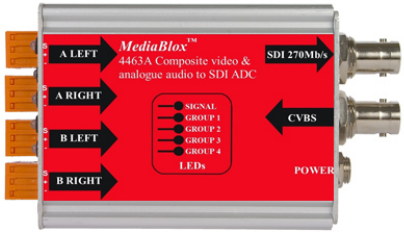
Specification

Analogue video input	
Standards	NTSC(J, M), PAL(B, D, G, H, I, M, N, Nc, 60) and SECAM (B, D, G, K, K1, L) CVBS
Connector	75Ω BNC
Signal Level	1V p-p nominal
Return loss	>40dB to 5.5MHz
Video conversion	
Differential gain	<1.5%
Differential phase	<0.5º
Quantisation	10-bit
SDI output	
Standards	SMPTE 259M 270Mb/s 525/625 SDI
Connector	75Ω BNC
Signal level	800mV p-p ±10% (terminated)
Jitter	<0.15UI with colour bars input
Return loss	>18dB to 270MHz
Analogue audio input	
Standard	Balanced analogue audio
Number	2 stereo pairs
Quantisation	24 bit
Connector	Removable screw terminal
Impedance	20kΩ
Level	Max 0dBFS=+26dBu/ Min 0dBFS=+12dBu
Audio embedding	
Standard	SMPTE 272M
Resolution	20 or 24 bit
Power	
Voltage	6-12V DC
Current	525mA at 6V
Power connector	Locking 2.5mm jack connector (centre +ve)
Other	
LEDs	Show power, signal presence & embedding status
Temperature range	0˚C to 40˚C
Dimensions	63.5mm x 84mm x 30mm (excluding connectors)
Weight	180g
We reserve the right to change technical specifications without prior notice. E&OE.	

MediaBlox™

KEZVALE LTD
Broadcast Equipment Manufacturers for Over 40 Years

User Guide



4463A Composite video & analogue audio to SDI ADC

Converts analogue composite video to SDI and inserts two balanced analogue audio stereo pairs into any embedded audio group within the 270Mb/s 525/625 SDI signal

www.kezvale.co.uk

EU declaration of conformity

We certify that this apparatus conforms to the requirements of the EMC and Low Voltage Directives. Emissions EN55103-1, susceptibility EN55103-2 and safety EN60950-1 2002.

15 July 2005

CE

Warranty

Kezvale Ltd warrants this unit against defects in materials and workmanship for a period of one year from the date of shipment. At its option, the company will repair or replace products that prove to be defective during the warranty period, provided they are returned to the company with advance notification and with freight prepaid. Repairs may only be conducted by an authorised representative of the company. As a result any unauthorised repair or attempted repair will automatically void the warranty.

When a distributor supplies the company's products, that distributor should be approached initially if there are any warranty problems.

The company makes no other warranties, express or implied, as to the merchantability, fitness for a particular purpose, or otherwise. The company's liability for any cause, including breach of contract, breach of warranty, or negligence, with respect to products sold by it, is limited to repair or replacement by the company, at its sole discretion. This remedy is exclusive. In no event shall the company be liable for any incidental or consequential damages, including loss of profits.

If switch 6 is left on for more than six seconds the unit will enter custom level select mode – all group LEDs will flash red while the unit is in this mode. See below for details.

Custom level select mode

To meet all international analogue audio full scale input levels the unit has a custom analogue input level select mode. In this mode it is possible to select any input level between 12dBu and 26dBu in 0.5dBu increments. The default value of the custom level on delivery is 20dBu. Once the value of the custom level is altered it will remain stored in memory until changed again.

To set the analogue input level:-

- Activate switch 6, once this has been on for more than six seconds the unit will enter custom level select mode. This can be verified by all four group LEDs on the front of the box flashing red.
- Switch 1-5 will now set the expected analogue input level as per the table below.
- To exit the custom level select mode deactivate switch 6, the value on switches 1-5 will be stored in memory. It will be necessary to reset switches 1-5 to the desired settings for normal use.

Switch 1	Switch2	Switch3	Switch 4	Switch 5	Level
0	0	0	0	0	12dBu
0	0	0	0	1	12.5dBu
0	0	0	1	0	13dBu
0	0	0	1	1	13.5dBu
0	0	1	0	0	14dBu
0	0	1	0	1	14.5dBu
↓	↓	↓	↓	↓	↓
↓	↓	↓	↓	↓	↓
1	1	0	1	0	25.5dBu
1	1	0	1	1	26dBu

General description

The 4463A is a broadcast quality unit that converts analogue composite video to SDI then embeds two balanced stereo audio pairs into the ancillary data space of the 270Mbps SDI signal.

The broadcast quality composite video to SDI conversion uses two 11 bit ADCs with x4 oversampling and with five line adaptive comb filtering. A jitter filter and digital time base corrector compensate for unstable input signals. Input quality is automatically detected between VCR / CCTV and broadcast sources.

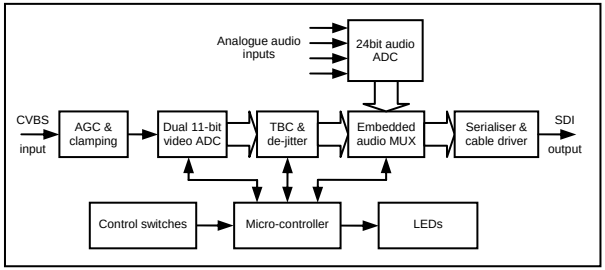
Audio is converted using a high quality 24 bit audio ADC and can be embedded as 20 or 24 bit audio. Embedding conforms to SMPTE 272M and allows audio to be inserted into any of the four groups.

It is housed in an extremely compact and rugged aluminium case ideally suited to both studio and portable applications.

Main Features

- Converts analogue composite video to SDI and inserts two balanced analogue audio stereo pairs into any group
- Auto select multi-standard input of PAL, NTSC & SECAM
- Two 11 bit 4x oversampled video ADCs with 5 line adaptive comb filtering
- Automatic video gain control range from -3dB to 6dB
- Jitter filter and digital TBC for unstable input signals
- High quality 24 bit audio ADC
- Selectable 20 or 24 bit embedding
- Adjustable full scale input levels to meet all international standards
- LEDs show group status and input signal presence
- Extremely compact and rugged

Functional block diagram



Installation and operation

The unit is simple to use and install.

- Set the dipswitches by referring to the table and description below or the table on the rear of the unit.
- Connect video & audio inputs and SDI output.
- Apply power to the unit either via the locking power connector from the external power supply or 1U rack frame, or by sliding into the 2U rack mounting frame with central power supplies.
- On power-up the unit will perform a short (3 second) self test. The group LEDs will flash while this is in progress.
- The signal LED will be green when there is a valid CVBS input signal and red otherwise. When an input signal is first applied, the LED will blink green while the unit locks onto the signal.
- One of the group LEDs will light corresponding to the group selected by the switches. This LED will be green if the unit is successfully embedding audio. The LED will be red otherwise.
- The switch settings can be altered whilst the unit is powered and the changes are implemented immediately.
- The mounting bracket supplied can be used to install a MediaBlox unit. The bracket should first be fixed vertically to any surface. The MediaBlox can then be lowered onto the dovetail part of the bracket with the front endplate uppermost to retain it.

Switch settings

Switch	OFF	ON
1	Toggle group	
2	Disable AGC	
3	Disable de-jitter	
4	24-bit	20-bit
5	Pedestal present	
6	Toggle level (LED flashes red 1=18dB, 2=24dB & 3=custom)	

Switch 1 sets the group into which audio packets are inserted. Moving the switch to the on position then immediately to the off position selects the next available group. The selected group is indicated by the LED on the end of the unit.

Switch 2 disables the automatic gain control. The AGC is capable of scaling an input signal voltage of $0.5V_{p-p}$ to $2V_{p-p}$ to the nominal $1V_{p-p}$ level. This is useful for restoring signals which have been subject to cable attenuation, or pre-amplification. Disabling the AGC sets the gain of the unit to 0dB, which can be preferable if a distribution amplifier has been used to set the desired gain of the analogue signal prior to conversion.

Switch 3 disables the jitter filter. The jitter filter can be disabled for locking to extremely low quality or unstable analogue inputs.

Switch 4 controls the bit depth of the embedded audio. When the switch is off, extended audio packets are multiplexed into the video signal (24 bit audio). When the switch is on, extended audio packets are not included (20 bit audio).

Switch 5 defines if there is a 7.5 IRE pedestal on the input analogue video source. When this switch is in the off position the unit does not expect a pedestal, when in the on position the unit expects a 7.5 IRE pedestal to be present on the input analogue video source.

Switch 6 controls the analogue audio level of the input; three levels are available 18dBu, 24dBu and a custom setting (default on delivery 20dBu). These levels are toggled through by activating and immediately deactivating the switch. The group LEDs will flash for two second as per the table below indicating the operating analogue audio input level.

Level	LEDs
18dB	Group 1 flash red with group 2,3&4 green
24dB	Group 2 flash red with group 1,3&4 green
Custom	Group 3 flash red with group 1,2&4 green