DEC102

Composite to SDI decoder

USER MANUAL

Crystal Vision

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DEC102 PAL/NTSC DECODER
USERS MANUAL

For use with software versions 2.1e onwards

INTRODUCTION

The DEC102 is a 10 bit analogue composite video to serial digital component converter with two serial digital outputs. The line based comb decoding scheme substantially reduces errors due to the interaction of chroma and luma signals. It will accept either PAL or NTSC inputs with automatic detection. It is very compact with six modules fitting in a 1U frame.

The unit will plug into the front of the rack frame, and the universal connection system will allow a mixture of Crystal Vision modules, without the use of extra rear panels, in both 1U and 2U frames. The hinged front panel of the case reveals user control of the card, and also LED indication of status. There is an 8 way piano switch that allows selection of some user options. Further configuration is possible using movable links.

SPECIFICATION

Mechanical

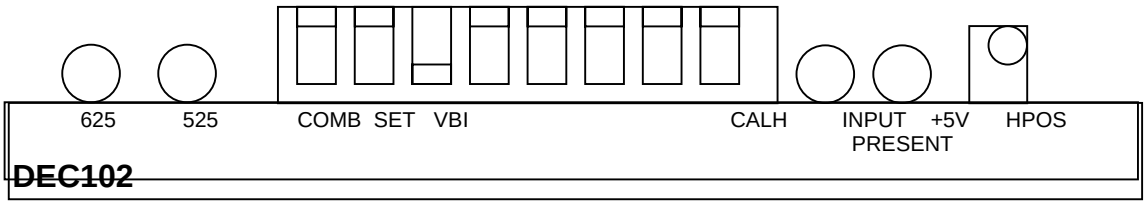
100mm x 266mm module with DIN 41612 connector. User adjustments and indication at end of board to allow access from hinged front panel.

Weight	150g
Analogue Input:	Composite video input 1 volt with syncs. 625 line PAL or 525 line NTSC DIL switch selection of setup on NTSC. Auto or manual 525/625 selection. +/- 2 uS adjustment of picture position from syncs.
Output:	2 x 270Mb/s serial digital to EBU Tech 3267-E & SMPTE 259M

Analogue Performance:

Frequency Response with comb active :

Luminance	+/- 0.2dB 0 to 5.5 Mhz
Gain Error	<1%
Sampling	Sampled to 10 bit precision at 13.5Mhz
Blanking	To analogue PAL/NTSC specification, with selectable VBI blanking PAL lines 7 to 22 and 319 to 336 and NTSC lines 7 to 20 and 270 to 278.



OPTIONS AVAILABLE FROM FRONT PANEL

DIL SWITCH

1	COMB	UP selects adaptive comb decoder for both luma and chroma DOWN luma is obtained from comb and chroma from bandsplit decoder
2	SETUP	UP selects compensation for setup (removal of pedestal, and adjustment of gain) when 525 line input. DOWN prevents setup removal and gain adjustment.
3	VBI	UP blanks vertical interval DOWN VBI data passed unprocessed on luma channel PAL lines 7 to 22 and 319 to 335 NTSC lines 10 to 20 and 273 to 282
4, 5, 6, 7	NOT USED	
8	CALH	UP selects horizontal position set by user adjustment (HPOS) DOWN select factory default position (set by RV6)

HORIZONTAL POSITION ADJUSTMENT (HPOS)

Allows adjustment of the horizontal picture position up to +/- 2 uS from reference position when selected by the relevant DIL switch (see above).

FRONT PANEL LEDS (from left)

Yellow	625	625 line input detected, only valid if input present.
Yellow	525	525 line input detected, only valid if input present.
Green	Input Present	Valid input detected
Green	+5V	Supply voltage present

625 / 525 LINE MODE SELECTION

626/525 line selection is controlled by a link on J14 and J15 in the middle of the board near the handle end. With the link on J14 the decoder will auto-select between 625 and 525 line mode based on the input. With the link on J15 the decoder will be forced into 525 line mode. With the link removed the decoder will be forced into 625 line mode.

GPI CONNECTIONS

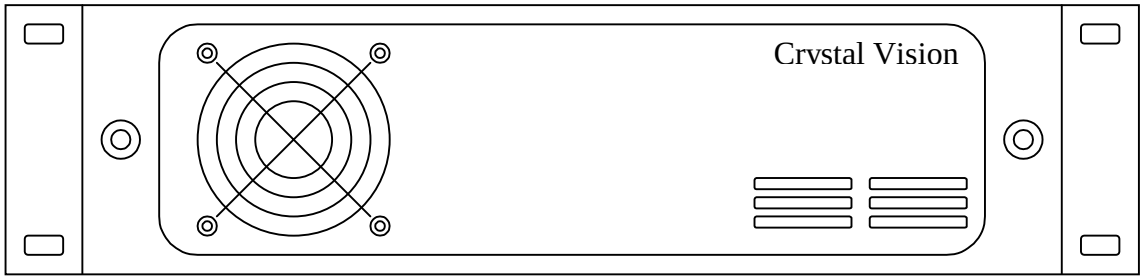
	OPEN	CONNECT TO GROUND
'a'	selects adaptive comb decoder for both luma and chroma	luma is obtained from comb and chroma from bandsplit decoder
'b'	selects compensation for setup (removal of pedestal, and adjustment of gain) when 525 line input.	prevents setup removal and gain adjustment.
'c'	blanks vertical interval	VBI data passed unprocessed on luma channel PAL lines 7 to 22 and 319 to 335 NTSC lines 10 to 20 and 273 to 282
'd'	Not used.	Not used.
'e'	Not used.	Not used.
'f'	Not used.	Not used.

Note. The GPI connections are directly in parallel with the piano switch. If the GPI connections from a number of boards are wired together then putting the piano switch on one board down will connect the GPI inputs on all the other boards to ground.

INSTALLATION INFORMATION

The DEC102 plugs into the front of any Crystal Vision frame.

FR2AV 2U Frame for 12 Modules

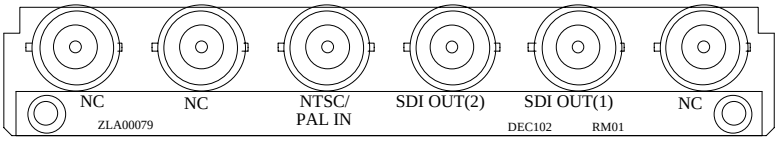


The 2U FR2AV frame will house up to 12 modules and dual power supplies. A hinged front panel gives access to the PSU and all modules. The universal frame wiring system allows any of the interface range of modules to be fitted in any position with the use of removable rear modules.

All modules can be plugged in and removed while the frame is powered without damage.

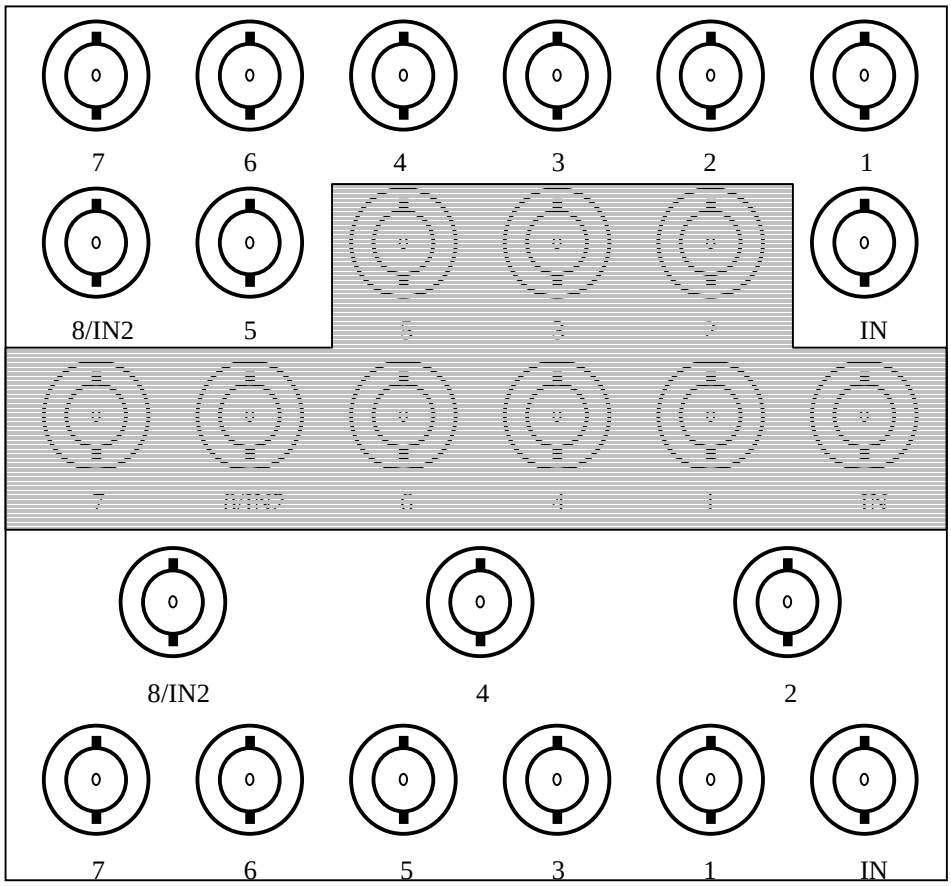
RM01 CONNECTIONS

Rear Module RM01 fitted with label for DEC102
Label part number ZLA00079



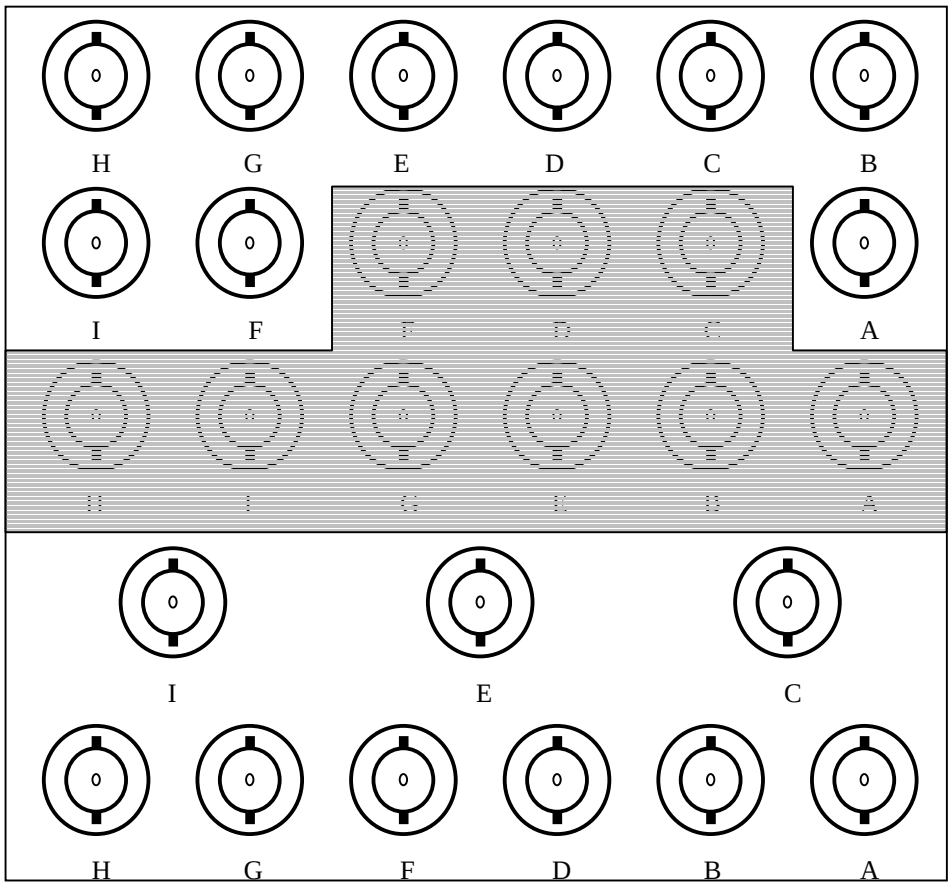
SDI OUT (1)	Serial Digital Output
SDI OUT (2)	Serial Digital Output.
NTSC/PAL IN	Analogue Composite Video input.
NC	Not used
NC	Not used
NC	Not used

RM02 CONNECTIONS with generic label ZLA00110



IN	Serial Digital Ouput (1).
1	Serial Digital Output (2)
2	Analogue Composite Video input.
3	Not used
4	Not used
5	Not used
6	Not used
7	Not used
8/IN2	Not used

RM02 CONNECTIONS with generic label ZLA00128



A	Serial Digital Ouput (1).
B	Serial Digital Output (2)
C	Analogue Composite Video input.
D	Not used
E	Not used
F	Not used
G	Not used
H	Not used
I	Not used

FR2AV GPI CONNECTIONS

Each slot has an associated set of connections on the frame rear-panel remote connectors. The tables below show the GPI connections described above.

Remote 1 and **Remote 3**: 26 way high density D-type **sockets**.
+5V @ 500mA is pin 1 in each case. Frame ground is pin 2 in each case.

Remote 2 and **Remote 4**: 26 way high density D-type **plugs**.
+5V @ 500mA is Remote 2 pin 15. Frame ground is pin 6 in each case.

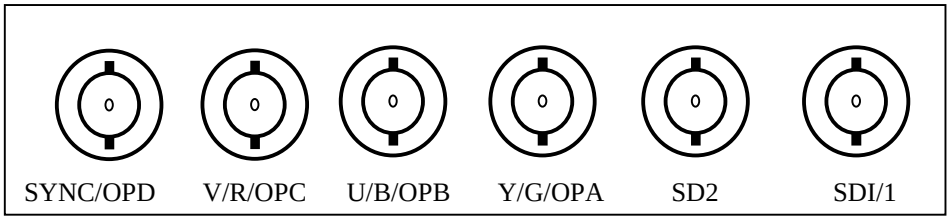
Table shows Pin number (Remote number)

Slot no.	'a' pin no.	'b' pin no.	'c' pin no.	'd' pin no.	'e' pin no.	'f' pin no.
1	8 (1)	9 (1)	18 (1)	26 (1)	19 (2)	20 (2)
2	7 (1)	16 (1)	17 (1)	25 (1)	10 (2)	11 (2)
3	8 (3)	9 (3)	18 (3)	19 (3)	19 (4)	20 (4)
4	7 (3)	16 (3)	17 (3)	25 (3)	10 (4)	11 (4)
5	5 (1)	6 (1)	15 (1)	24 (1)	1 (2)	2 (2)
6	4 (1)	14 (1)	13 (1)	23 (1)	3 (2)	4 (2)
7	5 (3)	6 (3)	15 (3)	24 (3)	1 (4)	2 (4)
8	4 (3)	14 (3)	13 (3)	23 (3)	3 (4)	4 (4)
9	3 (1)	12 (1)	22 (1)	21 (1)	12 (2)	13 (2)
10	10 (1)	11 (1)	19 (1)	20 (1)	21 (2)	22 (2)
11	3 (3)	12 (3)	22 (3)	21 (3)	12 (4)	13 (4)
12	10 (3)	11 (3)	19 (3)	20 (3)	21 (4)	22 (4)

FR1-6 1U Frame for 6 Modules.
FR2-12 2U Frame for 12 Modules.
FR2-8 2U Frame for 8 Modules.

The 1U FR1-6 frame for 6 modules includes rear panel BNC connections and plug-in power supply. A hinged front panel gives access to the PSU and all modules. The universal frame wiring system allows any of the interface range of modules to be fitted in any position. The 2U FR2-12 frame houses up to 12 modules and dual power supplies. The 2U FR2-8 frame houses 8 modules each with extra rear panel BNC connections.
The modules can be plugged in and removed while the frame is powered without damage.

FR1-6 & FR2-12 REAR CONNECTIONS



FR1-6 & FR2-12 CONNECTIONS

SDI/1	Serial Digital Output
SD2	Serial Digital Output.
Y/G/OPA	Analogue Composite Video input.
U/B/OPB	Not used
V/R/OPC	Not used
SYNC/OPD	Not used

FR2-8 CONNECTIONS

SDI/1	Serial Digital Ouput (1).
SD2	Serial Digital Output (2)
Y/G/OPA	Analogue Composite Video input.
Y/G/OPA(2)	Not used
U/B/OPB	Not used
U/B/OPB(2)	Not used
V/R/OPC	Not used
V/R/OPC(2)	Not used
SYNC/OPD	Not used
SYNC/OPD(2)	Not used

FR1-6, FR2-12 & FR2-8 GPI CONNECTIONS

Each slot has an associated set of connections on the frame rear-panel remote connectors. The tables below show the GPI connections described above.

FR1-6 FRAME
Remote 1: 26 way high density D-type **socket**. Frame ground is pin 2.
Remote 2: 26 way high density D-type **plug**. Frame ground is pin 6.
Table shows Pin number (Remote number)

Slot no.	'a' pin no.	'b' pin no.	'c' pin no.	'd' pin no.	'e' pin no.	'f' pin no.
1	8 (1)	9 (1)	18 (1)	26 (1)	19 (2)	20 (2)
2	7 (1)	16 (1)	17 (1)	25 (1)	10 (2)	11 (2)
3	5 (1)	6 (1)	15 (1)	24 (1)	1 (2)	2 (2)
4	4 (1)	14 (1)	13 (1)	23 (1)	3 (2)	4 (2)
5	3 (1)	12 (1)	22 (1)	21 (1)	12 (2)	13 (2)
6	10 (1)	11 (1)	19 (1)	20 (1)	21 (2)	22 (2)

FR2-12 FRAME

Remote 1 and **Remote 3**: 26 way high density D-type **sockets**. Frame ground is pin 2.
Remote 2 and **Remote 4**: 26 way high density D-type **plugs**. Frame ground is pin 6.
Table shows Pin number (Remote number)

Slot no.	'a' pin no.	'b' pin no.	'c' pin no.	'd' pin no.	'e' pin no.	'f' pin no.
1	8 (1)	9 (1)	18 (1)	26 (1)	19 (2)	20 (2)
2	7 (1)	16 (1)	17 (1)	25 (1)	10 (2)	11 (2)
3	8 (3)	9 (3)	18 (3)	19 (3)	19 (4)	20 (4)
4	7 (3)	16 (3)	17 (3)	25 (3)	10 (4)	11 (4)
5	5 (1)	6 (1)	15 (1)	24 (1)	1 (2)	2 (2)
6	4 (1)	14 (1)	13 (1)	23 (1)	3 (2)	4 (2)
7	5 (3)	6 (3)	15 (3)	24 (3)	1 (4)	2 (4)
8	4 (3)	14 (3)	13 (3)	23 (3)	3 (4)	4 (4)
9	3 (1)	12 (1)	22 (1)	21 (1)	12 (2)	13 (2)
10	10 (1)	11 (1)	19 (1)	20 (1)	21 (2)	22 (2)
11	3 (3)	12 (3)	22 (3)	21 (3)	12 (4)	13 (4)
12	10 (3)	11 (3)	19 (3)	20 (3)	21 (4)	22 (4)

FR2-8 FRAME

Remote 1 and **Remote 2**: 26 way high density D-type **sockets**. Frame ground is pin 1.
PSU Relay connection on pin 10.
Table shows Pin number (Remote number)

Slot no.	'a' pin no.	'b' pin no.	'c' pin no.	'd' pin no.	'e' pin no.	'f' pin no.
1	8 (1)	9 (1)	17 (1)	18 (1)	25 (1)	26 (1)
2	6 (1)	7 (1)	15 (1)	16 (1)	23 (1)	24 (1)
3	8 (2)	9 (2)	17 (2)	18 (2)	25 (2)	26 (2)
4	6 (2)	7 (2)	15 (2)	16 (2)	23 (2)	24 (2)
5	4 (1)	5 (1)	13 (1)	14 (1)	21 (1)	22 (1)
6	2 (1)	3 (1)	11 (1)	12 (1)	19 (1)	20 (1)
7	4 (2)	5 (2)	13 (2)	14 (2)	21 (2)	22 (2)
8	2 (2)	3 (2)	11 (2)	12 (2)	19 (2)	20 (2)