

SONIFEX

Redbox RB-SC2
Dual Sample Rate Converter

2014-15
Catalogue





RB-SC2 Dual Sample Rate Converter



Category: Digital Audio Converters.

Description: Dual Sample Rate Converter (24 bit, 192kHz Capable).

Product Function: Transferring digital audio between digital equipment.

Typical Applications: Converting an audio library from 44.1kHz to 48kHz, transferring digital audio from a recorder at 48kHz to a digital mixer at 192kHz.

The RB-SC2 sample rate converter is a 1U rack-mount which produces AES/EBU, S/PDIF and Toslink optical level digital audio outputs from a balanced AES/EBU, S/PDIF and Toslink optical level digital audio inputs. The sample rate of the outputs can be set by an internal clock or from various external synchroniser sources.

The RB-SC2 is a high performance, enhanced version of the RB-SC1 providing the following additional features:

- It supports higher sample frequency rates up to and including 176.4kHz and 192kHz.
- It has 2 independent sample rate converter circuits that use a common clock source to set the output sample rate.
- It has 2 optional video synchronising boards. These set the output sample rate to 48kHz that is synchronised to either an analogue video signal or SDI digital video signal (HD or SD).
- A special X-Lock mode allows the unit to function as a full bi-directional sample rate converter.
- It has Toslink optical digital audio inputs and outputs.
- It has front panel push-button switches for all the main settings. The buttons are arranged in sets, where pressing the button advances the current selection and LED indicator.

- A serial RS232 port is included so that the RB-SC2 settings can be controlled remotely. The front panel LED indicators alter automatically when using RS232 commands.

For the digital outputs, there are three push-button switches to select the sample frequency (FREQUENCY), channel status bit type (CSDATA), and sync source and mode of operation (SYNC).

The FREQUENCY button allows selection of the master sample frequency from one of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz or 192kHz. The CS DATA button defines the content of the channel status bits embedded within the digital audio stream, and can be forced to either Professional Mode (PRO), Consumer Mode (CON) or to follow the mode of the input (FOLLOW).

The SYNC button is used to select the synchronisation input, from the AES/EBU sync input, the Wordclock input or, for X-Lock, the other digital input. The X-Lock synchronisation allows the unit to act as a bi-directional sample rate converter with the output of sample rate converter 1 syncing the input of sample rate converter 2 and vice versa so that they follow each other.

The application for the X-Lock mode is so that the RB-SC2 can be inserted between 2 digital devices which run at different sample rates, such as a PC recorder and a digital player. Using the RB-SC2 in X-Lock mode ensures that the 2 devices remain synchronised at all times regardless of the sample rate of the 2 devices.

The SYNC button will also select the operating mode of the unit as described below. If an optional video sync board is fitted then 2 sync LEDs light together to show the active video sync.

Master Mode - In this mode the unit receives a digital audio signal, which is passed to the sample rate converter and then re-formatted for the digital serial transmitter (IEC958). The sample rate converter clock signal is generated internally from an on board master clock at a selectable rate (32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz or 192kHz).

Slave Mode - In this mode the unit is synchronised to an external source, using the digital audio sync, or to the TTL level Word Clock. The FREQUENCY LED will indicate the synchronised sample frequency and if no sync is present, no output will be generated.

Auto Mode - Here, the unit is synchronised to an external source, using the digital



RB-SC2 shown with optional synchronisation board.

audio sync, or to the TTL level Word Clock. If no sync signal is present the unit runs from the onboard master clock at a rate selected by the front panel control (32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz or 192kHz).

Auto Lock Mode - This operates like the auto mode except that if no sync signal is present the unit will run at the closest master clock rate to the last locked incoming signal. The FREQUENCY LED will indicate the synchronised sample frequency.

When operating in sync modes, the SYNC button flashes whenever the unit is not synchronised to the incoming sync signal.

There are 2 further push-button switches (INPUT 1 & INPUT2) that are used to select the input connector used for each of the 2 sample rate converter circuits. These switches select between AES/EBU, S/PDIF and TosLink optical connectors.

A red LED indicates power to the RB-SC2.

Specification For RB-SC2

Audio Specification

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|----------------------|------------------------------------|
| Dynamic Range: | 138dB typical A-Weighted. |
| Distortion & Noise: | -134dB THD + N at 1kHz, ref 0 dBFS |
| Sample Freq Range: | 32kHz – 196kHz |
| Input Sample Width: | Up to and including 24 Bits. |
| Output Sample Width: | 24 Bits. |

Connections

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| 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) |

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| Video Sync Specs: | The Digital video sync board will accept 270Mbps SD-SDI and HD-SDI signals covered by SMPTE-259-M-C (SD) and SMPTE-292M (HD). The Analogue video sync board |
|-------------------|--|

will accept a composite signal of NTSC (525), PAL (625) & SECAM (625) signals covered by SMPTE-170-M (NTSC) and ITU-R BT.470-6 (PAL & SECAM).

Operational Controls

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|--------------------------|---|
| Master Frequency Select: | 32, 44.1, 48, 88.2, 96, 176.4 or 192kHz via FREQUENCY push-button |
| Channel Status Bits: | Consumer mode, professional mode or follow input, via CS DATA push-button |
| Digital Select: | AES/EBU, S/PDIF or TosLink Input optical, via INPUT1 or INPUT2 push-buttons |
| Sync Input Select: | AES/EBU, Word Clock, X-Lock or Video, via SYNC push-button |
| Sync Mode Select: | Master, slave, auto or auto lock, via SYNC push-button |

Other Connections

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| Main Input: | Universal filtered IEC, continuously rated 85-264VAC @47-63Hz, max 10W |
| Fuse Rating: | Anti-surge fuse 1A 20 x 5mm |
| Serial Port: | RS232 9 Pin D-type socket |

Equipment Type

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|---------|--|
| RB-SC2: | Dual Stereo Sample Rate Converter, 24 bit 192kHz |
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Physical Specifications

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| 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): | 59cm (W) x 27.5cm (D) x 11cm (H) 23.2" (W) x 10.8" (D) x 4.3" (H) |
| Weight: | Nett: 1.4kg Gross: 2.0kg Nett: 3.1lb Gross: 4.4lb |

Accessories

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|---------|---|
| 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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