Signature Series

Maximum Resilience Broadcast Audio

Signature SD1+

Silence Detector

SD1+ Front

SD1+ Rear

FEATURES

- **Stereo or dual mono operation**
- **Configurable threshold, time settings**
- **GPIO loops for alarm outs or external switching**
- **Smart fail and smart recovery modes**

The Signature SD1+ is a silence detector used to switch audio to a backup source when the primary audio source falls below accepted silence thresholds in level or time. These are often used on a broadcast path to prevent dead air should a technical problem occur with the audio.

The audio connections are stereo, on analogue XLRs. There is an input pair for the primary source, and an input pair for the backup source. The SD1+ can also be configured as a twin single channel silence detector. The backup source is usually coming from an audio player which can be remotely started by the SD1+ via a GPO should silence be detected.

Each channel can have the configuration parameters set independently. The threshold at which the unit detects a low level is configurable, as is the amount of time that the audio needs to be under this level before an alarm condition is triggered and the audio is switched to the backup input.

A comprehensive set of GPIOs allow for triggering external devices when the secondary input has been triggered.

Intelligent modes can be set to allow for switching back to the primary audio source once a sustained audio level has returned.

With a stereo audio source, if one channel should fail, the SD1+ can be set to switch this single input to both outputs, making a problem unnoticeable to any listeners, whilst at the same time still providing alarm outputs so the engineers can be alerted.

An internal switch mode power supply is provided along with an external ±12v DC input for the main or backup power supply of the Signature PS1 Power Station.

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FEATURES

Silence Detection Parameters
For the detection of drops in audio level, a threshold can be specified between -60dB to -10dB. If the audio level is under this level for a set amount of time, then the SD1+ will switch to the backup source, preventing any dead air situations. The fail delay time is configurable between 5 seconds and 5 minutes. When the audio switches to the backup source, a GPO is triggered to start a backup audio source which is connected to the backup input. A GPO is created so that the engineering department are alerted. All switching between the primary and backup source is silent.

When primary audio has returned, the SD1+ can be used in manual or automatic mode. In automatic, the SD1+ switches back to the main input after a recovery delay, that's configurable between 5-60 seconds. In manual mode, the main input must be selected via the front panel or via a GPI switch.

Stereo Or Dual Mono
The SD1+ can monitor a single stereo source and switch the output to a backup source if a silence condition is triggered. It can also act as a dual mono silence detector, taking in 2 mono sources and switching them independently, to their own backup audio in the event of a silence condition trigger.

In stereo mode, if one channel becomes silent, the SD1+ can perform two configurable functions. It can either feed the one good primary input to both primary outputs, or trigger the silence detect to switch to the backup input.

Audio Connections
The audio connections are stereo on analogue XLRs. There is an input pair for the primary source, and an input pair for the backup source. The backup source can be selected to be at 0dB or +10dB. The +10dB option allows for the connection of a domestic level audio source, such as a CD or a memory card player, that may be used as the backup.

Smart Fail & Smart Recovery
Smart recovery mode prevents pops and clicks from triggering the recovery switch back to the main input, and waits for a configurable period of time. This allows full recovery of the audio before switching back to the primary source.

Loops
A 25way d type connector contains all of the available GPIO, for output remote starts and alarms, and for input switching. There are GPOs to indicate if the primary or backup input is active, which can be used as an alarm that a backup switch has been activated.

Configuration Screen

A front panel screen shows visual feedback of the status of each input, and the value of the fail or recovery timer. This screen also access's the menu for configuration.

Bypass Relays
In event of power failure the primary audio input is switched directly to the audio output via relays, so that there is no loss of audio.

Power Supply
The SD1 has an internal switch mode 100-240v AC power supply using an IEC connection. There is also an external ±12v DC input to connect to the Signature PS1 Power Station as the primary or backup power supply.

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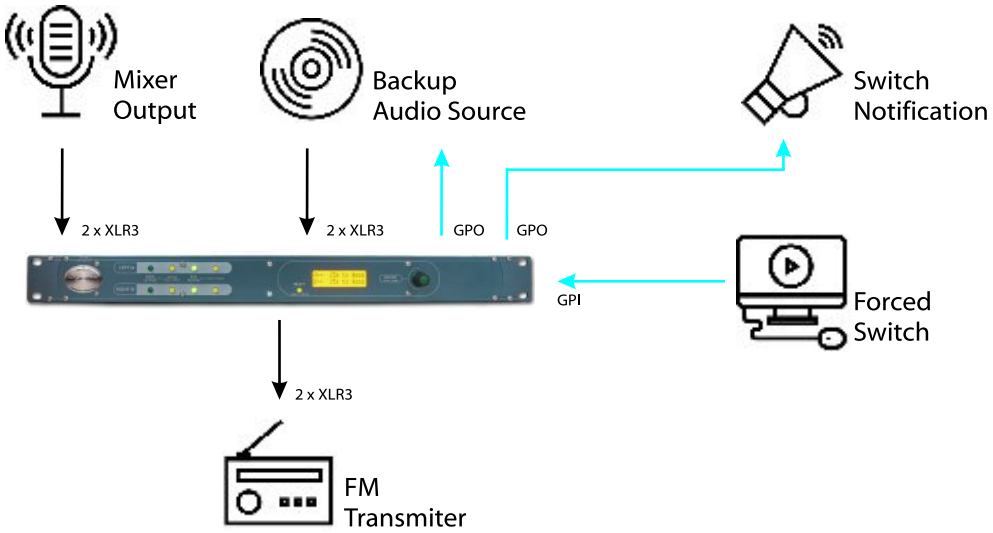
EXAMPLE APPLICATION 1

Stereo Radio Station Transmitter Site
Main Stereo Audio Programme Fail Over



This is the typical application for the SD1+ Silence Detector. It acts as a master fail alarm for main programme audio for a radio station.

The main stereo programme audio from the mixer or the automation PC connects to the SD1+ as the primary audio source. In normal operation, this audio passes straight through to the stereo outputs of the SD1+ which connect to the transmitter.

An audio threshold needs to be set in order for the SD1+ to make a silence detection. This is achieved by setting an audio level threshold, under which the SD1+ will start a timer. The audio threshold is configurable from -60dB to -10dB and the timer is also configurable from 5 seconds to 5 minutes. These levels are often set at different points depending on the nature of the source audio.

Once the primary audio source has been under the threshold for the preset amount of time, the SD1+ will silently switch to the backup stereo input. A remote start will also be triggered to start playing the backup audio source, which is now connected directly to the main stereo outputs. A further GPO is also triggered to notify an external system that the SD1+ is now operating using the backup audio source. This will alert the engineers to investigate.

GPI control is always available by an external system to allow engineers to manually switch between the primary and backup inputs. If the SD1+ is set in manual mode, then an external GPI switch would be needed to switch back to the primary input.

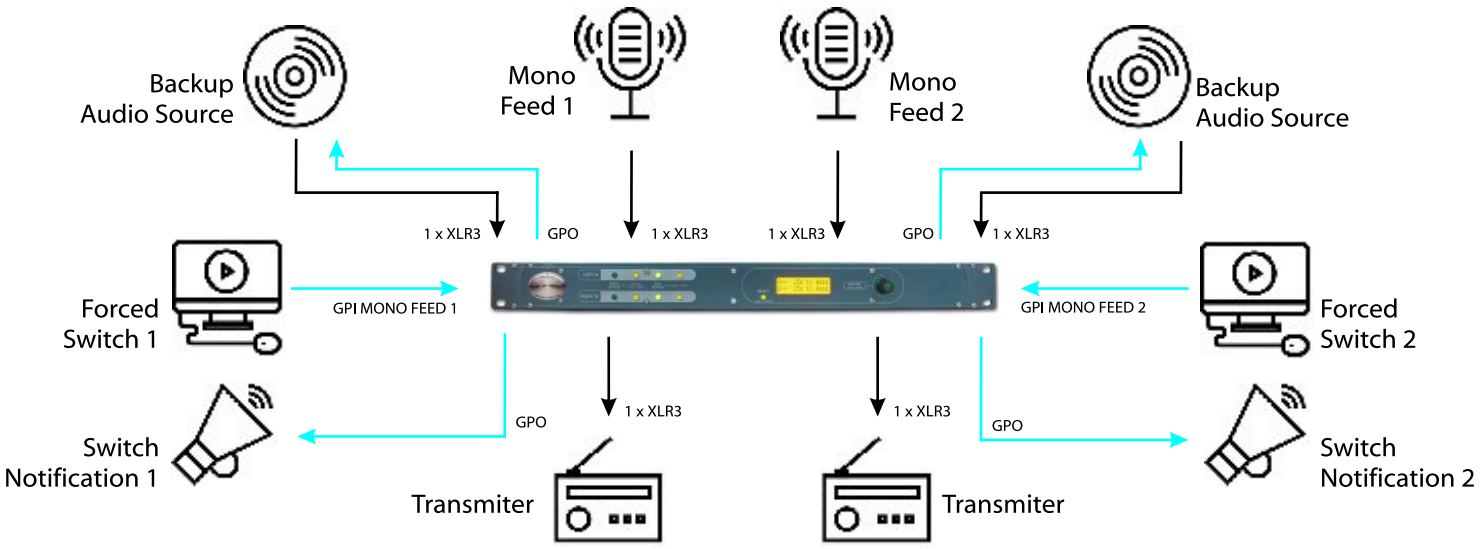
In automatic mode, after the backup audio source has been selected, the primary audio source is still being continually monitored to check for the return of the audio. When the primary source has been active again for a preset amount of time, the SD1+ will silently switch back to the primary source. The recovery time to automatically switch back to the primary input can be set between 5-60 seconds.

Signature SD1+
Silence Detector

EXAMPLE APPLICATION 2

Two Mono Audio Feeds

Two Mono Audio Programmes Fail Over



The SD1+ is effectively two single channel silence detectors. The example above shows the operation of the unit when it is monitoring 2 separate mono signals, as a twin master fail alarm. All functions are duplicated on both sides of the unit, and they can be set independently. The info below is the same for mono feed 1 and selectable separately for mono feed 2.

The mono feed audio from a mixer or link connects to the SD1+ as the primary audio source. In normal operation, this audio passes straight through to output of the SD1+ which connects to the transmitter.

An audio threshold needs to be set in order for the SD1+ to make a silence detection. This is achieved by setting an audio level threshold, under which the SD1+ will start a timer. The audio threshold is configurable from -60dB to -10dB and the timer is also configurable from 5 seconds to 5 minutes. These levels are often set at different points depending on the nature of the source audio.

Once the primary audio source has been under the threshold for the preset amount of time, the SD1+ will silently switch to the backup mono input. A remote start will also be triggered to start playing the backup audio source, which is now connected directly to the primary mono output. A further GPO is also triggered to notify an external system that the SD1+ is now operating using the backup audio source. This will alert the engineers to investigate.

GPI control is always available by an external system to allow engineers to manually switch between the primary and backup inputs. If the SD1+ is set in manual mode, then an external GPI switch would be needed to switch back to the primary input.

In automatic mode, after the backup audio source has been selected, the primary audio source is still being continuously monitored to check for the return of the audio. When the primary source has been active again for a preset amount of time, the SD1+ will silently switch back to the primary source. The recovery time to switch back to the primary input can be set between 5-60 seconds.

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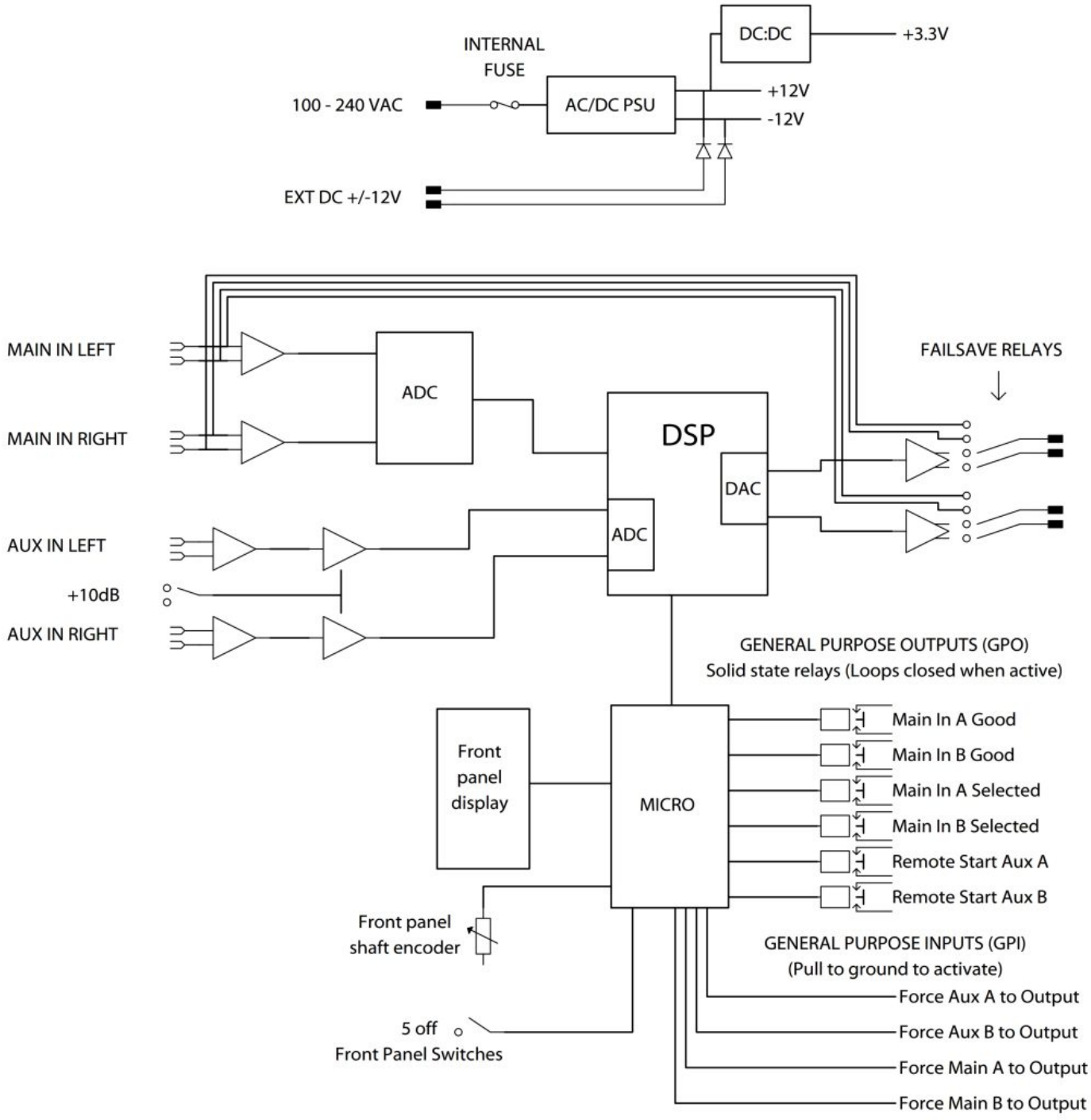
AUDIO BLOCK DIAGRAM



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Silence Detector

SPECIFICATION

AUDIO

Frequency Response
± 1dB 22Hz to 22kHz

Backup Input Gain Selection
0dB 0r +10dB

Maximum Input Level
>+24dB

Maximum Output Level
+24dBu

Input Impedance
>30k Ohm

Output Impedance
=<50 Ohms

Distortion
0.008% @ 100Hz, 0.009% @ 1kHz, & 0.007% @10kHz THD. Reference to +8dBu output

Noise
-85dB ref +8dBu output, unity gain RMS (22Hz to 22kHz)

Common Mode Rejection
Circa -65dB @ lineup

Output Type
Electronically balanced (can be wired unbalanced) on Neutrik 3 pin XLR plug

Input Type
Electronically balanced (can be wired unbalanced) on Neutrik 3 pin XLR plug

SILENCE DETECTION

Audio Threshold
-60dB to -10dB selectable

Time Threshold
5 seconds to 5 minutes

Recovery Time
5 seconds to 60 seconds

Operational Modes
Stereo or 2 x single channel

GPIO Loops
On a 25 pin d type connector

POWER

Mains Input
Filtered IEC, 100 to 240VAC
47 - 63Hz

AC Consumption
2.8 Watts @ 230VAC

DC Input
4 Pin Neutrik XLR plug ± 12V

Internal Mains Fuse
20mm 500mA Anti Surge

On Power Fail
Primary input switches directly to outputs via bypass relays

PHYSICAL

Size
445 x 164 x 44mm (LxDxH) no rack ears
482mm 19" (1RU) with rack ears

Weight
1.11kg

Mechanics
All aluminium construction, anodized and laser etched

Shipping Carton
Rugged export quality cardboard carton
610 x 420 x 130mm LxDxH

Shipping Weight
2.1kg

E & OE

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Signature Series
Standard Features

STANDARD FEATURES

19" Rack Mount Ears

A Signature unit can rack mount in a 1U 19" rack, regardless of the size of the unit. Rack ears are included as standard with every unit.

Front Or Rear Mounting

A Signature unit can be rack mounted via the front panel or if it is more convenient, via the rear panel by simply swapping the rack ears over.

Side Wings For Flat Surface Fixing

A Signature unit has side wings with mounting holes at the top and bottom, allowing flush fixing from above **OR** underneath.

Neutral Colour Scheme To Compliment Equipment Areas

Rack Screws Included

Modern Design

Internal Switch Mode AC Power Supply

A Signature unit has an internal switch mode AC power supply, allowing worldwide power connections from 100-240v via an IEC socket.

12V DC Power Connection

All Signature units (except PS1) have a 4 pin XLR ±12V DC socket for connection to the PS1 Power Station. This can act as the primary or backup power source.

Quick Find Manual

A Signature unit has a QR code attached. This can be scanned to simply and quickly locate the manual and technical information.

CONTACT

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