MON204

SDI to composite or Y/C monitoring encoder

USER MANUAL

Crystal Vision

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MON204 dual PAL/NTSC Encoder
USERS MANUAL

MON204m.dtp

mam issue 1.3

INTRODUCTION

The MON204 is an 8 bit Serial Digital to Analogue Composite converter with selectable composite or Y/C analogue outputs. The MON204 has two channels (channel A and channel B). It is very compact with 6 modules fitting in a 1U frame allowing monitoring of 12 SDI channels or 12 modules fitting in a 2U frame allowing monitoring of 24 SDI channels , and therefore offers remarkable value for money. It will accept either 625 or 525 line input on either channel, with automatic detection. Default outputs for either channel are two analogue PAL/NTSC - two composite or one each of separate Y/C. The unit will plug into the front of the rack frame, and the universal connection system will allow a mixture of Crystal Vision modules, 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

Number of channels 2 - Channel A and Channel B

Input: 270Mb/s serial digital to EBU Tech 3267-E & SMPTE 259M
Cable equalisation >200m Belden 8281 or equivalent
Auto or manual 525/625 selection on either channel A or B.

Analogue Outputs: 2 outputs per channel: Either composite(2) or separate Y/C.
Composite or Y plus syncs 1V into 75 Ohms, C 300mV into 75 Ohms.

Frame Outputs Normally two composite for each channel .
or Separate Y/C for each channel
or one channel set to composite and the other set to separate Y/C

Composite or Y/C outputs are selected using movable links.
DIL switch selection of test pattern and vertical blanking for each channel
DIL switch selection of chroma bandwidth and 7.5 IRE setup is common for both channels.

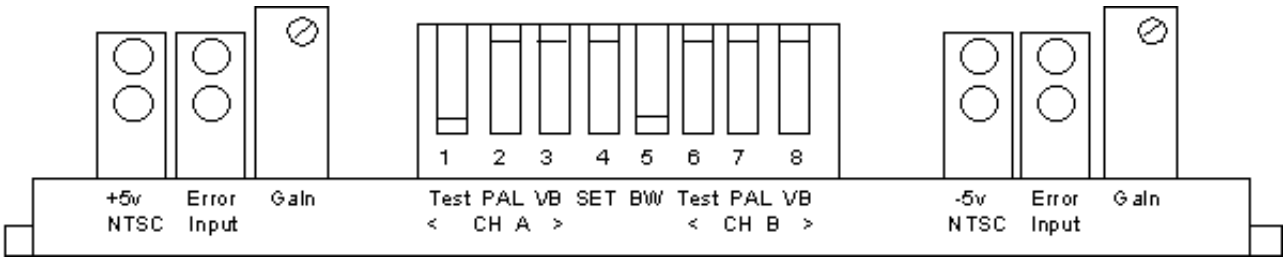
Analogue Performance:

Frequency Response:

Luminance +/- 0.2dB 0 to 3.5Mhz +/- 0.3dB to 5MHz

Noise <-54dB weighted luminance or chrominance

Blanking To PAL/NTSC specification horizontally and vertically, with selectable VBI blanking on or off. PAL lines 7 to 22, and 320 to 335 and NTSC lines 10 to 20 and 273 to 282.



OPTIONS AVAILABLE FROM FRONT PANEL

DIL SWITCH

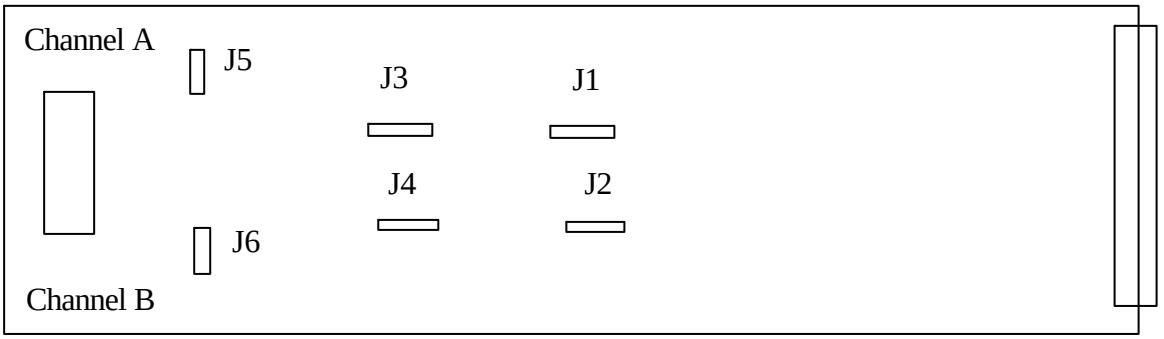
1&6	Test	Up outputs incoming data. Down sets the composite (or Y/C) output to the inbuilt (modulated ramp) test pattern
2&7	PAL	Up for 625 line and Down for 525 line if manual standard selected on jumper J5/6.
3&8	VB	Down leaves lines 7 to 22, and 319 to 336 in PAL, and lines 7 to 20 and 270 to 278 in NTSC unblanked.
4	SETUP	Down selects setup. Only has any effect in 525 line operation and applies to both channels. Adds 7.5 IRE of setup to Y, and reduces the Y gain as required.
5	CHRBW	Up sets the chroma bandwidth to 1.3MHz, Down sets it to 650kHz. Setting applies to both channels
GAIN	CH-A	There is an overall gain adjustment(composite and Y/C) for channal A. This is set in the factory and should not need changing.
GAIN	CH-B	There is an overall gain adjustment(composite and Y/C) for channel B. This is set in the factory and should not need changing.

FRONT PANEL LEDS (from left)

Green(upper)	+5V	Supply Voltage present
Yellow(lower)	525 input detected.	Only valid if input present- channel A
Red(upper)	Error	Serial Digital Errors detected.- channel A
Green(lower)	Input Present	Valid Serial Digital input detected-channel A
Green(upper)	-5V	Supply Voltage present
Yellow(lower)	525 input detected.	Only valid if input present- channel B
Red(upper)	Error	Serial Digital Errors detected. - channel B
Green(lower)	Input Present	Valid Serial Digital input detected-channel B

JUMPER SETTINGS

Jumper links are used to select several options. The position of the jumper links on the board is shown below. The handle is on the left hand side of the board in the drawing. References to "upper" and "lower" are with respect to this orientation.



The position of the link on J5 for channel A and J6 for channel B selects either automatic or manual choice of 525 or 625 line operation.

With the link on J5/6 in the upper position the board will automatically adjust to the video standard (525/625 line) of the in-coming data. This may slightly extend the time required to synchronise with a new signal.

J5

With the link on J5/6 in the lower position the video standard used will be set by the front panel DIL switch.

J5

Channel A has two analogue outputs which can be either both composite or Y/C.

Selection is made by moving both jumpers J1 and J3 in the same direction.

With J1 and J3 moved to the left position the outputs are composite.

With J1 and J3 moved to the rightt position the outputs are Y and C.

Channel B has two analogue outputs which can be either both composite or Y/C.

Selection is made by moving both jumpers J2 and J34 in the same direction.

With J2 and J4 moved to the left position the outputs are composite.

With J2 and J4 moved to the rightt position the outputs are Y and C.

INSTALLATION INFORMATION

The MON204 plugs into the front of a suitable Crystal Vision frame. The standard 1U version is the FR1-6 and the 2U FR2-12. These take 6 and 12 modules respectively. The modules can be plugged into and removed from the frame while it is powered without damage.

Rear Connectors

Fixed Connection Frames

The connections on a six BNC per slot frame (FR1-6 & FR2-12) are:-

SDI/1	Channel A	Serial Digital Input
SD2	Channel A	Composite or C output
Y/G/OPA	Channel A	Composite or Y output
U/B/OPB	Channel B	Composite or Y output
V/R/OPC	Channel B	Composite or C output
SYNC/OPD	Channel B	Serial Digital Input

The connections on a ten BNC per slot frame (FR2-8) are:

SDI/1	Channel A	Serial Digital Input
SD2	Channel A	Composite or C output
Y/G/OPA(1)	Channel A	Composite or Y output
Y/G/OPA(2)	Not Used	
U/B/OPB(1)	Channel B	Composite or Y output
U/B/OPB(2)	Not Used	
V/R/OPC(1)	Channel B	Composite or C output
V/R/OPC(2)	Not Used	
SYNC/OPD(1)	Channel B	Serial Digital Input
SYNC/OPD(2)	Not Used	

Configurable connection frames

Using REM01 rear module (6 BNCs occupying 1 slot)

SDI(B) IN	Channel B	Serial Digital Input
PAL/Y(B)	Channel B	Composite or Y output
PAL/Y(A)	Channel A	Composite or Y output
PAL/C(A)	Channel A	Composite or C output
SDI(A) IN	Channel A	Serial Digital Input
PAL/C(B)	Channel B	Composite or C output

Remote Connections

Inputs.

GPI inputs are normally puuled up to +5V relative to frame ground through a high (10K Ohm) resistance. They will tolerate up to +35V relative to frame ground without damage.

Remote 0 - connection 'a'

Relates to Channel A

Only active if manual standard selected on J5

OPEN - 625 line mode

CONNECT TO GROUND - 525 line mode

This is functionally similar to piano switch 2

Remote 1 - connection 'b'

Relates to Channel A

OPEN - PAL lines 7-22 and 320-335 or NTSC lines 7-20 and 273-282 blanked

CONNECT TO GROUND - leaves these lines unblanked

This is functionally similar to piano switch 3

Remote 2 - connection 'c'

Relates to Channel B

Only active if manual standard selected on J5

OPEN - 625 line mode

CONNECT TO GROUND - 525 line mode

This is functionally similar to piano switch 2

Remote 3 - connection 'd'

Relates to Channel B

OPEN - PAL lines 7-22 and 320-335 or NTSC lines 7-20 and 273-282 blanked

CONNECT TO GROUND - leaves these lines unblanked

This is functionally similar to piano switch 3

Outputs

GPI outputs are 5V CMOS outputs via a 330 Ohm resistor.

Remote 4- connection 'e'

Input A carrier detected. Active low.

Remote 4- connection 'f'

Input B carrier detected. Active low.

1U frame Remote 1

26 way high density D-type **socket**

This connector is used for remote control

Frame ground is pin 2

Slot Number	'a' pin number	'b' pin number	'c' pin number	'd' pin number
1	8	9	18	26
2	7	16	17	25
3	5	6	15	24
4	4	14	13	23
5	3	12	22	21
6	10	11	19	20

1U frame Remote 2

26 way high density D-type **plug**

This connector is used for remote indications of status

Frame ground is pin 6

Slot Number	'e' pin number	'f' pin number
1	19	20
2	10	11
3	1	2
4	3	4
5	12	13
6	21	22

FR2-12 frame and FR2AV Remote 1 (1) and Remote 3 (3)

26 way high density D-type **sockets**

These connectors are used for remote control

Frame ground is pin 2 in each case

Slot Number	**'a' pin number**	**'b' pin number**	**'c' pin number**	**'d' pin number**
1	8 (1)	9 (1)	18 (1)	26 (1)
2	7 (1)	16 (1)	17 (1)	25 (1)
3	8 (3)	9 (3)	18 (3)	19 (3)
4	7 (3)	16 (3)	17 (3)	25 (3)
5	5 (1)	6 (1)	15 (1)	24 (1)
6	4 (1)	14 (1)	13 (1)	23 (1)
7	5 (3)	6 (3)	15 (3)	24 (3)
8	4 (3)	14 (3)	13 (3)	23 (3)
9	3 (1)	12 (1)	22 (1)	21 (1)
10	10 (1)	11 (1)	19 (1)	20 (1)
11	3 (3)	12 (3)	22 (3)	21 (3)
12	10 (3)	11 (3)	19 (3)	20 (3)

FR2-12 frame and FR2AV Remote 2 (2) and Remote 4 (4)

26 way high density D-type **plugs**

These connectors are used for remote indication of input status

Frame ground is pin 6 in each case

Slot number	**'e' pin number**	**'f' pin number**
1	19 (2)	20 (2)
2	10 (2)	11 (2)
3	19 (4)	20 (4)
4	10 (4)	11 (4)
5	1 (2)	2 (2)
6	3 (2)	4 (2)
7	1 (4)	2 (4)
8	3 (4)	4 (4)
9	12 (2)	13 (2)
10	21 (2)	22 (2)
11	12 (4)	13 (4)
12	21 (4)	22 (4)

FR2-8 frame Remote Connections

Remote 1 and **Remote 2**: 26 way high density D-type **sockets**

Frame ground is pin 1 in each case.

PSU relay connection on pin 10.

The 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(1)	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)