Technical Specifications RB-SL2

Audio Specifications	
Maximum Input Level:	+28dBu
Maximum Output Level:	+28dBu
Input Impedance:	>20kΩ bridging
Output Impedance:	<50Ω
Input Gain:	Adjustable -8dBu to +18dBu gain
Limit Threshold:	Adjustable -8dBu to +28dBu
Frequency Response:	20Hz to 20kHz ±0.1dB (600Ω load, ref 1kHz)
Noise:	-100dB unity gain, ref +8dBu
Distortion:	0.01% THD @ 1kHz ref +8dBu output, threshold set at +10dBu
Common Mode Rejection:	>66dB typically

Connections	
Inputs:	2 x XLR 3 pin female (Balanced, can be unbalanced)
Outputs:	2 x XLR 3 pin male (Balanced, can be unbalanced)
Mains Input:	Filtered IEC, 110V-120V, or 220-240V switchable, fused, 6W maximum
Fuse Rating:	Anti-surge fuse 100mA 20 x 5mm (230VAC) Anti-surge fuse 250mA 20 x 5mm (115VAC)

Equipment Type	
RB-SL2:	RK1 RK2 Twin mono, or stereo, limiter

Physical Specifications	
Dimensions (Raw):	28cm (W) x 10.8cm (D) x 4.2cm (H) (1U) 11” (W) x 4.3” (D) x 1.7” (H) (1U)
Dimensions (Boxed):	36cm (W) x 20.5cm (D) x 6cm (H) 14.2” (W) x 8” (D) x 2.4” (H)
Weight:	Nett: 1.0kg Gross: 1.45kg Nett: 2.2lbs Gross: 3.2lbs

11 RB-SM1 Single Stereo To Mono Converter

Introduction

Fig 11-1: RB-SM1 Front Panel

The RB-SM1 consists of an independent converter that will produce a fully buffered and balanced mono line output from a stereo input.

All connections are on the rear panel. The XLR-3 inputs are electronically balanced with an impedance of 20kΩ bridging. These can be wired unbalanced to accept an output from domestic equipment.

The XLR-3 line output's are electronically balanced with an output impedance of <50Ω. The output's can be wired unbalanced by grounding the non-phase signal, allowing you to feed both balanced and unbalanced equipment.

Output gain adjustment using a pre-set potentiometer for both converters allows a normalised mono output from domestic stereo equipment. The potentiometer is accessible through the rear panel. An LED power indicator on the front panel displays the power supply connection.

System Block Diagram

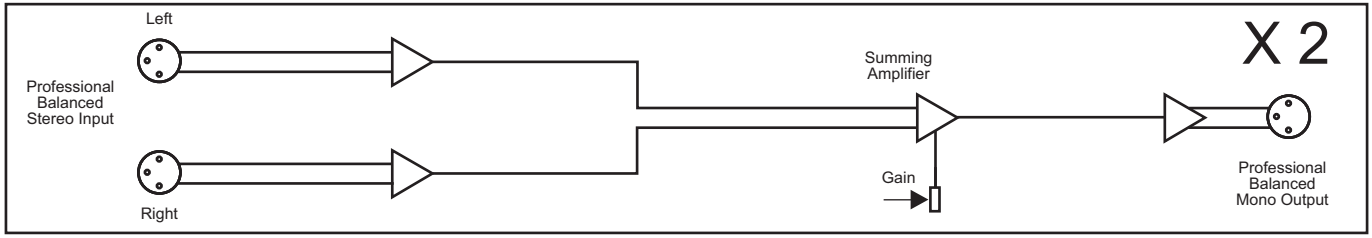

Fig 11-2: RB-SM1 System Block Diagram

Rear Panel Connections and Operation

Fig 11-3: RB-SM1 Rear Panel

Stereo Inputs

The input's are a stereo pair consisting of two XLR 3 pin sockets electronically balanced with an impedance of 20kΩ bridging. They can be wired unbalanced to accept an output from domestic equipment. They have the following connections:

Pin 1: Screen

Pin 2: Phase

Pin 3: Non-phase

Mono Output

The XLR 3 pin mono output connectors are electronically balanced with an output impedance of <50Ω. They can be wired unbalanced by grounding the non-phase signal, enabling you to feed both balanced and unbalanced equipment. The output has the following connections:

Pin 1: Screen

Pin 2: Phase

Pin 3: Non-phase

Output Gain

Output gain adjustment using a pre-set potentiometer for the converters allows a normalised mono output from domestic stereo equipment. The potentiometers are accessible through the rear panel and provide a gain range of 8dB loss to 18dB gain.

Technical Specifications RB-SM1

Audio Specifications	
Maximum Input Level:	+28dBu
Maximum Output Level:	+28dBu
Input Impedance:	>20kΩ balanced bridging
Output Impedance:	<50Ω balanced
Frequency Response:	20Hz to 20kHz ±0.1dB (600Ω load, ref 1kHz)
Gain Range:	Adjust 8dB loss to 18dB gain, ref 0dB input on L and R
Common Mode Rejection:	>66dB typically
Distortion:	0.01% THD @ 1kHz, ref +8dBu output
Noise:	-100dB unity gain, ref +8dBu output

Connections	
Inputs:	2 x XLR 3 pin female (Balanced, can be unbalanced)
Output:	1 x XLR 3 pin male (Balanced, can be unbalanced)
Mains Input:	Filtered IEC, 110V-120V, or 220-240V switchable, fused, 6W maximum
Fuse Rating:	Anti-surge fuse 100mA 20 x 5mm (230VAC) Anti-surge fuse 250mA 20 x 5mm (115VAC)

Equipment Type		
RB-SM1:	RK1 RK2	Dual stereo to mono converter

Physical Specifications	
Dimensions (Raw):	28cm (W) x 10.8cm (D) x 4.2cm (H) (1U) 11” (W) x 4.3” (D) x 1.7” (H) (1U)
Dimensions (Boxed):	36cm (W) x 20.5cm (D) x 6cm (H) 14.2” (W) x 8” (D) x 2.4” (H)
Weight:	Nett: 1.00kg Gross: 1.45kg Nett: 2.2lbs Gross: 3.2lbs

12 RB-SM2 Dual Stereo To Mono Converter

Introduction

Fig 12-1: RB-SM2 Front Panel

The RB-SM1 consists of an independent converter that will produce a fully buffered and balanced mono line output from a stereo input. The RB-SM2 consists of two independent converters and will produce two fully buffered and balanced mono line outputs from two stereo inputs.

All connections are on the rear panel. The XLR-3 inputs are electronically balanced with an impedance of 20kΩ bridging. These can be wired unbalanced to accept an output from domestic equipment.

The XLR-3 line output's are electronically balanced with an output impedance of <50Ω. The output's can be wired unbalanced by grounding the non-phase signal, allowing you to feed both balanced and unbalanced equipment.

Output gain adjustment using a pre-set potentiometer for both converters allows a normalised mono output from domestic stereo equipment. The potentiometer is accessible through the rear panel. An LED power indicator on the front panel displays the power supply connection.

System Block Diagram

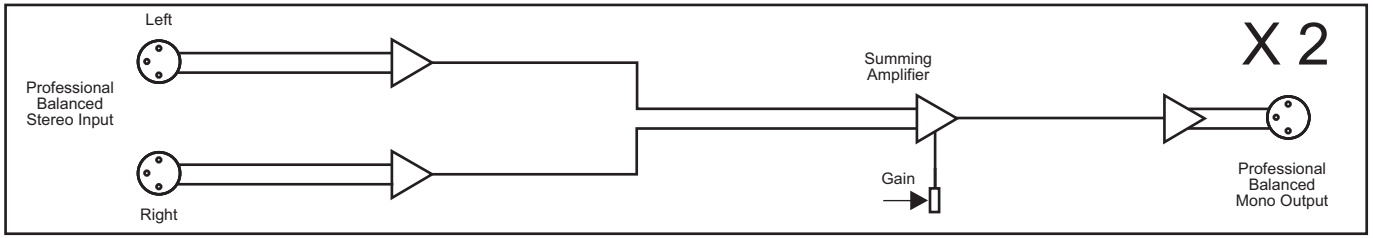

Fig 12-2: RB-SM2 System Block Diagram

Rear Panel Connections and Operation

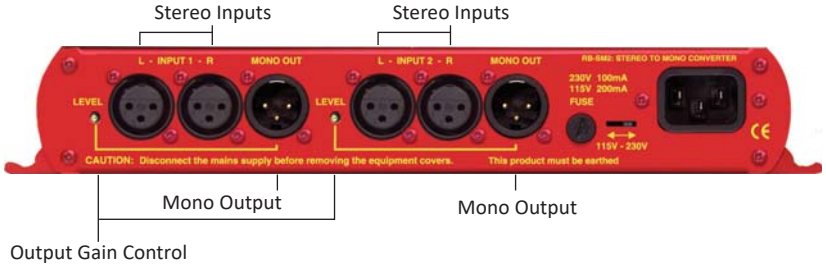

Fig 12-3: RB-SM2 Rear Panel

Stereo Inputs 1 & 2

The input's are a stereo pair consisting of two XLR 3 pin sockets electronically balanced with an impedance of 20kΩ bridging. They can be wired unbalanced to accept an output from domestic equipment. They have the following connections:

Pin 1: Screen

Pin 2: Phase

Pin 3: Non-phase

Mono Output 1 & 2

The XLR 3 pin mono output connectors are electronically balanced with an output impedance of <50Ω. They can be wired unbalanced by grounding the non-phase signal, enabling you to feed both balanced and unbalanced equipment. The output has the following connections:

Pin 1: Screen

Pin 2: Phase

Pin 3: Non-phase

Output Gain

Output gain adjustment using a pre-set potentiometer for the converters allows a normalised mono output from domestic stereo equipment. The potentiometers are accessible through the rear panel and provide a gain range of 8dB loss to 18dB gain.

Technical Specifications RB-SM2

Audio Specifications	
Maximum Input Level:	+28dBu
Maximum Output Level:	+28dBu
Input Impedance:	>20kΩ balanced bridging
Output Impedance:	<50Ω balanced
Frequency Response:	20Hz to 20kHz ±0.1dB (600Ω load, ref 1kHz)
Gain Range:	Adjust 8dB loss to 18dB gain, ref 0dB input on L and R
Common Mode Rejection:	>66dB typically
Distortion:	0.01% THD @ 1kHz, ref +8dBu output
Noise:	-100dB unity gain, ref +8dBu output

Connections	
Inputs:	4 x XLR 3 pin female (Balanced, can be unbalanced)
Output:	2 x XLR 3 pin male (Balanced, can be unbalanced)
Mains Input:	Filtered IEC, 110V-120V, or 220-240V switchable, fused, 6W maximum
Fuse Rating:	Anti-surge fuse 100mA 20 x 5mm (230VAC) Anti-surge fuse 250mA 20 x 5mm (115VAC)

Equipment Type		
RB-SM2:	RK1 RK2	Single stereo to mono converter

Physical Specifications	
Dimensions (Raw):	28cm (W) x 10.8cm (D) x 4.2cm (H) (1U) 11” (W) x 4.3” (D) x 1.7” (H) (1U)
Dimensions (Boxed):	36cm (W) x 20.5cm (D) x 6cm (H) 14.2” (W) x 8” (D) x 2.4” (H)
Weight:	Nett: 1.05kg Gross: 1.50kg Nett: 2.3lbs Gross: 3.3lbs

13 RB-LC3 3 Way Light/Power Controller

Introduction

Fig 13-1: RB-LC3 Front Panel

The RB-LC3 is a triple output switching unit for controlling external mains indicators, primarily studio status lights for broadcasting applications, such as On-Air, Mic-Live and Rehearsal/Live lights. Each output can be individually controlled by one of three remote inputs (pulled high, or low), by a telephony input (when ringing, or off-hook or both), or a combination of two inputs (to control two outputs, e.g. for Rehearsal/Live situations). The type of control is set using a 12 way DIP switch (4 switches for each output allowing 16 different settings, 14 for control type selection and 2 for operating mode selection).

All connections are on the rear panel. The three IEC outputs are controlled by zero-cross point drivers. When an output is activated, the A.C. voltage level at that output will be equal to the mains input voltage used to power the unit.

External control of the switched mains outputs is via the 15 way D-type plug connector.

The telephone Line input and Handset output are via two RJ11-4 type connectors. The telephone connections are wired pin to pin from Line to Handset except when the remote Ring Mute control input is asserted. In this case the ring signal to the Handset is muted. The status of the telephone Line is continually monitored so that Handset ringing and off-hook conditions can be indicated.

A pre-set potentiometer on the rear panel controls the flash rate of the output when the appropriate mode is selected. Neon indicators on each power socket show the status of the mains output.

An LED power indicator on the front panel displays the incoming power supply connection.

System Block Diagram

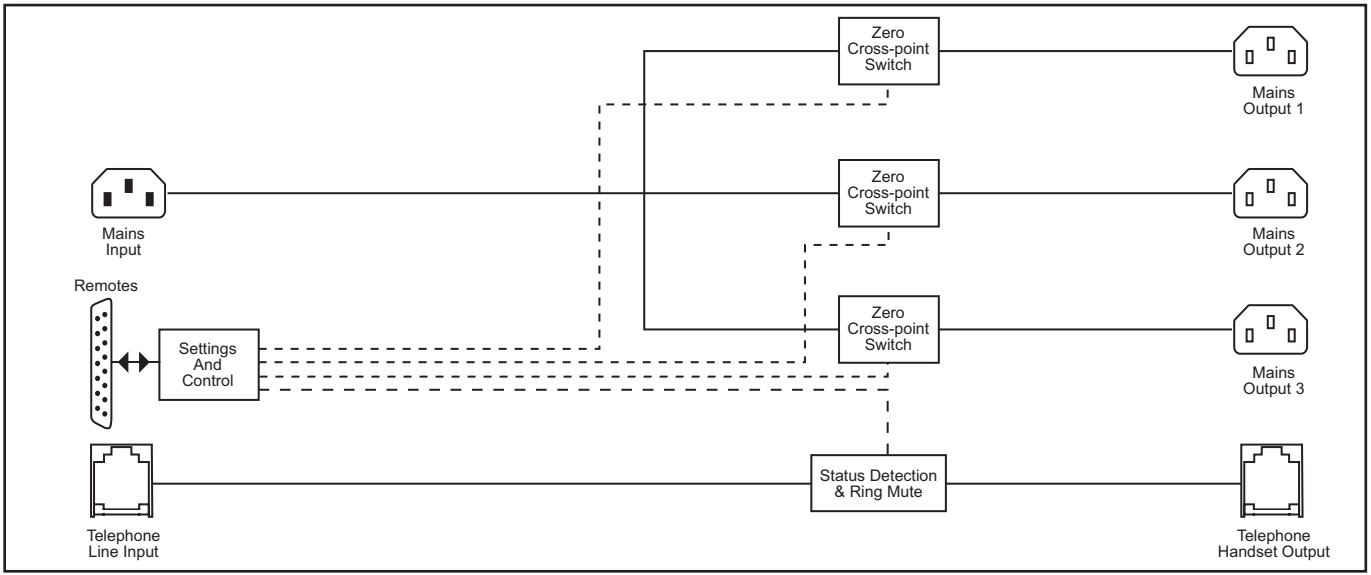

Fig 13-2: RB-LC3 System Block Diagram

Rear Panel Connections and Operation

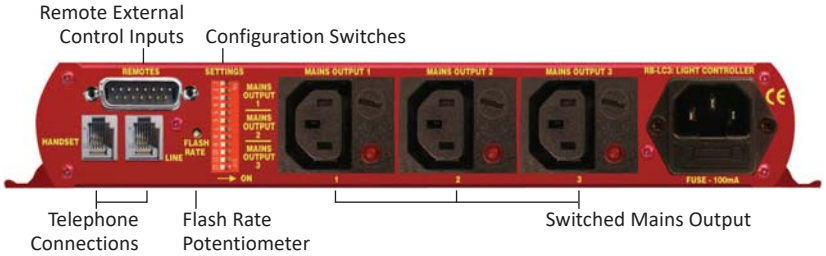

Fig 13-3: RB-LC3 Rear Panel

Switched Mains Outputs

The 3 off IEC connectors provide the switched mains outputs. Each output is rated at 1A and is individually fused. A neon indicator shows when the output is live. The outputs are driven by zero cross-point drivers. When an output is activated, the A.C. voltage level at that output will be equal to the mains input voltage used to power the unit.

Telephone Connections

The telephone connections are wired pin to pin from Line to Handset except when the Ring Mute control input is asserted. In this case the ring signal to the Handset is muted. The status of the telephone Line is continually monitored so that Handset ringing and off-hook conditions can be indicated. (Please note that the ring mute function will only work on handsets that use pin 3 of a standard BT connector. This is often not connected on common phones that typically use tone dialling. Phones that support pulse dialling should have the connection and should therefore work with the RB-LC3).

Remote External Control Inputs

The 15 way D-type connector provides the control inputs that switch the three mains outputs and control the telephone handset ring mute. All inputs have both active high
(+5V to +30V) and active low (0V) control. An output-on or “Tally” indication for each
output is also provided on this connector in the form of three open-collector driven
outputs capable of sinking 20mA each. The connections are as follows:

Pin 1: Remote 1 (Active High)
Pin 2: Remote 1 (Active Low)
Pin 3: Remote 2 (Active High)
Pin 4: Remote 2 (Active Low)
Pin 5: Remote 3 (Active High)
Pin 6: Remote 3 (Active Low)
Pin 7: Ring Mute (Active High)
Pin 8: Ring Mute (Active Low)
Pin 9: Output 1 Tally (Open Collector)
Pin 10: Output 2 Tally (Open Collector)
Pin 11: Output 3 Tally (Open Collector)
Pin 12: No Connection
Pin 13: No Connection
Pin 14: 0V
Pin 15: 0V

Configuration Switches

The configuration switches are used to set the flash mode for each output separately. The selections allow the outputs to be controlled by a remote input, a telephone call, or a combination of remote inputs, say, for example to control 2 lights such as “Rehearsal” and “Live”, using the Settings in Figure 28-4 to 28-6.

Latching and Momentary Mode

The configuration switches are also used to select the operating mode, either latching or momentary, for each output. The operating mode is set when power is applied to the unit and the configuration switches are set to either Setting 15 or 16. The Output will flash once to indicate latching mode has been selected or twice to indicate momentary mode has been selected. The configuration switches can then be returned to the required Setting. In Latching Mode (Setting 15 selected on power up), the Output is On/Flashing only while the selected Remote Inputs remain asserted. In Momentary Mode (Setting 16 selected on power up), each separate assertion of the selected Remote Inputs changes the state of the Output. For example, using setting 4, the first assertion of Remote 1 switches Output 1 on. The second assertion of Remote 1 switches Output 1 off. The operating mode has no effect when using Settings No1-3.

The available settings for output 1, configured using switches Sw1 to Sw4, are detailed below:

Setting No	Sw1	Sw2	Sw3	Sw4	Description
1	Off	Off	Off	Off	Flash Output 1 when telephone rings. Output 1 On when telephone is off-hook
2	On	Off	Off	Off	Output 1 On when telephone is off-hook
3	Off	On	Off	Off	Flash Output 1 when telephone rings
4	On	On	Off	Off	Output 1 On when Remote 1 asserted
5	Off	Off	On	Off	Output 1 On when Remote 2 asserted
6	On	Off	On	Off	Output 1 On when Remote 3 asserted
7	Off	On	On	Off	Flash Output 1 when Remote 1 asserted
8	On	On	On	Off	Flash Output 1 when Remote 2 asserted
9	Off	Off	Off	On	Flash Output 1 when Remote 3 asserted
10	On	Off	Off	On	Output 1 On when Remote 1 or Remote 2 asserted
11	Off	On	Off	On	Output 1 On when Remote 1 asserted and Remote 2 not asserted
12	On	On	Off	On	Output 1 On when Remote 1 not asserted and Remote 2 asserted
13	Off	Off	On	On	Output 1 On when Remote 1 asserted and Remote 2 asserted
14	On	Off	On	On	Reserved for future assignment
15	Off	On	On	On	Latching Mode selection for Output 1
16	On	On	On	On	Momentary Mode selection for Output 1

Fig 13-4: Output 1 Configuration Setting

The available settings for output 2, configured using switches Sw5 to Sw8, are detailed below:

Setting No	Sw5	Sw6	Sw7	Sw8	Description
1	Off	Off	Off	Off	Flash Output 2 when telephone rings. Output 2 On when telephone is off-hook
2	On	Off	Off	Off	Output 2 On when telephone is off-hook
3	Off	On	Off	Off	Flash Output 2 when telephone rings
4	On	On	Off	Off	Output 2 On when Remote 1 asserted
5	Off	Off	On	Off	Output 2 On when Remote 2 asserted
6	On	Off	On	Off	Output 2 On when Remote 3 asserted
7	Off	On	On	Off	Flash Output 2 when Remote 1 asserted
8	On	On	On	Off	Flash Output 2 when Remote 2 asserted
9	Off	Off	Off	On	Flash Output 2 when Remote 3 asserted
10	On	Off	Off	On	Output 2 On when Remote 1 or Remote 2 asserted
11	Off	On	Off	On	Output 2 On when Remote 1 asserted and Remote 2 not asserted
12	On	On	Off	On	Output 2 On when Remote 1 not asserted and Remote 2 asserted
13	Off	Off	On	On	Output 2 On when Remote 1 asserted and Remote 2 asserted
14	On	Off	On	On	Reserved for future assignment
15	Off	On	On	On	Latching Mode selection for Output 2
16	On	On	On	On	Momentary Mode selection for Output 2

Fig 13-5: Output 2 Configuration Settings

The available settings for output 3, configured using switches Sw9 to Sw12, are detailed below:

Setting No	Sw9	Sw10	Sw11	Sw12	Description
1	Off	Off	Off	Off	Flash Output 3 when telephone rings. Output 3 On when telephone is off-hook
2	On	Off	Off	Off	Output 3 On when telephone is off-hook
3	Off	On	Off	Off	Flash Output 3 when telephone rings
4	On	On	Off	Off	Output 3 On when Remote 1 asserted
5	Off	Off	On	Off	Output 3 On when Remote 2 asserted
6	On	Off	On	Off	Output 3 On when Remote 3 asserted
7	Off	On	On	Off	Flash Output 3 when Remote 1 asserted
8	On	On	On	Off	Flash Output 3 when Remote 2 asserted
9	Off	Off	Off	On	Flash Output 3 when Remote 3 asserted
10	On	Off	Off	On	Output 3 On when Remote 1 or Remote 2 asserted
11	Off	On	Off	On	Output 3 On when Remote 1 asserted and Remote 2 not asserted
12	On	On	Off	On	Output 3 On when Remote 1 not asserted and Remote 2 asserted
13	Off	Off	On	On	Output 3 On when Remote 1 asserted and Remote 2 asserted
14	On	Off	On	On	Reserved for future assignment
15	Off	On	On	On	Latching Mode selection for Output 3
16	On	On	On	On	Momentary Mode selection for Output 3

Fig 13-6: Output 3 Configuration Settings

Flash Rate Preset Potentiometer

This preset potentiometer sets the rate at which the mains output is switched on/off when one of the Flash Output settings is selected. The range of adjustment is from 0.5 seconds to 2 seconds.

Technical Specifications RB-LC3

Connections	
Mains Input:	Non-filtered IEC, 110V-240V auto-adjusting, fused, 6W maximum
Fuse Rating (Mains Input):	Anti-surge fuse 100mA 20 x 5mm (230VAC) Anti-surge fuse 250mA 20 x 5mm (115VAC)
Mains Outputs:	3 x Non-filtered IEC plugs, 1A fused
Fuse Rating (Mains Outputs):	3 x Anti-surge fuse 1A 20 x 5mm
Telephone:	2 x RJ11-4 sockets
Control Inputs & Outputs:	15 way D-type plug Inputs: 0V– 5V DC Outputs: Open Collector 20mA sink capability

Equipment Type	
RB-LC3: 	3 way light/power controller

Physical Specifications	
Dimensions (Raw):	28cm (W) x 10.8cm (D) x 4.2cm (H) (1U) 11” (W) x 4.3” (D) x 1.7” (H) (1U)
Dimensions (Boxed):	36cm (W) x 20.5cm (D) x 6cm (H) 14.2” (W) x 8” (D) x 2.4” (H)
Weight:	Nett: 1.00kg Gross: 1.45kg Nett: 2.2lbs Gross: 3.2lbs

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