

# Crystal Vision

## MON210

### Monitoring encoder

MON210 is designed for Standard Definition multi-channel content monitoring. MON210 is a dual channel SDI to composite monitoring encoder which provides non-broadcast conversion of SDI sources to PAL/NTSC or Y/C.

It provides two SDI inputs and up to five composite outputs for each channel, or two Y/C pairs and one composite. Four of the outputs are link selectable between composite and Y/C, while one is a fixed composite output.

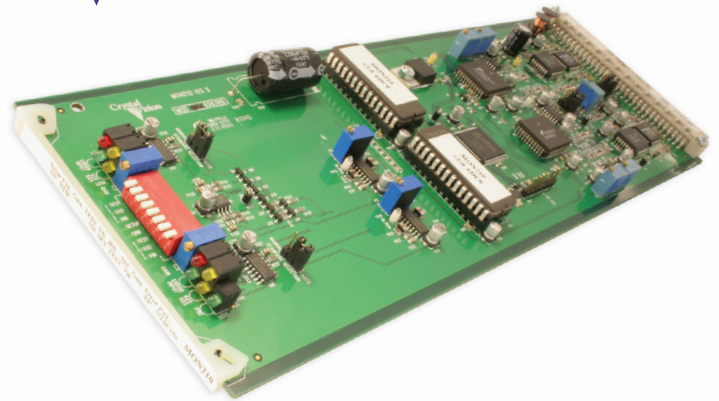
MON210 has an 8 bit input with a 9 bit digital to analogue converter to maintain the composite signal resolution, and includes the flexibility of selectable blanking. It has continuously variable gain of +/-10% and a basic modulated ramp analogue test pattern which is useful for correct installation.

MON210 is a space-saving 100mm x 266mm module which is housed alongside any other product in the standard frames – available in 4U, 2U, 1U and desk top box sizes – and with up to 12 boards (or 24 channels) fitting in 2U.

It can be used with three different frame rear modules depending on the outputs required. The RM01 gives two composite outputs or one Y/C output per channel. The RM02 gives four composite outputs or two Y/C outputs of the first channel, and three composite outputs or one Y/C output with an additional Y of the second channel. The RM18 gives access to the maximum five composite outputs or two Y/C outputs per channel.

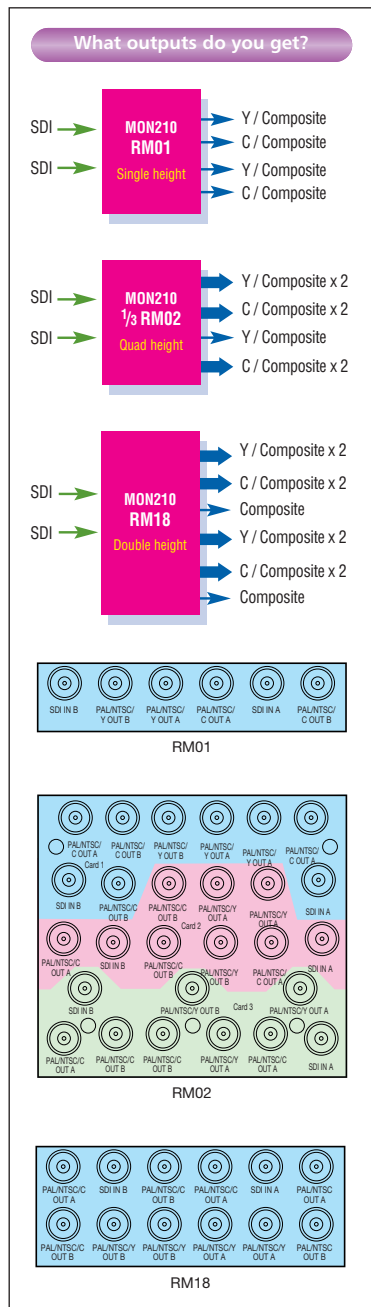
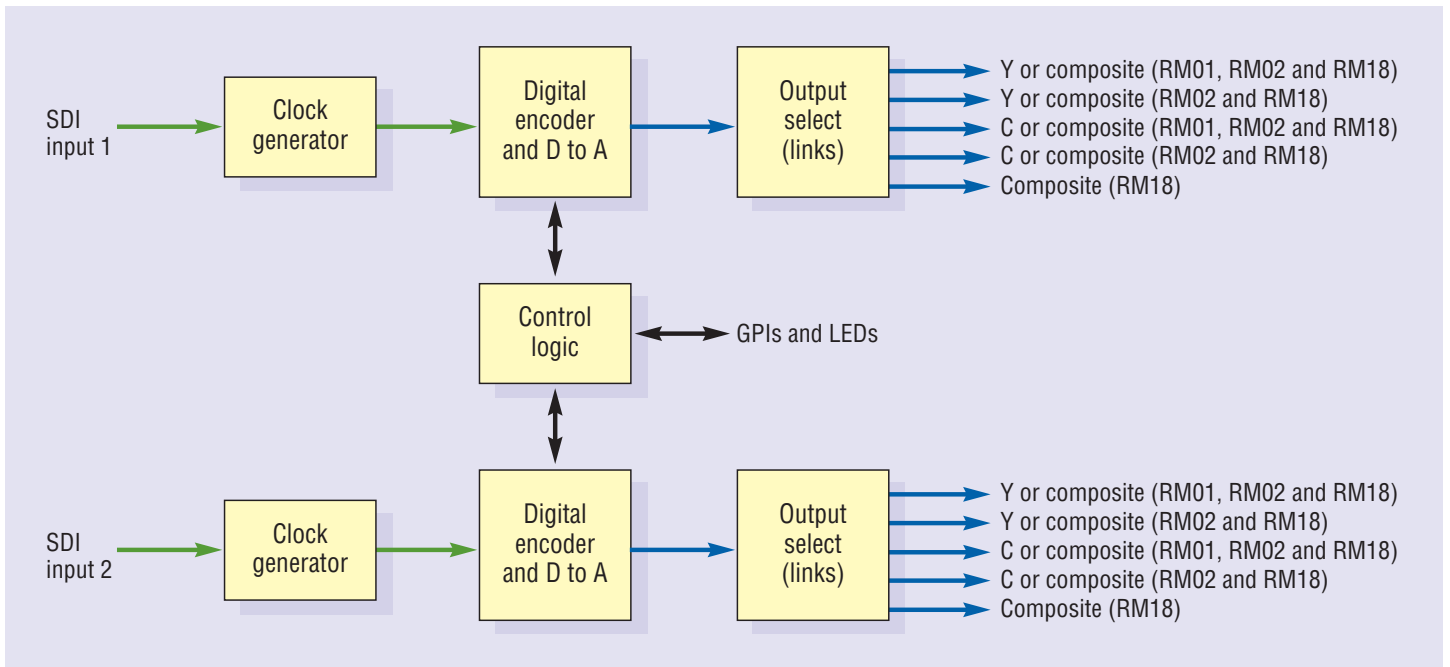
It can be either controlled manually using board edge switches or by using GPI inputs and outputs.

The MON210 is ideal for driving picture monitors, waveform monitors and vector scopes – basically any multi-channel content monitoring applications requiring multiple analogue outputs where space and cost are at a premium.



- Dual channel SDI to PAL/NTSC or Y/C monitoring encoder
- Provides non-broadcast conversion of SDI sources – ideal for driving picture monitors, waveform monitors and vector scopes
- Maximum of five composite (or two Y/C pairs and one composite) outputs per channel
- 8 bit input with 9 bit D to A converter to maintain composite signal resolution, plus variable gain
- Space-saving: 100mm x 266mm module allows 12 MON210 – 24 channels – in 2U (24 in 4U, six in 1U, two in desk top box)
- Manually controlled – use board edge switches or GPI control





## SPECIFICATION

**MECHANICAL**  
 Standard Crystal Vision module 100mm x 266mm  
 Weight: 170g  
 Power consumption: 7 Watts

**VIDEO INPUTS**  
 Two SDI inputs  
 270Mbit to EBU 3267-E and SMPTE 259  
 Cable equalisation >200m Belden 8281 or equivalent  
 Auto or manual 625/525 line selection

**VIDEO OUTPUTS**  
 Maximum of five composite outputs or two Y/C outputs per channel with RM18 frame rear module (two composite outputs or one Y/C output per channel with RM01, and four composite outputs or two Y/C outputs of the first channel and three composite outputs or one Y/C output with an additional Y of the second channel with RM02)  
 Most outputs are selectable between composite and Y/C using movable links, with one output fixed as composite

**ANALOGUE PERFORMANCE**  
 Frequency response: +/-0.3dB 0 to 5MHz  
 Noise: <-54dB weighted luminance or chrominance  
 Blanking: To PAL/NTSC specification horizontally and vertically with selectable VBI blanking. PAL lines 7 to 22 and 320 to 335 and NTSC lines 10 to 20 and 273 to 282  
 Gain adjustment (Y, C or composite): +/-10%

**DELAY THROUGH BOARD**  
 1.5us

**TEST PATTERNS**  
 Modulated ramp analogue test pattern, selectable at board edge

**GPI INPUT LEVELS**  
 Active pull to ground, pulled up to 5V through 10 kohm

**GPI OUTPUT LEVELS**  
 Electrically: Open collector transistors 30V, 330 ohm current limit resistors.  
 Pulled up to 5V through 10 kohm

**GPI INPUTS**  
 Four GPI inputs  
 625 or 525 line standard for Channels A and B (if manual select)  
 VBI blanked or unblanked for Channels A and B

**GPI OUTPUTS**  
 Two GPI outputs  
 SDI present for Channels A and B

**LED INDICATION OF:**  
 Power supplies on board  
 SDI input present for Channels A and B  
 SDI input lock error for Channels A and B  
 625/525 line input standard for Channels A and B

**BOARD EDGE CONTROL OF:**  
 625 or 525 standard for Channels A and B  
 VBI blanked or unblanked for Channels A and B  
 Test pattern or serial input for Channels A and B  
 Setup on/off and chroma bandwidth select (NTSC only)

ORDERING INFORMATION	
MON210	Dual channel SDI to composite or Y/C monitoring encoder
Indigo 4SE	4U frame with active front panel featuring Statesman CPU for up to 24 Crystal Vision modules
Indigo 2AE	2U frame with active front panel featuring Statesman CPU and integrated control panel for up to 12 Crystal Vision modules
Indigo 2SE	2U frame with active front panel featuring Statesman CPU for up to 12 Crystal Vision modules
Indigo 1AE	1U frame with active front panel featuring Statesman CPU and integrated control panel for up to six Crystal Vision modules. Power supply redundancy available with Indigo 1AE-DP
Indigo 1SE	1U frame with active front panel featuring Statesman CPU for up to six Crystal Vision modules. Power supply redundancy available with Indigo 1SE-DP
Indigo DT	Desk top box with passive front panel for up to two Crystal Vision modules
Indigo DTSE	Desk top box with active front panel featuring Statesman CPU for up to two Crystal Vision modules
RM01	Single slot frame rear module. Allows maximum number of MON210 in frame (24 in 4U, 12 in 2U, six in 1U, two in desk top box). Gives access to two SDI inputs and two composite outputs or one Y/C output per channel
RM02	Four slot frame rear module. One rear module used for three MON210, allowing 18 MON210 in 4U and nine in 2U. Gives access to two SDI inputs and either four composite outputs or two Y/C outputs of the first channel, and either three composite outputs or one Y/C output with an additional Y of the second channel
RM18	Two slot frame rear module. Allows 12 MON210 in 4U, six in 2U, three in 1U and one in desk top box. Gives access to two SDI inputs and five composite outputs or two Y/C outputs per channel

Performance and features are subject to change. Figures given are typical measured values. MON2100613

