SONIFEX

3G, HD & SD-SDI
Embedders & De-Embedders

Catalogue 2016

3G, HD & SD-SDI Embedders & De-Embedders

Still in the familiar Redbox chassis offering rackmounting as standard and a universal AC power supply, these new video Redboxes use latest technology components to offer embedding and de-embedding for analogue and digital audio signals into and out of single link 3G, HD and SD-SDI video signals, respectively.

With simple front panel controls, standard BNC connectivity and remote operation on serial and ethernet ports, there are currently 6 products in the range:

- **RB-VHDMA8** De-Embedder, 8 Channel Analogue Outputs
- **RB-VHEMA8** Embedder, 8 Channel Analogue Inputs
- **RB-VHCMA4** Embedder & De-Embedder, 4 Channel Analogue I/O
- **RB-VHCMD16** Embedder & De-Embedder, 16 Channel Digital I/O
- **RB-VHEDD8** 3G/HD/SD-SDI De-Embedder, Dolby® E Encoder & Re-Embedder
- **RB-VHDDD8** 3G/HD/SD-SDI De-Embedder Dolby® E & Dolby Digital Decoder & Re-Embedder

Features of the 3G, HD & SD-SDI Embedders & De-Embedders

- Support all standards of single link 3G, HD and SD-SDI.
- Front panel control and remote Ethernet control.
- Two SDI outputs which can be configured independently.
- Input/output audio gain control, depending on unit.
- Analogue and digital audio I/O versions.
- AC power supply.
- 1U rackmount.

Common Specifications

SDI Specification	
SDI Input:	1 x BNC, 3G/HD/SD-SDI
SDI Outputs:	2 x BNC, 3G/HD/SD-SDI, Re-clocked
Impedance:	75Ω
Output Alignment Jitter:	<0.2UI (3G <0.3UI)
Output Level:	800mV +/- 10%
Return Loss:	<15dB at 1500MHz
SDI Supported Standards:	270Mbps, SMPTE-259M-C (SD) 1.485 or 1.4835Gbps, SMPTE-292M (HD) 2.97 or 2.967Gbps, SMPTE-424M (3G)
Supported Video Formats:	525/59.94 (SMPTE-125M) 625/50 (ITU-R BT.656) 720p/23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (SMPTE-296M) 1035i/59.94, 60 (SMPTE-260M) 1080i/50, 59.94, 60 (SMPTE-274M) 1080p/23.98, 24, 25, 50, 59.94, 60 (SMPTE-274M) 1080pSF/23.98, 24, 25, 29.97, 30 (RP-211) 1080i/50 (SMPTE-295M)1080p/50 (SMPTE-295M)
Video Delay:	SD: 290 pixels / 22 us HD: 570 pixels / 8 us 3G: 570 pixels / 4 us
Embedded Audio:	48kHz, synchronous SMPTE-272M-ABC SMPTE-299M
Serial Port:	RS232, 9 way D-type
Ethernet Port:	10/100Mbps
Fuse Rating:	Anti-surge fuse 2A 20 x 5mm
Physical Specifications	
Dimensions (Raw):	48cm (W) x 15.8cm (D*) x 4.2cm (H) (1U) 19" (W) x 6.2" (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: 1.8kg Gross: 2.3kg Nett: 4.0lb Gross: 5.1lb
Accessories	
RB-RK3:	1U Rear panel rack kit for large Redboxes

* Note that this product is deeper than standard Redboxes

RB-VHDMA8 3G/HD/SD-SDI De-Embedder, 8 Channel Analogue Output

Typical Applications: De-embed audio from live HD football feed to provide multi-language radio commentaries, de-embed audio to pass to analogue speaker system.
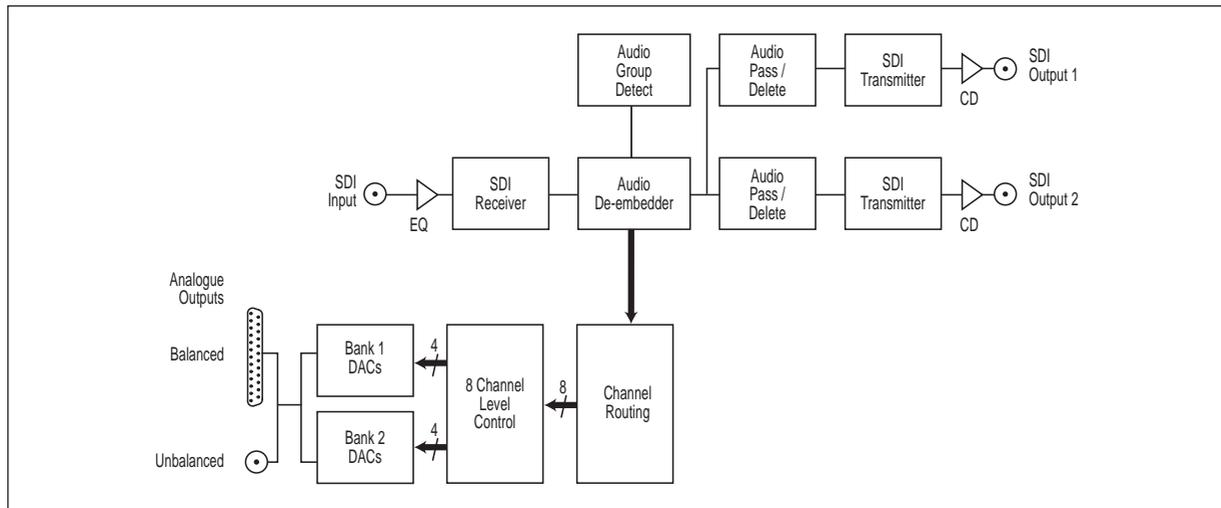
Features: Balanced & unbalanced analogue outputs, independent output level controls, 2 x independent SDI outputs, Ethernet or front panel control & configuration.

Category: 3G/HD/SD-SDI Video Embedders & De-Embedders.

Product Function: De-embeds from SDI stream to 8 analogue outputs.

The RB-VHDMA8 is an 8 channel analogue de-embedder contained in a single 19-inch rack unit. The unit can selectively de-embed up to 8 channels within any audio group of an SDI video signal, to any of the analogue outputs. After which, the video becomes two independent paths, where the audio groups can be selectively deleted or passed through and then sent to the re-clocked SDI outputs.

The de-embedding channel routing is controlled via the front panel buttons and indicators. There is also LED indication for SDI input status and audio group presence.

The unit can be remote controlled via Ethernet or serial port connections using the Sonifex SCi software.

It has a triple rate SDI receiver with automatic input rate detection and equalisation along with two re-clocked and individually buffered SDI outputs. It supports the full range of

RB-VHDMA8 System Block Diagram.

SCi Audio Output Levels Page.

SCi Delay Page.

single link 3G, HD and SD standards from NTSC and PAL up to 1080p 60Hz. There is independent level control for each analogue output channel, which can be adjusted from -24dB through to +24dB in 0.5dB steps.

The analogue outputs have three full-scale gain settings which can be set via jumpers inside the unit. Allowable settings are +12dBu, +18dBu and +24dBu reference FSD.

The balanced and unbalanced output connections are paralleled, allowing one type to be used per output.

Specification For RB-VHDMA8

Audio Specification

Front Panel Controls & Indicators

De-embed Bank Select:	Bank 1 or 2
Bank Channel Select:	Channels 1,2,3 or 4
Group Select:	Groups 1,2,3 or 4
Group Channel Select:	Group channels 1,2,3 or 4
Status:	1 x SDI input status LED 2 x SDI output LEDs 4 x Audio group status LEDs

Audio Specifications

Max Output Level:	+24dBu (balanced)
Output Impedance:	<50Ω (balanced)
Gain Range:	12dBu, 18dBu or 24dBu ref FSD (jumper selectable)

Signal to Noise:	Better than -106dB (RMS A-weighted at 24-bit, balanced)
Distortion and Noise:	Better than -85dB THD+N at 1kHz (balanced)
De-embed Delay:	3G/HD/SD: 1.1 ms

Connections

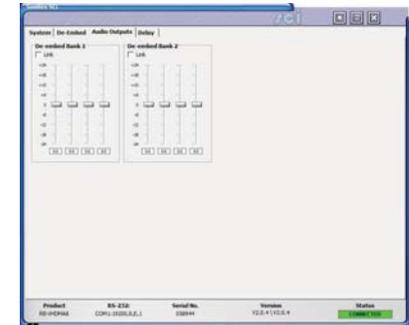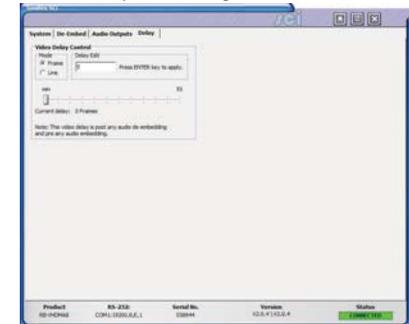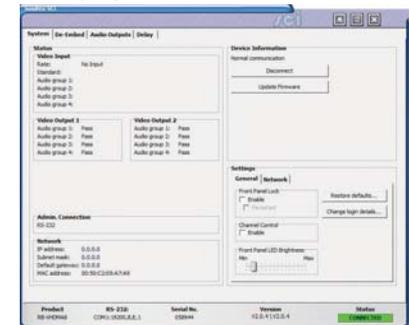|	
Analogue Audio Outputs:	8 output channels via BNC (unbalanced) or D-type socket (balanced)
Analogue Audio	8 x BNC
Connectors:	2 x 25-way D-type
Power Supply:	Universal filtered IEC, continuously rated 85-264VAC @47-63Hz, fused, max 14W

Equipment Type

RB-VHDMA8	3G/HD/SD-SDI De-embedder, 8 channel analogue outputs

SCi System Page.

RB-VHEMA8 3G/HD/SD-SDI Embedder, 8 Channel Analogue Inputs

Category: 3G/HD/SD-SDI Video Embedders & De-Embedders.
Product Function: Embeds 8 analogue inputs to 2 x SDI streams.

Typical Applications: Embed different language commentaries to live HD football feed, embed remixed 5.1 + stereo music onto HD concert footage.
Features: Balanced & unbalanced analogue inputs, independent input level controls, 2 x independent SDI outputs, Ethernet or front panel control & configuration.

The RB-VHEMA8 is an 8 channel analogue embedder contained in a single 19-inch rack unit. The unit can selectively embed up to 8 analogue channels onto either of the two output video paths which are sent to the re-clocked SDI outputs. It also has the capability to allow audio groups to be deleted or passed through on each of the two video paths prior to the embedding process.

The embedding channel routing is controlled via the front panel buttons and indicators. There is also LED indication for SDI input status and audio group presence.

The unit can be remote controlled via Ethernet or serial port connections using the Sonifex SCi software.

It has a triple rate SDI receiver with automatic input rate detection and equalisation along with two re-clocked and individually buffered SDI outputs. It supports the full range of single link 3G, SD

SCi Audio Inputs Page.

and HD standards from NTSC and PAL up to 1080p 60Hz.

There is independent level control for each analogue input channel, which can be adjusted from -24dB through to +24dB in 0.5dB steps. The analogue inputs have three full-scale gain settings which can be set via jumpers situated inside the unit. Allowable settings are +12dBu, +18dBu and +24dBu for FSD.

The balanced and unbalanced input connections are paralleled, allowing one type to be used per input.

Specification For RB-VHEMA8

Audio Specification

Front Panel Controls & Indicators

Embed Bank Select:	Bank 1 or 2
Bank Channel Select:	Channels 1, 2, 3 or 4
Group Select:	Groups 1, 2, 3 or 4
Group Channel Select:	Group channels 1,2,3 or 4
Status:	1 x SDI input status LED 2 x SDI output LEDs 4 x Audio group status LEDs

Audio Specifications

Maximum Input Level:	+27dBu (balanced)
Input Impedance:	>10kΩ bridging (balanced)
Input Levels:	+12dBu, +18dBu or +24dBu for FSD (jumper selectable)
Signal to Noise:	Better than -113dBFS (RMS A-weighted at 24-bit, balanced)

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Distortion and Noise:	Better than -100dB THD+N at 1kHz (balanced)
Embed Delay:	SD: 600 us 3G/HD: 300 us

Connections

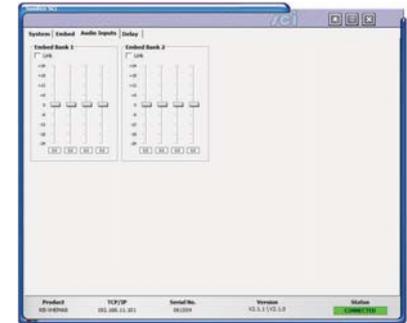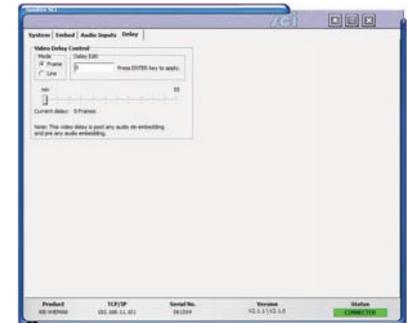|	
Analogue Audio Inputs:	8 input channels via BNC (unbalanced) or D-type socket (balanced)
Analogue Audio Connectors:	8 x BNC 2 x 25-way D-type
Power Supply:	Universal filtered IEC, continuously rated 85-264VAC @47-63Hz, fused, max 18W

Equipment Type

RB-VHEMA8	3G/HD/SD-SDI embedder, 8 channel analogue inputs
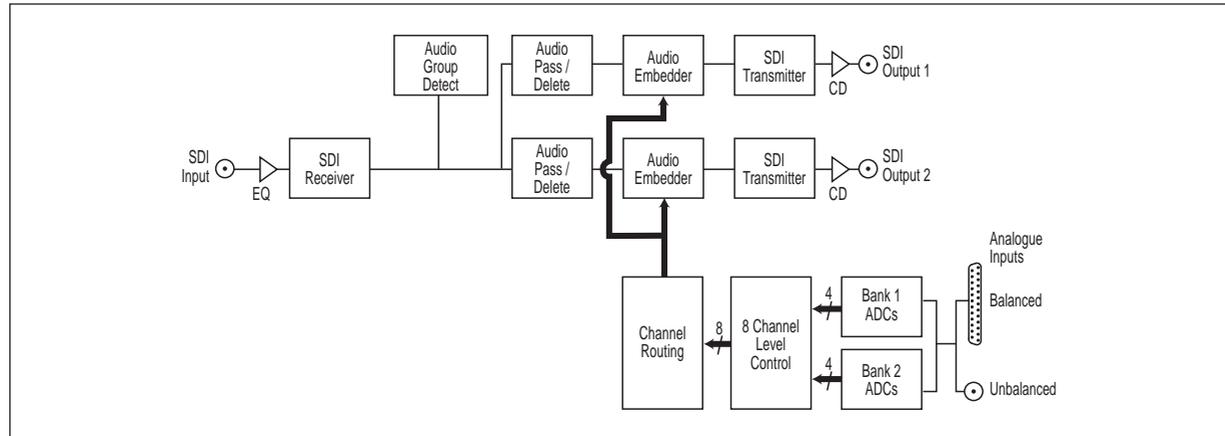
SCi Delay Page.

SCi Embed Page.

RB-VHEMA8 System Block Diagram.
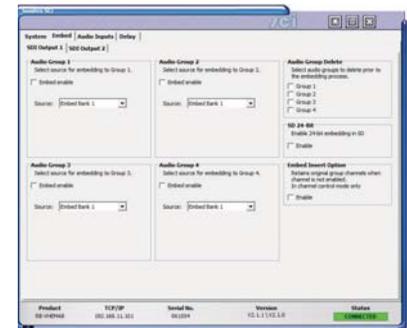
RB-VHCMA4 3G/HD/SD-SDI Embedder & De-Embedder 4 Channel Analogue I/O

Category: 3G/HD/SD-SDI Video Embedders & De-Embedders.

Product Function: De-embeds from 1 SDI stream to 4 analogue outputs & embeds 4 analogue inputs to 2 x SDI streams.

Typical Applications: To add post production audio processes, commentary & sound effects to an HD video feed (De-embed, add effects, re-embed).

Features: Balanced & unbalanced analogue inputs & outputs, independent input & output level controls, 2 x independent SDI outputs, Ethernet or front panel control & configuration.

The RB-VHCMA4 is a 4-channel analogue de-embedder and a 4-channel analogue embedder combined into a single 19-inch rack unit. The unit can selectively de-embed up to 4 channels within any audio group of an SDI video signal, to any of the analogue outputs. After which, the video becomes two independent paths where the audio groups can be selectively deleted or passed through. The unit then embeds any of the 4 analogue input channels to available groups within each of the two video paths, which are then sent to the re-clocked SDI outputs.

The de-embedding and embedding channel routing is controlled via the front panel buttons and indicators. There is also LED indication for SDI input status and audio group presence.

The unit can be remote controlled via Ethernet or serial port connections using the Sonifex SCi software.

It has a triple rate SDI receiver with automatic input rate detection and equalisation along with two re-clocked and individually buffered SDI outputs. It supports the full range of single link 3G, SD and HD standards from NTSC and PAL up to 1080p 60Hz.

There is independent level control for each analogue input and output channel, which can be adjusted from -24dB through to +24dB in 0.5dB steps. The analogue outputs have three full-scale gain settings which can be set via jumpers situated inside the unit. Allowable settings are +12dBu, +18dBu and +24dBu reference FSD Similarly, the analogue inputs full-scale gain settings can be set via jumpers inside the unit. Allowable settings are +12dBu, +18dBu and +24dBu for FSD.

The balanced and unbalanced connections are paralleled, allowing one type to be used per input or output.
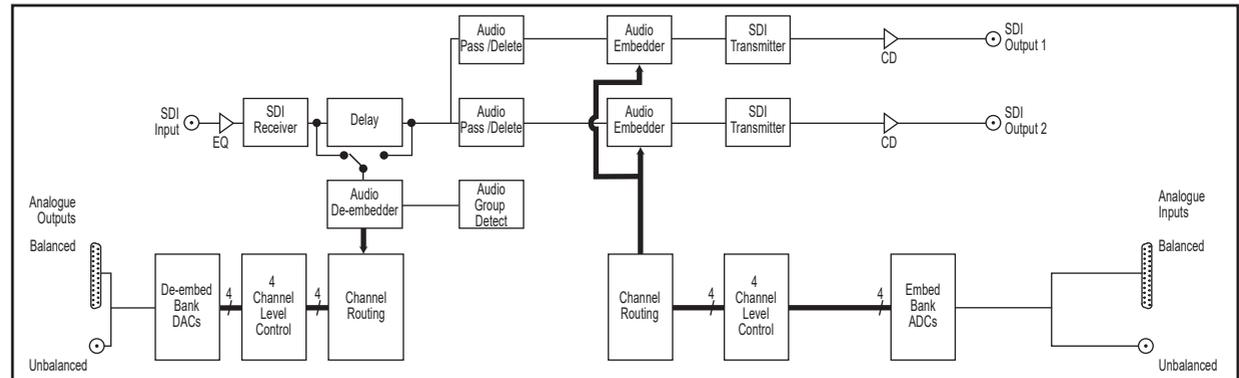

RB-VHCMA4 System Block Diagram.

Specification For RB-VHCMA4

Front Panel Controls & Indicators

Bank Select:	De-embed bank or embed bank
Bank Channel Select:	Channels 1,2,3 or 4
Group Select:	Groups 1,2,3 or 4
Group Channel Select:	Group channels 1,2,3 or 4
Status:	1 x SDI input status LED 2 x SDI output LEDs 4 x Audio group status LEDs

Audio Specifications

Analogue Inputs

Maximum Input Level:	+27dBu (balanced)
Input Impedance:	>10kΩ bridging (balanced)
Input Levels:	+12dBu, +18dBu or +24dBu for FSD (jumper selectable)
Signal to Noise:	Better than -113dBFS (RMS A-weighted at 24-bit, balanced)
Distortion and Impedance:	Better than -100dB THD+N at 1kHz (balanced)

Analogue Outputs

Max Output Level:	+24dBu (balanced)
Output Impedance:	<50Ω (balanced)
Gain Range:	12dBu, 18dBu or 24dBu ref FSD (jumper selectable)
Signal to Noise:	Better than -106dB (RMS A-weighted at 24-bit, balanced)
Distortion and Noise:	Better than -85dB THD+N at 1kHz (balanced)
De-embed Delay:	3G/HD/SD: 1.1 ms
Embed Delay:	SD: 600 us 3G/HD: 300 us

Connections

Analogue Audio Inputs:	4 input channels via BNC (unbalanced) or D-type (balanced)
Analogue Audio Outputs:	4 output channels via BNC (unbalanced) or D-type (balanced)
Analogue Audio Connectors:	8 x BNC 2 x 25-way D-type socket
Power Supply:	Universal filtered IEC, continuously rated 85-264VAC @47-63Hz, fused, max 16W

Equipment Type

RB-VHCMA4	3G/HD/SD-SDI embedder & de-embedder, 4 channel analogue I/O
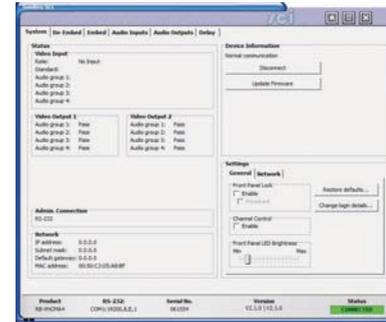
SCi System Page.
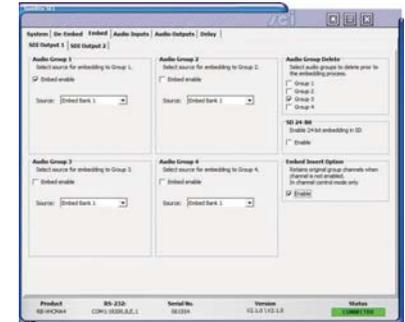
SCi Embed Page.

RB-VHCMD16 3G/HD/SD-SDI Embedder & De-Embedder 16 Channel Digital I/O

Category: 3G/HD/SD-SDI Video Embedders & De-Embedders.
Product Function: De-embeds from 1 SDI stream to 16 digital outputs & embeds 16 digital inputs to 2 x SDI streams.

Typical Applications: To add post production audio processes, commentary & sound effects to an HD video feed (De-embed, add effects, re-embed).
Features: Selectable unbalanced or balanced digital inputs & outputs, independent input & output level controls, 2 x independent SDI outputs, Ethernet or front panel control & configuration.

The RB-VHCMD16 is a 16-channel de-embedder and 16 channel embedder combined into a single 19-inch rack unit. The unit can selectively de-embed any channel within any audio group of an SDI video signal, to any of the digital outputs. After which, the video becomes two independent paths where the audio groups can be selectively deleted or passed through. The unit then embeds any of the digital input channels to available groups within each of the two video paths, which are then sent to the re-clocked SDI outputs.

The de-embedding and embedding channel routing is controlled via the front panel buttons and indicators. There is also LED indication for SDI input status and audio group presence.

The unit can be remote controlled via Ethernet or serial port connections using the Sonifex SCi software.

It has a triple rate SDI receiver with automatic input rate detection and equalisation along with two re-clocked and individually buffered SDI outputs. It supports the full range of single link 3G, HD and SD standards from NTSC and PAL up to 1080p 60Hz.

Each digital input is normally sample rate converted to 48kHz before embedding, so that it is synchronous to the video input, though sample rate conversion can be bypassed on a per input basis allowing SMPTE-337M data to be embedded. All

digital outputs are output at 48kHz, synchronous to the video input. There is independent level control for each digital input and output channel, which can be adjusted from -24dB to +24dB in 0.5dB steps.

The digital audio I/O connections are transformer-coupled balanced line interfaces and can be configured to be either 75ohm (AES 3ID) or 110ohm (AES 3) impedance through either a BNC or D-type connector. These connections are paralleled, allowing one type to be used per input or output.

SCi Audio Inputs Page.

SCi De-Embed Page.

SCi Embed & SDI Output Page.

Specification For RB-VHCMD16

Front Panel Controls & Indicators

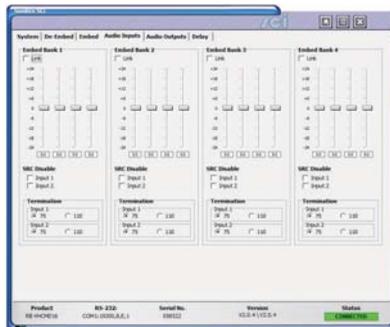|	
Bank Select:	Bank 1, 2, 3 or 4
Bank Channel Select:	Channels 1,2,3 or 4
Function Select:	De-embed or embed
Group Select:	Groups 1,2,3 or 4
Group Channel Select:	Group channels 1,2,3 or 4
Status:	1 x SDI input status LED 2 x SDI output LEDs 4 x Audio group status LEDs

Audio Specifications

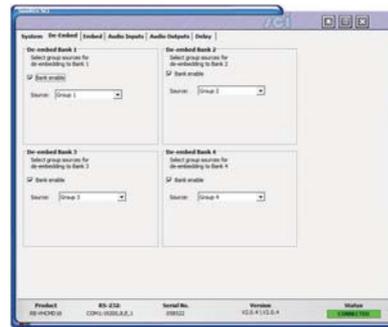|	
Output Sample Rate:	48kHz
Input Sample Rates:	32-192kHz, sample rate converted to 48kHz
Input & Output Impedance:	110Ω or 75Ω (jumper selectable)
Signal Level (un-terminated):	Balanced: 3Vp-p +/- 20% Unbalanced: 2Vp-p +/- 20%
Dynamic Range:	138dB
Distortion and Noise:	<-137dB THD+N at 997Hz, ref 0dBFS
De-embed Delay:	3G/HD/SD: 330 us
SRC Input Delay:	192 kHz: 1.3 ms 96 kHz: 1.83 ms 48 kHz: 2.9 ms
Embed Delay:	SD: 600 us + SRC Input Delay 3G/HD: 300 us + SRC Input Delay

Connections

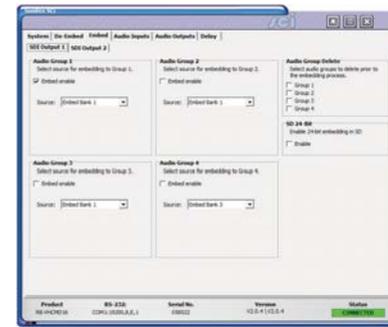|	
Digital Audio Outputs:	16 outputs via 8 BNCs (AES 3ID) or D-type (AES/EBU)
Digital Audio Inputs:	16 inputs via 8 BNCs (AES 3ID) or D-type (AES/EBU)
Digital Audio Connectors:	16 x BNC 2 x 25-way D-type socket
Power Supply:	Universal filtered IEC, continuously rated 85-264VAC @47-63Hz, fused, max 13W

Equipment Type

RB-VHCMD16	3G/HD/SD-SDI embedder & de-embedder 16 channel digital I/O

RB-VHCMD16 System Block Diagram.

RB-VHEDD8 3G/HD/SD-SDI De-Embedder, Dolby® E Encoder & Re-Embedder

Category: 3G/HD/SD-SDI Video De-Embedders & Re-Embedders With Dolby Encode/Decode.

Product Function: De-embeds from 1 x SDI stream, Dolby E Encode process using de-embedded channels or 8 digital audio inputs, re-embeds any audio or Dolby encoded channels to 2 x SDI streams.

Typical Applications: To embed audio in Dolby E encoded format into 2 x SDI streams.

Features: 8 x balanced or unbalanced digital audio inputs, independent input level controls, 2 x independent SDI outputs, Dolby E bitstream output, 8 programmable GPIOs, metadata input, Ethernet or front panel control & configuration.

The RB-VHEDD8 is an SDI audio de-embedder and re-embedder with Dolby® E Encoding capabilities. The unit de-embeds 16 channels of audio from the SDI input and these, together with the external digital audio inputs via the BNC or D-type connectors, are passed to the Dolby® Encoder. Dolby E encodes up to 8 channels of audio into two channels of an AES/EBU digital audio stream which are then embedded onto any of the available groups within each of the two SDI output paths. The outputs from the de-embedder can also be re-embedded into the SDI outputs, along with the encoder inputs. The encoded Dolby E bitstream is also available via a dedicated rear panel output.

The unit has a triple rate SDI receiver with automatic input rate detection and equalisation along with two re-clocked and individually buffered SDI outputs which can be configured independently. It supports the full range of single link 3G, HD and SD standards from NTSC and PAL up to 1080p 60Hz.

The unit maintains lip-sync through the encode process by delaying the video, embedded audio and any other ancillary
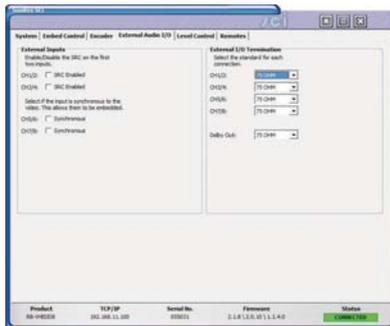
data, including embedded audio, to match the encoding latency. There is minor adjustment of this delay, to allow for errors further up or down the processing chain.
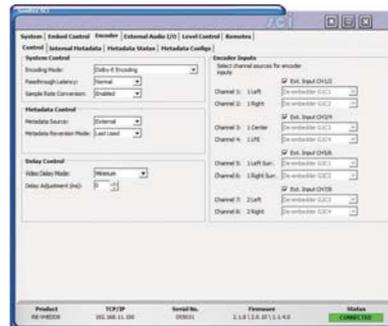
The encoding process metadata can be selected from either the external 9-pin D-type, from metadata embedded into the vertical blanking area of the video input (SMPTE 2020), or by internal settings.

The unit is controlled locally through the front panel display and remotely via an Ethernet connection, using the Sonifex SCi software. The embedding channel routing is controlled using these methods also.
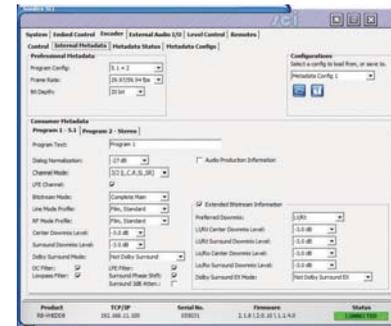
Each digital input channel has independent level control, with adjustment from -24dB to +24dB in 0.5dB steps. The digital audio I/O connections are transformer-coupled balanced line interfaces and can be configured to be 75Ω (AES 3ID) or 110Ω (AES3) impedance through BNC or D-type connectors respectively. These connections

SCi Audio I/O Page.

are paralleled, allowing one type to be used per input or output.

8 GPIs and 8 GPOs are available on a 25 way D-type socket, whose function can be programmed using the menu, e.g. alarm outputs for loss of input or encoder errors.

Specification For RB-VHEDD8

SDI Specification

SDI Input:	1 x BNC, 3G/HD/SD-SDI
SDI Outputs:	2 x BNC, 3G/HD/SD-SDI, re-clocked
Impedance:	75Ω

SCi Encoder Control Page.

Output Alignment Jitter:	<0.2UI (3G <0.3UI)
Output Level:	800mV ±10%
Return Loss:	<15dB at 1500MHz
SDI Supported Standards:	270Mbps, SMPTE-259M-C (SD) 1.485 or 1.4835Gbps, SMPTE-292M (HD) 2.97 or 2.967Gbps, SMPTE-424M (3G), SMPTE-425M-A
Supported Video Formats:	525/59.94 (SMPTE-125M) 625/50 (ITU-R BT.656) 720p/23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (SMPTE-296M) 1035i/59.94, 60 (SMPTE-260M) 1080i/50, 59.94, 60 (SMPTE-274M) 1080p/23.98, 24, 25, 50, 59.94, 60 (SMPTE-274M) 1080pSF/23.98, 24, 25, 29.97, 30 (RP-211) 1080i/50 (SMPTE-295M) 1080p/50 (SMPTE-295M)
Embedded Audio:	24-bit, 48kHz synchronous SMPTE-272M-C & SMPTE-299M
Metadata:	SMPTE-2020M SMPTE-RDD06, 9-Pin D-type socket

Delay Specification

Video Delay:	1 frame when frame rate <= 30 fps, 2 frames when frame rate > 30 fps.
Adjustment:	±10 ms.

Audio Specifications

Sample Rate:	48kHz for output
Input Sample Rates:	CH1/2 & CH3/4: 32-192kHz CH5/6 & CH7/8: 32-48kHz
I/O Impedance:	75Ω/110Ω selectable
Signal Level (Un-terminated):	Unbalanced: 1Vp-p ±20% Balanced: 6.6Vp-p ±20%

SCi Encoder Internal Metadata Page.

Digital Audio I/O: Inputs:	8 x digital audio input channels via 4 x BNCs or 25 way D-type socket(AES3)
Outputs:	2 output channels via 1 x BNC or 25 way D-type socket (AES3)
Digital Audio Connectors:	5 x BNC 1 x 25-way D-type socket
LTC Input:	1 x BNC (not used)

Operational Control

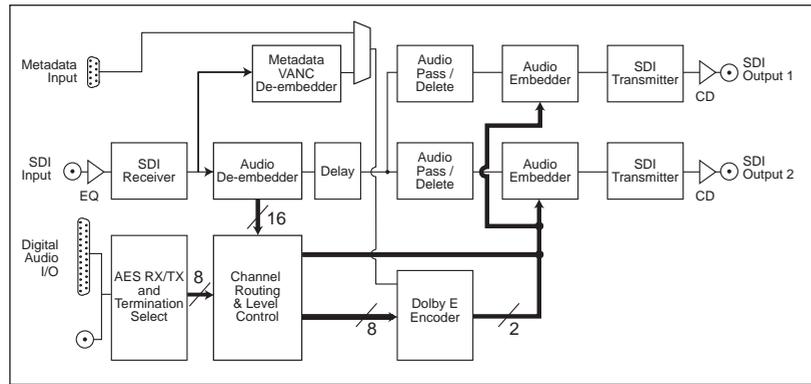|	
Display:	Vacuum fluorescent display
System Navigation:	Rotary selector with integral push-switch

Additional Connections

Ethernet Port:	10/100Mbps, RJ-45
Remote Input/Output Port:	25-way 'D'-type socket
Power Supply:	Universal filtered IEC, continuously rated 85-264VAC @47-63Hz, fused
Fuse Rating:	Anti-surge fuse 2A 20 x 5mm

Physical Specifications

Dimensions (Raw):	48cm (W) x 15.8cm (D*)x 4.2cm (H) 19" (W) x 6.2 " (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: 1.8kg Gross: 2.3kg Nett: 4.0lb Gross: 5.1lb

* Note that this product is deeper than standard Redboxes

Equipment Type

RB-VHEDD8	3G/HD/SD-SDI Dolby® E encoder & embedder

Accessories

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

RB-VHEDD8 Block Diagram.

SONIFEX Redbox

RB-VHDDD8 3G/HD/SD-SDI De-Embedder Dolby® E & Dolby Digital Decoder & Re-Embedder

sci | RK3 | DOLBY.

Category: 3G/HD/SD-SDI Video De-Embedders & Re-Embedders With Dolby Encode/Decode.

Product Function: De-embeds 16 channels from 1 x SDI stream, decodes any embedded Dolby E or D audio, outputs audio to 12 channels and re-embeds to 2 x SDI streams.

Typical Applications: To de-embed audio in Dolby E encoded format from an SDI stream and re-embed into 2 x SDI streams.

Features: 12 x balanced or unbalanced digital audio outputs, independent output level controls, 2 x independent SDI outputs, Dolby E bitstream output, 8 programmable GPIOs, metadata output, Ethernet or front panel control & configuration.

The RB-VHDDD8 is an SDI audio de-embedder and re-embedder with Dolby E & Dolby Digital Decoding capabilities. It de-embeds all 16 available audio inputs and decodes a selected Dolby E or Dolby Digital bitstream embedded in the SDI input. The outputs from the decoder and the de-embedder can then be re-embedded onto either of the two SDI outputs and also transmitted on BNCs or D-types. The encoded Dolby bitstream is also available via a dedicated output on the rear panel.

The unit has a triple rate SDI receiver with automatic input rate detection and equalisation along with two re-clocked and individually buffered SDI outputs which are configured independently. It supports the full range of single link 3G, HD and SD standards from NTSC and PAL up to 1080p 60Hz.
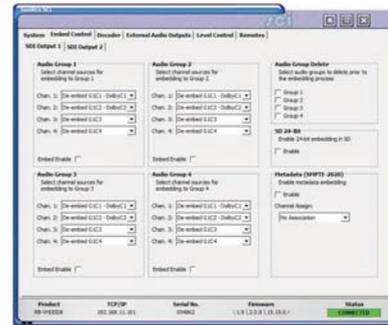
The decoder metadata output is transmitted using RS-485 via the external 9-pin D-type and can also be embedded into the vertical blanking space (SMPTE-2020) onto either of the two SDI outputs. The unit is controlled locally through the front panel display but can be remote controlled via an Ethernet
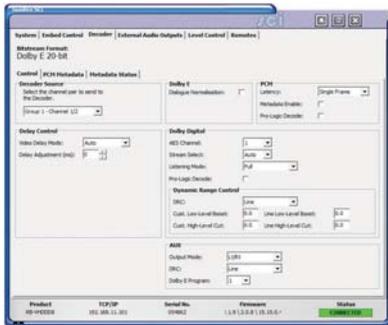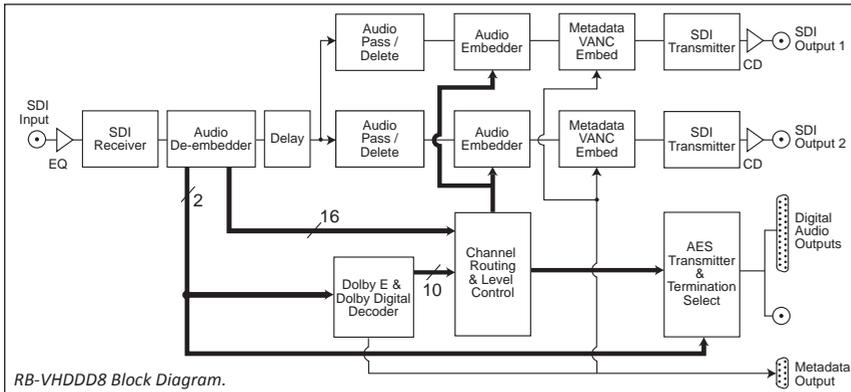
SCi Decoder Page.
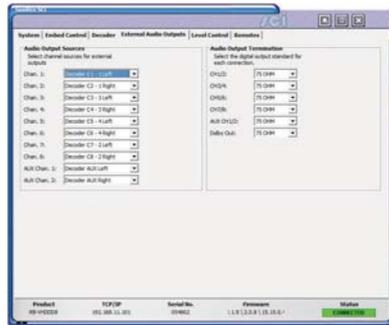
SCi External Audio Outputs Page.

SCi Embed Control Page.

RB-VHDDD8 Block Diagram.

connection using the Sonifex SCi software, through which metadata can also be viewed.

The unit maintains lip-sync through the decode process by delaying the video, embedded audio and any other ancillary data to match the decoding latency. There is minor adjustment of this delay, to allow for errors up or down the processing chain.

Each digital output channel has independent level control which can be adjusted from -24dB through to +24dB in 0.5dB steps.

The digital audio output connections are transformer-coupled balanced line interfaces and can be configured to be either 75Ω (AES 3ID) or 110Ω (AES 3) output impedance through either a BNC or via the D-type connector. These output connections are paralleled, allowing one type to be used per output.

8 GPIs and 8 GPOs are available on a 25 way D-type socket whose function can be programmed using the menu, e.g. alarm outputs for loss of input or decoder errors.

Specification For RB-VHDDD8

SDI Specification

SDI Input:	1 x BNC, 3G/HD/SD-SDI
SDI Outputs:	2 x BNC, 3G/HD/SD-SDI, re-clocked
Impedance:	75Ω
Output Alignment Jitter:	<0.2UI (3G <0.3UI)
Output Level:	800mV ±10%
Return Loss:	<15dB at 1500MHz
SDI Supported Standards:	270Mbps, SMPTE-259M-C (SD) 1.485 or 1.4835Gbps, SMPTE-292M (HD) 2.97 or 2.967Gbps, SMPTE-424M (3G), SMPTE-425M-A
Supported Video Formats:	525/59.94 (SMPTE-125M) 625/50 (ITU-R BT.656) 720p/23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (SMPTE-296M) 1035i/59.94, 60 (SMPTE-260M) 1080i/50, 59.94, 60 (SMPTE-274M) 1080p/23.98, 24, 25, 50, 59.94, 60 (SMPTE-274M) 1080pSF/23.98, 24, 25, 29.97, 30 (RP-211) 1080i/50 (SMPTE-295M) 1080p/50 (SMPTE-295M)
Embedded Audio:	24-bit, 48kHz synchronous SMPTE-272M-C and SMPTE-299M
Metadata:	SMPTE-2020M SMPTE-RDD06, 9-Pin D-type

Delay Specification

Video Delay:	1 frame when frame rate <= 30 fps, 2 frames when frame rate > 30 fps.
Adjustment:	±10 ms.

Audio Specifications

Output Sample Rate:	48kHz
Output Impedance:	75Ω/110Ω selectable
Signal Level (Un-terminated):	Unbalanced: 1Vp-p +/- 20% Balanced: 6.4Vp-p +/- 20%
Digital Audio Outputs:	12 output channels via 6 x BNC or 25 way D-type socket (AES3)
Digital Audio Connectors:	6 x BNC 1x 25-way D-type socket

Operational Control

Display:	Vacuum fluorescent display
System Navigation:	Rotary selector with integral push-switch

Additional Conections

Ethernet Port:	10/100Mbps, RJ-45
Remote Input/Output Port:	25-way 'D'-type socket
Power Supply:	Universal filtered IEC, continuously rated 85-264VAC @47-63Hz, fused
Fuse Rating:	Anti-surge fuse 2A 20 x 5mm

Physical Specifications

Dimensions (Raw):	48cm (W) x 15.8cm (D*)x 4.2cm (H) 19" (W) x 6.2" (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: 1.8kg Gross: 2.3kg Nett: 4.0lb Gross: 5.1lb

* Note that this product is deeper than standard Redboxes

Equipment Type

RB-VHDDD8	3G/HD/SD-SDI Dolby® E & Dolby Digital decoder & de-embedder

Accessories

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

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