*Specification*

### SDI input

| | |
|---|---|
| **SDI input** | |
| Standards | SMPTE 259M 270Mb/s 525/625 SDI |
| Connector | 75Ω BNC |
| Signal level | 800mV p-p ±10% (terminated) |
| Return loss | >15dB to 270MHz |
| Cable equalisation | > 350m automatic (Belden 8281) |
| **SDI output** | |
| Standards | SMPTE 259M 270Mb/s 525/625 SDI |
| Connector | 75Ω BNC |
| Signal level | 800mV p-p ±10% (terminated) |
| DC offset | ±100mV |
| 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 | 470mA 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 | 175g |

*We reserve the right to change technical specifications without prior notice. E&OE.*
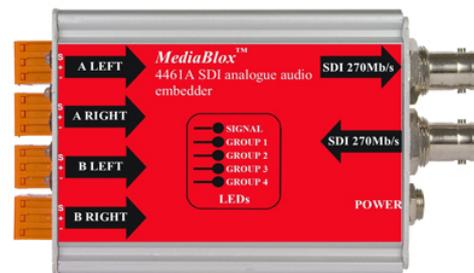
# MediaBlox™

KEZVALE LTD
Broadcast Equipment Manufacturers
for Over 40 Years

# User Guide



## 4461A SDI analogue audio embedder

*Inserts two balanced analogue audio stereo pairs into any group within a 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

$C\epsilon$

*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.

*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 4461A SDI analogue audio embedder inserts two balanced stereo audio pairs into the ancillary data space of a 270Mb/s SDI signal. The input audio 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. Existing audio groups can be added to or completely removed. There is automatic cable equalisation and a re-clocked SDI output is provided.

*Main features*

- Inserts two balanced analogue audio stereo pairs into any group

- High quality 24 bit audio ADC

- Replaces or adds to existing audio

- Automatic detection of 525/625 SDI

- Selectable 20 or 24 bit embedding

- Adjustable full scale input levels to meet all international standards

- LEDs show group status and input signal presence

- Automatic input cable equalisation to over 350m

- Re-clocked SDI output

- Extremely compact and rugged

*Functional block diagram*
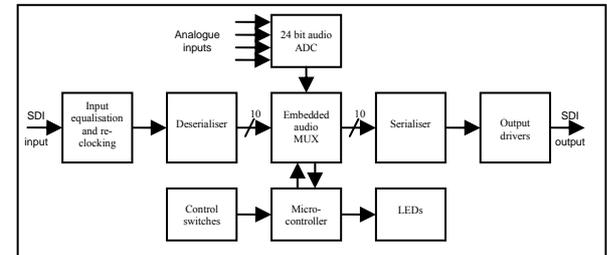
*Installation and operation*

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 a valid 270Mb/s SDI input and analogue audio inputs.
- Connect 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 power and a valid 270Mb/s SDI signal present or red when there is power but no SDI 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 receiving a valid video signal and successfully embedding audio. The LED will otherwise be red.
- 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 the 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 | 1 | 2 | Switch | OFF | ON |
|---|---|---|---|---|---|
| Group 1 | OFF | OFF | 3 | Cascade | Overwrite |
| Group 2 | OFF | ON | 4 | 24-bit | 20-bit |
| Group 3 | ON | OFF | 5 | Pass EDH | New EDH |
| Group 4 | ON | ON | 6 | Toggle level * | |
| * LED flashes red 1 = 18dB, 2 = 24dB & 3 = custom | | | | | |

Switches 1 & 2 set the group into which audio packets are inserted.

Switch 3 determines whether existing audio packets are deleted from the video signal. When the switch is off, new audio packets are appended without deletion of existing packets allowing up to four units to be connected in cascade.

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 selects between the unit passing through any EDH data unaltered or generating new EDH data.

Switch 6 controls the analogue 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 |

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. Refer to page 6 for details.