

### ***EU declaration of conformity***

We certify that this apparatus conforms to the requirements of the EMC and Low Voltage Directives. Emissions EN 55103-1, susceptibility EN 55103-2 and safety EN 60950-1 2002.

15 July 2005



### ***Warranty***

The ISIS Group 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. ISIS Group's policy states that all repairs are only conducted by an authorized representative of the company. As a result any unauthorized 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.

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***MiniBlox***<sup>TM</sup>

**4421 SDI to component analog 10-bit DAC**

*270Mb/s 525/625 SDI input with broadcast quality  
RGB / YUV (SMPTE/Beta) analog outputs*

**User Manual**

***Latest information available at:***

***[www.isis-group.com](http://www.isis-group.com)  
[www.miniblox.com](http://www.miniblox.com)***

## ***Specifications***

### ***SDI input***

Standards	SMPTE 259M 270Mb/s 525/625 SDI
Connector	75Ω BNC
Signal Level	800mV p-p ±10% (terminated)
Return loss	>20dB @270MHz
Cable equalization	Up to 100m automatic (Belden 8281)

### ***Analog outputs***

Standards	525/625 line RGB or YUV
Connectors	75Ω BNC
Signal level	1V p-p ±10%
DC offset	±100mV
Return loss	>36dB to 5.5MHz
Cable drive	Up to 800m

### ***Performance***

Frequency response	Flat to 5.5MHz, -3dB at ≈ 6MHz
Differential gain	<0.3%
Differential phase	<0.5°
Delay	<10nS
Data path	10-bit 4:2:2
Quantization	10-bit DAC

### ***Power***

Voltage	6-12V DC
Current	350mA
Power connector	Locking 2.5mm jack connector (center +v)

### ***Other***

LED	Shows signal presence
Temperature range	0°C to 45°C
Dimensions	3 1/4" x 2 1/2" x 1 1/8" (excluding connectors)
Weight	7oz

*We reserve the right to change technical specifications without prior notice.*

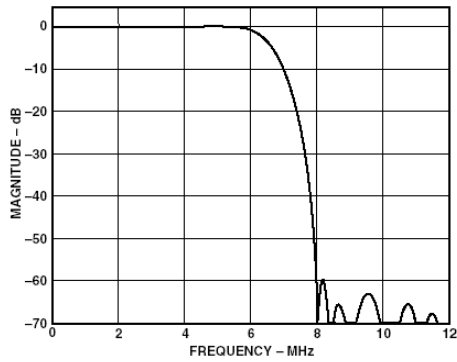


Fig 1 Internal Luminance output filter

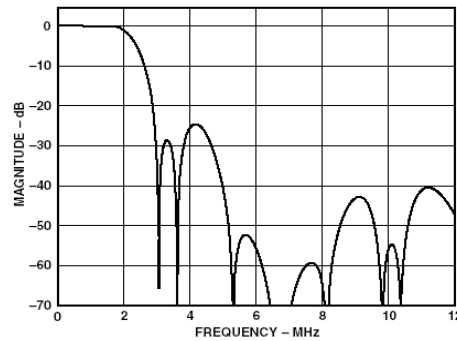


Fig 2 Internal chrominance filter

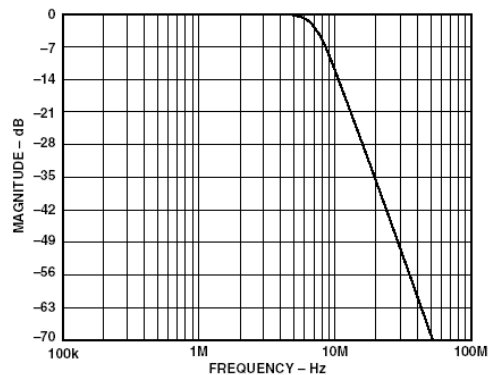
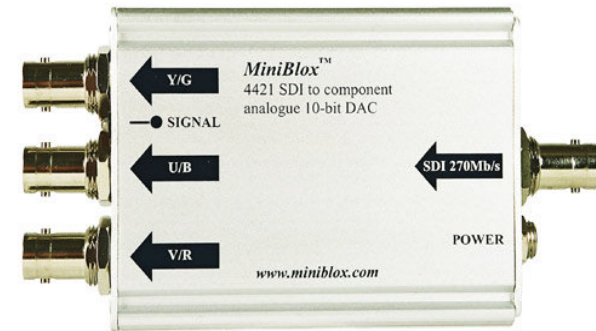


Fig 3 DAC output Filter

## MiniBlox™ - solutions in a box

### General description

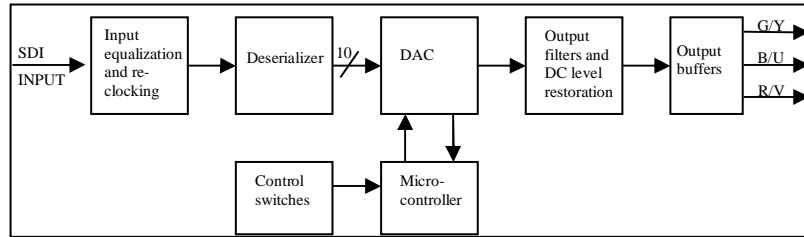
The 4421 is a fully featured broadcast quality 270Mb/s SDI to component analog converter. It is housed in an extremely compact and rugged aluminum case ideally suited to both studio and portable applications. Dip switches on the end of the unit control: the input standard, the output format, vertical blanking, addition of pedestal and the YUV output level. In addition the final switch controls the output of the built in color bars test pattern.



### 4421 Main features

- SDI to component analog DAC
- Component RGB & YUV output
- SMPTE/EBU or Beta levels
- 270Mb/s 525/625 operation
- 4x over-sampling
- 10-bit DAC
- VBI control
- Pedestal control
- Built in color bar generator
- Compact and rugged design
- Locking connector for PSU

## Functional block diagram



## Installation and operation

The 4421 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
- Connect analog output.
- Apply power to the 4421 unit either via the locking power connector from the 4000 external power supply or by sliding into the 1RU or 2RU rack mounting frame with central power supplies. An alternative power source can be used to power the unit as long as the input power is within the range stated in the specifications.
- The 4-800MB mounting bracket can be used to install a MiniBlox unit. The bracket should first be fixed vertically to any surface. The MiniBlox can then be lowered onto the dovetail part of the bracket with the front endplate uppermost to retain it.
- The LED will be green when there is power and a valid 270Mb/s SDI signal present.
- The switch settings can be altered while the unit is powered and the changes are implemented immediately.

## Switch settings

Switch	OFF	ON	Switch	OFF	ON
1	625	525	4	Pedestal	
2	YUV	RGB	5	Beta levels	
3	Pass VBI	Blank VBI	6	Color bars	

The default switch setting on delivery is all switches in the off position.

- Switch 1 sets the input line format. When the switch is off the output will be 625 lines. When the switch is on the output will be 525 lines. For correct operation of the unit the number of analog lines must match the input SDI format.
- Switch 2 sets the format of the analog component output. When in the off position YUV signals will be present on the output. When in the on position RGB signals will be present on the output.
- Switch 3 controls the vertical blanking information (VBI) on the output analog video output.
- Switch 4 controls the addition of a pedestal on the output signal. When in the off position there is no pedestal added to the outputs. When the switch is in the on position a pedestal is added to the analog outputs
- Switch 5 controls the output levels of the 4421 unit when in YUV mode. When in the off position the output conforms to SMPTE standards. When in the on position the output level conforms to Betacam standards.
- Switch 6 controls the output of the color bar test pattern. When in the off position the converted signal will be present on the outputs. When in the on position the color bars signal will be present on the 4421 outputs. To ensure correct operation of this feature a valid 270 Mb/s SDI signal must be applied to the input.

## Technical information and specifications

The following graphs show the filters that are applied to the analog output signals on the 4421.

Figure 1 shows the internal luminance filter on the DAC which has a -3dB cut off at  $\approx 6\text{MHz}$ .

Figure 2 shows the internal chrominance filter on the DAC which has a -3dB cut off at  $\approx 2\text{MHz}$ .

Figure 3 shows the external output filter response implemented before the cable drivers this has a -3dB cut off at  $\approx 6.75\text{MHz}$ .