



# SONIFEX

## Redbox RB-DSD1

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Redbox - Synchronisers, Delays & Silence Detectors

RB-DSD1 Digital Silence Detection Unit



RB-DSD1 Digital Silence Detection Unit Shown With Optional Sync Input Board



The RB-DSD1 digital silence detection unit works in a similar way to the Sonifex RB-SD1 analogue silence detection unit, but has AES/EBU, S/PDIF and Toslink inputs and outputs instead of analogue inputs and output respectively. Designed to switch from one input to another in the event of loss of audio, the unit is ideal at transmitter sites, or after the master output of a studio, to switch in another audio source, or simultaneous broadcast, should a master source fail.

The unit can switch:

- On loss of level of the main input.
- On loss of level on one channel of the main input.
- On loss of synchronisation lock of the main input.

The RB-DSD1 has 2 x digital stereo audio inputs, each one selectable via front panel INPUT1 and INPUT 2 push buttons, from either AES/EBU balanced XLRs, S/PDIF unbalanced phonos or Toslink unbalanced optical inputs. Sample rate converters on each input mean that sources of different sample rates can be used with the output sample rate being defined independently. Each input is user-defined as either the main source or auxiliary source and both sources are monitored for failure, each having a remote failure alarm. The colour of the INPUT 1 and INPUT 2 push-buttons indicate which input is the main (green) and auxiliary (red) input, with a flashing LED indicating loss of synchronisation.

In the event of the main source dropping below a pre-set level for a pre-determined

amount of time, the unit will automatically switch through to the auxiliary signal. The silence detect level is adjustable between -39dBfs and -84dBfs in 3dBfs steps via front panel DIP switches. The silence interval can be adjusted between 0 seconds and 252 seconds in 2 second steps via another front panel DIP switch block. A small cover panel can be screwed in place to obscure the DIP switches to prevent tampering of the settings.

There are 2 stereo outputs to allow for distribution of the selected input to multiple outputs. Each output is available as simultaneous AES/EBU balanced XLRs, S/PDIF unbalanced phonos or Toslink unbalanced optical outputs. The output sample rates are selectable via rear panel DIP switches from one of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz or 192kHz.

The unit has TTL wordclock BNC and AES/EBU XLR synchronising inputs as standard and optionally, the RB-SYA and RB-SYD synchronisation boards can be fitted to synchronise the unit to analogue or digital video signals. A front panel DIP switch block is used to decide whether the unit is synchronised to Input1, Input2, the AES/EBU sync input, the wordclock sync input or an optional video sync board. A front panel SYNC button selects the synchronisation mode of the unit and the button flashes whenever the unit is not synchronised to an incoming sync signal. Selectable sync modes are as follows:

**Master Mode**

In this mode the digital output sample rate is simply set by, and locked to, the internal on-board clock generator. No sync signal is used or required.

**Auto Sync Mode**

In this mode the digital output sample rate follows the selected sync input. When the sync signal is not present the output sample rate will be set by, and locked to, the internal on-board clock generator at the selected output frequency.

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### ► Auto Lock Mode

In this mode no output will be generated until lock is achieved with a sync signal. The digital output sample rate now follows the sync input. If the sync signal is removed then the output sample rate will be set by, and locked to, the internal on-board clock generator at the closest frequency available to the previous sync input.

### Slave Mode

In this mode the digital output sample rate follows the sync input. When the sync signal is not present the digital output is turned off.

The unit can operate in 2 modes - automatic or manual, selectable using a rear panel DIP switch. In both modes it will automatically switch over to the auxiliary source on detecting silence. When the main signal is again detected it will either return to the main signal automatically or manually depending on the mode chosen. In manual mode, the front panel RESTORE button is used to return to the main signal.

The RB-DSD1 has a number of remote operational features. Remote outputs

provide separate relay contact closures for failure of the main and auxiliary inputs. You can also remotely select between auto and manual mode (with tally output), action the signal RESTORE, set the silence detection delay to be 2mins 5 seconds and define which input is the main input (with tally output). You can remotely start and stop another piece of equipment on alarm failure and there is an option to set the remote start output as either momentary or latched.

The unit can be configured to alarm when either the left or right channel of the main input source fails, or if the whole stereo signal fails. Additionally, if one channel of a stereo signal is lost, you can define whether to mute the lost channel, or whether to mix the remaining channel to the lost side, effectively creating a mono signal. If the main source synchronisation is lost, you can define whether the unit switches to the auxiliary input immediately, or whether to treat the signal as silence to be detected and then switched based on the unit's silence detection settings.

Front panel LED indicators by the INPUT 1 and INPUT 2 buttons show

individually left and right programme and alarm conditions for both the main and auxiliary inputs.

A powerful feature of the RB-DSD1 is that by using the Sonifex SCi serial software, the unit can be programmed for different delay durations, levels and switching functions so that you can programme the unit for your specific application. A front panel DIP switch configures the unit to be controlled serially and a front panel LED indicates serial operation. Contact Sonifex for further information if you have a particular requirement that isn't catered for by the RB-DSD1 as standard.

The RB-DSD1 has been designed to have a passive signal path through the main input, so if power to the unit fails, signal input 1 is routed to output 1 and signal input 2 is routed to output 2. This is essential for applications such as installation at transmitter sites, where a power failure to the unit should not prevent the audio input signal from being output to the transmitter.

#### Audio Specification For RB-DSD1

##### Audio Specification

Dynamic Range: >138dB

Distortion and Noise: <-137dB THD + N at 1kHz, ref 0dB FS

Input & Output Impedances: 110Ω ±20% AES/EBU balanced I/O  
75Ω ±5% S/PDIF unbalanced I/O  
75Ω ±5% Toslink unbalanced I/O  
50Ω BNC TTL word clock input

Signal Level: Balanced: 3V/10V peak to peak min/max  
Unbalanced: Min 0.5V±20% peak to peak

Sample Frequencies: 32, 44.1, 48, 88.2, 96, 176.4 or 192kHz

Bit Depth: Up to and including 24 bit

##### Front Panel Operational Controls & Indicators

Digital Input Select: AES/EBU, S/PDIF or Toslink optical via INPUT 1 or INPUT 2 push-buttons

Sync Input Select: AES/EBU, wordclock, INPUT 1, INPUT 2 or video board, via front panel DIP switch

Sync Mode Select: Master, slave, auto or auto lock, via SYNC push-button

Alarm Threshold: -39dBfs to -84dBfs in 3dBfs steps via front panel DIP switches

Silence Detect Duration: 0 - 252 seconds in 2 second intervals via front panel DIP switches

Detection Type: Mono or stereo, via front panel DIP switch

Restore Control: Manual restore button & mode indication LED

Indicators: Program and alarm indicators for left and right sources for both main and auxiliary inputs

##### Rear Panel Operational Controls

Master Frequency Select: 32, 44.1, 48, 88.2, 96, 176.4 or 192kHz via rear panel DIP switches

Input Select: Main input from INPUT 1 or INPUT 2 via DIP switch

Restore Mode: Automatic or manual, via DIP switch

Remote Start: Latched or momentary, via DIP switch

Channel Loss: Mute channel or mix remaining, via DIP switch

Sync Loss: Switch immediately or treat as silence delay, via DIP switch

##### Connections

Digital Inputs: 2 x AES/EBU XLR 3 pin female  
2 x S/PDIF RCA phono  
2 x Toslink optical input

Digital Outputs: 2 x AES/EBU XLR 3 pin plug  
2 x S/PDIF RCA phono socket  
2 x Toslink optical output

Sync Inputs: 1 x AES/EBU XLR 3 pin female  
1 x Word Clock BNC  
1 x Video Input (optional)

Remote I/O Port: 15 way D-type plug

Serial Port: RS232, RJ45 socket

Mains Input: Universal filtered IEC, continuously rated 85-264VAC @47-63Hz, max 10W

Fuse Rating: Anti-surge fuse 1A 20 x 5mm

##### Equipment Type

RB-DSD1: Digital silence detection unit

##### Physical Specifications

Dimensions (Raw): 48cm (W) x 10.8cm (D\*) x 4.2cm (H) (1U)  
19" (W) x 4.3" (D\*) x 1.7" (H) (1U)

Dimensions (Boxed): 53cm (W) x 25.5cm (D) x 6cm (H)  
21" (W) x 10" (D) x 2.4" (H)

Weight: Nett: 1.4kg Gross: 2.0kg  
Nett: 3.1lb Gross: 4.4lb

##### Accessories

RB-SYA: Analogue video sync board (NTSC, PAL & SECAM)

RB-SYD: Digital video sync board (SD-SDI & HD-SDI)

RB-RK3: 1U Rear panel rack kit for large Redboxes

\* Note that this product is deeper than standard Redboxes

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