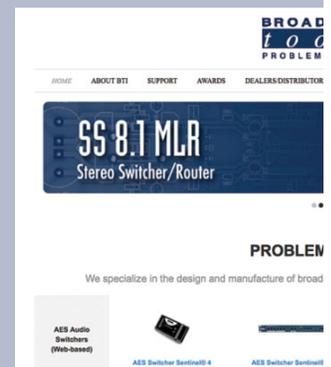
Connect your unbalanced monaural or stereo audio source to the terminals labelled, SS LT, SS GD and SS RT. The nominal level should be between -10 and +24 dbu. The input impedance is approximately 22K ohms. When the SS LT and/or SS RT input has audio applied and the silence sensor function is activated, the front panel SS led will illuminate. If the SS LED is out, the signal is too low/silent and if it's flashing, it is in an alarm condition (if enabled).

Power Controller Relay

This relay output is designed to control an optional external AC power control unit (such as the Middle Atlantic RLM-15-1CA, RLM-20-1CA or RLM30-L530-1), for remote rebooting of AC powered equipment. The jumpers are set to provide the relay common (wiper) on the terminal labeled (JP17, Pwr Cntrl). Please refer to the "Fractional Schematic" in the appendix for additional jumper options.

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Metering (analog) Inputs

CAUTION! Metering (analog) input samples may be elevated several hundred volts above ground on some external equipment. Permanent damage may occur to the Site Sentinel® 16 and/or external equipment if a high voltage metering source is connected to the Site Sentinel® 16! Failure to observe this warning may also cause injury to the installer or other personnel. **CAUTION! DO NOT CONNECT SAMPLE VOLTAGES IN EXCESS OF POSITIVE 10 Volts DC OR DAMAGE MAY OCCUR TO YOUR Site Sentinel® 16.** We recommend that the installer use a voltmeter or equivalent measurement device to verify that the metering source voltage is within our recommended input voltage levels before connecting them to the Site Sentinel.

CAUTION! Floating Grounds

Except for the status/logic (wet) inputs, none of the Site Sentinel® 16's metering (analog) inputs will accept a floating ground. Damage to the Site Sentinel® 16 or your equipment may result from connecting a floating ground output to the Site Sentinel® 16. If you require metering equipment with inputs that have a floating ground, an isolation DC amplifier should be used.

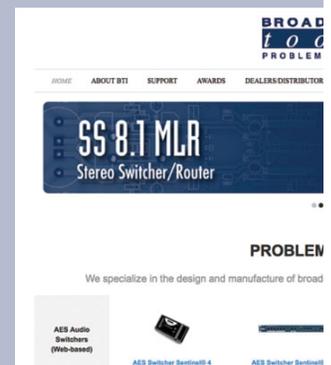
Sixteen metering (analog) input channels are available with the Site Sentinel® 16 via removable euroblock screw terminals. Connect the positive side of the source to the desired channel terminal labeled MTRxx (where xx is the channel number 01 through 16) and associated MGND (metering ground) terminals.

Each metering (analog) input can handle up to (positive only) 10 volts DC and must be ground referenced and connected to the associated MGND ground terminal. Inputs are self-calibrating and are based on A/D converters with a precision, low-drift voltage reference, so the reading should not drift over time or with temperature. Metering setup is performed by connecting the sample voltage to the MTRxx and MGND metering (analog) input, then calibrated for the desired value (reading).

NOTE: Valid sample voltages MUST be applied to the selected metering input to perform calibration.

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Status/Logic Inputs

Each optically isolated status/logic input has a terminal labelled “xA” and a terminal labelled “xB”. Inputs can be configured for either wet or dry operation via internal jumpers. The factory default configuration is dry, where the “A” side of the input is ground (GND) and the “B” side of the input is the cathode (-) of the opto-isolator. In this configuration 5V is applied internally to the anode (+) of the opto-isolator. This configuration is best for interfacing external dry contact relay outputs, switches, and open collector outputs.

In the “wet” configuration an external voltage must be applied to the input to activate the opto-isolator. When configured for wet operation the “A” side of the input is the anode (+) and the “B” side of the input is the cathode (-). This configuration is best where full isolation is preferred or when interfacing with external voltage/logic level outputs.

Each optically isolated input is connected through an internal 2.2k ohm series current-limiting resistor directly to an opto-coupler circuit so no external resistor is necessary if the input voltage is between 5 and 24 VDC. Higher DC voltages, from 25 to 48 VDC, can be used but must be reduced with an additional external resistor of the appropriate value and power rating to limit the input current.

Here is how to calculate the value and power rating of an external current limiting resistor for DC voltages up to 48 VDC: Each opto-isolated input has an internal 2.2K ohm series resistor. The opto-isolator works well with an input current of 9 mA and has a voltage drop of around 1.2V. With this information we can determine the correct external series current limiting resistor value needed for other voltages using the equation:

$$R = ((V_{in}-1.2)/0.009)-2200$$

Where:

R = External resistor value required

V_{in} = Desired input voltage

1.2 V = Forward voltage drop of the LED in the opto-isolator

0.009 A = Nominal LED current

2200 ohms = Internal resistor

For example:

To connect a 48 VDC signal voltage to an input on Site Sentinel 16 in “wet” configuration the completed equation for the external resistor value would be:

$$R = ((48-1.2)/0.009)-2200 = 3000 \text{ ohms}$$

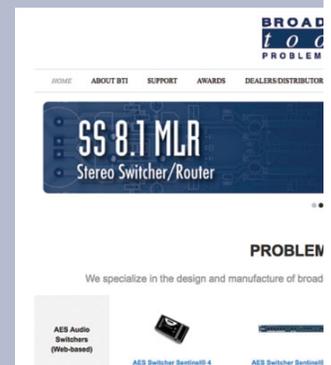
To calculate the power dissipated by the external resistor, the equation would be:

$P = I \times I \times R$, so the resistor must be at least $.009 \times .009 \times 2200 = 0.243$ Watts, use a 1/2 Watt rated resistor.

NOTE: Please refer to the appendix for configuration examples and observe proper polarity.

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INSTALLATION

Raise and Lower Control Relays

NOTE: PCB Rev E and above: Raise and lower relays K1 through K8 are supplied with SPDT dry contacts. Equipment to be controlled should be connected to the terminals labeled KxNC, KxCM and KxNO (where x is the channel number). Raise relays are on the TOP, while the lower relays are on the BOTTOM. Raise and lower relays K9 through K16 are supplied with SPST normally open dry contacts.

PCB Rev D and below: Raise and lower relays K1 through K16 are supplied with SPDT dry contacts. Equipment to be controlled should be connected to the terminals labeled KxNC, KxCM and KxNO (where x is the channel number).

Each of the sixteen raise and lower relays are supplied with dry contacts. External equipment to be controlled should be connected to the terminals labeled L1NO, L1CM, L1NC for the sixteen lower relays and R1NO, R1CM, R1NC for the sixteen raise relays.

NOTE: If latching relays are required, we suggest the Broadcast Tools Smart Relay 4 G2 or Box O' Relays 6.

TEMPerature Probe Inputs

Insert the temperature probe (one supplied, others optional) (25-foot cable) mini (3.5mm) plug in to any of the four rear panel jacks labeled "TEMP" -67°F to +257°F (-55°C TO +125°C). **NOTE: Please limit the total length of cable to 50 feet. Please contact the factory for the proper extension cable. The temperature probe should only be installed or removed with the power supply disconnected from Site Sentinel® 16.**

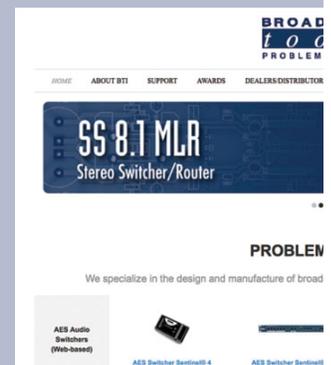
12 V DC (Power) connector

Connect the supplied universal 12-volt DC only, 2.5 amp regulated power supply cord in to the Site Sentinel® 16's power jack (center positive) labeled "12V DC Power", then plug the transformer in to a source of 100 to 250 vac 50/60Hz. Verify that the front panel green power LED is illuminated.

NOTE: The (RTC) real time clock/calendar's battery may be disabled by removing the jumper over JP20.

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Web Setup and Operation

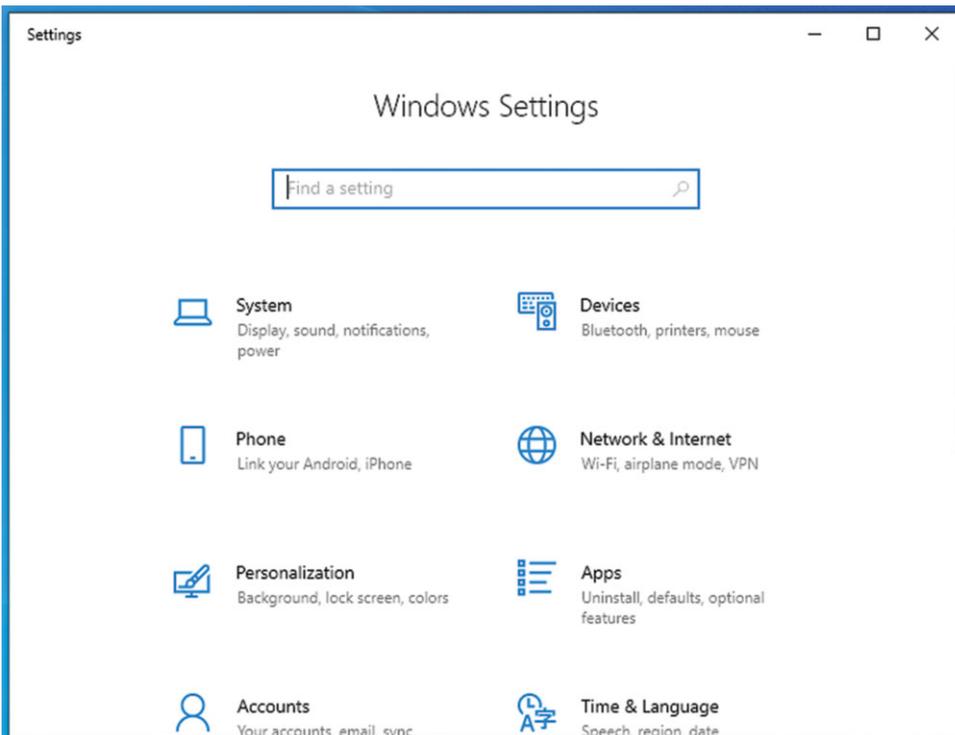
Ethernet “Quick Start” Guide

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.

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!

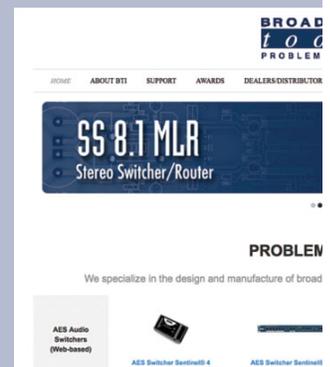
Instructions for changing the IP address of the computer that will be used for the configuration of this product are given here. Note that these instructions are specifically for computers with the Windows 10 operating system but will also work with Windows 7. For setup using other operating systems, 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 Network & Internet. Click on View network status and tasks under Network and Internet.

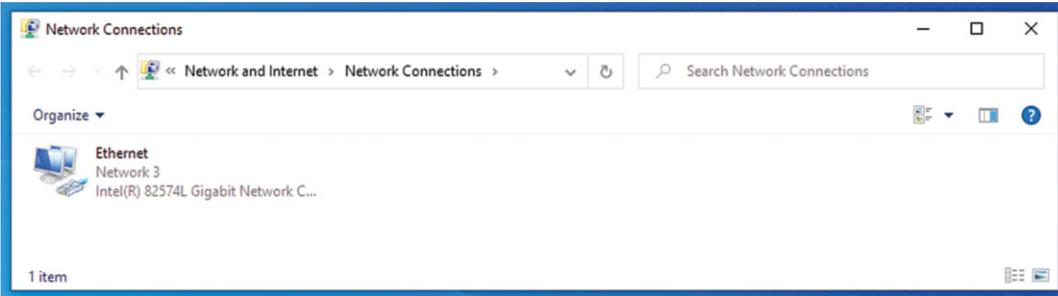


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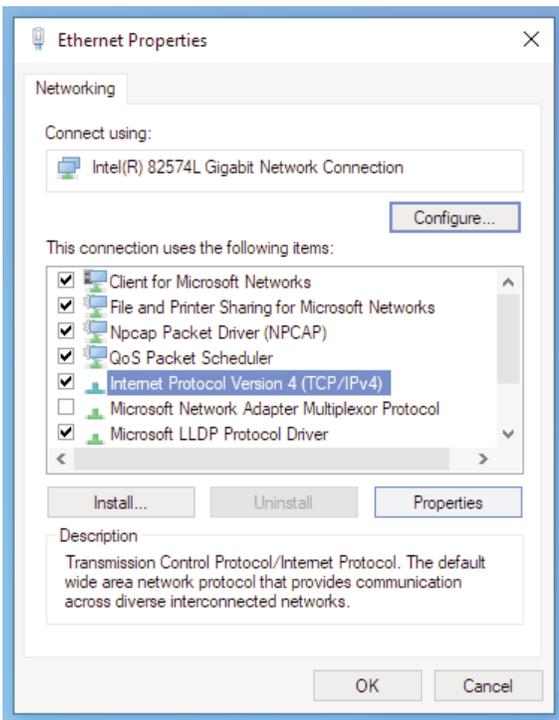
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Step 2: Click on the sidebar labelled Change adapter settings. The Network Connections windows will pop up, as shown below.

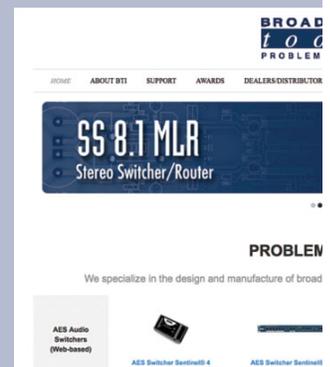


Step 3: Right click on the icon labeled Local Area Connection or Ethernet. A menu will appear. Select the option at the bottom of the menu labeled Properties. The Ethernet Properties window will appear.

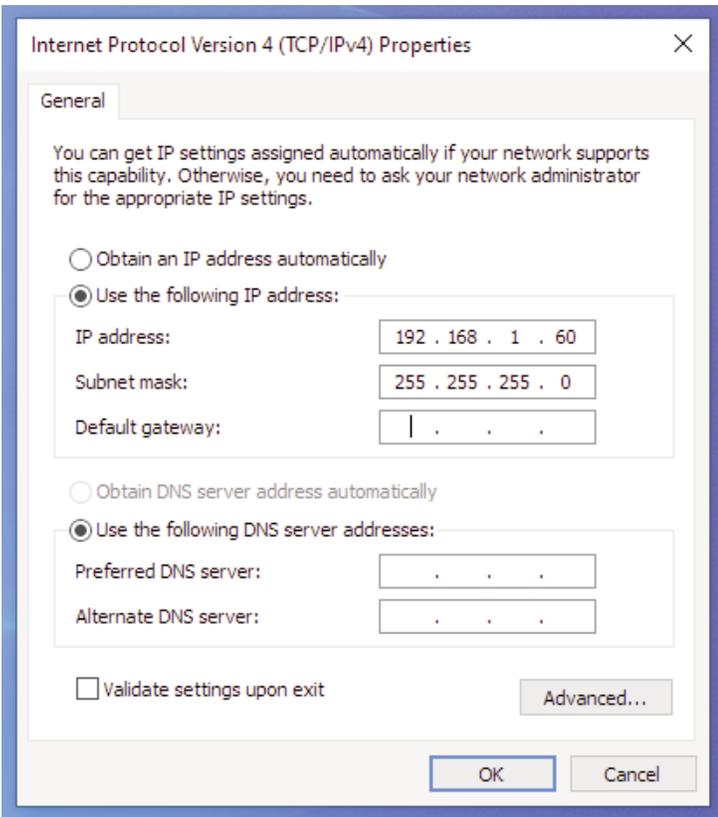


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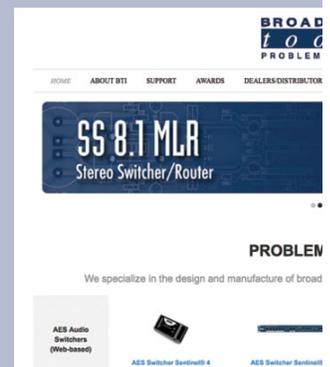


Step 4: On the Local Area Connection Properties page, double click on Internet Protocol (TCP/IPv4) to display properties.



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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“Login” Web Page

The Login screen displays the Username and Password entry points.

You may view the password by checking the “Show Password” box.

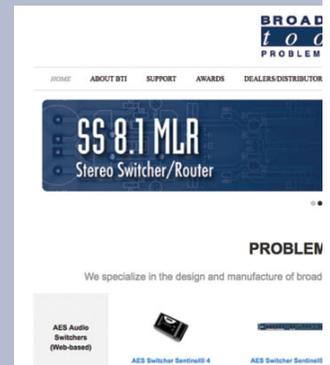


The screenshot shows the login interface for Site Sentinel 16. At the top left, there is a logo for "BROADCAST tools" and the text "SITE Sentinel® 16". On the top right, there is a "Login" link. Below the header, the current "Time/Date" is 16:07:48 on 2/8/2011, and the "Site ID" is SITE_ID. The main section is titled "Enter Login Information:" and contains a "Username" text input field, a "Password" text input field, and a checkbox labeled "show password". A "SUBMIT" button is located below the password field.

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.

WEBSITE:

Visit our web site for product updates and additional information.



“Monitor/Control” Web Page

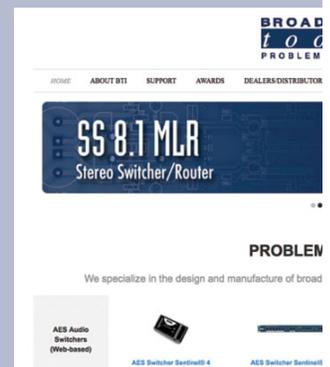
The Monitor/Control page allows the monitoring and/or control of the Site Sentinel® 16. The following is an explanation of each item on this page:

NOTE: The user defined Site ID, Time, Date, Chassis Temp and Queued Logs are always displayed. Only “admin” level access can edit some of these items.

- Queued Logs: Displays the number of available queued logs, if enabled on the Network Setup Page.
- Meters: Sixteen metering (analog) channels. The labels, values and units are entered in the I/O setup page.
- Status: Displays the condition of the sixteen status/logic inputs.
- Relays: Allows the user with admin or monitor/control access to control each relay for its displayed function.
- Silence Sensor Level LEDs: Displays the silence sensor input level. The green LED operates from -15 and above. The yellow and red LED activations are determined by the user programmed trip levels.
- Power Failure: Illuminated when power is applied, OFF when inadequate DC voltage is applied to the PF jack.
- Power Ctrl: Illuminated when the relay is activated.

WEBSITE:

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OPERATION

“User Setup” Web Page



This page can only be viewed and configured with an ‘admin’ access level.

NOTE: You may view a password by checking the “Show Password” box.

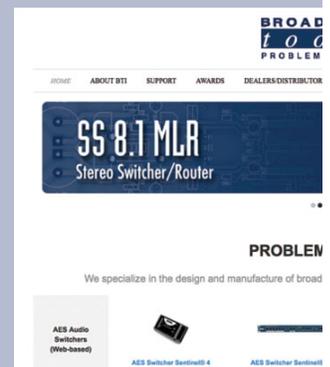
Eight Usernames and Passwords may be configured for one of three access levels:

1. “Admin” allows complete configuration access and control.
2. “Monitor/Control” allows the following access:
About, Monitor/Control, Show Alarms, Help, and Logout.
3. “Monitor Only” allows the following access:
About, Monitor only, Help, and Logout.

Only users with “admin” access can make changes to this page. The site ID is displayed 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.

WEBSITE:
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“I/O” Setup Page

The following terms and ideas will help in the configuration of this device.

Alarms: Alarms occur when an I/O Device falls into a specified threshold, this could be an analog value going above or below a set point, a relay turning on or a digital input going high. Each I/O Device can be configured to send emails when an Alarm occurs.

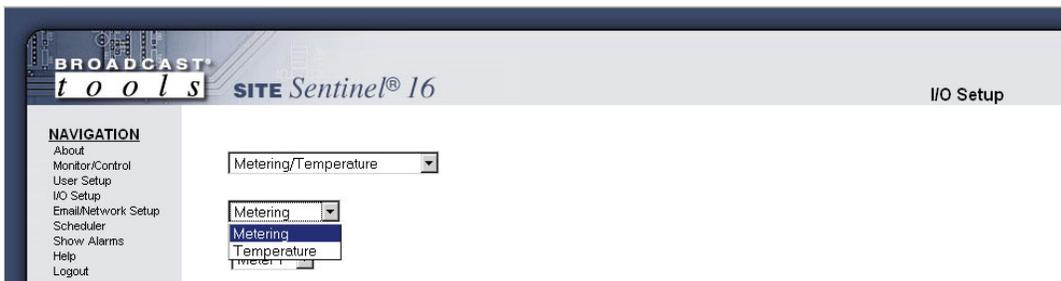
Emails: Each I/O device can be configured to send an email to up to 8 email recipients whenever the device enters or exits an alarm condition. Some devices have multiple alarm conditions, such as a High and a Low alarm state. If the device is configured to send an Exit Alarm email then the recipients list that was used for entering the alarm state will also be used when exiting the alarm state.

Logs: Each I/O device can be enabled for logging. Logging is configured on the Email/Network Setup page and can be setup to send snapshots of the system at periodic intervals. Only I/O devices enabled for Logging will be included in this snap-shot



On the I/O Setup screen, choose from the top drop-down box the device to configure.

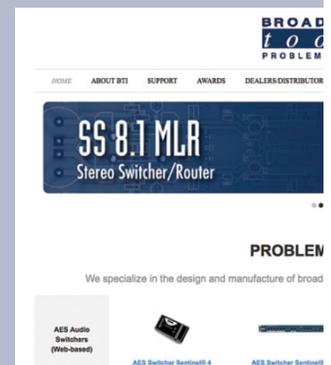
Metering/Temperature



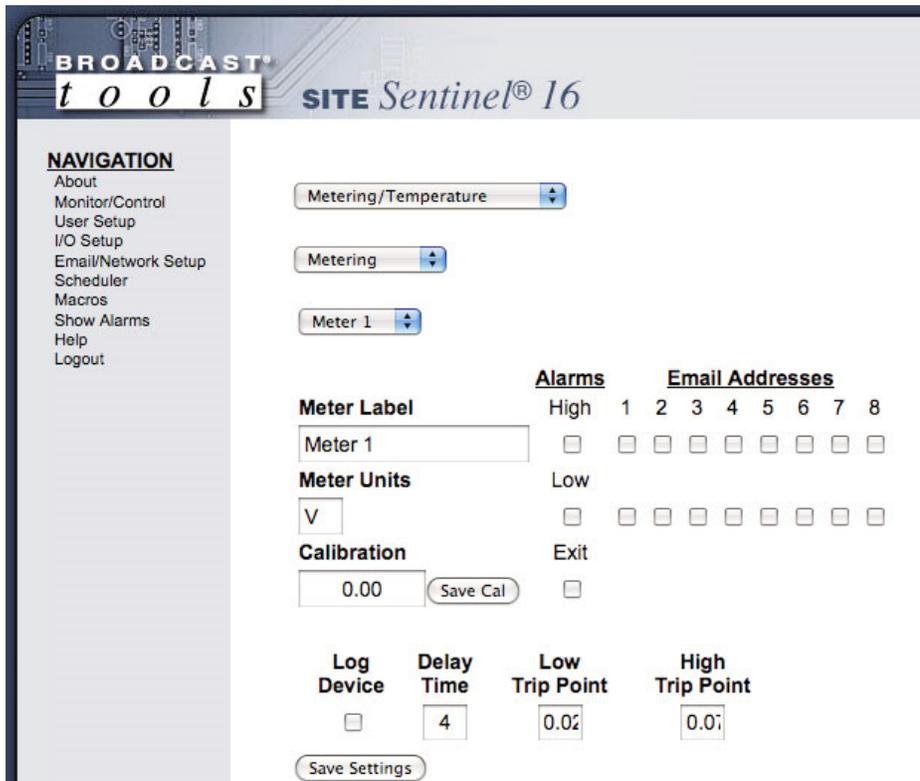
On the Metering/Temperature screen, select either Metering or Temperature from the second drop-down box.

WEBSITE:

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“I/O” Setup Page – Metering



Metering input selection: Select the metering inputs 1-16 for configuration.

Meter Label: Used to identify the metering input source.

Metering Units: Label in engineering units, such as V = Volts, A = Amps, W = Watts, etc.

Calibration: Enter the value of the desired meter reading.

NOTE: In order to calibrate, a valid DC sample voltage must be applied to each input that you are calibrating. The calibration value must be positive and can support a resolution up to 2 decimal places. The user **MUST** press the “Save Cal” button in order to store the value. You do not need to press the “Save Settings” button to save the calibration, only other settings.

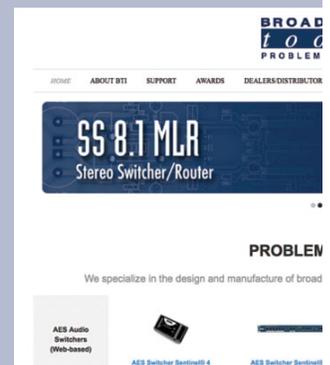
Alarms High: This option enables the “High Trip Point” email alarm.

Alarms Low: This option enables the “Low Trip Point” email alarm.

Alarms Exit: This option enables the emailing after exiting an alarm.

WEBSITE:

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OPERATION

“I/O” Setup Page – Metering – Cont.

Email Addresses: This allows you to configure up to 8 emails to be sent whenever the input goes above or below a set-point.

Log Device: This enables email snapshot logging of this device.

Delay time: The delay is in (0 to 999) seconds. This option specifies the wait time from when a value is out of range before an alarm is activated.

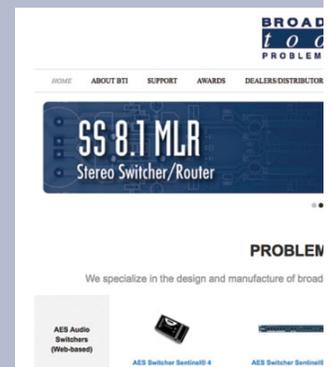
Low trip point: This option specifies the LOW alarm set point.

High trip point: This option specifies the HIGH alarm set point.

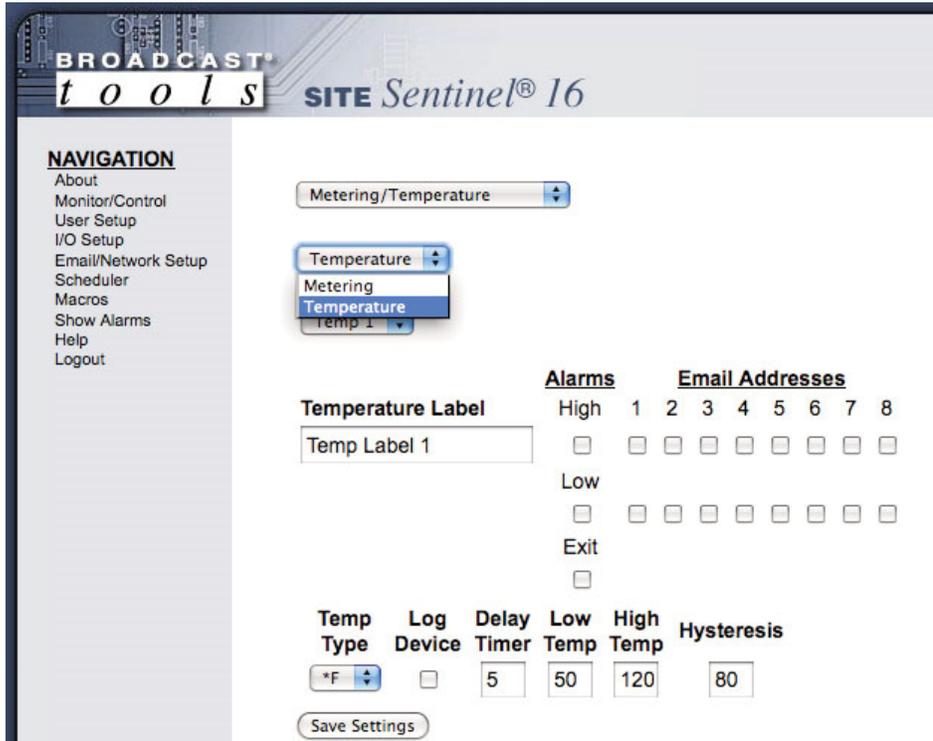
NOTE: After any item has been changed, you **MUST** press the “Save Settings” button for your changes to be saved.

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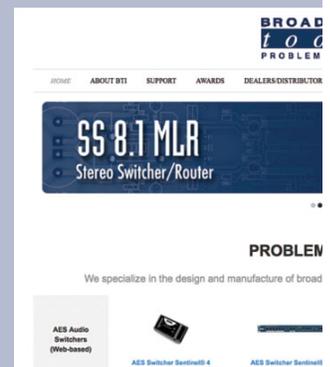


“I/O” Setup Page - Temperature



- Temperature Label: Used to identify the temperature probe.
- Alarms High: This option enables the “High Trip Point” email alarm.
- Alarms Low: This option enables the “Low Trip Point” email alarm.
- Alarms Exit: This option enables the emailing after exiting an alarm.
- Email Addresses: This allows you to configure up to 8 emails to be sent whenever the input goes above or below a set-point.
- Log Device: This enables email snapshot logging of this device.
- Delay time: The delay is in (0 to 999) seconds. This option specifies the wait time from when a value is out of range before an alarm is activated.
- Low Temp: This option specifies the LOW alarm set point.
- High Temp: This option specifies the HIGH alarm set point.
- Temp Type: This option specifies what scale will be displayed, Fahrenheit or Centigrade.

WEBSITE:
 Visit our web site for product updates and additional information.



“I/O” Setup Page – Temperature – Cont.

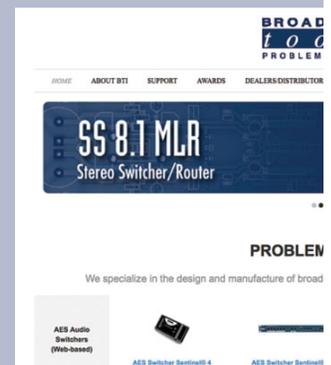
Hysteresis: Hysteresis (deadband), This option specifies the hysteresis used when evaluating alarm conditions.

NOTE: Hysteresis prevents alarms from toggling excessively when temperature is at the set point. This is due to normal fluctuation. For example, if the hysteresis is set to 1 degree, and a high alarm is to occur at 91 degrees, the hysteresis ensures that once the high alarm is triggered, it won't go off until the temperature returns to below 91 degrees (90 - 1). This reduces problems with small fluctuations in temperature readings triggering multiple alarms. Hysteresis is also used during low alarm conditions. If, for example, a low alarm is to occur at 43 degrees and the hysteresis is set to 1 degree, then once the low alarm is triggered, it won't go off until the temperature returns to higher than 44 degrees (43 + 1).

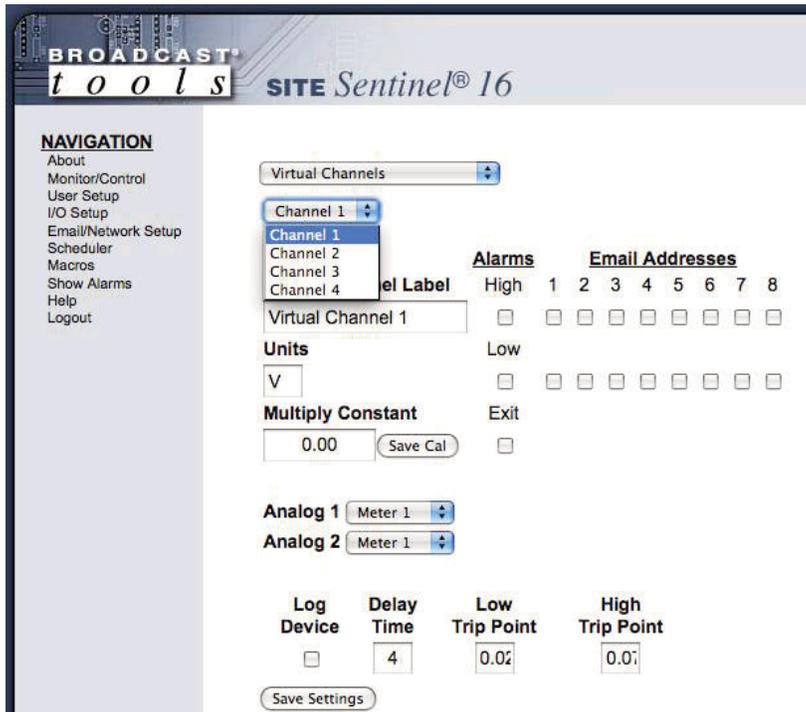
NOTE: After any item has been changed, you **MUST** press the “Save Settings” button for your changes to be saved.

WEBSITE:

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“I/O” Setup Page - Virtual Channels

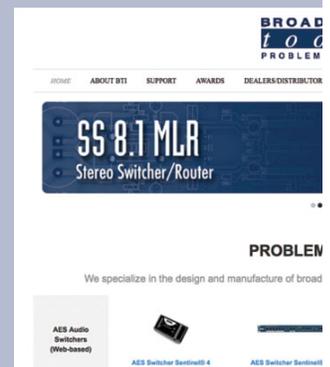


- Virtual Channel selection: Select the virtual channel 1-16 for configuration.
- Virtual Channel Label: Used to identify the virtual channel source.
- Virtual Channel Units: Label in engineering units, such as V = Volts, A = Amps, W = Watts, etc.
- Multiply Constant: Enter the value of the multiplier constant.
- Analog 1 and 2: Number of Meter to use in Virtual Channel calculation.

NOTE: The value of the Virtual Channel will be calculated by multiplying Analog 1, Analog 2 and the Multiplier Constant together.

- Alarms High: This option enables the “High Trip Point” email alarm.
- Alarms Low: This option enables the “Low Trip Point” email alarm.
- Alarms Exit: This option enables the emailing after exiting an alarm.

WEBSITE:
 Visit our web site for product updates and additional information.



“I/O” Setup Page - Virtual Channel – Cont.

Email Addresses: This allows you to configure up to 8 emails to be sent whenever the input goes above or below a set-point.

Log Device: This enables email snapshot logging of this device.

Delay time: The delay is in (0 to 999) seconds. This option specifies the wait time from when a value is out of range before an alarm is activated.

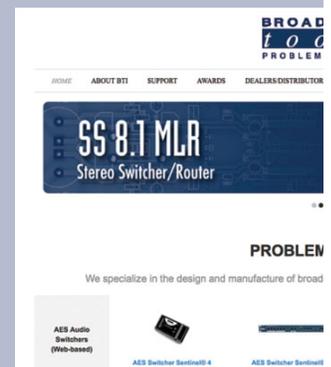
Low trip point: This option specifies the LOW alarm set point.

High trip point: This option specifies the HIGH alarm set point.

NOTE: After any item has been changed, you **MUST** press the “Save Settings” button for your changes to be saved.

WEBSITE:

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“I/O” Setup Page - Status

Input Status Messages: Used to identify the status input source.

Alarms OFF: This option enables the sending of an email when the input is OFF.

Alarms ON: This option enables the sending of an email when the input is ON.

Email Addresses: This allows you to configure up to 8 emails to be sent whenever the input is turned ON or OFF.

Normal Signal Level: This drop-down configures the input signal to be normally High or normally Low. This is used to determine if an input is ON or OFF.

NOTE: When the "Normal signal level" is set to HIGH = NO voltage is applied to the input (WET or no closure when configured for DRY), it's considered OFF, when voltage IS applied (WET or completed closure set to DRY) to the input, it considered ON.

Log Device: This enables email snapshot logging of this device.

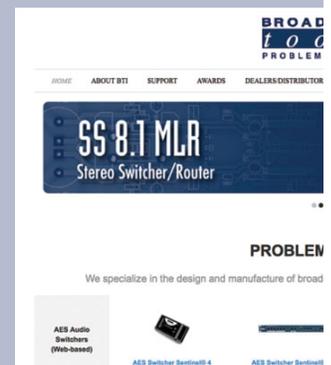
Delay time: The delay is in (0 to 999) seconds. This option specifies the wait time from when a value is out of range before an alarm is activated.

Alarm LED: User defined color of LED on the Monitor and Control page when in an alarm condition.

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

WEBSITE:

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“I/O” Setup Page - Relays

BROADCAST tools SITE Sentinel® 16

NAVIGATION
 About
 Monitor/Control
 User Setup
 I/O Setup
 Email/Network Setup
 Scheduler
 Macros
 Show Alarms
 Help
 Logout

Relays and Power Controller ▾
 K 1 Lower ▾

Relay Label	Alarms	Email Addresses								
		On	1	2	3	4	5	6	7	8
K 1 Lower	<input type="checkbox"/>									
Pulse (ms)	Off	<input type="checkbox"/>								

100

Raise/Lower Configuration

Event Action Sequencer
 Enable
 When Meter ▾ is 1 ▾ in High Alarm ▾
 delay 2 (sec) then engage for 5 (sec)

Save Settings

Relay label: Used to identify the device.

Alarms OFF: This option enables the sending of an email when the relay is OFF.

Alarms ON: This option enables the sending of an email when the relay is ON.

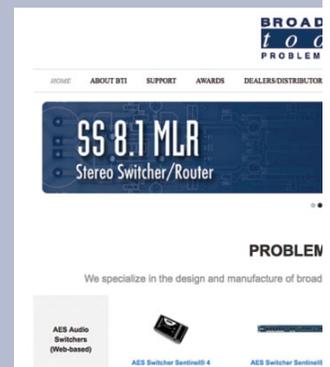
Email Addresses: This allows you to configure up to 8 emails to be sent whenever the relay is turned ON or OFF.

Pulse: This is the number of milliseconds the relay will be toggled when the pulse is activated.

NOTE: Pulse will toggle the relay, delay for the specified amount of time and then toggle the relay again. If the relay is already on, Pulse will turn it off, delay then turn it on.

WEBSITE:

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“I/O” Setup Page - Relays - Event Action Sequencer

Event action sequencer: Used to perform a relay function when other I/O devices are within/outside the configured range.

Enable: Enables the selected input to monitor for each relay.

Action: When (meter, status, silence sensor, power failure or temperature) (input number) is (in ? condition) delay (xx) seconds then engage for (xx) seconds.

Event action sequencer EXAMPLE: When (meter) (1) is (in High Alarm) delay (1) seconds then engage for (2) seconds.

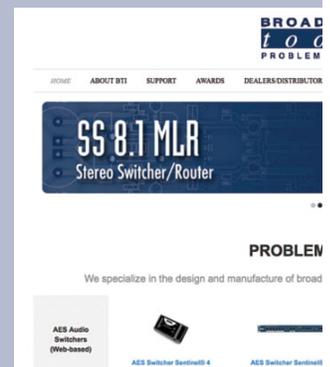
In the above example: When [metering input] [1] is [in high alarm] for more than [1] second, (the desired relay) then engage for [pulse] 2 seconds.

NOTE: To enable relay latch/sustained type operation, the [Engaged] time should be set to 0 seconds.

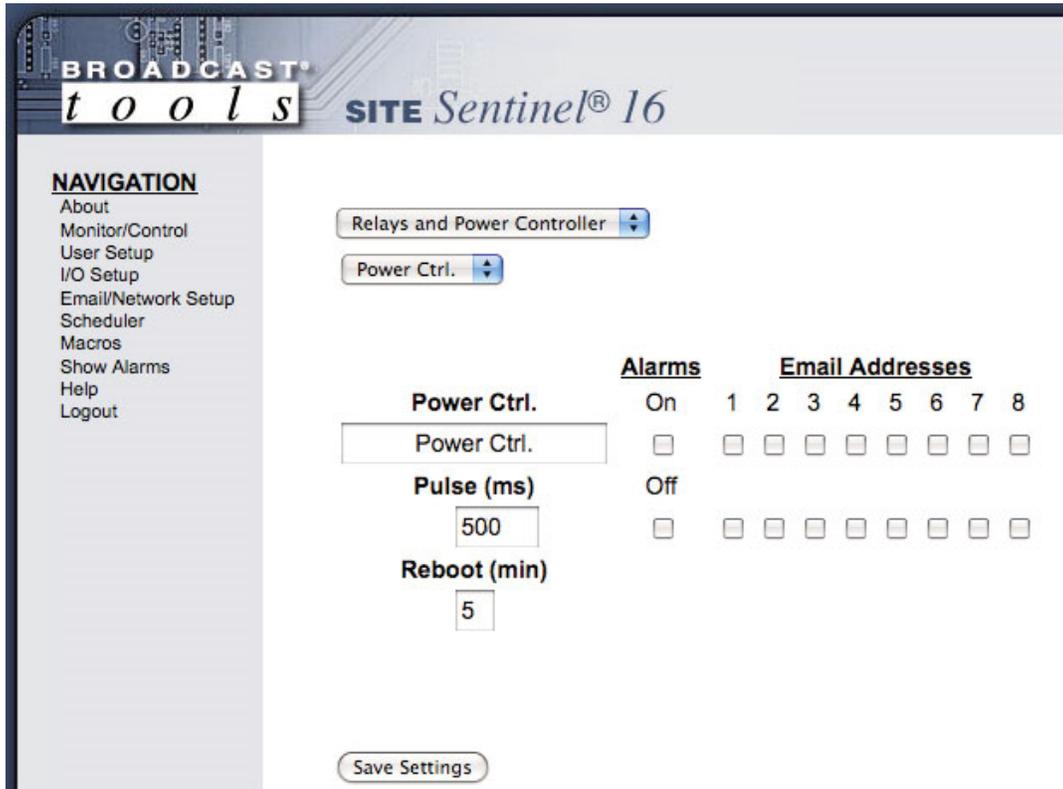
NOTE: After any item has been changed, you MUST press the “Save Settings” button for your changes to be saved.

WEBSITE:

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“I/O” Setup Page - Power Controller



Power Ctrl label: Used to identify the device.

Alarms OFF: This option enables the sending of an email when the relay is OFF.

Alarms ON: This option enables the sending of an email when the relay is ON.

Email Addresses: This allows you to configure up to 8 emails to be sent whenever the relay is turned ON or OFF.

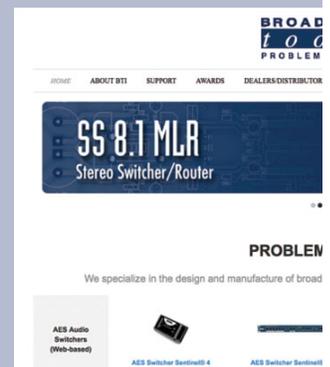
Pulse: This is the number of milliseconds the relay will be toggled when the pulse is activated.

Reboot: Reboot is identical to Pulse except that it uses minutes instead of milliseconds.

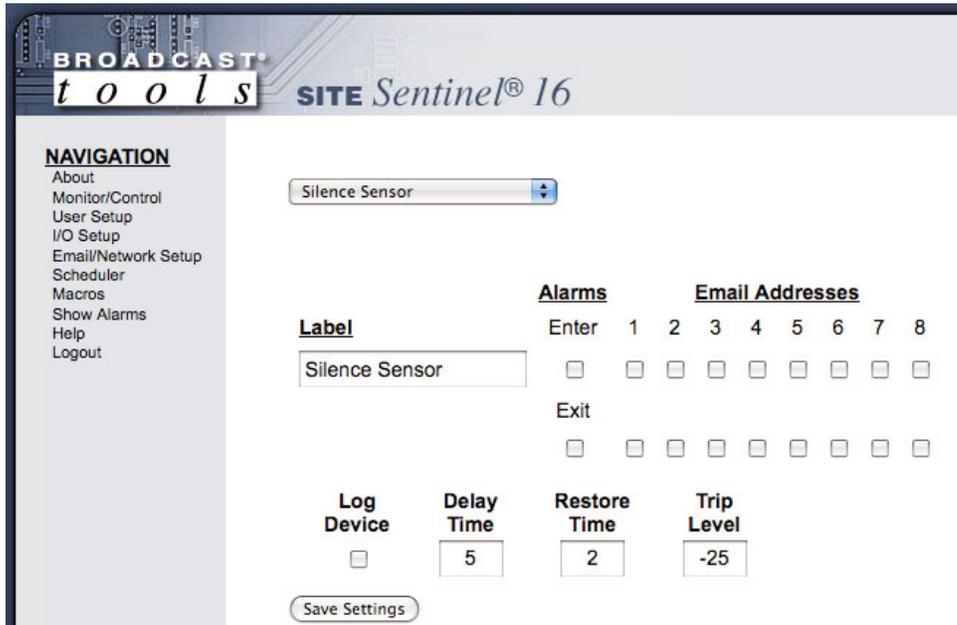
NOTE: After any item has been changed, you **MUST** press the “Save Settings” button for your changes to be saved.

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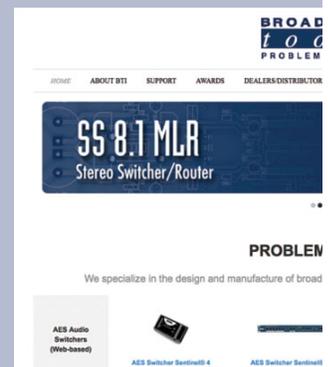
“I/O” Setup Page - Silence Sensor



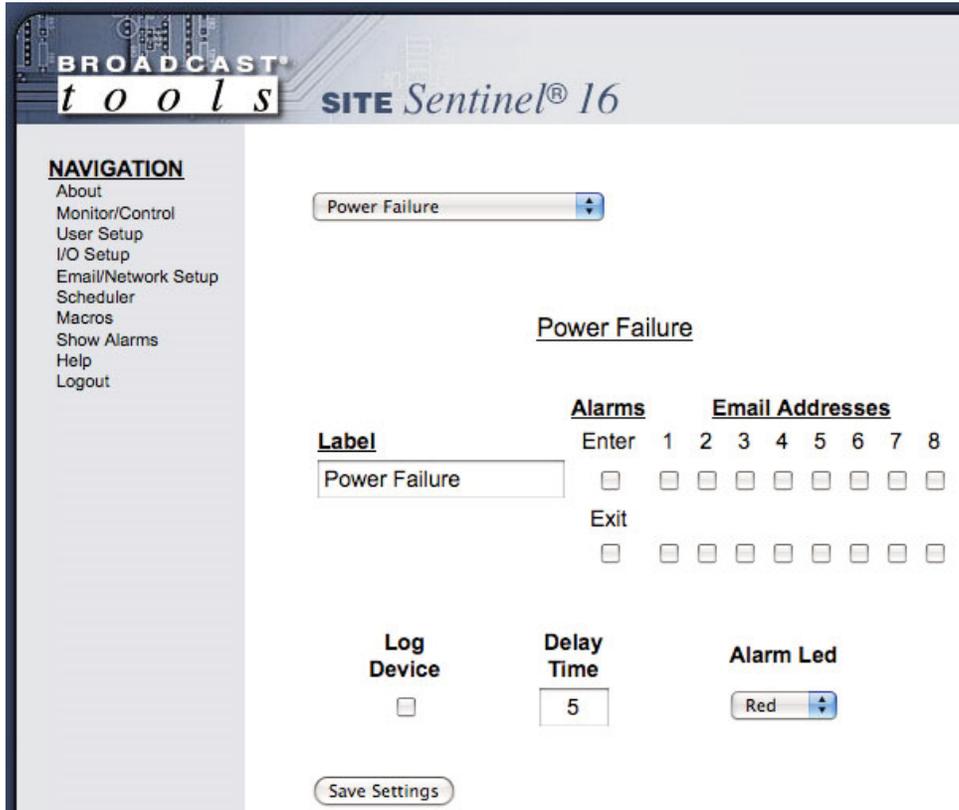
- Label: Used to identify the monitoring source.
- Alarms Enter: This option enables email alarms if the input source is measured less than the Trip Level.
- Alarms Exit: This option enables the email alarms when the input source is measured as greater than or equal to the Trip Level
- Email Addresses: This allows you to configure up to 8 emails to be sent whenever the input enters or exits an alarm.
- Log Device: This enables email snapshot logging of this device.
- Delay Time: The delay is in (0 to 999) seconds. This option specifies the wait time from when a value is out of range before an alarm is activated.
- Restore Time: The restore delay in (0 to 999) seconds. The input source must be good for this amount of time before the alarm is cleared.
- Trip Level: The value in dB when the input source is considered to be in alarm between -25 & -35 dB.

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

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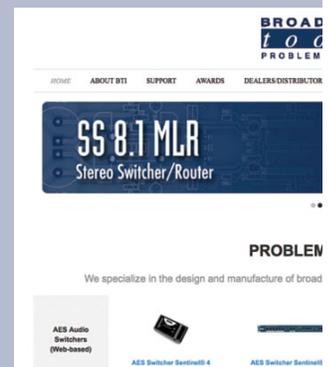
“I/O” Setup Page - Power Failure



- Label: Used to identify the monitoring source.
- Alarms Enter: This option enables email alarms if the voltage is no longer present on this input.
- Alarms Exit: This option enables email alarms when the voltage returns.
- Email Addresses: This allows you to configure up to 8 emails to be sent whenever the input enters or exits an alarm.
- Log Device: This enables email snapshot logging of this device.
- Delay Time: The delay is in (0 to 999) seconds. This option specifies the wait time from when a value is out of range before an alarm is activated.
- Alarm LED: User defined color of LED on the Monitor and Control page when in an alarm condition.

NOTE: After any item has been changed, you **MUST** press the “Save Settings” button for your changes to be saved.

WEBSITE:
 Visit our web site for product updates and additional information.



“Scheduler” Setup Page

Time/Date 15:52:24 12/3/2012

Event #	Enable	Event	Device	Frequency	Date Type	Date	Time	Next Event	Delete	Execute
1	<input checked="" type="checkbox"/>	Adjust Time	+1 Hr	One Time	Exact Date	Mar - 10	02:00:00	2:00:00 3/10/2013	<input type="button" value="Delete"/>	<input type="button" value="Execute"/>
2	<input checked="" type="checkbox"/>	Adjust Time	-1 Hr	One Time	Exact Date	Nov - 3	02:00:00	2:00:00 11/3/2013	<input type="button" value="Delete"/>	<input type="button" value="Execute"/>
3	<input checked="" type="checkbox"/>	Pulse							<input type="button" value="Delete"/>	<input type="button" value="Execute"/>
4	<input type="checkbox"/>	Toggle							<input type="button" value="Delete"/>	<input type="button" value="Execute"/>
5	<input type="checkbox"/>	Adjust Time							<input type="button" value="Delete"/>	<input type="button" value="Execute"/>
6	<input type="checkbox"/>	Enable Alarm							<input type="button" value="Delete"/>	<input type="button" value="Execute"/>
7	<input type="checkbox"/>	Click for new schedule.							<input type="button" value="Delete"/>	<input type="button" value="Execute"/>
8	<input type="checkbox"/>	Click for new schedule.							<input type="button" value="Delete"/>	<input type="button" value="Execute"/>

The Scheduler allows for complete control of your Site Sentinel 16 remote control by providing the ability to schedule when alarms are enabled or disabled, pulse or toggle relays, execute macros and even adjust the time for daylight savings.

All 100 schedulable events can also be enabled or disabled; only enabled schedule events are processed. Each schedule event consists of 2 main components, the action to do (event) and when to do it (date/time).

Schedule events are entered in the "Scheduler" menu shown above. Empty/unused schedule slots will have the text "Click for new schedule" listed in the "Event" column. When you select a cell in the scheduler table it will transform into the available options for that cell. Blue colored cells are unselected and are saved while Red colored cells are unselected and are not saved. Yellow colored cells are selected. There can only be one cell selected at a time and changing some cells may change other cells. It is best to work left to right when configuring a schedule event.

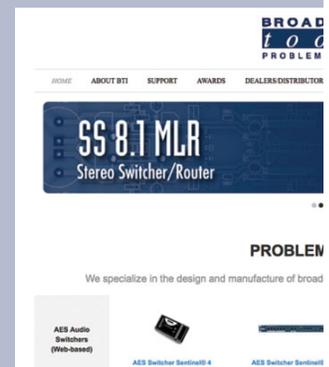
To select a cell just click in the cell box and it will transform, the background will turn yellow and you should see either drop down boxes or checkboxes to select from. To unselect a cell, click inside the yellow portion of the cell or onto another cell. Clicking on another cell will select that cell if it can be selected.

At the top and bottom of the "Scheduler" page are "Refresh" and "Save" buttons. All red cells on the scheduler page have not been saved and will not be stored or executed until saved. To restore from the previously saved schedules click the "refresh" button.

The last 3 cells of each schedule event are the "Next Event", "Delete", and "Execute" items. "Next Event" lists the date and time that the event is scheduled to occur next. "Delete" will delete the schedule but still requires saving before the change is permanent. "Execute" will execute the action immediately regardless of whether or not it's enabled for scheduled to occur, ensure that you save before executing a schedule since changes are not updated to the Site Sentinel 16 until the save button is pressed.

NOTE: The Scheduler page does not auto refresh, please click “refresh” to update the “Next Event” time.

WEBSITE:
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“Scheduler” Setup Page cont. - Actions

Event #	Enable	Event	Device	Freq
1	<input checked="" type="checkbox"/>	Enable Alarm	Metering	
2	<input type="checkbox"/>	Click for new schedule.	Metering	
3	<input type="checkbox"/>	Click for new schedule.	Temperature	
4	<input type="checkbox"/>	Click for new schedule.	Virtual Chan.	
5	<input type="checkbox"/>	Click for new schedule.	Status	
			Relays	
			Silence Sensor	
			Power Failure	

Enable/Disable Alarms: Alarms for every device that the Site Sentinel 16 monitors can be enabled and disabled by the scheduler. Select the appropriate "Enable Alarm" or "Disable Alarm" from the "Event" drop down box on the Scheduler Setup Page to configure this item. Then from the "Device" drop down box select from the monitored device types and the device numbers.

Event #	Enable	Event	Device	Freq
1	<input checked="" type="checkbox"/>	Pulse	Raise 3	
2	<input type="checkbox"/>	Click for new schedule.	Raise 1	
3	<input type="checkbox"/>	Click for new schedule.	Raise 2	
			Raise 3	
			Raise 4	

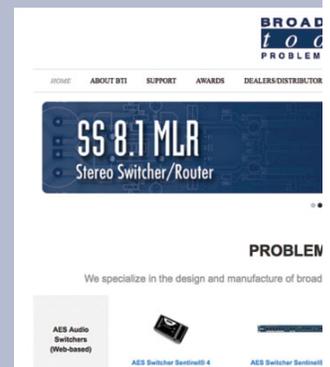
Pulse/Toggle: Relays can be pulsed or toggled from the scheduler as well. Select "Pulse" or "Toggle" from the "Event" drop down box on the Scheduler Setup Page to configure this item. Then from the "Device" drop down box select the relay you wish to control. The Pulse duration is configured on the "Relay Setup Page" under "I/O Setup".

Event #	Enable	Event	Device	Freq
1	<input checked="" type="checkbox"/>	Adjust Time	-1 Hr	
2	<input type="checkbox"/>	Click for new schedule.	-1 Hr	
3	<input type="checkbox"/>	Click for new schedule.	+1 Hr	

Adjust Time: To assist with daylight savings adjustment, the Site Sentinel 16 can add or subtract 1 hour from the time-zone offset. Time-zone offset is initially configured under "Email/Network Setup" and this adjustment will change that value at the scheduled time. Select "Adjust Time" from the "Event" drop down box then from the "Device" drop down box select either "-1 Hr" or "+1 Hr" to decrement or increment the time-zone offset.

WEBSITE:

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“Scheduler” Setup Page – cont.

Event #	Enable	Event	Device	Freq
1	<input checked="" type="checkbox"/>	Execute Macro	Macro 6 True Clause	
2	<input type="checkbox"/>	Click for new schedule.	True Clause False Clause	

Actions

Execute Macro: The Scheduler can also execute either the true or false clause of any macro defined under the "Macros" Setup page. Select "Execute Macro" from the "Event" drop down box then from the "Device" drop down box select the macro number and either the "True Clause" or "False Clause" to be executed. The macro does not need to be enabled for the clause to be executed. If the clause is empty then no action is taken.

Configuring Event Time:

Event #	Enable	Event	Device	Frequency
1	<input checked="" type="checkbox"/>	Pulse	Raise 1	One Time
2	<input type="checkbox"/>	Click for new schedule.		One Time Repeat

Frequency: Scheduled events can be initiated either on a repeat or one-time basis. One-time events will be disabled after executing while repeat events will continue to be rescheduled. Select either "Repeat" or "One Time" from the "Frequency" drop down.

Date: Selecting when an event occurs can be based on either an exact date (Month/Day) or based on specific days of the week and months in the year. One time events can only be scheduled for an exact date, while repeat events can be scheduled for either exact dates or day/months.

Event #	Enable	Event	Device	Frequency	Date Type	Date
1	<input checked="" type="checkbox"/>	Pulse	Raise 1	One Time	Exact Date	Jul 1
2	<input type="checkbox"/>	Click for new schedule.				
3	<input type="checkbox"/>	Click for new schedule.				
4	<input type="checkbox"/>	Click for new schedule.				

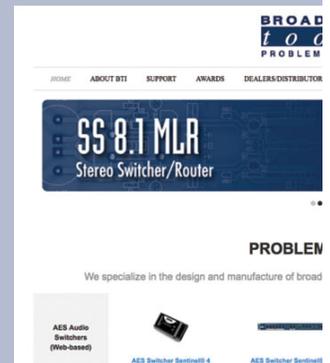
To select the Date for an "Exact Date" type choose the month and day from the two drop down boxes under "Date"

Event #	Enable	Event	Device	Frequency	Date Type	Date
1	<input checked="" type="checkbox"/>	Pulse	Raise 1	Repeat	Days/Months	Su M T W Th F Sa <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

To select the date for a "Day/Months" type choose the months and days of the week by checking the checkboxes under "Date" for the days of the week and months of the year that you want this event to happen.

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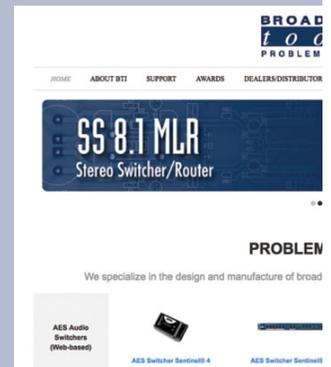
“Scheduler” Setup Page – cont.

Event #	Enable	Event	Device	Frequency	Date Type	Date	Time		
1	<input checked="" type="checkbox"/>	Pulse	Raise 1	Repeat	Days/Months	M-T-W-Th-F Jan-Feb-Mar-Apr-May-Jun-Jul-Aug-Sep-Oct- Nov-Dec	Hr	Min	Sec
							8	20	0

Time: Selecting the time of day an event occurs is accomplished using the "Time" column. Hours are referenced as Military Time and include 0-23 as well as "All Hours". When "All Hours" is selected the event will be scheduled for all hours on the day it is schedule to execute, otherwise it is only scheduled for the specific hour. Events can also be configured to execute at a specific minute and second, though no "All Hours" options exist for minutes and seconds.

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“Macros” Setup Page

The Site Sentinel 16's macro system allows for the ability to trigger relay events based on combinatorial logic of status and meter inputs. Each of the 50 available macro slots has a conditional statement as well as a true and false clause. When a macro is enabled its conditional statement is evaluated every second and either the true or false clause is executed, empty true and false clauses are allowed and no action is taken if they are empty.

Configuring Macros is accomplished from the "Macros" menu. When you select a cell in the macro table it will transform into a text box. Blue colored cells are unselected and have been saved while Red colored cells are unselected and are not saved. Yellow colored cells are selected. There can only be one selected cell at a time.

To select a cell just click in the cell box and it will transform, the background should change to Yellow. To unselect a cell, click inside the yellow portion of the cell or onto another cell. Clicking on another cell will select that cell if it can be selected.

At the top and bottom of the "Macros" page are "refresh" and "save" buttons. All red cells on the macro page must be saved and will not be executed until saved. To restore from the previously saved macros click the "refresh" button.

The last 2 cells of each schedule include the "Evaluation" and "Delete" items. "Evaluation" shows the conditionals evaluated state at last refresh. "Delete" will delete the macro but still requires saving before the change is permanent.

Macros can also be imported and exported by using the Import/Export buttons at the bottom of the page. When exporting macros, all 50 macros will be stored in a file that can be downloaded and uploaded to another Site Sentinel 16 device or reloaded into the same device.

Conditionals

Conditional statements must be encompassed in open and closed parenthesis () and additional parenthesis are allowed within the statement in order to enforce evaluation order. Conditionals can be separated by the & or the | symbols to indicate Boolean AND and Boolean OR operations. If after evaluating every conditional statement and applying the AND and OR operators the conditional results as TRUE then the TRUE clause will be executed, if the conditional results as FALSE then the FALSE clause will be executed.

Status: The status conditional takes 2 parameters, the status number and whether it is high or low. The following are valid status conditionals:

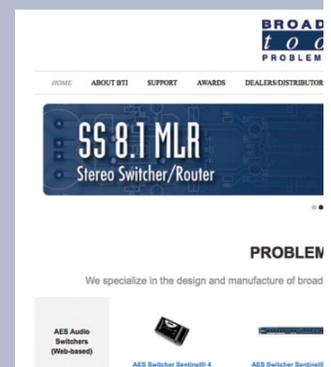
(S01H)

(S02L)

The first will evaluate as TRUE if Status Input 1 is high and will evaluate as FALSE if Status Input 1 is low. The second will evaluate as TRUE if Status Input 2 is low and will evaluate as FALSE if Status Input 2 is high.

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“Macros” Setup Page – cont

Meters: The meter conditional takes 2 parameters, the meter number and whether it is in high alarm or low alarm. The following are valid meter conditionals.

(M01H)
(M01L)

The first will evaluate as TRUE if Meter Input 1 is in high alarm and will evaluate as FALSE if Meter Input 1 is either in low alarm or not in an alarm. The second will evaluate as TRUE if Meter Input 2 is in low alarm and will evaluate as FALSE if Meter Input 2 is either in high alarm or not in an alarm. Since there are 16 status inputs M01x to M16x are allowed Meter Conditionals.

Relays: The relay conditional takes 2 parameters, the relay number and whether it is high or low. The following are valid relay conditionals:

(R01H)
(R02L)

The first will evaluate as TRUE if Relay 1 is high and will evaluate as FALSE if Relay 1 is low. The second will evaluate as TRUE if Relay 2 is low and will evaluate as FALSE if Relay 2 is high.

Booleans: There are 99 Boolean variables that can be set in clauses and read as conditionals. At start-up all 99 Boolean variables default to FALSE. The Boolean conditional takes 2 parameters, the Boolean number and whether it is true or false. The following are valid Boolean conditionals:

(B01H)
(B02L)

The first will evaluate as TRUE if Boolean 1 is TRUE and will evaluate as FALSE if Boolean 1 is FALSE. The second will evaluate as TRUE if Boolean 2 is FALSE and will evaluate as FALSE if Boolean 2 is TRUE.

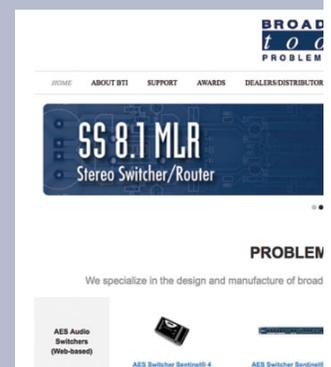
Local: The local switch can also be read. The following two conditions are the only allowed conditions for the Local switch.

(L00H)
(L00L)

The first will return TRUE if the local switch is high and FALSE if the local switch is low. The second will return TRUE if the local switch is low and will return FALSE if the local switch is high.

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OPERATION

“Macros” Setup Page cont.

Reset: When the system is resetting to default settings (only on boot) then the reset conditional is set to true. The following two conditions are the only allowed conditions for the Reset switch.

(R00H)

(R00L)

The first will return TRUE if the reset switch is high and FALSE if the reset switch is low. The second will return TRUE if the reset switch is low and will return FALSE if the reset switch is high.

Clauses

Clauses perform actions such as setting a Boolean value, setting the state of a relay or executing the event of a schedule. Each item in a clause statement is separated by a comma and are executed in order from left to right.

Relay Control: Relays can be turned on, off or pulsed from a clause. The duration for the relay pulse is configured under "Relay Setup" on the "I/O Setup" page. The relay clause contains 3 parts, the 'R' the relay number and the action.

R01H - will turn Relay 1 high

R01L - will turn Relay 1 low

R01P - will pulse Relay 1

Turning a relay high or low that is already in that state will have no effect.

Boolean Control: Booleans can be set to TRUE or FALSE from a clause.

B01T - will set Boolean 1 to TRUE

B01F - will set Boolean 1 to FALSE

Event Control: Events on the Scheduler page can be executed from a macro clause, regardless of whether or not the Schedule is enabled. Only the first 99 schedules can be executed from a clause.

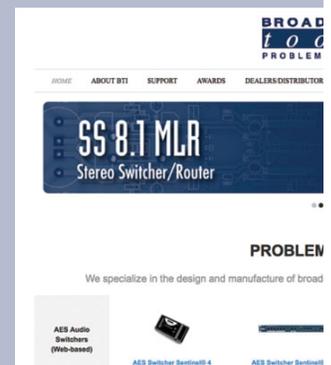
E01T - Will execute Event 1

E01F - Will also execute Event 1

The 3rd parameter of this operation has no bearing.

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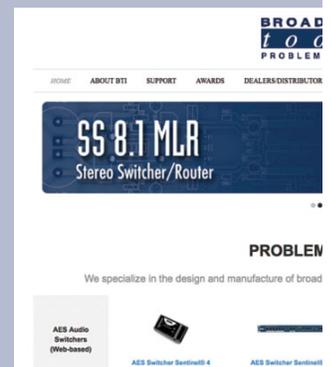


Restoring Network Factory Defaults

NOTE: The Site Sentinel® 16 factory defaults may be restored by holding the “Default” button IN, repowering the unit, wait for the SS and PF LED’s to flash, then release the “Default” button. Contact support@broadcasttools.com for additional reset procedures.

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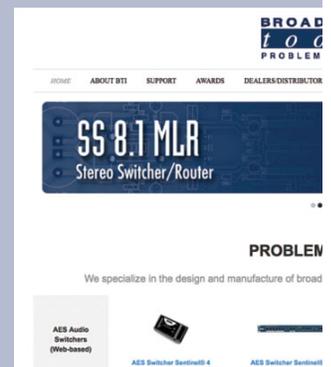
“Email/Network Setup” Web Page

Device Address
 Device Netmask
 Gateway Address
 DNS Server Address
 HTTP Port
 SMTP Server Address
 SMTP Port
 SMTP Return Address
 SMTP Host ID
 SMTP Authentication
 SMTP Username
 SMTP Password
 show password
 Logging Email Address
 Logging Email Snapshot Interval (Hours)
 Logging Email Update Interval (Hours)
 Email Alarms Immediately
 Daily
 Daily Alarm Email Time (Hour)
 Recipient Addresses
 1
 2
 3
 4
 5
 6
 7
 8
 SNMP Trap IP Address 1
 2
 SNMP Manager Trap Port
 SNMP Read Community
 SNMP Write Community
 SNMP Enable Traps
 NTP Server Address
 NTP Port
 NTP Update Interval (Minutes)
 NTP Enabled
 Site ID
 Monitor Refresh Time Seconds
 MTU Size
 Time Zone Offset from UTC
 Hour Minute Second
 Set Time Month Day Year
 Time is only saved when "Save Time" is clicked
 Enable Event Logging Login
 Email
 Reboot
 Alarms Cleared

 No file chosen

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OPERATION

“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

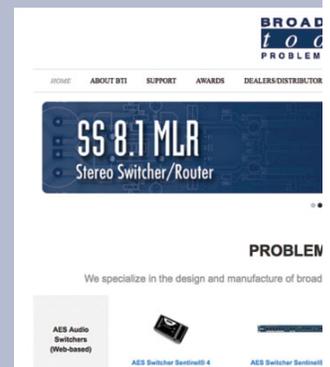
SMTP Server Address: The user can enter either an IP address in the xxx.xxx.xxx.xxx format or a URI in the form: smtp.comcast.net. In order to resolve the URI, the units DNS configuration must be valid.
SMTP Port: Normally Port 25, 587, or 2525 Default: 25
SMTP Return Address: Enter your return email here. If an email cannot be delivered, a message stating why will be sent to this address.

NOTE: You must enter the following items before an email can be successfully sent: SMTP Server Address, SMTP Port, SMTP Return Address, and recipient address #1. SMTP username and SMTP password must be supplied if authentication is turned on. Test emails are sent to email recipient address #1 and the logging address only.

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 device IP address as identifier.
SMTP Authentication: When checked, Base64 SMTP authentication used. SSL/TLS secure authentication required by Gmail/Outlook is not supported.
SMTP Username: Enter SMTP server username here.
SMTP Password: Enter SMTP server password here.

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“Email/Network Setup” Web Page – Email Logging Settings

Logging Email Address: Email 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 only.

Logging Email Snapshot Int.: The period in hours that a snapshot is taken of the system. The logging email is not sent on this interval.

Logging Email Update Int.: The period in hours that 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 emailed as a digest every 24 hours. Both can be used at the same time. The number of queued alarms is displayed on the Monitor/Control page.

Daily Alarm Email Time: The hour of the day that queued alarms are sent. Queued alarms are sent to the Logging Email Address only.

“Alarm” Recipient Address: Email addresses for up to 8 addresses. These addresses correlate to the 8 email addresses selectable on the I/O Setup page.

“Email/Network Setup” Web Page – SNMP Manager Settings

SNMP Enable: Enables or disables SNMP functionality, enabled by default.

SNMP Enable Traps: When enabled, SNMP trap messages will be sent. When disabled, no trap messages will be sent to the manager IP.

SNMP Trap IP Address: This is the IP address of the SNMP manager. The system will send traps to UDP port 162 at this IP address.

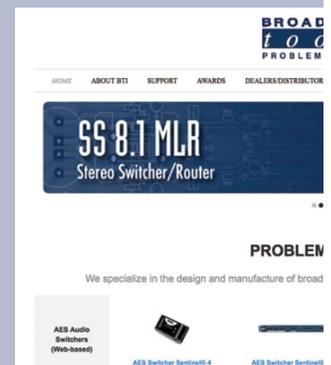
SNMP Read Community: This is the community name used for Read-Only access.

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

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

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“Email/Network Setup” Web Page – Network Time Protocol (NTP) Settings

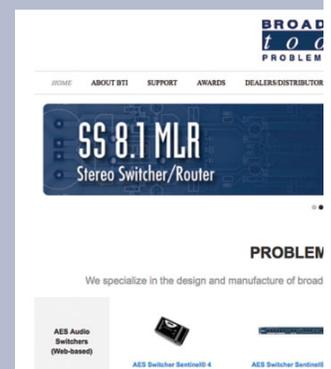
- NTP Enabled: Enable for NTP network time sync.
Default: Enabled
- NTP (Time) Server Address: Enter the NTP address here. Default: pool.ntp.org
- NTP Port: Port used to connect to NTP server.
Default: 123
- NTP Update Interval (Min): Interval between time updates. Default: 30

“Email/Network Setup” Web Page – Other Settings

- Site ID: This is the Site Identifier that is displayed on the web and in email.
- Monitor Refresh Time (Sec): Interval at which the Monitor page refreshes. Shorter times may increase network traffic. Default: 1
- MTU Size: Sets the network interface’s Maximum Transmittable Unit. 1400 by default. If a VPN is being used this may need to be reduced to 1296 to account for added overhead.
- Time Zone Offset from UTC: Sets the time zone used for the internal clock. Default: -8
- Set Time: The hour, minute, second, month, day and year boxes can be used to set the time of the RTC. The time is only updated if you click “Save Time” and not when you “Save 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 user-name 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.

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“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. 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. Test emails are sent to email recipient address #1 and the logging address only.

NOTE: After you are done making changes to the Email/Network Setup page, you **MUST** press the “Save Settings” button to save your changes.

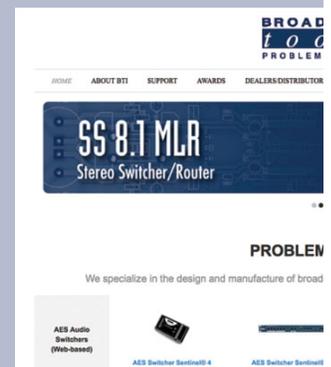
Reload Defaults: When you press the “Reload Defaults” button, the device Resets to default settings, you must navigate your web browser to the new IP address (if the HTTP port was changed from port 80, be sure to add the new port number after the IP: xxx.xxx.xxx.xxx:port #).

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.

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“Show Alarms” Web Page

Device	Enter/Exit	Date	Time
Status 1 OFF	OFF	3/6/2024	16:09:20
Status 1 ON	ON	3/6/2024	16:08:16
Login Event	admin	3/6/2024	16:07:56
Reboot Event	SYSTEM	3/6/2024	16:07:47

Last Updated 3/6/2024 16:09:21

This page displays current alarms.

Device: Displays which device and/or devices triggered the alarm.

Enter/Exit: Displays if the alarm is entering or exiting an alarm condition.

Date: Displays what date the alarm was logged.

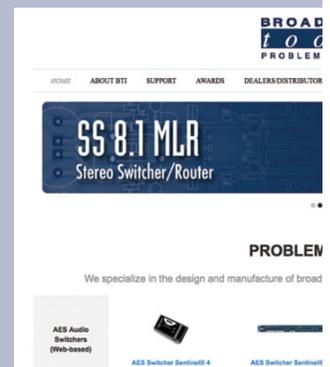
Time: Displays what time the alarm was logged.

NOTE: With the “admin” access level, the user may control all functions.

With the “Monitor/Control” or “Monitor” only access level, the user may view the “Show Log”, enable/disable PC speaker sound and silence alarms.

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“About” Web Page

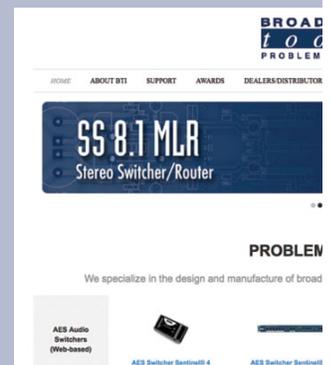


NAVIGATION About Monitor/Control User Setup I/O Setup Email/Network Setup Scheduler Macros Show Alarms Help Logout	Broadcast Tools, Inc. Device Name Site Sentinel 16 Firmware Version SS16X05_v2.23 PIC Firmware Version SS16P_V1.20 Web page Version SS16W_V1.40 Home page www.BroadcastTools.com
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The “About” Web Page displays the product name, firmware version numbers, and Broadcast Tools® Web site link.

WEBSITE:

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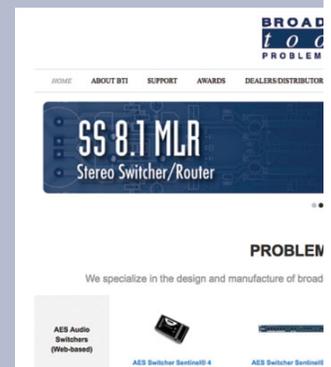


Specifications

Ethernet Interface:	RJ-45, 10Base-T or 100Base-TX, auto sensing with Link & activity indicator - Full/half duplex.
Control Logic:	Microcontroller with non-volatile memory and web server.
Temperature Sensor inputs (4):	Digital Probe (1 supplied) with 25-foot cable and 3.5mm T/R/S plug. -67°F to +257°F (-55°C TO +125°C).
Silence Sensor:	Stereo unbalanced 22K ohm inputs. Input level: -10dBu to +24dBu. Note: Summed to monaural.
Control Relays:	PCB Rev F and higher: 16 SPDT (form C), 16 SPST (form A), dry contacts 30 VDC@1amp max. PCB Rev D and lower: 32 SPDT (form C) dry contacts, 30 VDC@1amp max.
Power Controller Relay:	SPDT dry contacts. 30 VDC @ 1 amp max. CAUTION! For safety, never connect 120 Vac circuits to the above relays!
Metering (analog) inputs:	Sixteen - Single ended (ground referenced) 0 to 10 VDC input range. 47 K ohm input Z. 12-bit resolution.
Status/Logic inputs:	Sixteen - Optically Isolated (5 to 24 VDC, or 25-48 VDC via an external resistor) wet or dry inputs. Default = Dry (5 volt internally sourced). With front panel LED indicators.
Power Failure input:	Optically-isolated, 5 to 12 VDC @ 15 ma, center positive. 2.1mm x 5.5mm coax type.
Connectors:	Metering (analog), status, relays, and silence sensor audio input: Removable euroblock screw terminals, 2 x 2.1mm x 5.5mm coax type power jacks and four – 3.5mm T/R/S mini-jack temp probe.
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.
Protocols:	TCP/IP, UDP/IP, ARP, ICMP, SNMP, TFTP, Telnet, DHCP, BOOTP, HTTP, and AutoIP.
Required power supply (supplied):	12 Volt DC only @ 2.5 amp. 2.1mm ID x 5.5mm OD coaxial connector, center positive. Surge protected. Universal (100 - 240 vac / 50/60 Hz) with IEC input plug with domestic AC cord.
Size:	19.00" x 6.00" x 1.75", aluminum chassis and steel front panel.
Weight:	2.0 lb.
Options:	* Temperature probe.

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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.

NO OTHER WARRANTIES OR REMEDIES

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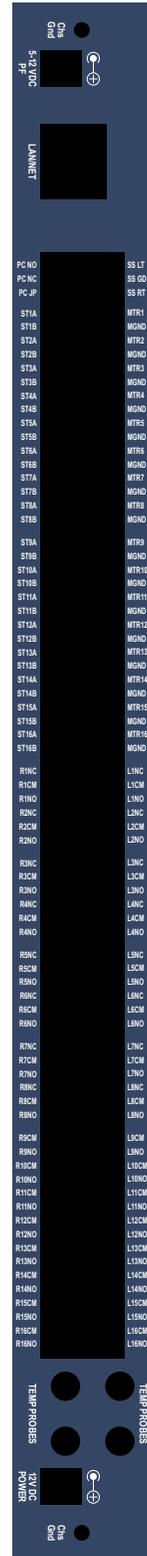
NO LIABILITY FOR CONSEQUENTIAL DAMAGES

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

Broadcast Tools, Inc.

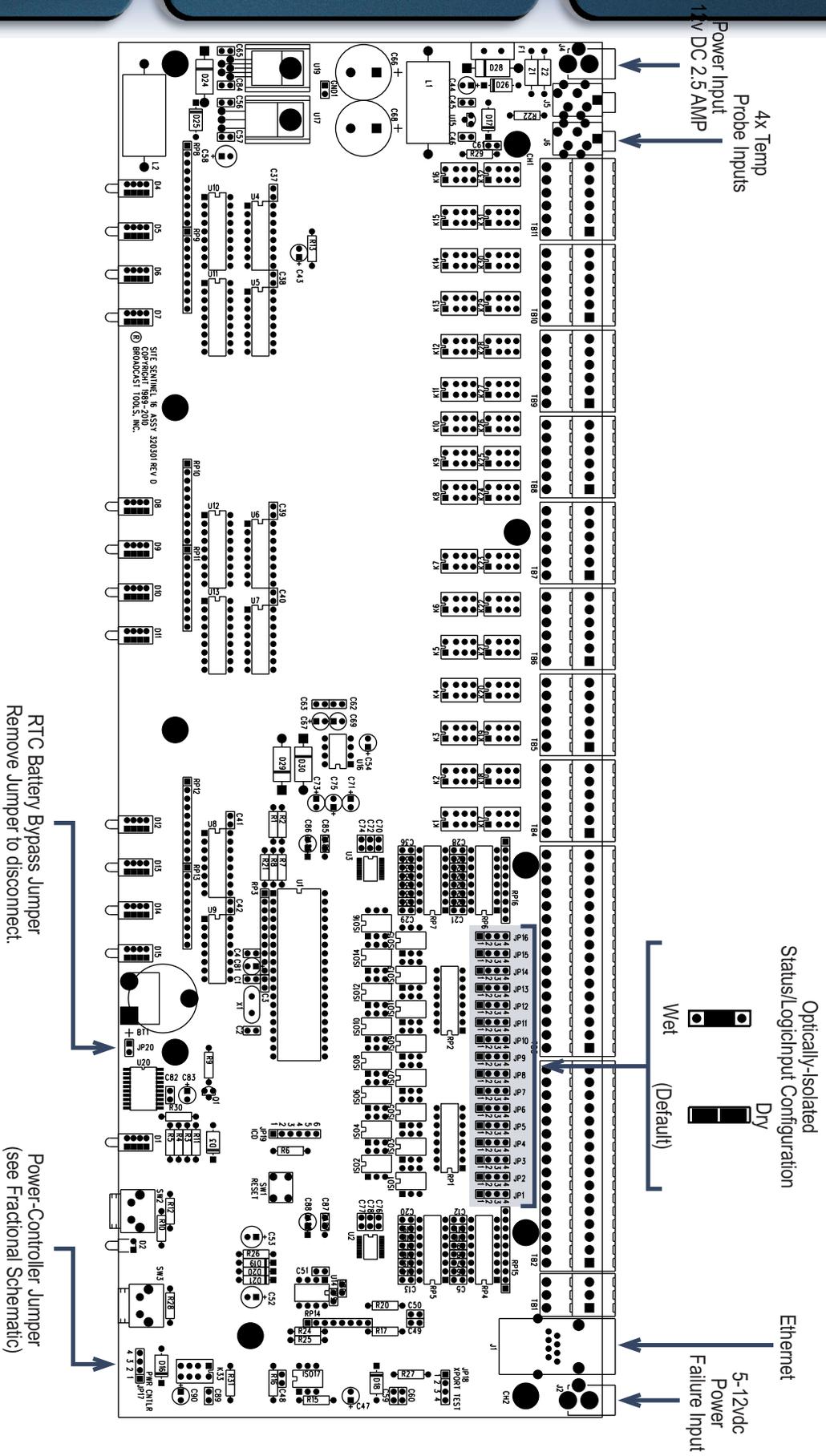
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Sedro-Woolley, WA 98284 • USA

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



SITE Sentinel® 16 JUMPER LAYOUT

16 Channel Web-enabled Site Remote Control System



RTC Battery Bypass Jumper
Remove Jumper to disconnect.

JP 17 TB-1-1 = N.O. } Power Control Relay w/
(Default) TB-1-2 = N.C. } 5dVc @ 100ma on wiper
TB-1-3 = gnd

JP 19 TB-1-1 = N.O. } Power Control Relay
TB-1-2 = N.C.
TB-1-3 = wiper

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Modification Date: 07/14/10

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