



# Epsilon Switch and Amplifier System IP Manageable

Models SAS-17E & SAS-36E



- Large signal distribution
  - Frequency signal (1 to 16 MHz range)
  - 1PPS TTL
  - Time of Day message (RS-232 serial line)
  - Customization available
- Very low additional phase noise
- Redundant source monitoring
- Limited phase jump when switching
- External clock status (relay contact)
- Remote management by SNMP/HTTP through Ethernet port
- RoHS Compliant

The Epsilon™ Switch and Amplifier System (SAS-E) provides a cost effective way to build a time and frequency distribution system. It accommodates a redundant clock system with very high operational availability. The SAS-E achieves redundant time and frequency source monitoring through intelligent and automatic switching. This 19" wide rack mount device amplifies signals from the selected source and offers a large quantity of output channels.

When two external clocks are connected, the SAS-E offers a powerful redundant function by automatically selecting the best functioning source. The selection may also be bypassed by the user to allow maintenance or single-clock operation. In all cases, the distributed signals (Frequency, 1PPS, ToD, and Status) are used from the same source clock. When in automatic mode, if the selected source is detected as faulty, the SAS-E switches all the distributed signals to the other available source. The signals are amplified using analog electronics to ensure the lowest frequency phase noise and high RF isolation.

Setup, status, and alarms are accessible by remote control through any web browser and/or through SNMP protocol. Monitoring (voltage level checking and minimal period detection) is reported through dedicated LEDs.

The SAS-E is available in two versions to handle the output capacity of the application. The SAS-17E is 1U high. The SAS-36E is 2U high.

Contact the factory with requests for a customized combination of outputs and signal types.

Model	Frequency	1PPS	ToD	Status
SAS-17E	8	8	2	1
SAS-36E	16	16	2	1

## Specifications

### Inputs (signals from source clock A and B)

#### Frequency:

1 to 16 MHz sine wave  
0 to 17 dBm / 50 Ω (nominal)  
BNC Connector  
1 Pulse Per Second: TTL / 50 Ω, BNC connector

**Message Time of Day:** RS-232C, DIN connector

**Alarm:** relay contact, jack connector  
1 Differential Spare Signal DIN connector

#### Additional Phase Noise (typical):

1 Hz	-90 dBc/Hz
10 Hz	-120 dBc/Hz
100 Hz	-145 dBc/Hz
1 kHz	-155 dBc/Hz
10 kHz	-160 dBc/Hz

## Outputs

### 8 Channel Version

#### 8 x Frequencies:

1 MHz up to 16 MHz sine wave, according to selected source  
Gain 1 / 50 Ω nominal  
BNC connector  
Harmonic Distortion: <-35 dBc

#### 8 x 1 Pulse Per Second:

TTL / 50 Ω  
BNC connector

**2 Messages Time of Day:** RS-232C, DIN connector

#### Alarms:

Urgent / Non Urgent Relay contacts  
USB connector

#### 1 Differential spare signal:

DIN connector

### 16 Channel Version

#### 16 x Frequencies:

1 MHz up to 20 MHz sine wave, according to selected source  
Gain 1 / 50 Ω nominal  
BNC connector  
Harmonic Distortion: <-35 dBc

#### 16 x 1 Pulse Per Second:

TTL / 50 Ω  
BNC connector

**2 Messages Time of Day:** RS-232C, DIN connector

#### Alarms:

Urgent / Non Urgent Relay contacts  
USB connector

#### 1 Differential spare signal:

DIN connector (4 non-isolated outputs)

## Remote Control

Remote control and monitoring is based on SNMP protocol implementation. SNMP v1 (RFC 1157) and SNMP v2 (RFC 1901-1908) are supported.

Management Interface Base (MIB) is provided to customers as a text file. MIB 1 (RFC 1156) and MIB 2 (RFC 1213) are supported.

Configuration setup can be done through an Ethernet network using a standard web browser with password protection.

## Configuration Versions

### SAS-17E

Switch and Amplifier 8 channel version:

Connected to 2 sources, one of them is selected, amplified, and distributed (8 x Freq., 8 x 1PPS, 2 x ToD)

### SAS-36E

Switch and Amplifier 16 channel version:

Connected to 2 sources, one of them is selected, amplified, and distributed (16 x Freq., 16 x 1PPS, 2 x ToD)

## Front Panel LEDs

- 4 status green LEDs per source clock to display input signal detection (Alarm, Freq., 1PPS, ToD)
- 2 alarm red LEDs to display urgent and non urgent alarms
- 3 position switch and 3 orange LEDs to select and display the source clock
- 1 Ethernet green LED
- 2 status green LEDs for AC and DC power supplies

## Power

### Power Supply:

AC Supply: 90 to 265 V / 48 to 63 Hz  
DC Supply: 20 to 75 V / -75 to -20 V

**Power Consumption:** 15 W nominal, 25 W maximum

## Physical

### Size:

19" 1 U unit (483 x 340 x 44 mm) (8 Channel)  
19" 2 U unit (483 x 340 x 88 mm) (16 Channel)

### Weight:

< 5 kg (8 Channel)  
< 7 kg (16 Channel)

## Environmental

**Operating Temperature:** -5° to 60°C

**Storage Temperature:** -40° to 85°C

**Relative Humidity:** 95% RH @ 40°C, non-condensing

**CE Compliance:** EN 55022/EN 50082/EN 61000

**RoHS Compliant**