

# Catalogue



# **RB-ADDA2 A/D and D/A Converter, 24 bit 192kHz**





Category: Digital Audio Converters. Description: Combined A/D and D/A Converter (24 bit, 192kHz Capable) (1U). Product Function: Converting stereo analogue audio to digital & vice-versa. Typical Applications:

• Interfacing professional or domestic

audio devices i.e. ipods or telephone balance units into digital environments.

 Recording studios/post production where easy access to settings is required.

### Features:

- Front panel switches.
- Coax/optical digital I/O.
- Separate sync for A to D and D to A allows independent use.
- RS232 for remote setting/control via Sonifex SCi software.

The RB-ADDA2 A/D and D/A converter is a 1U rack-mount which produces an AES/EBU, S/PDIF or TOSlink optical level digital audio output from a balanced XLR or unbalanced phono stereo audio input. It also produces a stereo balanced XLR or unbalanced phono output from an incoming AES/EBU, S/PDIF or TOSlink optical digital input signal.

The RB-ADDA2 is a high performance, enhanced version of the RB-ADDA providing the following additional features:

- It supports higher sample frequency rates up to and including 176.4kHz and 192kHz.
- It has additional independent AES/EBU and Word Clock synchronising inputs, so that the A/D and D/A sections can operate independently, with the digital outputs synchronised to an external master reference clock.
- It has TOSlink optical digital audio I/O.
- 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.

 An RS232 port allows RB-ADDA2 settings to be controlled remotely. The front panel LED indicators alter automatically when using RS232 commands.

The A/D SOURCE push-button is used to select from either the balanced or unbalanced stereo analogue inputs and this push-button also defines the input level for full scale digits at one of +12dBFS, +18dBFS or +24dBFS. These values can then be fine-tuned by using rear-panel pre-set potentiometers which give another ±3dB of gain adjustment, allowing a signal range from +9dBu to +27dBu. The RCA phono inputs have a further 10dB gain incorporated to give a total gain range of -1dBu to +17dBu for full-scale digits.

For the digital output, there are three push-button switches to select the sample frequency, bit depth and status bit modes. FREQUENCY allows selection of the master sample frequency from one of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz or 192kHz. BITS sets the output bit depth as one of 16, 20 or 24 bits, and CS DATA defines the content of the channel status bits embedded within the digital audio stream. The status bits can be forced to 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 Word Clock, AES/EBU or the D/A input, and also the synchronisation mode of the digital output.

The A/D section of the RB-ADDA2 operates in four selectable modes:

Master Mode - In this mode the unit receives an analogue audio signal, which is digitised and formatted for digital serial transmission (IEC958). The necessary clock signals are 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** - Here the unit is synchronised to an external source, using the digital audio sync or D/A input signal from which the clock signals are stripped, or to the TTL level Word Clock. The FREQUENCY LED indicates the synchronised sample frequency and if no sync is present, no output is generated.

Auto Mode - Here the unit is synchronised to an external source, using the digital audio sync or D/A input signal from which the clock signals are stripped, 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 runs at the closest master clock rate to the last locked incoming signal. The FREQUENCY LED indicates the synchronised sample frequency.

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

The D/A section has a SOURCE push-button which selects the digital input source from AES/EBU. S/PDIF or TOSlink optical and which also sets the analogue output level to be generated for full scale digits, from either +12dBFS, +18dBFS or +24dBFS. There are factory-set internal level controls for fine tuning the analogue output gain adjustment. If no digital audio source is present, the D/A SOURCE button flashes. In both A/D and D/A sections, audio is sent to all of the outputs simultaneously. The RB-ADDA2 automatically decodes 50/15us emphasis if this is indicated by certain channel status bits in the incoming digital audio data. A red LED indicates when power to the RB-ADDA2 is on.

# Specification For RB-ADDA2

Analogue to Digital Conversion A/D Audio Specification For RB-ADDA2		
Input Impedance:	>10k $\Omega$ unbalanced, >20k $\Omega$ bridging balanced	
Dynamic Range:	>110dB	
Gain Range:	Adjustable input gain of ±3dB on selected +12dBu, +18dBu or +24dBu, ref FSD	
Distortion & Noise:	>96dB THD + N at 1kHz	
A/D Connections	5	
Analogue Inputs:	2 x XLR 3 pin (balanced) 2 x RCA phono (unbalanced)	
Sync Inputs:	1 x AES/EBU XLR 3 pin female 1 x TTL Word clock BNC	
Digital Outputs:	1 x AES/EBU XLR 3 pin male 1 x S/PDIF RCA phono 1 x TOSlink optical	
Serial RS232:	1 x 9 pin D-type plug	
Mains Input:	Filtered IEC, continuously rated 85-264VAC @ 47-63Hz, 10W max	
Fuse Rating:	Anti-surge fuse 1A 20 x 5mm	

Input Source:       A/D SOURCE push-button         Analogue       +12dBFS, +13dBFS or +24dBFS, via A/C         SOURCE push-button       SOURCE push-button         for FSD:       SOURCE push-button         Analogue       +9dBu to +27dBu via rear-panel         Input Level       pre-set pots         Adjust:       Sample         32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kH         Frequency       176.4kHz or 192kHz, via FREQUENCY         Rates:       push-button         Bit Depth:       16, 20 or 24 bits, via BITS push-button         Channel       Consumer mode, professional mode o         Sync Mode       Master, slave, auto, auto lock, via SYNC         Select:       SYNC push-button         Digital to Analogue Conversion       D/A Audio Specification For RB-ADDA2         D/A Audio Specification For RB-ADDA2       D/A Connections         Digital Inputs:       1 x AES/EBU XLR 3 pin female         1 x S/PDIF RCA phono       1 x TOSlink optical         Analogue       2 x XLR 3 pin male (balanced)         Output Level:       push-button         Digital Inputs:       1 x AES/EBU XLR 3 pin female         1 x S/PDIF RCA phono       1 x TOSlink optical         Analogue       2 x XLR 3 pin male (balanced)         Output	A/D Operational	Controls
Input Level       SOURCE push-button         Analogue       +9dBu to +27dBu via rear-panel         Input Level       pre-set pots         Adjust:       32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kH         Sample       32kHz, 44.1kHz, 48kHz, via FREQUENCY         Rates:       push-button         Bit Depth:       16, 20 or 24 bits, via BITS push-button         Channel       Consumer mode, professional mode o         Sync Input       AFS/EBU, Word Clock or D/A input, via         Select:       SYNC push-button         Digital to Analogue Conversion       D/A Audio Specification For RB-ADDA2         Maximum       +24dBu balanced output, +14dBu         Output Level:       unbalanced output         Output Level:       unbalanced output         Output Level:       vibalanced output         Dynamic Range:       >110dB         D/A Connections       Digital Inputs:         Digital Inputs:       1 x AES/EBU XLR 3 pin female         1 x S/PDIF RCA phono       1 x TOSlink optical         Analogue       2 x XLR 3 pin male (balanced)         D/A Connections       Digital         Digital Inputs:       1 x AES/EBU, S/PDIF or TOSlink optical, via         Analogue       2 x XLR 3 pin male (balanced)         D/A Operat	0	Balanced XLR or unbalanced phono, via A/D SOURCE push-button
Input Level       pre-set pots         Adjust:       Sample         Sample       32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kH         Frequency       176.4kHz or 192kHz, via FREQUENCY         Rates:       push-button         Bit Depth:       16, 20 or 24 bits, via BITS push-button         Channel       Consumer mode, professional mode of Status Bits:         Sync Input       AES/EBU, Word Clock or D/A input, via Select:         Sync Mode       Master, slave, auto, auto lock, via SYNG Select:         Digital to Analogue Conversion       D/A Audio Specification For RB-ADDA2         Maximum       +24dBu balanced output +14dBu         Output Level:       unbalanced output         Output Level:       unbalanced output         Output Level:       vSOΩ balanced, <75Ω unbalanced	Input Level	+12dBFS, +18dBFS or +24dBFS, via A/D SOURCE push-button
Frequency Rates:       176.4kHz or 192kHz, via FREQUENCY push-button         Bit Depth:       16, 20 or 24 bits, via BITS push-button         Bit Depth:       16, 20 or 24 bits, via BITS push-button         Status Bits:       follow input, via CS DATA push-button         Sync Input       AES/EBU, Word Clock or D/A input, via Select:         Sync Mode       Master, slave, auto, auto lock, via SYNC push-button         Digital to Analogue Conversion D/A Audio Specification For RB-ADDA2       D/A Audio Specification For RB-ADDA2         Output Level:       .unbalanced output, +14dBu output Level:       .unbalanced output         Output Level:       .vox balanced, <75Ω unbalanced Impedance:       .         Dynamic Range:       >110dB       D/A Connections         Digital Inputs:       1 x AES/EBU XLR 3 pin female 1 x S/PDIF RCA phono 1 x TOSlink optical       .         Analogue       2 x XLR 3 pin male (balanced)       .uutput 2 x RCA phono (unbalanced)         Dutput Level:       .uush-button       .         Analogue       2 x RCA phono (unbalanced)       .uupsh-button         Digital       AES/EBU, S/PDIF or TOSlink optical, via upush-button       .analogue         Output Level:       .uush-button	Input Level	•
Channel         Consumer mode, professional mode o           Status Bits:         follow input, via CS DATA push-button           Sync Input         AES/EBU, Word Clock or D/A input, via           Select:         SYNC push-button           Sync Mode         Master, slave, auto, auto lock, via SYNC           Select:         push-button           Djatal to Analogue Conversion         D/A Audio Specification For RB-ADDA2           Maximum         +24dBu balanced output, +14dBu           Output Level:         unbalanced output           Output         <50Ω balanced, <75Ω unbalanced	Frequency	
Status Bits:     follow input, via CS DATA push-button       Sync Input     AES/EBU, Word Clock or D/A input, via       Select:     SYNC push-button       Sync Mode     Master, slave, auto, auto lock, via SYNC       Select:     push-button       Digital to Analogue Conversion     D/A Audio Specification For RB-ADDA2       Maximum     +24dBu balanced output, +14dBu       Output Level:     unbalanced output       Output Level:     -50Ω balanced, <75Ω unbalanced	Bit Depth:	16, 20 or 24 bits, via BITS push-button
Select:     SYNC push-button       Sync Mode     Master, slave, auto, auto lock, via SYNC       Select:     push-button       Digital to Analogue Conversion     D/A Audio Specification For RB-ADDA2       Maximum     +24dBu balanced output, +14dBu       Output Level:     unbalanced output       Unput Level:     unbalanced output       Dynamic Range:     >110dB       D/A Connections     Digital Inputs:       Digital Inputs:     1 x AES/EBU XLR 3 pin female       1 x S/PDIF RCA phono     1 x TOSlink optical       Analogue     2 x XLR 3 pin male (balanced)       Outputs:     2 x RCA phono (unbalanced)       D/A Operational Controls     Digital       Digital     AFS/EBU, S/PDIF or TOSlink optical, via       Input Select:     push-button       Analogue     Selectable +12dBu, +18dBu or +24dBu       Output Level     output level, ref FSD, via D/A SOURCE       for FSD:     push-button       Equipment Type     RB-ADDA2:       Combined A/D and D/A converter, 24 bit 192kHz       Physical Specification       Dimensions     48cm (W) x 15.8cm (D*) x 4.2cm (H) (1       (Raw):     19" (W) x 6.2" (D*) x 11.7" (H) (1U)       (Boxed):     59cm (W) x 27.5cm (D*) x 11.7" (H) (W)       Weight:     Nett:     3.5lbs <td></td> <td>Consumer mode, professional mode or follow input, via CS DATA push-button</td>		Consumer mode, professional mode or follow input, via CS DATA push-button
Select:       push-button         Digital to Analogue Conversion       D/A Audio Specification For RB-ADDA2         Maximum       +24dBu balanced output, +14dBu         Output Level:       unbalanced output         Output       <50Ω balanced, <75Ω unbalanced		AES/EBU, Word Clock or D/A input, via SYNC push-button
D/A Audio Specification For RB-ADDA2         Maximum       +24dBu balanced output, +14dBu unbalanced output         Output Level:       unbalanced output, 2500 balanced         Impedance:       Dynamic Range:         Dynamic Range:       >110dB         D/A Connections       Digital Inputs:         Digital Inputs:       1 x AES/EBU XLR 3 pin female 1 x S/PDIF RCA phono 1 x TOSlink optical         Analogue       2 x XLR 3 pin male (balanced)         D/A Operational Controls       Digital         Digital       AFS/EBU, S/PDIF or TOSlink optical, via push-button         Analogue       Selectable +12dBu, +18dBu or +24dBu Output Level, output level, ref FSD, via D/A SOURCE for FSD:         Digital       AFS/EBU, S/PDIF or TOSlink optical, via push-button         RB-ADDA2:       Combined A/D and D/A converter, 24 bit 192kHz         Physical Specification       Dimensions         Maxiw:       19" (W) x 6.2" (D*) x 1.2" (H) (1U)         (Boxed):       S9cm (W) x 27.5cm (D*) x 11cm (H) (23.2" (W) x 10.8" (D*) x 4.3" (H)         Weight:       Nett: 1.6kg Gross: 2.3kg         Nett:       3.5lbs Gross: 5lbs		Master, slave, auto, auto lock, via SYNC push-button
Output Level:         unbalanced output           Output         <50Ω balanced, <75Ω unbalanced		
Impedance:         Dynamic Range:       >110dB         D/A Connections          Digital Inputs:       1 × AES/EBU XLR 3 pin female         1 × S/PDIF RCA phono       1 × TOSlink optical         Analogue       2 × XLR 3 pin male (balanced)         Outputs:       2 × RCA phono (unbalanced)         D/A Operational Controls          Digital       AES/EBU, S/PDIF or TOSlink optical, via         Input Select:       push-button         Analogue       Selectable +12dBu, +18dBu or +24dBu         Output Level       output level, ref FSD, via D/A SOURCE         for FSD:       push-button         Equipment Type          RB-ADDA2:       Combined A/D and D/A converter, 24 bit 192kHz         Physical Specification          Dimensions       48cm (W) × 15.8cm (D*) × 4.2cm (H) (1)         (Boxed):       59cm (W) × 27.5cm (D*) × 11cm (H)         2.3.2" (W) × 10.8" (D*) × 4.3" (H)          Weight:       Nett: 1.6kg Gross: 2.3kg         Nett:       3.5lbs       Gross: 5lbs		• •
D/A Connections         D/A Connections         Digital Inputs:       1 x AES/EBU XLR 3 pin female 1 x S/PDIF RCA phono 1 x TOSlink optical         Analogue       2 x XLR 3 pin male (balanced)         Outputs:       2 x RCA phono (unbalanced)         D/A Operational Controls       D/A Operational Controls         Digital       AES/EBU, S/PDIF or TOSlink optical, via push-button         Analogue       Selectable +12dBu, +18dBu or +24dBu Output Level, ref FSD, via D/A SOURCE for FSD:         Push-button       Combined A/D and D/A converter, 24 bit 192kHz         Physical Specification       Dimensions         Maw):       19" (W) x 5.2" (D*) x 1.7" (H) (10)         (Boxed):       S9cm (W) x 27.5cm (D*) x 1.2" (H)         23.2" (W) x 10.8" (D*) x 4.3" (H)         Weight:       Nett: 1.6kg Gross: 2.3kg Nett: 3.5lbs Gross: 5lbs		<50 $\Omega$ balanced, <75 $\Omega$ unbalanced
Digital Inputs:       1 × AES/EBU XLR 3 pin female         1 × S/PDIF RCA phono         1 × TOSlink optical         Analogue       2 × XLR 3 pin male (balanced)         Outputs:       2 × RCA phono (unbalanced)         D/A Operational Controls         Digital       AES/EBU, S/PDIF or TOSlink optical, via push-button         Analogue       Selectable +12dBu, +18dBu or +24dBu output level, ref FSD, via D/A SOURCE for FSD:         Push-button       Combined A/D and D/A converter, 24 bit 192kHz         Physical Specification       Dimensions         Marw):       19" (W) × 6.2" (D*) × 1.2" (H) (1U)         (Boxed):       S9cm (W) × 27.5cm (D*) × 1.2" (H)         23.2" (W) × 10.8" (D*) × 4.3" (H)         Weight:       Nett:       1.6kg Gross:         Nett:       1.5lbs Gross:       5lbs	Dynamic Range:	>110dB
1 x S/PDIF RCA phono         1 x TOSlink optical         Analogue         Outputs:       2 x XLR 3 pin male (balanced)         DIgital       AES/EBU, S/PDIF or TOSlink optical, via input Select:         push-button       Digital         Analogue       Selectable +12dBu, +18dBu or +24dBu output level, ref FSD, via D/A SOURCE for FSD:         push-button       DIA SOURCE         For FSD:       push-button         RB-ADDA2:       Combined A/D and D/A converter, 24 bit 192kHz         Physical Specification       Dimensions         Maw):       19" (W) x 5.2.cm (D*) x 4.2cm (H) (1)         (Boxed):       S9cm (W) x 27.5cm (D*) x 1.1" (H) (1U)         Byzer (W) x 0.8" (D*) x 4.3" (H)         Weight:       Nett:       1.6kg Gross:         Nett:       3.5lbs Gross:       5lbs	D/A Connections	
Outputs:     2 x RCA phono (unbalanced)       D/A Operational Controls       Digital     AES/EBU, S/PDIF or TOSlink optical, via push-button       Analogue     Selectable +12dBu, +18dBu or +24dBu output Level       Output Level     output level, ref FSD, via D/A SOURCE push-button       RB-ADDA2:     Combined A/D and D/A converter, 24 bit 192kHz       Physical Specification     48cm (W) x 15.8cm (D*) x 4.2cm (H) (1 (Raw):       Dimensions     48cm (W) x 27.5cm (D*) x 1.7" (H) (1U)       (Boxed):     59cm (W) x 27.5cm (D*) x 1.4" (H)       Weight:     Nett:     1.6kg Gross:       Nett:     1.5lbs Gross:     5lbs	Digital Inputs:	1 x S/PDIF RCA phono
Digital       AES/EBU, S/PDIF or TOSlink optical, via         Input Select:       push-button         Analogue       Selectable +12dBu, +18dBu or +24dBu         Output Level       output level, ref FSD, via D/A SOURCE         for FSD:       push-button         Equipment Type       Combined A/D and D/A converter, 24 bit 192kHz         Physical Specification       Dimensions         Maw):       19" (W) x 6.2" (D*) x 1.2" (H) (1U)         (Boxed):       S9cm (W) x 27.5cm (D*) x 110" (H)         23.2" (W) x 10.8" (D*) x 4.3" (H)         Weight:       Nett:         Nett:       3.5lbs         Gross:       Slbs		
Input Select:         push-button           Analogue         Selectable +12dBu, +18dBu or +24dBu           Output Level, oref FSD, via D/A SOURCE         push-button           Facily and the select of the selec	D/A Operational	Controls
Output Level for FSD:         output level, ref FSD, via D/A SOURCE push-button           Equipment Type           RB-ADDA2:         Combined A/D and D/A converter, 24 bit 192kHz           Physical Specification           Dimensions         48cm (W) x 15.8cm (D*) x 4.2cm (H) (1 (Raw):           19" (W) x 6.2" (D*) x 1.7" (H) (1U)           (Boxed):         59cm (W) x 27.5cm (D*) x 1.1cm (H) 23.2" (W) x 10.8" (D*) x 4.3" (H)           Weight:         Nett:         1.6kg Gross:         2.3kg Nett:		AES/EBU, S/PDIF or TOSlink optical, via push-button
RB-ADDA2:         Combined A/D and D/A converter, 24 bit 192kHz           Physical Specification         Dimensions         48cm (W) x 15.8cm (D*) x 4.2cm (H) (1 (Raw):         19" (W) x 6.2" (D*) x 1.7" (H) (1U)           (Boxe):         59cm (W) x 27.5cm (D*) x 1.7" (H) (1U)         19" (W) x 27.5cm (D*) x 1.1cm (H)         23.2" (W) x 10.8" (D*) x 4.3" (H)           Weight:         Nett:         1.6kg Gross:         2.3kg Nett:         3.5lbs Gross:         5lbs	Output Level	output level, ref FSD, via D/A SOURCE
24 bit 192kHz           Physical Specification           Dimensions         48cm (W) x 15.8cm (D*) x 4.2cm (H) (1 (Raw):           19" (W) x 6.2" (D*) x 1.7" (H) (1U)           (Boxed):         59cm (W) x 27.5cm (D*) x 1.1cm (H) 23.2" (W) x 10.8" (D*) x 1.4.3" (H)           Weight:         Nett:         1.6kg Gross:         2.3kg Gross:           Vett:         1.5lbs         Gross:         5lbs	Equipment Type	
Dimensions (Raw):         48cm (W) x 15.8cm (D*) x 4.2cm (H) (1 19" (W) x 6.2" (D*) x 1.7" (H) (1U)           (Boxed):         59cm (W) x 27.5cm (D*) x 11cm (H) 23.2" (W) x 10.8" (D*) x 4.3" (H)           Weight:         Nett: 1.6kg Gross: 2.3kg Nett: 3.5lbs Gross: 5lbs	RB-ADDA2:	
(Raw):         19" (W) x 6.2" (D*) x 1.7" (H) (1U)           (Boxed):         59cm (W) x 27.5cm (D*) x 11cm (H)           23.2" (W) x 10.8" (D*) x 4.3" (H)           Weight:         Nett: 1.6kg Gross: 2.3kg Nett: 3.5lbs Gross: 5lbs	Physical Specifica	tion
23.2" (W) x 10.8" (D*) x 4.3" (H)           Weight:         Nett: 1.6kg Gross: 2.3kg           Nett: 3.5lbs Gross: 5lbs		48cm (W) x 15.8cm (D*) x 4.2cm (H) (1U) 19" (W) x 6.2" (D*) x 1.7" (H) (1U)
Nett: 3.5lbs Gross: 5lbs	(Boxed):	
* Nata that this was done to describe a structure of Deally and	Weight:	
* Note that this product is deeper than standard Redboxe	* Note that this p	roduct is deeper than standard Redboxes.



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