

**EPSILON SWITCH & AMPLIFIER
SYSTEM SAS-E
MODEL SAS17E & SAS36E**
User's Manual



www.orolia.com

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OROLIA LIMITED WARRANTY

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1 Introduction

This document is the User's Manual for the EPSILON Switch and Amplifier System 17E and the EPSILON Switch and Amplifier System 36E. (Unless otherwise indicated, details contained herein apply to both models.)

The SAS-E achieves redundant Time & Frequency source monitoring with intelligent and automatic switching. It amplifies signals from the selected source and offers a large quantity of output channels. The SAS-E receives, and monitors continuously, signals from 1 or 2 external clocks:

- Frequency sine wave signal (from 1 MHz up to 16 MHz)
- IRIG B DCLS or 1 pulse per second time synchronization (1PPS/DCLS TTL/50Ω)
- Time Of Day message (RS232C serial line)
- External clock status (relay contact)
- External signals* (External Sig)

Monitoring results (lost signal and minimal period detection) are reported to the user through dedicated LEDs and through an Ethernet port. When 2 external clocks are connected, the SAS-E offers a powerful redundant function by selecting, automatically, the better source. This automatic selection may be by-passed by the user to allow maintenance or for single clock operation.

In all cases, the distributed signals — Frequency, 1 Pulse Per Second (PPS), Time of Day (ToD) — are issued from the same source clock. In automatic mode, when the current selected source is detected faulty, the SAS-E switches all the distributed signals to the other source. An Ethernet port allows managing and controlling the SAS-E through embedded SNMP protocol and/or web server.

The SAS-E is available in two heights to adapt the output capacity to the user's requirements:

SAS17E — 1u High Version:

8 x frequency outputs, 8 x 1PPS/DCLS TTL outputs, 2 x ToD outputs, 2 x external signals.

SAS36E — 2u High Version:

16 x frequency outputs, 16 x 1PPS/DCLS TTL outputs, 2 x ToD outputs, 2 x external signals.

*This External Signal input : this feature can only do the redundancy function, not multiply the distributed signal.

Example : you can input 2 x IRIG RS485 and output 1 x IRIG RS485 with redundancy.

Note about the limitation of this feature : this signal input is not monitored by SAS E (SAS E doesn't analyze the presence nor the quality of the "External Sig" input signal to use it as criteria for switching).

So if you want to make the SAS E switches, you will need to use other inputs in addition (like alarm contact or 1PPS/10MHz or RS232/TOD signal input).

1.1 Terminology

DHCP	Dynamic Host Configuration Protocol
IP	Internet Protocol
MIB	Management Information Base
NTP	Network Time Protocol
OID	Objet IDentifier
PPS	Pulse Per Second
SAS	Switch & Amplifier System
SNMP	Single Network Management Protocol
ToD	Serial message Time of Day
USB	Universal Serial Bus

1.2 Inventory

Before installing your Spectracom product, please verify that all material ordered has been received. If there is a discrepancy, please contact OROLIA / Spectracom SAS Customer Service. Customer service is available by telephone at +33 (0) 1.64.53.39.80 (France), or +1.585.321.5800 (United States). Updated contacts information are available on web site, see "Support" page.

CAUTION:



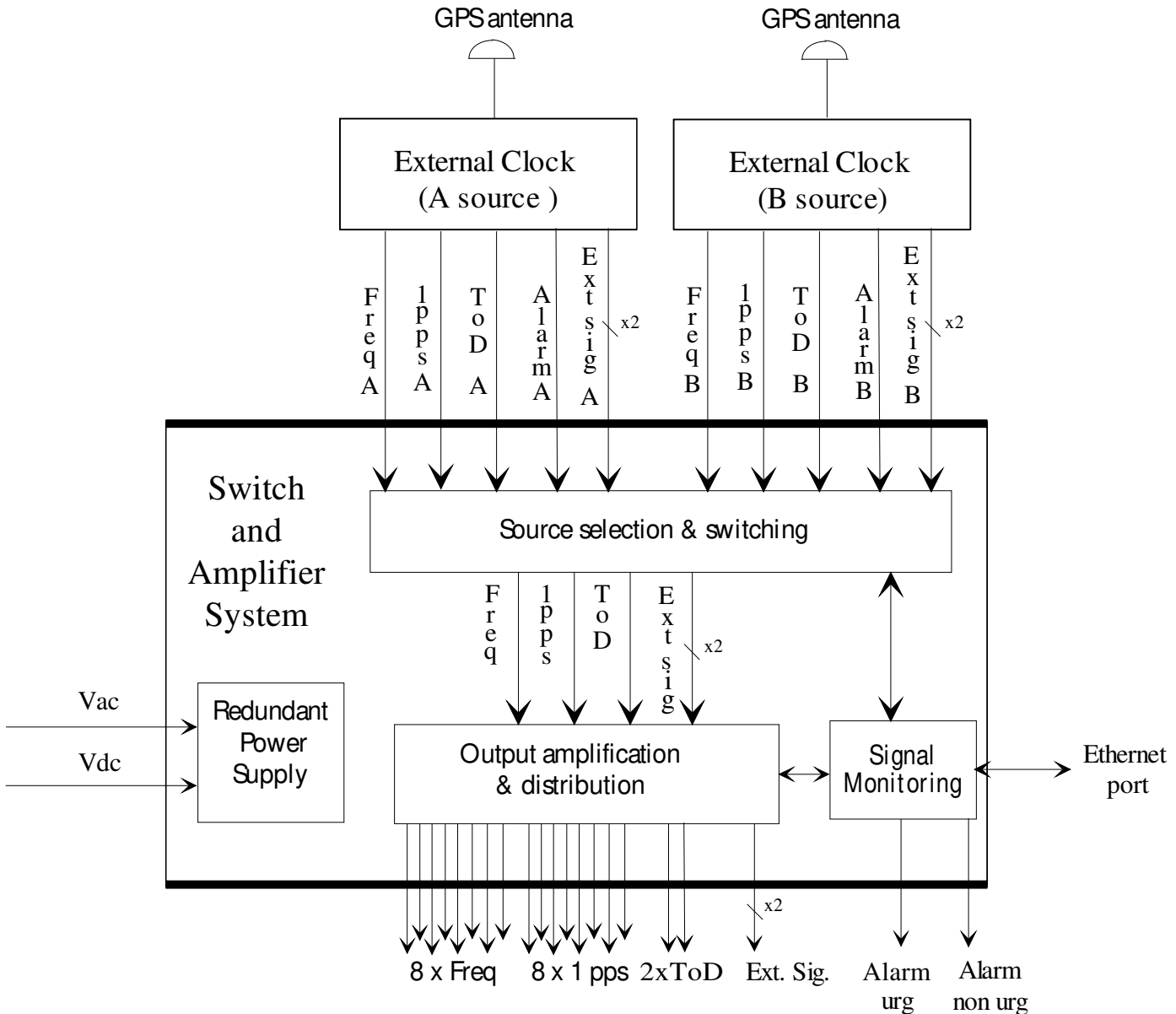
Electronic equipment is sensitive to Electrostatic Discharge (ESD). Observe all applicable ESD precautions and safeguards when handling the Spectracom equipment.

NOTE: If equipment is returned to Spectracom, it must be shipped in its original packing material. Save all packaging material for this purpose.

1.3 Inspection

Unpack the equipment and inspect it for damage. If any equipment has been damaged in transit, please contact Spectracom Customer Service. Customer service is available by telephone at +33 (0) 1.64.53.39.80 (France), or +1.585.321.5800 (United States). Updated contacts information are available on web site, see "Support" page.

1.4 SAS17E Synoptic



Note about ports :

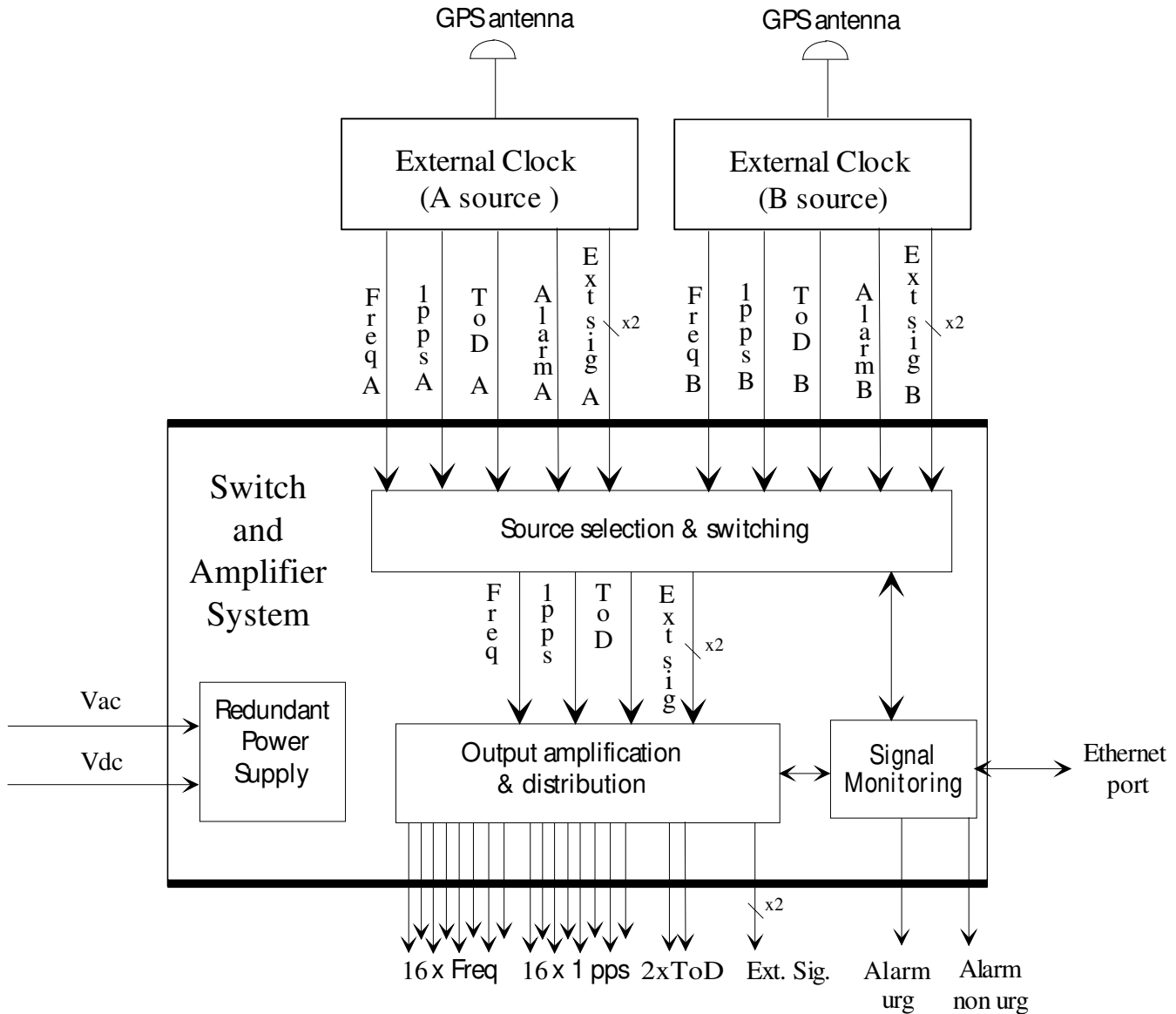
1 pps port (input or output) : Can be used for 1PPS TTL level or IRIG B DCLS (TTL) signals.

Freq port (input or output) : Use Frequency sine wave signal only (from 1 MHz up to 16 MHz).

Ext Sig : see details on chapter 2.3

Alarm : Urg (can be named MAJ depending version) Non Urg (can be named Min depending version).

1.5 SAS36E Synoptic



Note about ports :

1 pps port (input or output) : Can be used for 1PPS TTL level or IRIG B DCLS (TTL) signals.

Freq port (input or output) : Use Frequency sine wave signal only (from 1 MHz up to 16 MHz).

Ext Sig : see details on chapter 2.3

Alarm : Urg (can be named MAJ depending version) Non Urg (can be named Min depending version)

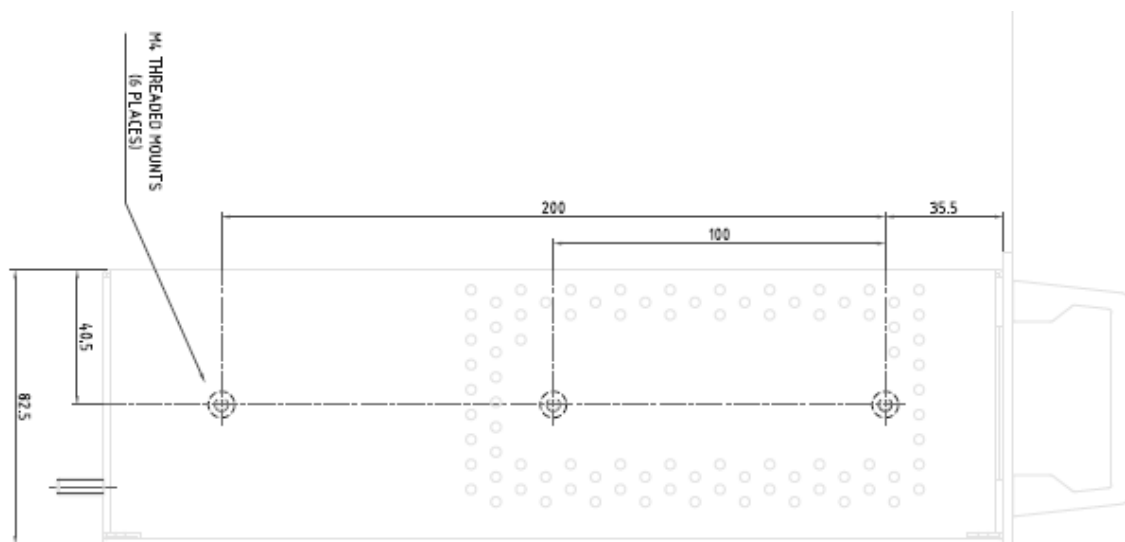
1.6 Dimensions and Weight

	SAS17E 1u version	SAS36E 2u version
Height	43.6 mm \pm 0.1mm	88.1 mm \pm 0.1mm
Width	483 mm \pm 0.1mm	483 mm \pm 0.1mm
Depth	323 mm \pm 0.1mm	323 mm \pm 0.1mm
Weight	3.2 kg	4.1 kg

Mechanical Installation – Rack mounting

The holes can be used to adapt rackmount slides. (see dimension below for detail)

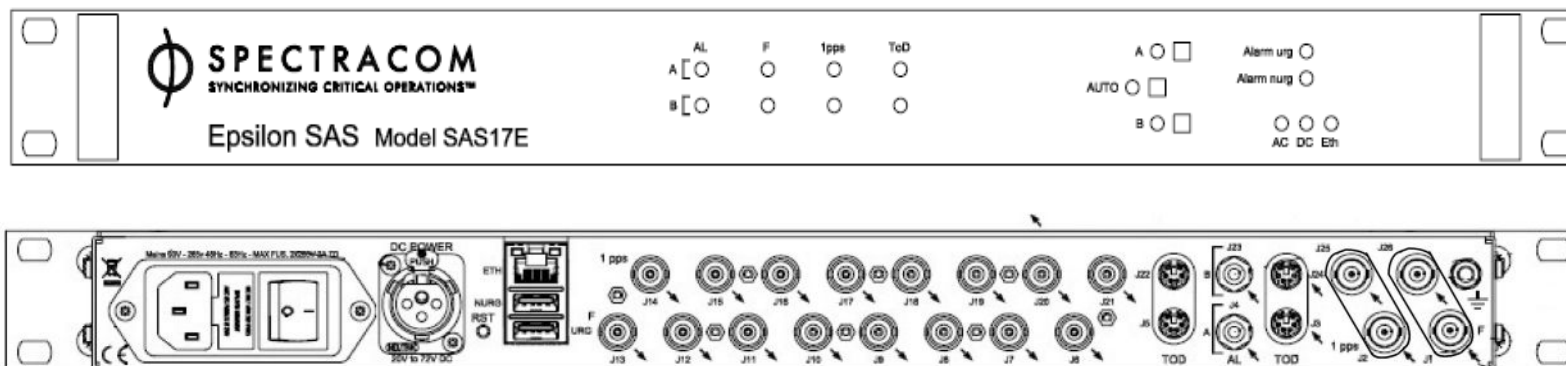
Please note that screws must be M4 x 8 max length (depth accepted inside the box).



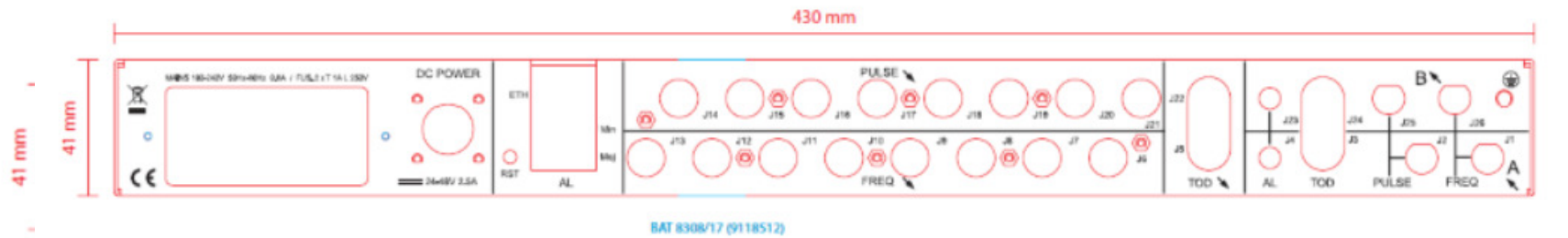
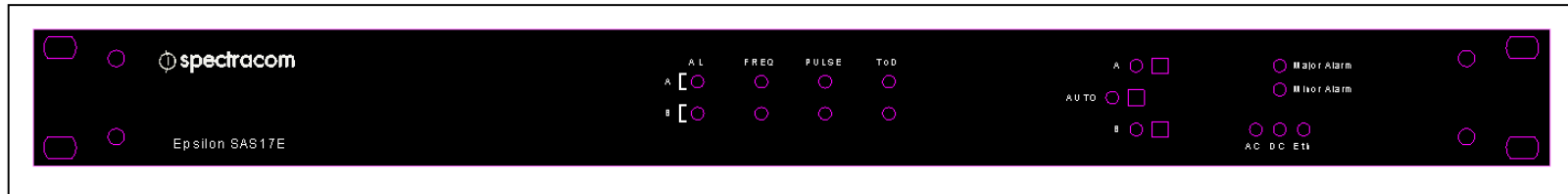
1.7 Front and Rear Panel

1.7.1 SAS17E

Versions delivered before July 2017

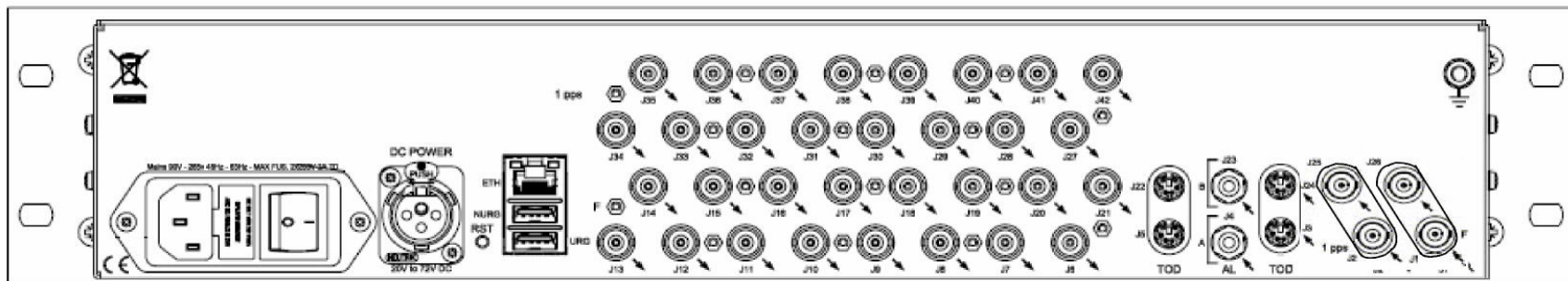


Versions delivered after July 2017 :

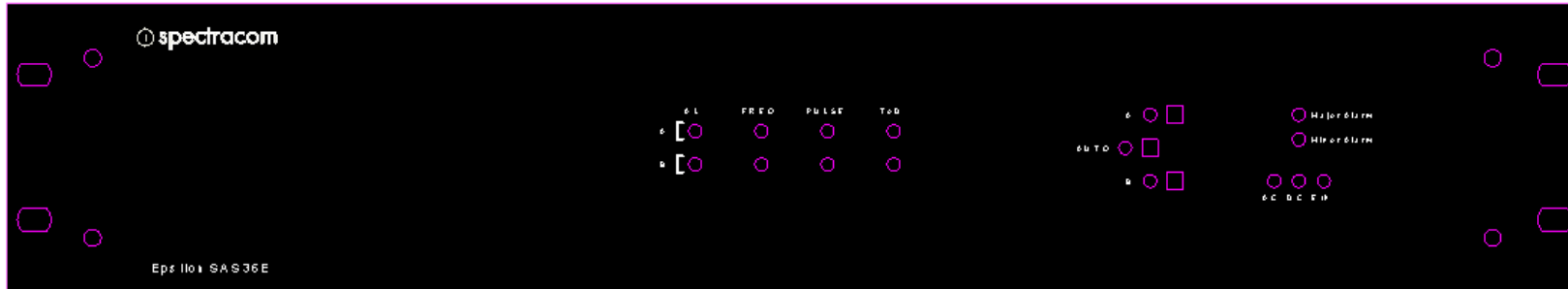


1.7.2 SAS36E

Versions delivered before July 2017



Versions delivered after July 2017 :



2 Features

2.1 Main Power Supply

Main power connector CCE22 with ON/OFF switch.

Input voltage: **MAINS 100V-240V 50Hz-60Hz 0.6 A**

Fuses: **FUS. 2 x T 1A L 250V**

Consumption: 18 W typical

Example (recommended by Spectracom) : ref SCHURTER FST 5x20 type - Miniature Fuse, 5 x 20 mm, Time-Lag T, L, 250 VAC (REF 0034.3117)

Detection of power input presence on AC/DC converter — information available with remote control software.

2.2 DC Power Supply

Input power (VDC): 24 to 48V

Consumption: < 50 W typical.

Protection against polarity inversion.

Protection against short-circuit: polyswitch ensures the isolation of the module in relation to the DC power supply in the event of a short-circuit of the EPSILON's power supply.

Detection of power input presence on AC/DC converter — information available with remote control software.

Two configurations can be found depending versions :

2.2.1 Previous Material revision typically delivered before July 2017

Connector: DC POWER XLR 3 points pins male NEUTRIX reference NC3MDH

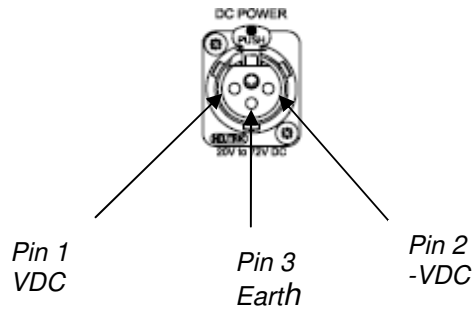
Pins settings:

Pin Number:

1	+VDC
2	-VDC
3	Earth Ground



The power supply must be connected between pins 1 and 2, rear panel external view:



2.2.2 Material revision typically delivered before July 2017

Connector: DC Plug, 3-pin, chassis mount: Amphenol P/N DL3102A10SL-3P

Note : Connection is equal to SecureSync units.



Pinout description, DC connector

- Pin B goes to the most positive DC voltage of the DC source. For +24/48 V this would be the positive output from the DC source. For a -24/48 VDC source this would be the ground or return of the DC source.
- Pin A goes to the most negative voltage of the DC source. For +24/48 V this would be the ground or return output from the DC source. For a -24/48 VDC source this would be the negative output from the DC source.
- Pin C goes to the Earth ground of the DC source.

2.2.3 Information for parts not included in the product package :

- Mating DC Connector, circular, 3-pin, solder socket, 16AWG,13A,300V: Amphenol P/N DL3106A10SL-3S. (same as used by SecureSync)



- AC/DC converter: With recent version using Amphenol type*, the DC input can be used as a second AC input: As an option, Spectracom offers a kit containing an AC/DC converter with a pre-assembled DC connector: The part number for this adaptor kit is PS06R-2Z1M-DT01. (same as for SecureSync unit).



**Note : For SAS-E versions delivered before July 2017, the AC/DC converter reference is PS06R-2Z1M-DT03.*

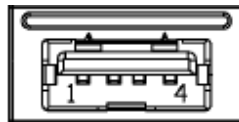
2.5 Urgent Alarm or Major Alarm

Connector: Universal Serial Bus (USB) connector A series (URG)

Pin	Signal	Description
1	Urg_al_closed +	Urgent Alarm active closed contact +
2	Urg_al_closed -	Urgent Alarm active closed contact -
3	Urg_al_open +	Urgent Alarm active open contact +
4	Urg_al_open -	Urgent Alarm active open contact -

Characteristics:

- Relay contact
- Pin 1 and 2 closed in case of urgent alarm active
- Pin 3 and 4 open in case of urgent alarm active
- Resistive contact Rating: 30VA / 250V



URG or Maj

2.6 Non-Urgent Alarm or Minor Alarm

Connector: Universal Serial Bus (USB) connector A series (NURG)

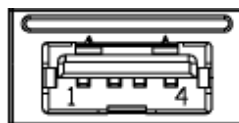
Pin	Signal	Description
1	Nurg_al_closed +	Non Urgent Alarm active closed contact +
2	Nurg_al_closed -	Non Urgent Alarm active closed contact -
3	Nurg_al_open +	Non Urgent Alarm active open contact +
4	Nurg_al_open -	Non Urgent Alarm active open contact -

Caution to add : not to be used as a standard USB port etc.....

Characteristics:

- Relay contact
- Pin 1 and 2 closed in case of urgent alarm active
- Pin 3 and 4 opened in case of urgent alarm active
- Resistive contact Rating: 30VA / 250V

**NURG
Or
Min**



2.7 Ethernet Port

Connector: RJ45 (Eth)

Pin	Signal	Description
1	TX+	Transmission signal plus
2	TX-	Transmission signal minus
3	RX+	Reception signal plus
4		
5		
6	RX-	Reception signal minus
7		
8		

Characteristics:

- Interface 10 Base T , IEEE-802.3 compliant
- Full featured 10 Base T / 100 BASE T auto negotiation function
- IP address assignment: DHCP automatic assignment or fixed IP address
- Protocol: Transfer Control Protocol and Internet protocol (TCP/IP)
- Web page server with HTTP protocol for configuration; status included
- Configuration and status are manageable through SNMP protocol. The MIB includes a sub-set of configuration and status parameters. SNMP traps are sent to the network on event trigger.

2.8 Operating Environment

- Operating temperature: -5 to 55°C
- Storage temperature: -40 to 85°C
- Relative humidity: 95 % non-condensing
- Electromagnetic compatibility: in accordance with EN61000/EN55022/EN62368

2.9 EMC

Complies with the requirements of the standards:

- EN 61000-6-2: ed 2005
- EN 61000-6-3: ed 2007
- EN55022 ed 2006 Class B

3 Installation

The unit can be used by itself or mounted in a rack. Leave free space of a few centimeters under the unit, in order to facilitate natural air flow from the bottom to the top of the SAS-E.

- Connecting cables for signals and power supply should be secured to locks provided for this purpose.
- Connect a ground lead from the Earth pin on the SAS-E back panel to the frame of the rack.

3.1 Powering Up

The SAS-E can be powered from an AC source, from a DC source, or from both.

For full redundancy, connect the DC power cables to the VDC connector and the AC power cable to the AC connector. Check the polarity of the power signal before connecting it (refer to *DC Power Supply* and to the back panel labels for the pin-out). Priority is given to AC input.

Power-up is immediate when connecting DC power with the cable, while AC power must be switched on.

During power-up, check the initialization sequence process (OS boot) on the front panel. All of the LEDs should be activated. This process may take about two minutes.

3.2 Network Connection

The factory IP address is 192.168.0.100 in static mode. On the back panel, a reset button allows the user to return to this IP address by default.

Press the RST button and hold it until the ETH LED will blink. After roughly 5 seconds, the SAS-E will restart. Wait two minutes.

Connect the remote PC through a crossover Ethernet cable or through a network hub. Set the PC IP address to an address belonging to the same sub-network (e.g. 192.168.0.001).

On the PC, open a web browser page to **http://192.168.0.100/**. Click to enter the web interface. Go to the "System Setup">"Network Setup" web page. Type in the password (the factory default is "pwd"). Modify the mode of IP address allocation (static or DHCP) and static address as necessary.

If the SAS-E is already DHCP configured and if no DHCP server is available, you cannot connect a PC to access the SAS-E network configuration pages. You may use the reset button on the back panel to reset the IP address in this case.

3.3 Configuring and Operating the SAS-E

The SAS-E must be configured through an Ethernet network with a web browser.

Security point : Note that using Version Higher than V1.4X, a login is needed for each setup or status menu before entering. See chapter 4 for details.

System Setup	SAS-E Configuration	SAS-E Status	Tools
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SAS-E Status

A login is needed to display this page

Password Please enter the Admin password

Click to login

After the boot sequence, open a browser to the SAS-E IP address (<http://192.168.0.100>). Go to “SAS-E Configuration” > “SAS-E Setup” and program the setup parameters as follows.



SAS-E Setup

Monitoring	
1	Channel: A and B <input type="button" value="v"/>
2	Frequency Signal: Enabled <input type="button" value="v"/>
3	1PPS Signal: Enabled <input type="button" value="v"/>
4	TOD Signal: Enabled <input type="button" value="v"/>
5	Alarm Signal: Disabled <input type="button" value="v"/>
6	AC Presence: Enabled <input type="button" value="v"/>
7	DC Presence: Enabled <input type="button" value="v"/>
Channel Selection	
8	Network channel selection: Automatic <input type="button" value="v"/>
9	Front panel switch: Enabled <input type="button" value="v"/>

For both channels, the fields (2 to 5) allow the user to set up the signal monitoring process. Each input of the SAS-E (Frequency, 1 PPS, ToD, and Alarm) can be monitored individually with the “Enable” or “Disable” selections. The channel is considered OK when all monitored signals are connected and present.

The field (1) “Channel” allows the user to monitor the channel inputs. When this field is on “only A” or “only B”, the SAS-E forces the selected channel, whatever the results of the over channel. The switching function is disabled. The default of the channel (loss of one monitored signal) generates an Urgent alarm. The SAS-E does not switch on the other channel. The front panel switch is locked.

When, this field is on “A and B”, the SAS-E monitors both channels and the channel selection (A or B) depends on:

- The results of the signal monitoring process (according the choices on fields 2 to 5)
- The programming of field 8, “Network channel selection”, and field 9, “front panel”
- The front panel switch

In this configuration, the SAS-E has 3 modes:

- “Forced A”: When this mode is selected, the LED “AUTO” in the front panel is always off and the LED “A” is on. This mode forces the selected channel A, whatever the results of the signal monitoring process.

In the case of a channel A default, the “Urgent Alarm” is active, and in the case of a channel B default, the “Non Urgent Alarm” is active.

- “Forced B”: When this mode is selected, the LED “AUTO” in the front panel is always off and the LED “B” is on. This mode forces the selected channel B, whatever the results of the signal monitoring process.

In the case of a channel B default, the “Urgent Alarm” is active, and in the case of a channel A default, the “Non Urgent Alarm” is active.

- “Automatic”: When this mode is selected, the LED “AUTO” in the front panel is always on. The selection of the channel (A or B) depends on the results of the monitoring process. The following table gives the source selection versus fault detection.

Channel A	Channel B	Selected Channel(*)	Non Urgent Alarm	Urgent Alarm
NOK	NOK	No change	Active	Active
OK	NOK	A	Active	Non active
NOK	OK	B	Active	Non active
OK	OK	No change	Non Active	Non Active

(*): No change: Same channel as in the previous state

Those 3 modes can be selected with:

- Field 8 “Network channel selection”, which allows the user to force the SAS-E mode through the Ethernet port
- Field 9, “Front panel switch” which allows the user to enable or disable the front panel switch
- The front panel switch, when it is enabled through the Ethernet port

It is possible to enable or disable the front panel switch via the Ethernet port. When disable, the front panel switch has no action on the selection mode and this one could be only changed via the field “network channel selection” or via the embedded SNMP “network channel selection” command.

When the front panel switch is enabled, the field “Network channel selection” has no action on the selection mode.

When the front panel switch is enables, to set the SAS-E in the mode...

- “Forced A”, press and hold the key A for more than 2 seconds
- “Forced B”, press and hold the key B for more than 2 seconds
- “Automatic”, press and hold the key “auto” for more than 2 seconds.

According to the available power sources, enable or disable the Power Alarms using the "AC Presence" and "DC Presence" fields. A default on a supervised power generates a “Non Urgent Alarm”.

All parameters are saved in a flash EPROM and are reloaded on further reboot.

In the case of a reboot and when the panel switch is enabled while Channel A and B are monitored, the selection mode is set in the automatic mode by default.

3.4 Status of the SAS-E

The status of SAS-E could be shown by a specific web page (refer to the web page discussion contained herein) or by the status LED on the front panel.

3.4.1 Status LED

There are 4 green status LED for each source:

- AL:** Result of alarm input monitoring,
- F:** Result of frequency monitoring
- 1PPS:** Result of 1PPS monitoring
- ToD:** Result of ToD monitoring

LEDs are ON when signal is monitored and present. If the signal is absent or not monitored, the corresponding LED is off.

There are 3 orange status LEDs for the source selected:

- A:** ON when the channel A is selected and used to supply the signal outputs
- B:** ON when the channel B is selected and used to supply the signal outputs
- Auto:** ON when the automatic mode is selected through the front panel or the Ethernet port and OFF when the SAS-E is forced on a specific channel

Other LEDs:

LED green AC:

- ON when AC power is monitored and present

- OFF when AC power is not monitored
- OFF when AC power is monitored and not present (in this case, "Non Urgent alarm is active)

LED green DC:

- ON when DC power is monitored and present,
- OFF when DC power is not monitored
- OFF when DC power is monitored and not present (in this case, "Non urgent alarm is active)

LED green Eth: ON when the SAS-E is connected with a network

LED red "Alarm nurg": ON when a non urgent alarm is generated

LED red "Alarm urg": ON when a urgent alarm is generated

3.5 Alarm

The "Non Urgent alarm" is generated when:

- Only one channel is detected fail in the case of both channel are monitored and the SAS-E is not forced on the faulty channel. The output signals are still nominal.
- Both channel are monitored and there are fail.
- A default on a supervised power (AC or DC)

The "Urgent alarm" is generated when:

- The SAS-E is forced on a channel and this one is detected as failed
- Both channels are monitored and are detected as failed
- At least one output is detected as failed

On each alarm connector and in case of an active alarm:

- The contact relay between Pin 1 and Pin 2 is closed
- The contact relay between Pin 3 and Pin 4 is open

3.6 Powering Down

To switch off the SAS-E, place the main power switch to the 0 position and/or unplug the DC power supply.

4 Web Interface

When connecting to the SAS-E IP address with a web browser (HTTP protocol), the user can check the SAS-E status, modify setup parameters, and perform software updates. Status and setup up pages require a password (the factory default is “**pwd**”). The protocol used for accessing the SAS-E is HTTP.

4.1 Web Pages

4.1.1 Welcome Page



WELCOME TO SAS-E INTERFACE

[Click to enter](#)

Spectracom
3 Avenue du Canada
91974 Les Ulis Cedex
France

Tel: +33 (0)1 64 53 39 80
Fax: +33 (0)1 64 53 39 81
Email: sales@spectracom.fr

Web: www.spectracom.fr

Click to enter the web site. The first displayed page is the STATUS page.

4.1.2 Upper Task Bar and Page Header



Gives access to one of the following menus:

1. System Setup:
 - a. Network setup: Network connection parameters (protected by a password)
 - b. SNMP and Traps setup: SNMP parameters and traps enable (protected by password)
 - c. Logout: Log out from the web site
2. SAS-E configuration
 - a. SAS-E setup: Configure the equipment (protected by password)
 - b. Time setup: Configure the system time in order to date the log event (protected by password)
3. SAS-E Status: Summary of status and alarms of SAS-E
4. Tools:
 - a. Event logging: Display of event history
 - b. Software Version: Display of current version of software parts
 - c. Software upgrade: Upgrading software
 - d. Reboot: Hardware or software reset

Header time information: Provided by the SAS-E

4.1.3 SAS-E Status

This page contains a copy of the SAS-E front panel with all the monitored states (inputs, outputs, power supply, alarms, and the equipment type). This page is automatically refreshed every 15 seconds.



SAS-E Status

STATUS		
Equipment type	SAS36	
Input Channel		
	Channel A	Channel B
Frequency input	Ok	Ok
TOD input	Disabled	Disabled
1PPS input	Ok	Ok
Alarm input	Disabled	Disabled
Selected channel	Automatic B	
Channel selection source	Front Panel	
Output Channel		
Frequency output	Ok	
TOD output	Disabled	
1PPS output	Ok	
Power Supply		
AC	Disabled	
DC	Ok	
Alarms		
Urgent	Ok	
No Urgent	Ok	

Designed by SPECTRACOM, a trademark of the OROLIA group

Equipment type:

1. SAS17E:
 - a. 1 U high version
 - b. 8 x frequency outputs, 8 x 1PPS outputs, 2 x ToD outputs, 2 x external signals
2. SAS36E:
 - a. 2 U high version
 - b. 16 x frequency outputs, 16 x 1PPS outputs, 2 x ToD outputs, 2 x external signals

Input Channel: Status of all inputs (for each channel):

1. Frequency input
 - a. OK (Green): Frequency inputs are monitored and are present
 - b. Alarm (Red): Frequency inputs are monitored and are detected as failed
 - c. Disable (Gray): Frequency inputs are not monitored
2. TOD input
 - b. OK (Green): ToD inputs are monitored and are present
 - b. Alarm (Red): ToD inputs are monitored and are detected as failed
 - c. Disable (Gray): ToD inputs are not monitored
3. 1PPS input
 - a. OK (Green): 1PPS inputs are monitored and are present
 - b. Alarm (Red): 1PPS inputs are monitored and are detected as failed
 - c. Disable (gray): 1PPS inputs are not monitored
4. Alarm input
 - a. OK (Green): Alarm inputs are monitored and there are no alarms on the input
 - b. Alarm (Red): Alarm inputs are monitored and the alarm input is in alarm
 - c. Disable (Gray): Alarm inputs are not supervised
5. Selected channel: Status of the channel selected
 - a. Automatic A: Channel A selected with the automatic mode, either through the front panel switch or through the internet port

- b. Automatic B: Channel B selected with the automatic mode, either through the front panel switch or through the internet port
 - c. Forced A: Channel A forced in manual mode, either through the front panel switch or through the internet port
 - d. Forced B: Channel B forced in manual mode, either through the front panel switch or through the internet port
6. Channel selection source: Status of the source selection
- a. Network: The front panel switch is locked and the selection mode is made via the Ethernet port
 - b. Front panel: The front panel switch is unlocked and the choice of the channel is made via the front panel switch

Output Channel: Status of all Outputs:

- 1. Frequency output
 - a. OK (Green): Frequency inputs are monitored and all frequency outputs are OK
 - b. Alarm (Red): Frequency inputs are monitored and at least one frequency output is failed
 - c. Disable (gray): Frequency inputs and outputs are not monitored
- 2. ToD output
 - a. OK (Green): ToD inputs are monitored and all ToD outputs are OK
 - b. Alarm (Red): ToD inputs are monitored and at least one ToD output is failed
 - c. Disable (gray): ToD inputs and outputs are not monitored
- 3. 1PPS output
 - a. OK (Green): 1PPS inputs are monitored and all 1PPS outputs are OK
 - b. Alarm (Red): 1PPS inputs are monitored and at least one 1PPS output is failed
 - c. Disable (gray): 1PPS inputs and outputs are not monitored

Power Supply: Status of both power supply:

1. AC
 - a. OK (Green): AC power is monitored and on
 - b. Alarm (Red): AC power is monitored and off
 - c. Disable (Gray): AC power is not monitored
2. DC
 - a. OK (Green): DC power is monitored and on
 - b. Alarm (Red): DC power is monitored and off
 - c. Disable (Gray): DC Power is not monitored

Alarms: Status of Alarm

1. Urgent
 - a. OK (Green): No urgent alarm present
 - b. Alarm (Red): An urgent alarm is present, which means that there is at least one fault on one of the outputs monitored
2. No Urgent
 - a. OK (Green): No urgent alarm present
 - b. Alarm (Red): A non-urgent alarm is present, which means that there is only one channel detected on fault or there is a fault in one power supply

4.1.4 Admin Password Page

A password is necessary to access the Setup pages. The default password is “**pwd**”. It can be modified in the Network Setup page.



SAS-E Setup

A login is needed to display this page

Password Please enter the Admin password

Click to login

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4.1.5 Network Setup Page

This page allows the user to modify the Network connection parameters.



Network Setup

Host Name	<input type="text" value="Spectracom"/>	Name of the host ex : myhost
Use DHCP	<input type="text" value="Yes"/>	Select if you want to dynamicaly get an IP address
IP Address	<input type="text" value="172.16.207.12"/>	IP address ex : 192.168.0.2
Sub-network mask	<input type="text" value="255.255.255.0"/>	Subnet mask ex : 255.255.255.0
Sub-network address	<input type="text" value="172.16.207.0"/>	Subnetwork address ex : 192.168.0.0
Broadcast address	<input type="text" value="172.16.207.255"/>	Broadcast address ex : 192.168.0.255
Default Gateway	<input type="text" value="172.16.207.1"/>	Default Gateway ex : 192.168.0.1

Change password

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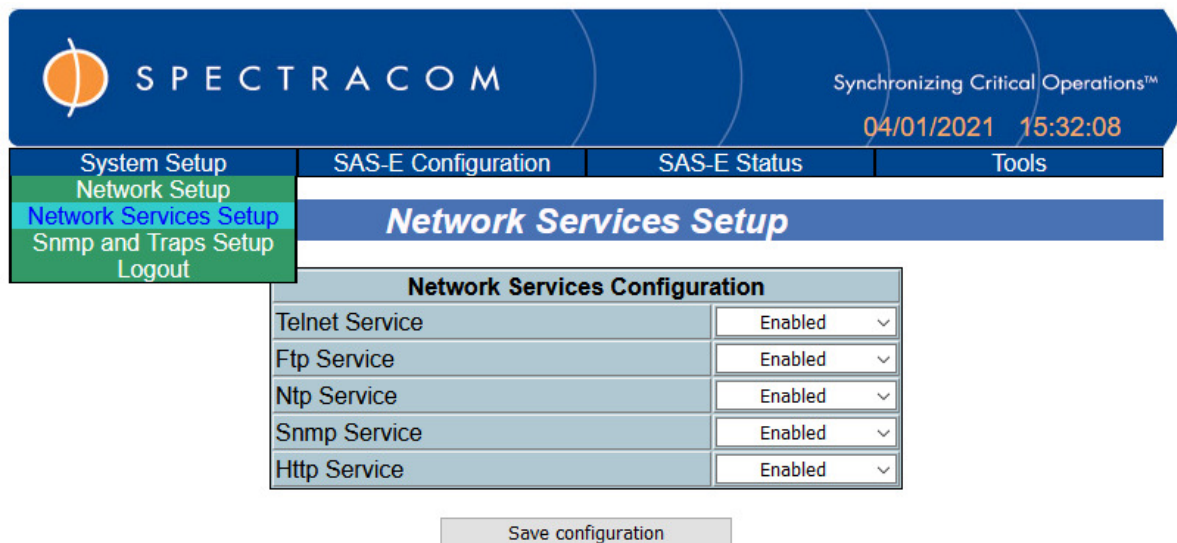
- 1) Host Name: Unique name of the SAS-E in the network. This functionality depends on the DNS server type
- 2) Use DHCP: Dynamic Host Configuration Protocol
 - a. Yes: The Dynamic Host Configuration Protocol function available. In this case, the IP address of the SAS-E is automatically allocated by the network DHCP server according to the SAS-E MAC address. The fields that follow are not used.
 - b. No: The Dynamic Host Configuration Protocol function isn't available. A static IP address is used. In this case, the operator must fill in the fields that follow.
- 3) IP Address, Sub-network mask, Sub-network address, Broadcast address, Default Gateway: fields allowing configuration of the network access when the DHCP is set to No
- 4) Change password: Field for password modification. This password is required when accessing setup pages.

When set in Use DHCP mode, if the SAS-E starts without a network connection, the IP address is not set. After the network connection is restored, a 1 or 2 minute delay occurs before the IP address is assigned.

Specific - Network Service Setup (version > V1.4X)

In addition to the Network Setup menu, you can also access to specific Services setup tool. This specific page allows the user to Enable or Disable some network services in case they are not needed or should be disabled for security policy.

Note : Telnet service is only reserved for Orolia debugging purpose and only accessible through a root login (Orolia private login). When HTTP service has been disabled, the web pages become unavailable. The only way to restore HTTP utility is to apply a factory reset button (RST) on rear panel (see chapter 3.2 Network Connection).



Network Services Configuration	
Telnet Service	Enabled ▾
Ftp Service	Enabled ▾
Ntp Service	Enabled ▾
Snmp Service	Enabled ▾
Http Service	Enabled ▾

Save configuration

4.1.6 SNMP and Traps Setup Page

In this page, the operator can enable the SNMP Traps generation. The SNMP traps report an event (alarm or configuration modification) by sending a trap message to a destination.



SNMP & Traps Setup

SNMP RO Community	<input type="text" value="public"/>	Community name ex: <i>public</i>
SNMP RW Community	<input type="text" value="private"/>	Community name ex: <i>private</i>

The above values become effective after a reboot.

Traps destination 1	<input type="text" value="10.8.1.12"/>	IP address ex: <i>192.168.0.101</i>
Traps destination 2	<input type="text"/>	IP address ex: <i>192.168.0.102</i>
Traps Community	<input type="text" value="public"/>	Trap community ex: <i>public</i>

Global traps enable	<input type="text" value="Yes"/>
----------------------------	----------------------------------

Channel A Frequency Input Fault	<input type="text" value="Yes"/>
Channel A 1PPS Input Fault	<input type="text" value="Yes"/>
Channel A TOD Input Fault	<input type="text" value="No"/>
Channel A Input Fault	<input type="text" value="No"/>
Channel B Frequency Input Fault	<input type="text" value="No"/>
Channel B 1PPS Input Fault	<input type="text" value="No"/>
Channel B TOD Input Fault	<input type="text" value="No"/>
Channel B Input Fault	<input type="text" value="No"/>
Frequency Output Fault	<input type="text" value="Yes"/>
1PPS Output Fault	<input type="text" value="Yes"/>
TOD Output Fault	<input type="text" value="No"/>
Channel Swap	<input type="text" value="No"/>

Power Fault	<input type="text" value="Yes"/>
Urgent Alarm	<input type="text" value="Yes"/>
No Urgent Alarm	<input type="text" value="Yes"/>

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- 1) SNMP RO community : Community name for Read-Only OIDs
- 2) SNMP RW community : Community name for Read-Write OIDs
- 3) Traps destination 1: Primary SNMP manager address where traps are sent

- 4) Traps destination 2: Secondary SNMP manager address where traps are sent
- 5) Traps Community: SNMP code word that helps in filtering the traps and identifying the managed equipment family; public by default
- 6) Global traps enable: If "Yes", traps are sent according to individual enabling; if "No", no traps are sent
- 7) Channel A Frequency Input Fault:
 - a. Yes: Generates a trap when the frequency signal input on channel A fails
 - b. No: No trap generated
- 8) Channel A 1PPS Input Fault:
 - a. Yes: Generates a trap when the 1PPS signal input on channel A fails and is monitored
 - b. No: No trap generated
- 9) Channel A TOD Input Fault:
 - a. Yes: Generates a trap when the ToD signal input on channel A fails and is monitored
 - b. No: No trap generated
- 10) Channel A Input Fault:
 - a. Yes: Generates a trap when an alarm input on channel A becomes active and is monitored
 - b. No: No trap generated
- 11) Channel B Frequency Input Fault:
 - a. Yes: Generates a trap when the frequency signal input on channel B fails
 - b. No: No trap generated
- 12) Channel B 1PPS Input Fault:
 - a. Yes: Generates a trap when the 1PPS signal input on channel B fails and is monitored
 - b. No: No trap generated
- 13) Channel B TOD Input Fault:
 - a. Yes: Generates a trap when the ToD signal input on channel B fails and is monitored
 - b. No: No trap generated
- 14) Channel B Input Fault:
 - a. Yes: Generates a trap when an alarm input on channel B becomes active and is monitored
 - b. No: No trap generated
- 15) Frequency Output Fault:
 - a. Yes: Generates a trap when one of the output frequency signals fails and frequency inputs are monitored
 - b. No: No trap generated
- 16) 1PPS Output Fault:

- a. Yes: Generates a trap when one of the output 1PPS signals fails and 1PPS inputs are monitored
- b. No: No trap generated

17) TOD Output Fault:

- a. Yes: Generates a trap when one of the output ToD signals fails and ToD inputs are monitored
- b. No: No trap generated

18) Channel Swap:

- a. Yes: Generates a trap when the SAS-E swaps from channel A to channel B or from channel B to channel A
- b. No: No trap generated

19) Power Fault:

- a. Yes: Generates a trap when any enabled power source alarm is detected
- b. No: No trap generated

20) Urgent Alarm:

- a. Yes: Generates a trap when an Urgent alarm is generated
- b. No: No trap generated

21) No Urgent Alarm:

- a. Yes: Generates a trap when a No Urgent alarm is generated
- b. No: No trap generated

22) Download MIB: Link for downloading zipped MIB text file

NEW – SNMP V3 setting (only for version > 1.4X)

Recent versions (>1.4X) allows SNMP V3 setting.

SNMP V3 Setup

User Name	<input type="text"/>
Auth Type	MD5 <input type="button" value="v"/>
Auth Passphrase	<input type="password" value="..."/>
Priv Type	DES <input type="button" value="v"/>
Priv Passphrase	<input type="text"/>
Permissions	Read/Write <input type="button" value="v"/>

Save configuration

User Name : Enter User Name.

Auth Type : MD5 supported.

Auth Passphrase : enter Passphrase associated.

Priv Type : DES supported – select DES or na if not applicable for use.

Priv Passphrase : enter Passphrase associated.

Permissions : Select Read/write or Read Only permission mode.

Note : trap setup menu and MIB file are not impacted by this new feature.

4.1.7 SAS-E Configuration

4.1.7.1 SAS-E Setup



SAS-E Setup

Monitoring	
Channel	A and B
Frequency Signal	Enabled
1PPS Signal	Enabled
TOD Signal	Enabled
Alarm Signal	Disabled
AC Presence	Enabled
DC Presence	Enabled

Channel Selection	
Network channel selection	Automatic
Front panel switch	Disabled

Save configuration


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4.1.7.2 Time Setup

This page allows the operator to configure the SAS-E system time in order to date the log events. It is accessible with the user's password. Manual Setup time must be set on every "switch on".

There are two ways to set up the time:

- Automatically by addressing an NTP server
- Manually by setting date and time


Synchronizing Critical Operations™

15/02/2008 09:36:02

System Setup
SAS-E Configuration
SAS-E Status
Tools

Time Setup

NTP Parameters		
Use NTP Server	<input type="text" value="Enabled"/>	Select if you want to update system time with NTP server
NTP server address	<input type="text" value="172.16.207.166"/>	NTP server IP address ex:192.168.0.101
Request frequency	<input type="text" value="30"/>	NTP request frequency (second)

Time Parameters	
Date = DD / MM / YYYY	<input type="text" value="25"/> / <input type="text" value="01"/> / <input type="text" value="2008"/>
Time = HH : MM : SS	<input type="text" value="14"/> : <input type="text" value="14"/> : <input type="text" value="00"/>
Manual Time	<input type="button" value="Set"/>
Manual Time Adjust	<input type="button" value="-1 s"/> <input type="button" value="+1 s"/>

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1) NTP Parameters

- a. Use NTP Server:
 - i. ENABLE: An NTP server is available on the network. The System time is updated automatically on every "Request frequency"
 - ii. DISABLE: No NTP server is available on network. The system time must be updated manually according to the fields for *Time Parameters*.
- b. NTP server Address: IP address of the NTP server in the network
- c. Request frequency: Number of seconds between each request

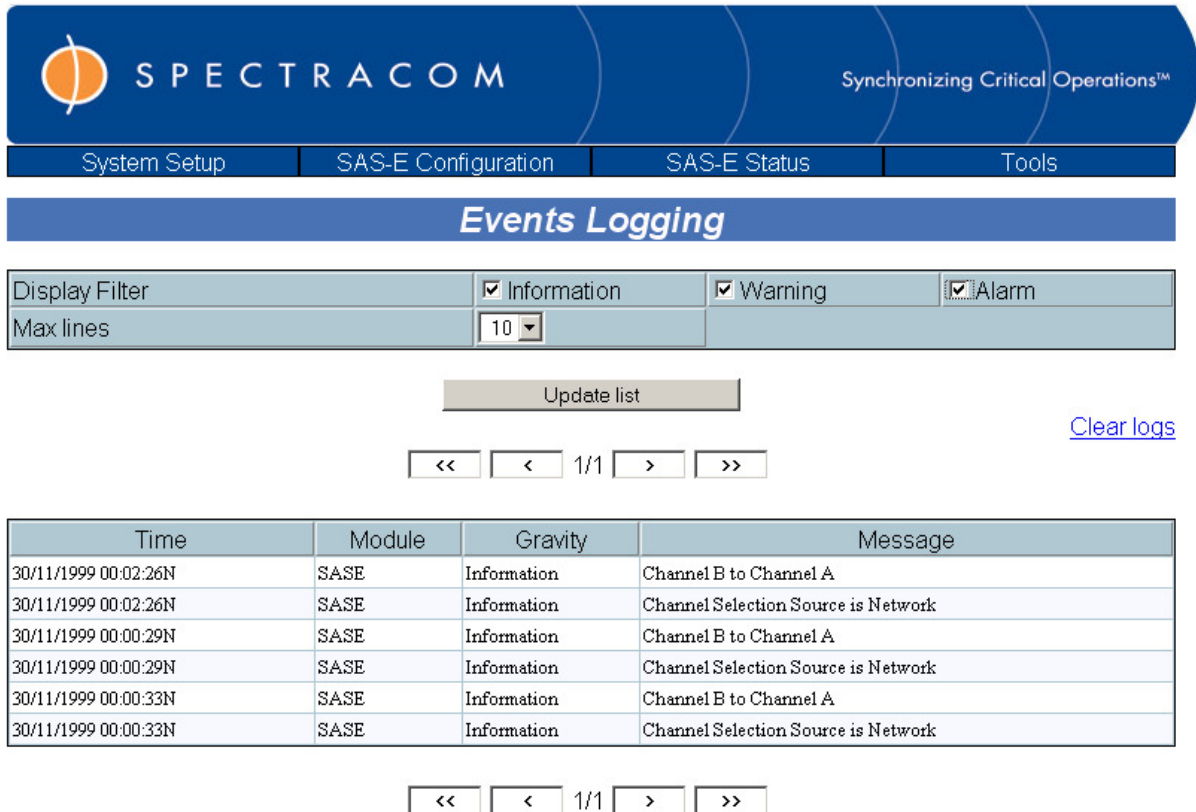
2) Time Parameters

- a. Date, Time, and Set button: Time manual setting when the field "Use NTP Server" is disabled.
- b. Manual Time Adjust: Adjust the time by 1 second when the field "Use NTP Server" is disabled. Helpful for fine adjusting manually set time.

4.1.8 Tools

4.1.8.1 Event Logging

This page displays the recording of events detected (alarms, warning, information) within the SAS-E. Only the information in the MIB (Get information) is logged.



Time	Module	Gravity	Message
30/11/1999 00:02:26N	SASE	Information	Channel B to Channel A
30/11/1999 00:02:26N	SASE	Information	Channel Selection Source is Network
30/11/1999 00:00:29N	SASE	Information	Channel B to Channel A
30/11/1999 00:00:29N	SASE	Information	Channel Selection Source is Network
30/11/1999 00:00:33N	SASE	Information	Channel B to Channel A
30/11/1999 00:00:33N	SASE	Information	Channel Selection Source is Network

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“Display Filter”: select the required type of displayed event on the log panel.

“Max lines”: defines the number of events per page to be displayed.

“<<,<,>,>>” Buttons: Navigation through the screens.

“Update list” button: Refresh display

4.1.8.2 Version

This page displays the version number of key elements of SAS-E software and firmware.



SAS-E Version

Archive Version	
Actual Version	01T09b
Date	09/01/2008 17:31:01

Software Version	
Principale	01T01b
Traps	01T05b
Agent SNMP	01T05b
Web	01T05b

System Version	
Actual Version	01.07a
Date	04/01/2008 14:49:41

Hardware Version	
Carte	00.01

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4.1.8.3 Software and Firmware Upgrade

Software and firmware upgrade is performed with this "Upgrade Application" page. Two steps are necessary. First, Upload a New Release, and then, Activate New Release. Before starting the upload new version process, select the file to be downloaded (usually a .tgz file provided by the manufacturer). Click on the "Upload" button to proceed.


SPECTRACOM

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15/02/2008 14:59:54

System Setup
SAS-E Configuration
SAS-E Status
Tools

Upgrade Application

Upload a New Application Version

It should be an "sase_vxxx.tgz" with an install.sh included.
 It should not be higher than 4000 ko.
 Then "Upload File". The tranfert can take up to 5 minutes.

Parcourir...

Upload File

Application Version

Choose a New-Version for Application and press "Install New Version" bouton.
 This erase current Application and replace it with a New-version.

New Version	na ▼
Actual Version	01T09b
Date	09/01/2008 17:31:01

Install New version

Delete File

File na ▼

Delete

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The uploaded release is shown in the "Application Version" field. The actual version is the running version.

Clicking on the "Install New version" button," will result in an automatic restart of the SAS-E.

The "Delete File " option is not used.

4.1.8.4 Reboot

This page allows the operator to perform a software or hardware reset. This page is accessible with the user's password.



Reboot

Reset type	<input type="text" value="Software"/> <ul style="list-style-type: none"> Software Hardware
------------	--

Please confirm to reboot the SAS-E.

Yes	No
---------------------	--------------------

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Reset type:

- Software: Reset only the Ethernet port (including Web server and SNMP server). This reset has no effect on the signals selection and distribution.
- Hardware: Reset the SAS-E. This reset affects the signals selection and distribution.

5 SNMP Control

5.1 MIB Content

The MIB is made of elements related to:

- Configuration parameters that can be read (GET procedure) and written (SET procedure).
- Status information, similar to the status displayed on page web, that can be read (GET procedure).

Status:

- Selected channel (Get)
- Channel source selection (Get)
- Urgent alarm status (Get + Trap)
- No urgent alarm status (Get + Trap)
- Frequency input channel A status (Get + Trap)
- PPS input channel A status (Get + Trap)
- TOD input channel A status (Get + Trap)
- Alarm input channel A status (Get + Trap)
- Frequency input channel B status (Get + Trap)
- PPS input channel B status (Get + Trap)
- TOD input channel B status (Get + Trap)
- Alarm input channel B status (Get + Trap)
- Frequency output status (Get + Trap)
- PPS output status (Get + Trap)
- TOD output status (Get + Trap)
- AC Power status (Get)
- DC Power status (Get)

Setup:

- Network channel selection (Set + Get)
- Front panel switch (Set + Get)

For full MIB copy content access, use the “download MIB” button on the trap setup page.

5.2 SNMP Traps

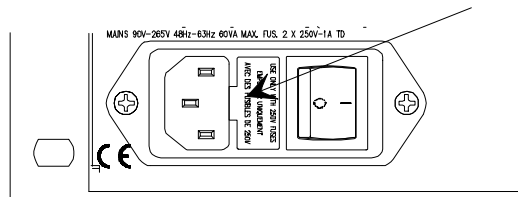
Traps are based on status information readable by GET procedure (refer to the preceding lists). Traps are generated on events related to alarm and configuration modifications. The two trap destinations are programmable and traps are individually enabled in the trap setup web page.

6 Maintenance

The SAS-E is fully automatic and requires no field maintenance.

2 Fuses, 5 x 20 1A type **2 x T 1A L 250V**

Can be replaced by user through external door (remove the power cord first)



Example (recommended by Spectracom) : ref SCHURTER FST 5x20 type - Miniature Fuse, 5 x 20 mm, Time-Lag T, L, 250 VAC (REF 0034.3117)

6.1 Updating the Software Version

Refer to the corresponding webpages to perform the software/firmware upgrade.



REVISION HISTORY

Revision Level	ECN Number	Description
A	18/02/08	<i>Creation</i>
B	23/04/08	<i>Update marketing of 1PPS and frequency inputs; update IP fix address</i>
C	----	First iteration of this Spectracom documentation, converted from Initial documentation.
D0	25/08/08	Update Web page (SNMP and Traps setup page)
D1	08/09/08	Update rear panel
D2	06/11/08	Update rear panel and Network connection
1	23/12/2013	Additional Safety instruction and TOD connection additional instruction
2	04/06/2018	Additional DC Connector detail and updated pictures
3	04/01/2021	Additional Network feature (chapter 3 and 4) for SNMP V3 use and new Service Setup menu. Typo fixed on 2.4 Output Signals chapter. Operating temperature updated

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Contact support :
<https://www.orolia.com/support/spectracom/request-service-product-support>

