



# SONIFEX

Redbox RB-DD4

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## Redbox - Digital Delay

### RB-DD4 4 Channel Digital Audio Delay

**NEW!**

The RB-DD4 4 channel digital audio delay allows you to delay 4 mono channels of audio independently or together. Each channel delay is user selectable from multiples of common video frame rates, or a user defined value set via the serial interface. The unit is perfect for synchronizing audio to video which has been delayed by processing latency.

Using a front panel button, you can select which channel needs to be delayed. There is also an 'ALL' option which allows the selected delay to be applied to all channels. Then using another front panel button you can select the length of one frame of delay and the multiple of frames to delay by.

The connectivity is incredibly flexible, allowing three different types of connection to each input and output including AES/EBU, S/PDIF and TOSLink. All three different types of output can be used simultaneously. There is a monitor socket on the front panel which allows you to listen to each mono channel, by front panel selection. Pairs of channels can be monitored (1 & 2 or 3 & 4) using a rear panel stereo option. There is also an option to attenuate the monitor by 12dB selectable by rear panel DIPswitch. Audio presence is detected and displayed for each channel around the INPUTS 1 & 2 and INPUTS 3 & 4 buttons.

The flexibility continues with many audio synchronization options. The digital audio output can be synchronized to either input, an additional AES/EBU reference input, a TTL wordclock BNC input or an analogue/SDI video feed if used with an additional

RB-SYA or RB-SYD board. Also the output can be synchronized to an on-board master clock, with a selectable frame rate. There are warning indicators on the front panel for loss of lock on both inputs and for the selected external synchronization. Selectable synchronization 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.

#### Auto Lock Mode

The digital output sample rate 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.

A powerful feature of the RB-DD4 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 program the unit for your specific application. A rear panel DIPswitch configures the unit to be controlled serially. Contact Sonifex for further information if you have a particular requirement that isn't catered for by the RB-DD4 as standard.

The RB-DD4 has been designed to have a passive signal path through the main input, so if power to the unit fails, signal inputs 1 & 2 are routed to outputs 1 & 2 and signal inputs 3 & 4 are routed to outputs 3 & 4. 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. Please note that this is not true for the TOSLink outputs which are muted.



RB-DD4 4 Channel Digital Audio Delay  
(With RB-SYD Video Sync Board)

## VIDEO INTERFACES

### Redbox - Digital Audio Converters

#### Specification For RB-DD4

##### 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 Freqs: 32, 44.1, 48, 88.2, 96, 176.4 or 192kHz

Bit Depth: Up to and including 24 bit

Max Delay: 8 secs per mono channel at 32kHz  
1.33 secs per mono channel at 192kHz

Frame Rates (Front Panel): 23.98fps, 24fps, 25fps, 29.97fps, 30fps, 50fps, 59.94fps, 60fps

Frame Rates (SCI Software): 525/29.97, 625/25, 720/60p, 720/59.94p, 720/50p, 720/30p, 720/29.97p, 720/25p, 720/24p, 720/23.98p, 1035/60i, 1035/59.94i, 1080/60i, 1080/59.94i, 1080/50i, 1080/30p, 1080/29.97p, 1080/25p, 1080/24p, 1080/23.98p, 1080/30pSF, 1080/29.97pSF, 1080/25pSF, 1080/24pSF, 1080/23.98pSF, 1080/60p, 1080/59.94p, 1080/50p

Delay Settable: 1 to 19 frames (front panel controls)  
Frames, lines, fields, milliseconds and samples up to total delay time (SCI software)

#### Front Panel Operational Controls & Indicators

Digital Input Select: AES/EBU, S/PDIF or TOSlink optical via INPUTS 1 & 2 or INPUTS 3 & 4 push-buttons

Delay Control: Delay time selection system via front panel push button

Monitor Select Control: Headphone monitor channel select

Indicators: Input presence indicators via bicolour LEDs around each push button

#### Rear Panel Operational Controls

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

Sync Source Select: INPUTS 1&2, INPUTS 3&4, AES Sync, Word Clock, Video Sync via rear panel DIPswitches

Sync Mode Select: Master, Auto Sync, Auto Lock, Slave via rear panel DIPswitches

Stereo Features: Stereo monitor outputs via rear panel DIPswitches

Monitor Attenuation: 12dB monitor attenuation via rear panel DIPswitches

Serial Mode: Enter serial control mode via rear panel DIPswitches

Boot Mode: Boot up base code or firmware via rear panel DIPswitches

#### 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, 9 pin D-type socket

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

Fuse Rating: Anti-surge fuse 2A 20 x 5mm

#### Equipment Type

RB-DD4: 4 channel digital audio delay

#### 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): 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

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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