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PROBLEM SOLVED

Installation and Operation Manual

Streaming Sentinel® 4
Four Channel Internet Radio Monitor

Firmware Version: Tiva 0.31 and above
Manual update: 11/5/2020
If you need a firmware upgrade, contact Broadcast Tools®

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ALL SPECIFICATIONS AND FEATURES FOR THIS PRODUCT ARE SUBJECT TO CHANGE WITHOUT NOTICE

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

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

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e-mail: support@broadcasttools.com voice: 360.854.9559 fax: 866.783.1742

INTRODUCTION

Thank you for your purchase of a BROADCAST TOOLS® STREAMING SEN-TINEL 4 four channel internet radio monitor. 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® STREAMING SENTINEL 4.

SAFETY INFORMATION

Only qualified technical personnel should install the STREAMING SENTINEL 4. Any attempt to install this device by a person who is not technically qualified could result in a hazardous condition to the installer or other personnel or damage to the STREAMING SENTINEL 4 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 STREAMING SENTINEL 4. 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 Streaming Sentinel 4 is a MP3 and AAC internet radio stream monitor. It can be configured to monitor up four for different stream URLs and provide email and telephone voice message alarms if connectivity is lost. A user-selected stream is decoded and monitored via the front panel stereo LED VU meters, headphone jack and rear-panel balanced stereo (XLR) output.

Features/Benefits

- Monitors up to four MP3 or AAC streams for connectivity.
- Decodes one user selectable stream for confidence monitoring
- Front panel headphone jack and level control.
- Balanced stereo output on XLR connectors
- Internal silence sensor with front panel LED indicators.
- Stereo LED VU level meters.
- Front panel LED stream loss indicators.
- Email notification may be configured to alert up to EIGHT recipients when alarms are detected.
- Email logging of system status, along with the site ID may be emailed in time spans from once an hour to once a day.
- Simple telephone voice alarm dialer with four dial-out numbers and custom MP3 voice messages.
- Fully RFI proofed.
- Surge protected internal power supply, PS-1515 universal switching +/-15VDC power supply with domestic connectors supplied. International AC connectors optional.
- Up to two units may be mounted on the optional RA-1 rack shelf. Desktop and wall mounting is also possible.

Inspection

Please examine your STREAMING SENTINEL 4 carefully for any damage that may have been sustained during shipping. If any damage is present, please notify the shipper immediately and retain the packaging for inspection by the shipper. The package should contain the STREAMING SENTINEL 4, and a +/-15 VDC wall power supply with domestic connector. Manuals may be downloaded from our web site.

Installation

Surge Protection

The STREAMING 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 STREAMING 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 STREAMING SENTINEL 4 to a UPS system. A UPS helps minimize the risk to the STREAMING SENTINEL 4 and provides power during a power outage.

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LED indicators
- "PWR" LED: Illuminates when power is applied and pulses to indicate normal operation.
- "HK" LED: Lit when telephone line is seized. (Yellow)
- "SS" LED: Lit when silence is detected on the monitor channel. (Red)
- "Activity" LEDs (1-4): Lit when a stream URL is configured and active. (Green)
- "Error" LEDs (1-4): Lit when stream connectivity is lost or an error is detected. (Red)
- "Monitor" LEDs (1-4): Lit LED indicates which stream URL is being monitored for silence and routed to analog out/headphone out. (Yellow)

Front Panel Controls
"Select" pushbutton: Used to select which stream URL (1-4) is decoded, monitored for silence and fed to the outputs.

"Def": Recessed pushbutton used to place unit in special bootloader startup mode for firmware reset/update.

"PM LVL": Powered monitor level control, allows adjustment of analog output volume, when enabled with Fixed/PM Switch.

"HdPh LVL": Headphone output level control, adjacent to ¼" stereo headphone jack.

Defaults
The "Def" defaults button is located behind a recessed opening on the front panel. To reset the unit to default settings, apply power and wait for the Power LED to begin flashing, then hold down the defaults button for 10 seconds. Releasing the defaults button will trigger a reset to defaults.

Balanced Analog Audio Output
The Streaming Sentinel 4 provides a balanced analog stereo audio output on male XLR connectors labeled "Analog Out."

The output connector pin-out conforms to the 3-pin XLR Wiring Standards: Pin 1 = Ground. Pin 2 = Positive. Pin 3 = Negative.

Fixed/PM Switch
The recessed Fixed/PM switch toggles the analog audio output between a fixed output level mode and a power monitor mode which allows the output level to be controlled by the front panel "PM LVL" knob.

Relay and Remote Control Connections

(TB1 Top)

ALM (Alarm OC)	MON (Mon. Sel)	(K2-NO)	(K2-CM)	(K2-NC)	GND
ER1 (Error 1 OC)	ER2 (Error 2 OC)	ER3 (Error 3 OC)	ER4 (Error 4 OC)	GND	GND

(TB1 Bottom)

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Telco Line Jack

RJ-11 telephone line jack for connection to a phone line. Used when the Streaming Sentinel 4 is configured for dial-out alarm messages.

LAN / NET Jack

RJ45 Ethernet jack for 10/100baseT LAN/WAN connection.

MicroSD Card Slot

MicroSD memory card slot. Used for file storage and firmware updates.

Chassis Ground (Chs Gnd)

For connection to the station/site ground system.

Power

Connect the supplied PS-1515 +/-15 VDC switching power supply's 3-pin AMP-style latching power connector to the unit and the power supply with domestic connector into a 120 Vac 50-60 Hz power source. International AC input power plug adapters are optional.

NOTE:

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

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INSTALLATION

## Web Setup and Operation

Ethernet "Quick Start" guide

CAUTION! NEVER DOWNLOAD FIRMWARE UPDATES OR CHANGES TO THE BNET 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 the use of the latest version of Firefox, Safari for Windows or Chrome as your browser.

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 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.)
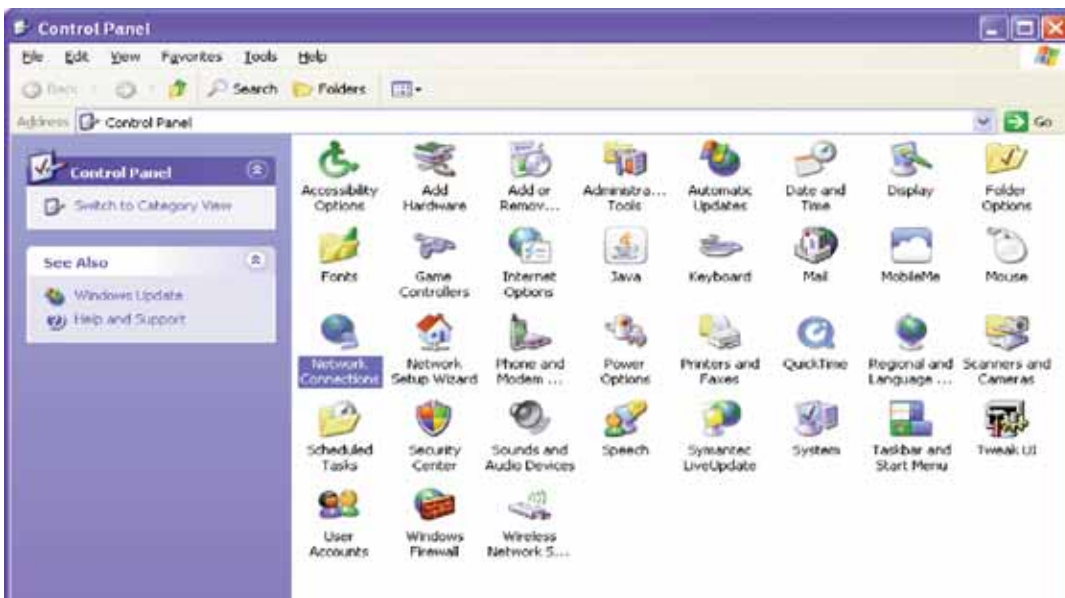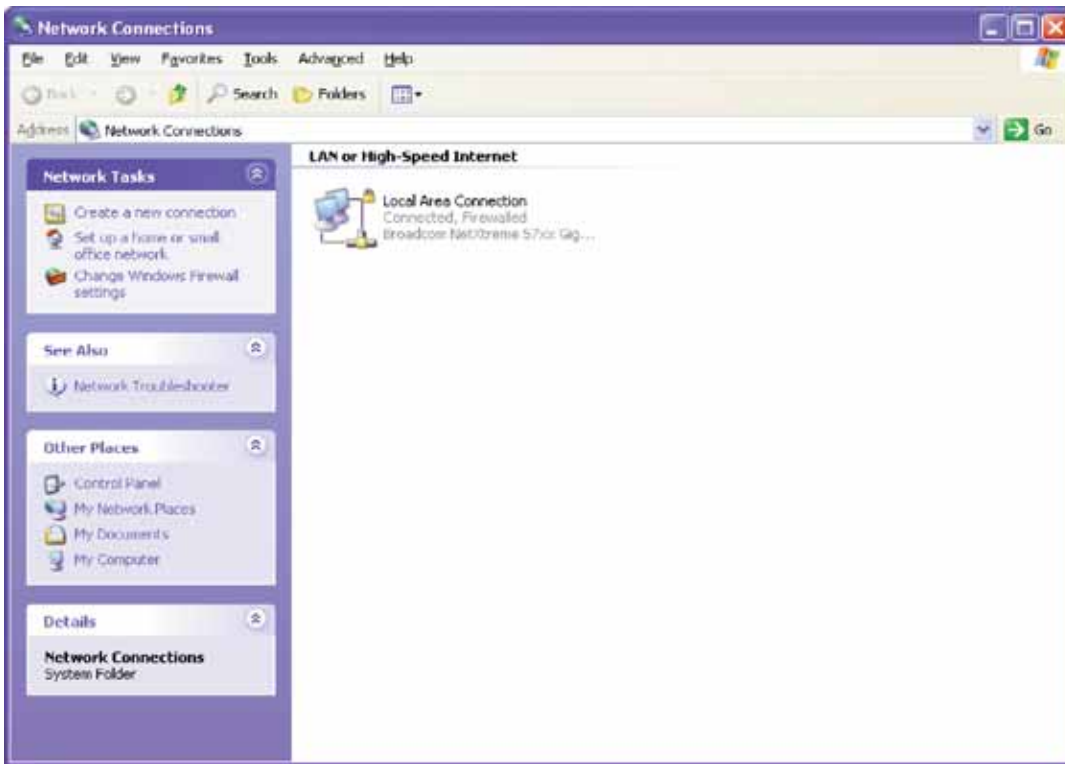

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Step 2: Double click on the icon labeled Network Connections. The following menu will pop up.

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.
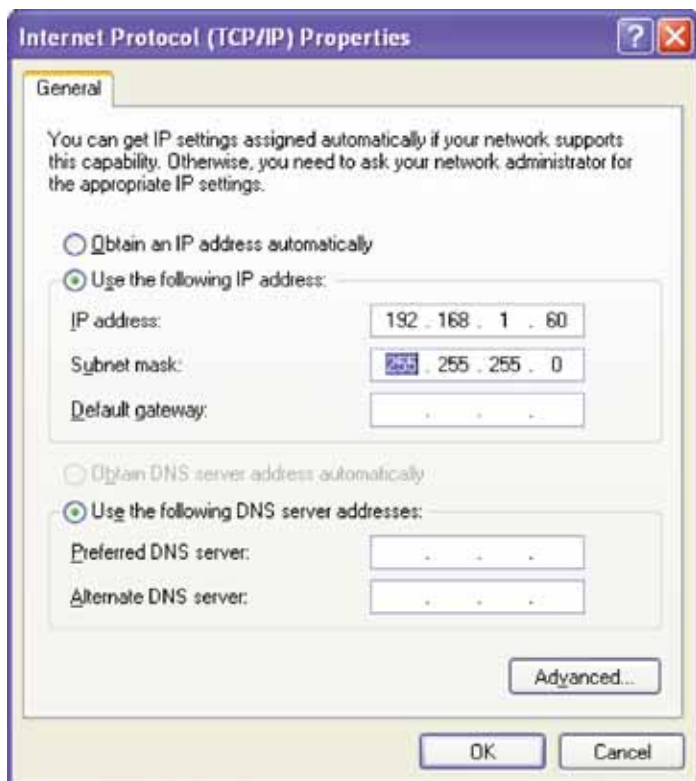

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WEB SETUP

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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WEB SETUP

Opening the LOGIN Web Page

1. Connect the supplied GRAY colored Ethernet crossover cable (XOVER) between the PC's Ethernet port and the product's "LAN/NET" network RJ45 jack.

2. Connect the supplied power supply to the product's power jack. Verify that the front panel green POWER LED is ON and the left "LINK" LED above the "NET" Network RJ-45 connector is illuminated

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

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

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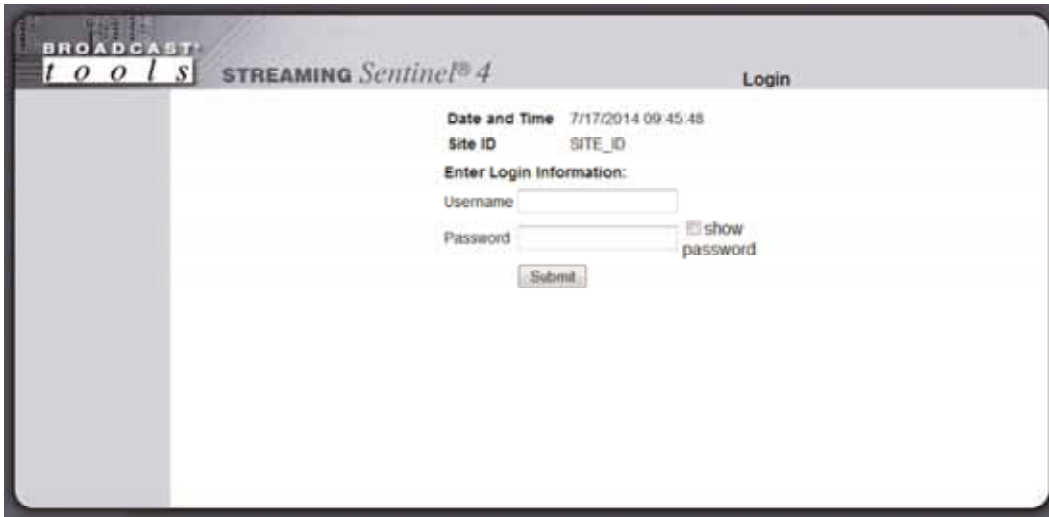*Visit our web site for product updates and additional information.*

WEB SETUP

"Login" Web Page

The Login screen displays the Username and Password entry points as well as the date, time, and site ID.

You may view the password as you type by checking the "Show Password" box.
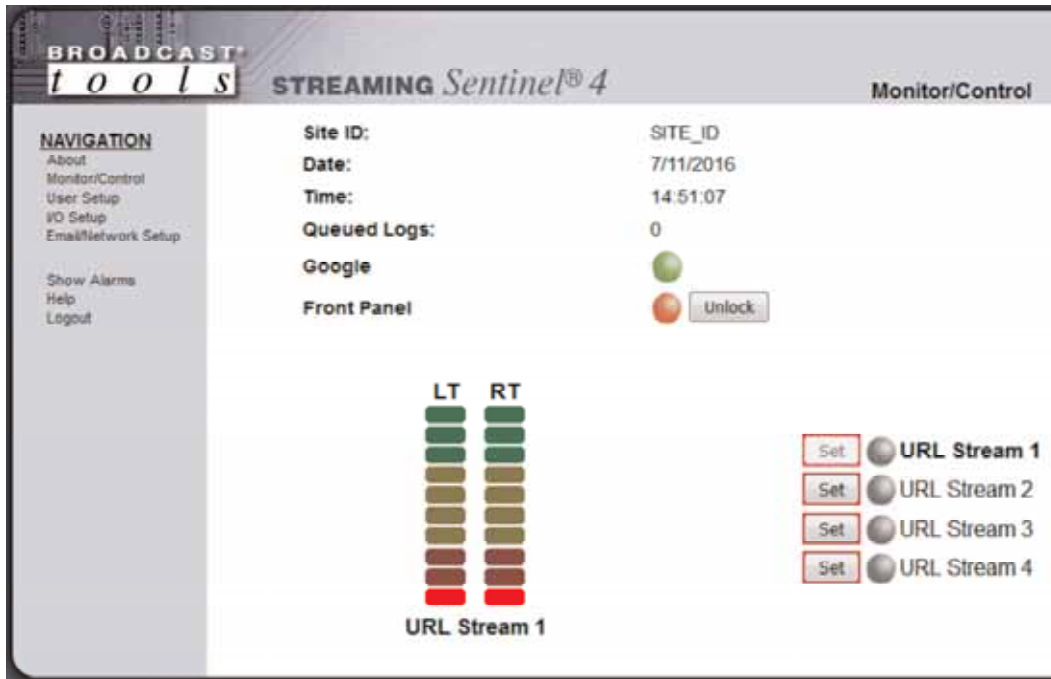

After you have successfully logged in, the Monitor/Control page will be displayed.

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WEB SETUP

"Monitor/Control" Web Page

The Monitor/Control page allows the monitor and/or control of the Streaming Sentinel 4. The following is an explanation of each item on this page:

Site ID: Identifies the unit and location.
Data/Time: Current date/time from the Streaming Sentinel.
Queued Logs: Displays the number of queued log entries scheduled to be emailed.
Google: Indicates Internet Ping alarm state.
Front Panel: Lock or unlock the front panel controls.

URL Stream buttons: Used to select which URL is decoded for confidence monitoring.
URL Stream indicators: Green = Stream Good, Red = Stream Down, Grey = No URL Entered.
LT/RT Stream meters: Audio level metering for the stream being decoded.

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WEB SETUP

"User Setup" Web Page

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

1. "Admin" allows complete access for configuration and control.

2. "Monitor/Control" allows access to these pages:
   About, Monitor/Control, Show log, Help, and Logout.

3. "Monitor Only" allows access to these pages:
   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.

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WEB SETUP

"I/O" Setup Page

Greeting Voice Message:	The greeting voice message is used by voice alarm telephone dialer to identify the unit before playing the alarm message. Click browse, locate your greeting message MP3 file and upload it to the Streaming Sentinel. The MP3 file must be encoded at 64kbps constant bit rate.
Decode on Power Up:	Choose which stream to automatically decode for confidence monitoring on power up.

Streams

This section includes stream URLs, alarm settings, email alarm and dial-out alarm assignments and alarm voice message upload. The "Streams" dropdown menu is used to choose between the 4 stream monitoring channels:

Label:	Name/descriptor of stream to be monitored.
Log Device:	Enables email snapshot logging of stream status.
Delay:	Specifies the alarm delay time, from when stream connectivity is lost and an alarm is generated. 0-999 seconds
Restore:	Specifies the restore delay time, from when stream connectivity returns and the alarms is cleared. 0-999 seconds.
http://	The stream URL to be monitored. Must be a direct URL, not a playlist (m3u, etc). MP3 and AAC streams are supported.
Alarm Voice Message:	The alarm voice message is used by voice alarm telephone dialer to identify the stream that is in alarm. Click browse, locate your alarm message MP3 file and upload it. **The MP3 file must be encoded at 64kbps constant bit rate.**
Alarms Enter:	This option enables the generation of an alarm when the stream connection fails.

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WEB SETUP

Alarms Exit: This option enables the generation of an alarm when the stream connection returns.

Email Addresses: This allows you to assign up to 8 email addresses to send alarm emails to when the input enters or exits an alarm state.

Phone Numbers: This allows you to assign up to 4 phone number to be called with the alarm message when an alarm state occurs.

Internet Ping

The Internet Ping alarm allows the Streaming Sentinel to monitor any internet address/URL for ICMP ping connectivity and then notify the user of loss of contact via email or telephone, when available.

Label: Name/descriptor of address being pinged.

Log Device: Enables the email snapshot logging of the ping status.

Timeout: This specifies how long to wait for a ping response from the ping address before timeout (unreachable.)

Monitor Interval: The interval at which the Streaming Sentinel pings the ping address in a non-alarm state.

Alarm Interval: The interval at which the Streaming Sentinel pings the ping address while in an alarm state.

URL: Enter the DNS address or IP address that you wish to monitor.

Alarm Voice Message: The alarm voice message is used by voice alarm telephone dialer to identify the input that is in alarm. Click browse, locate your alarm message MP3 file and upload it. The MP3 file must be 64kbps constant bit rate encoded.

Alarms Enter: This option enables the generation of an alarm when the ping test fails.

Alarms Exit: This option enables the generation of an alarm when the ping response returns.

Email Addresses: This allows you to assign up to 8 email addresses to send alarm emails to when the input enters or exits an alarm state.

Phone Numbers: This allows you to assign up to 4 phone number to be called with the alarm message when an alarm state occurs.
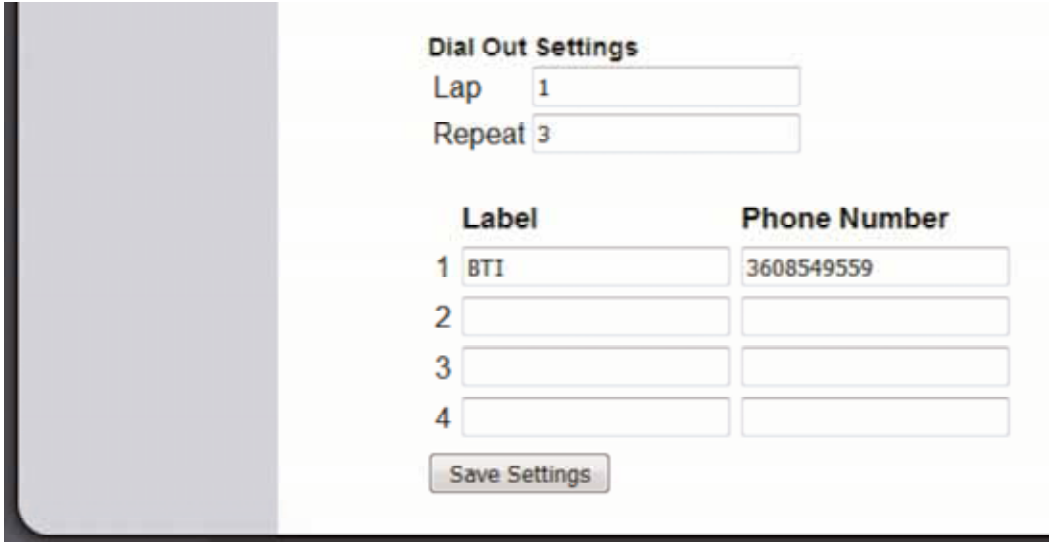
WEB SETUP

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Dial Out Settings
Once you've uploaded voice messages and enabled dial-out alarms you can enter up to four phone numbers to call out alarm messages to.

Label: Name/descriptor for phone number.
Phone Number: Phone number you wish to receive alarm messages. Formatted as you would dial it.

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

"Email/Network Setup" Web Page

WEB SETUP

"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: 8.8.8.8

HTTP Port: Normally Port 80   Default: 80

"Email/Network Setup" Web Page – SMTP Settings

SMTP Server Address: SMTP (Simple Mail Transfer Protocol) server address. Used to send emails.

SMTP Port: Normally Port 25 or 587.   Default: 25

SMTP Return Address: Enter your return email address here. Emails from the Streaming Sentinel will indicate they are from this address. If an email cannot be delivered, a message stating why will be sent to this address.

SMTP Host ID: Enter something here to identify the device.

Secured SMTP: STARTTLS secure authentication is supported by most providers. This must be enabled for many SMTP servers, like Gmail. Leave disabled for standard Base64 authentication.

SMTP Authentication: When checked SMTP authentication (username/password) is used. Most SMTP servers require authentication.

SMTP Username: Enter SMTP server username here.

SMTP Password: Enter SMTP server password here.

NOTE: The user must enter the following items before an email can be successfully sent: SMTP Server Address, SMTP Port, SMTP Return Address, and SMTP Host ID. SMTP username and SMTP password must be supplied and authentication turned on if the SMTP server requires authentication. An email address must be entered into Recipient Address field #1.

The user must 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 are correct.

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WEB SETUP

"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 Interval: The period in hours that a snapshot is taken of the system. The logging email is not sent on this interval.

Logging Email Update Interval: 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 time 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 Traps: When checked, SNMP trap messages will be sent. When unchecked, no trap messages will be sent to the manager.

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: This is the port number that SNMP trap messages will be sent to at the manager IP. Default port 161.

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.

"Email/Network Setup" Web Page – 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: 60

"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.

Time Zone Offset from UTC: Sets the time zone used for the internal clock.
                              Default: -8
Enable Daylight Savings: Adjusts the clock for daylight savings time.

Set Time: The hour, minute, second, month, day and year boxes can be used to set the time of the real time clock. The time is only updated if you click "Save Time" and not when you "Save Settings".

Enable Event Logging: Event logging will generate an alarm, but it will not send an email. If the system is configured for Daily Alarm emails, then that Daily Alarm email will contain the event logging alarms as well as the alarms configured on the I/O Setup page.

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

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

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

Alarms Cleared: When 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.

✎ 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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WEB SETUP

"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 you will be returned to the login screen after the device reboots.

Reboot Device: When you press the "Reboot Device" button, the internal web server restarts.

Send Test Email: Press this button to send a test email to recipient address 1.

Reload Defaults: When you press the "Reload Defaults" button, the device resets to factory default settings.

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 clear the log queue.

Import Settings: Browse to locate and import an .ncs saved settings file.

Export Settings: Clicking save will allow you to download a backup copy of the settings entered into the unit as .ncs file.

Firmware: Browse to locate and apply a firmware updated file saved on your computer.

✎ NOTE:

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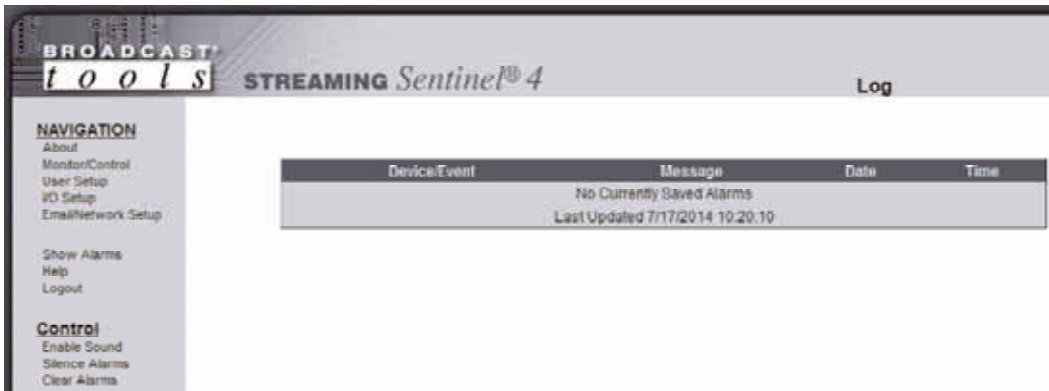
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WEB SETUP

"Show Alarms" Web Page

This page displays current alarms.

Device/Event :   Labels the device or event.

Message: Describes event/alarm condition.

Date: Displays the date that the event/alarm was logged.

Time: Displays the time that the event/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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WEB SETUP

"About" Web Page

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

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WEB SETUP

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SPECIFICATIONS

Maximum Number of Streams:	4

Supported Audio Formats: MP3, LC-AAC, HE-AAC.

Analog Outputs: Headphone output with ¼" TRS stereo jack, balanced stereo output with XLR-M jacks.

Relay/Status Outputs: Five open collector outputs: Each output sinks 6 VDC @ 100 mA (max.) One SPDT dry contact relay output: 30 VDC @ 1 Amp (max.)

CAUTION! **For safety, never connect 120 Vac circuits to the unit!**

Power Supply: PS-1515 universal switching power supply with domestic AC connector supplied. International connectors optional. +/-15 VDC 400mA output with 3-pin AMP-style latching power connector.

Operating Temperature: -40°F to +185°F (-40°C to +85°C)

Size: 8.50" x 7.10" x 1.576" (WDH)

Weight: 3.0 lb.

Options: * International power plug adapters.
* RA-1, 1-RU rack shelf. Accommodates two units.

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LIMITED WARRANTY

The term "Buyer" as used in this document refers to and includes both (but only) (a) any person or entity who acquires such an item for the purpose of resale to others (i.e., a dealer or distributor of an item), and (b) the first person or entity who acquires such an item for such person's or entity's own use.

Broadcast Tools warrants to each Buyer of any item manufactured by Broadcast Tools that the item will be free from defects in materials and workmanship at the time it is shipped by Broadcast Tools if the item is properly installed, used and maintained.

EXCLUSIVE REMEDIES

If Broadcast Tools is notified, in writing, of a failure of any item manufactured by Broadcast Tools to conform to the foregoing Limited Warranty within one (1) year following the date of the Buyer's acquisition of the item, and if the item is returned to Broadcast Tools in accordance with Broadcast Tools' instructions for confirmation by inspection of the defect (which at Broadcast Tools' election may include, without limitation, a requirement that the Buyer first obtain a Return Authorization number from Broadcast Tools, that the Buyer furnish proof of purchase in the form of an invoice and/or receipt, and that the Buyer prepay all freight charges associated with any return of the item to Broadcast Tools using such freight service as Broadcast Tools reasonably may specify), Broadcast Tools will repair or replace the defective item, or will refund the purchase price paid by the Buyer for the item. Broadcast Tools shall have the exclusive right to choose between these alternative remedies.

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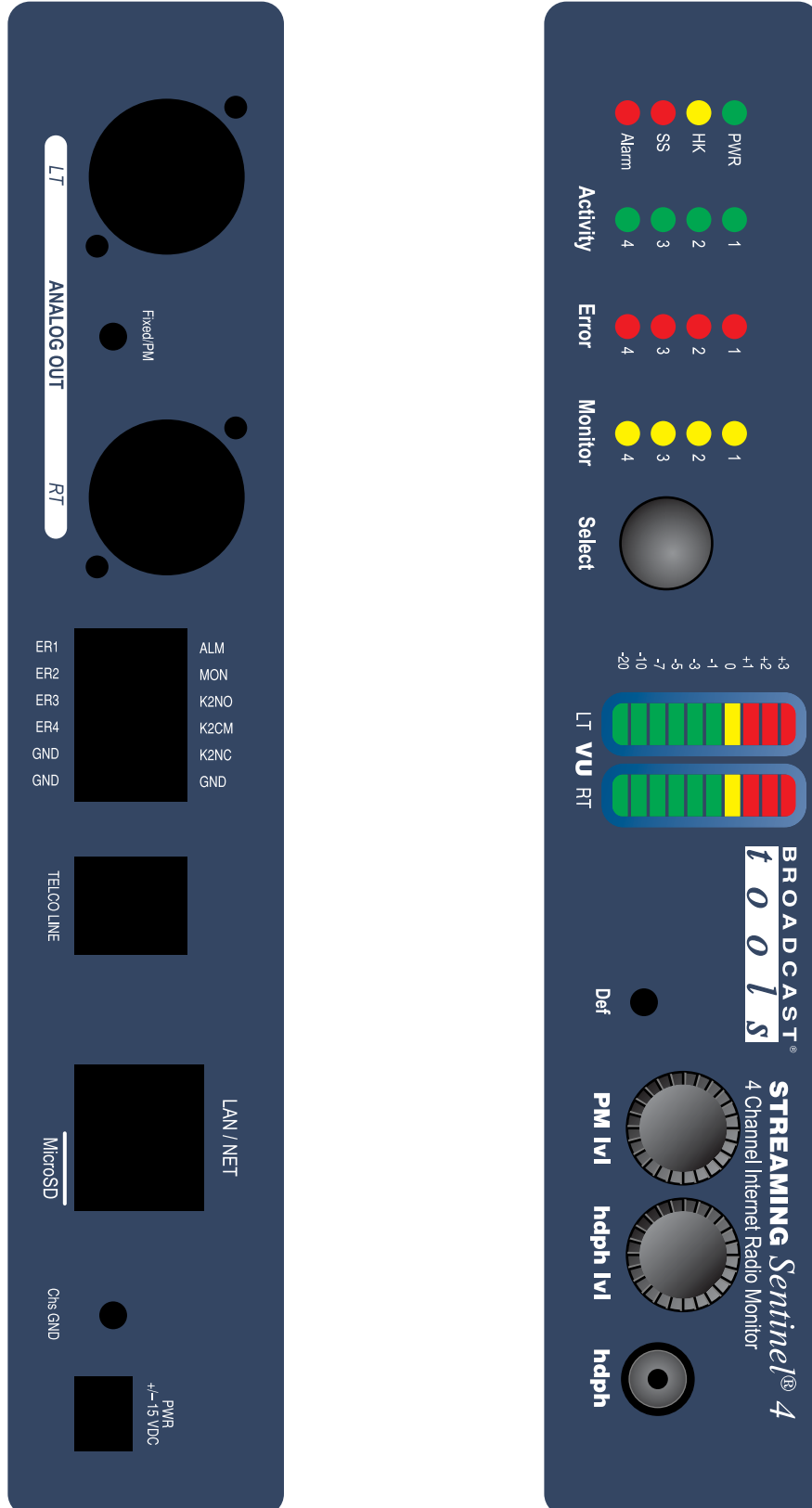
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LT
ANALOG OUT
Fixed/PM
RT

ER1
ER2
ER3
ER4
GND
GND

ALM
MON
K2NO
K2CM
K2NC
GND

TELCO LINE

MicroSD
LAN / NET

Chs GND
PWR
+/–15 VDC

Activity
Error
Monitor
Select

Alarm
SS
HK
PWR

4 3 2 1
4 3 2 1
4 3 2 1

-20 -10 -7 -5 -3 -1 0 +1 +2 +3

LT **VU** RT

BROADCAST *tools*®

Def

PM lvl
hdph lvl
hdph

STREAMING *Sentinel*® *4*
4 Channel Internet Radio Monitor

APPENDIX

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Streaming Sentinel 4
Component Layout

BROADCAST
tools®

Streaming Sentinel 4
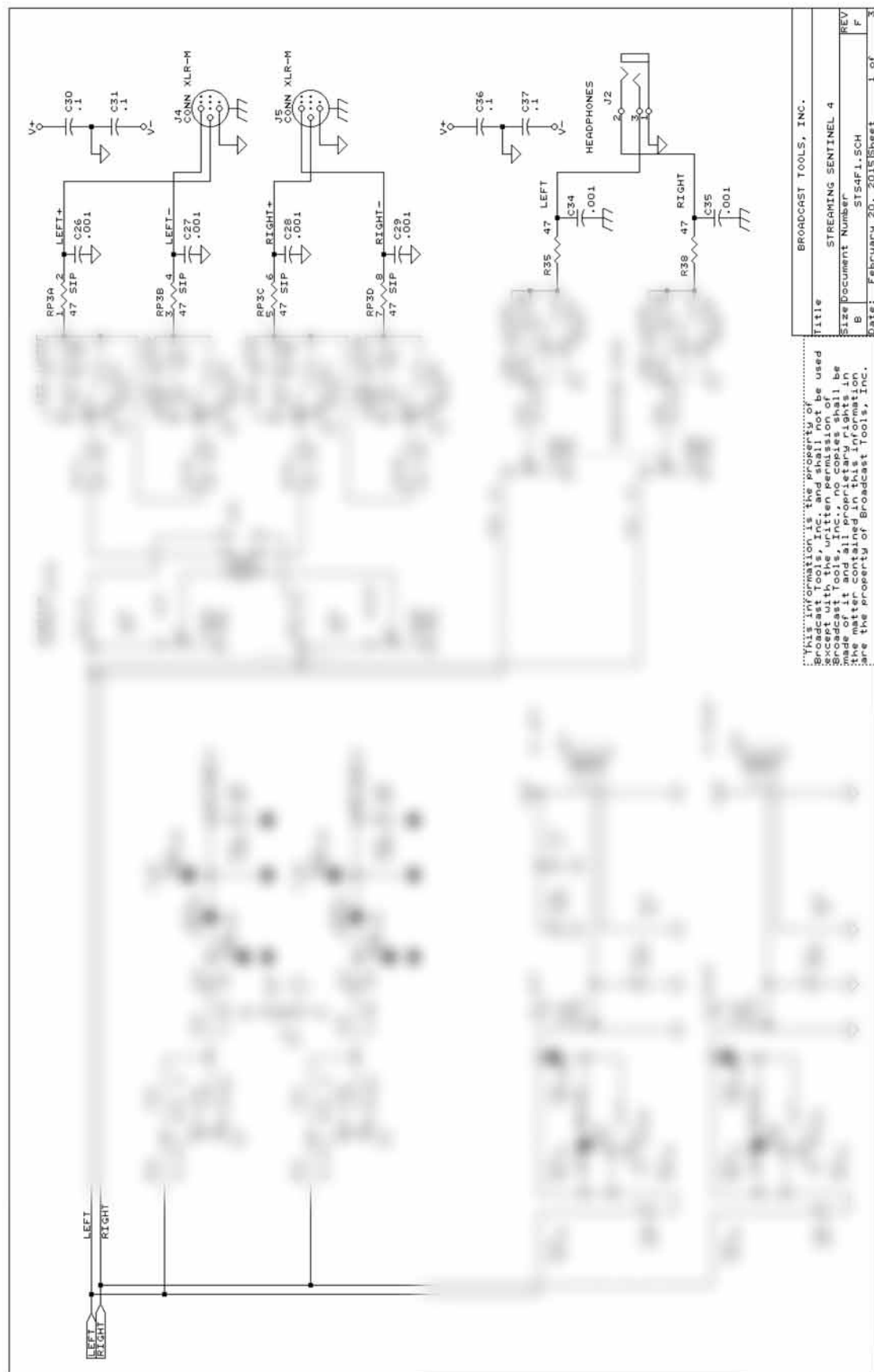
FRACTIONAL SCHEMATIC

FRACTIONAL SCHEMATIC

Modification date: 08/11/16

FRACTIONAL SCHEMATIC

Streaming Sentinel 4

BROADCAST tools

APPENDIX

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