

Crystal Vision

demon² De-embedding Monitor



Demon 2 is a powerful de-embedding monitor which brings the highest quality 12 bit performance to applications requiring the monitoring of video and embedded audio at the same time. This flexible board can convert SDI with embedded audio into up to 15 different combinations of component, composite, Y/C and SDI distribution - while de-embedding both 20 bit AES and analogue audio simultaneously.

Demon 2 gives you the freedom to choose an output combination to suit you by selecting the frame rear module that matches your application. The RM05, RM06, RM22 and RM36 each give five video outputs, while the RM04 gives three. For each output the type of signal is determined by moving jumper links on the board. The diagrams on the right show how many different output combinations are available. The analogue video output formats are RGBS with syncs on G, YUVS with syncs on Y, Y/C, composite and non-relocked SDI. Composite and Y/C can pass VBI, while a mixed syncs reference output is provided for RGB monitoring requiring a separate sync. The ability to adjust gains and black offset helps to optimise the output picture.

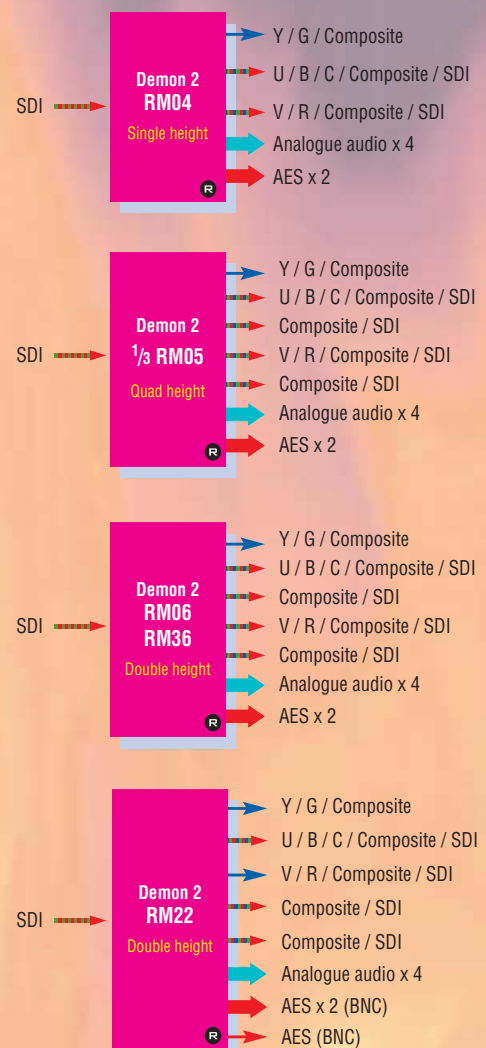
One of Demon 2's greatest strengths is its ability to output both analogue and digital audio at the same time. Any one of the four audio groups contained in the SDI stream can be de-embedded, with the output audio available as four mono (two stereo) balanced analogue and two balanced or unbalanced AES. A 4 x 4 routing matrix allows any of the four audio outputs to be routed to any input, while audio channels can be individually muted and inverted. Demon 2 has sophisticated audio error masking and protection, while audio monitoring is available via the mini headphone socket located on the front board edge.

Further assistance comes from 16 presets which allow the storing of parameters such as video output configurations, audio routing and audio group selection. These can also be accessed by GPI.

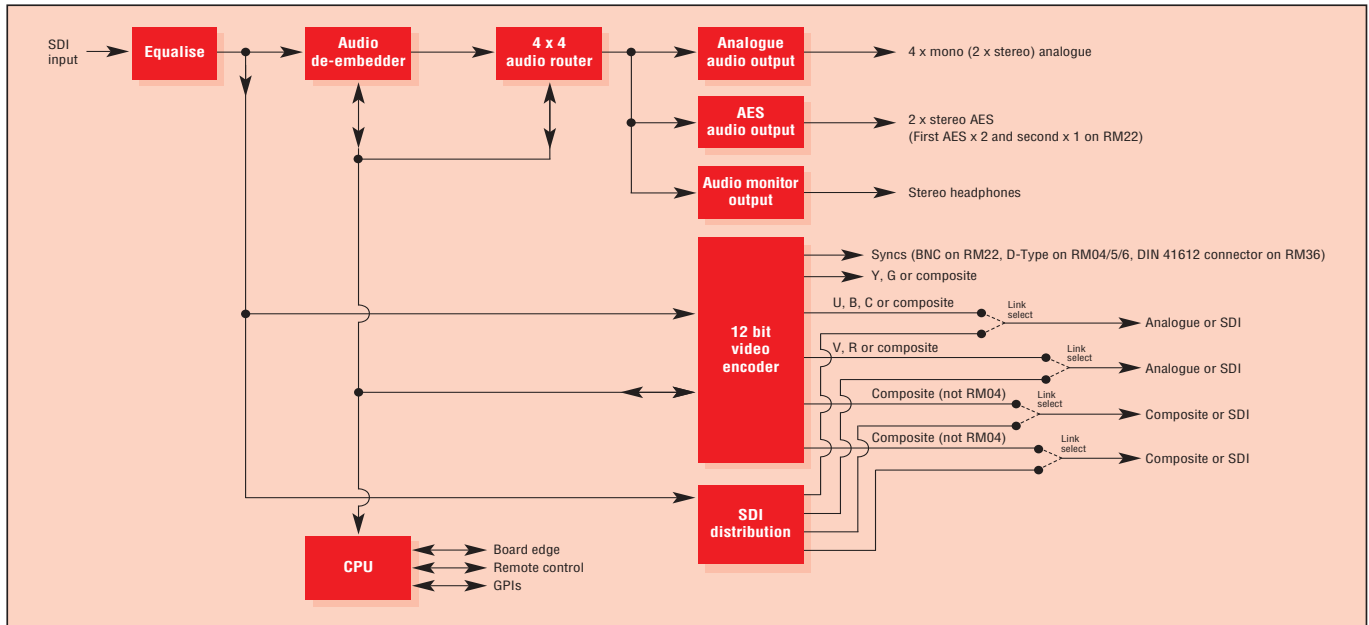
This multi-featured 100mm x 266mm module fits in the four standard frames and can be integrated with any boards from the company's full product range. Control is as flexible as Demon 2 itself, with board edge, a frame active front panel, a remote control panel or the Statesman PC Control System all available.

Wherever high quality and flexibility are required, Demon 2 will find a use. Whether you're a multi-channel broadcaster with many embedded feeds to monitor, you require broadcast quality analogue signals for recording, or you need to de-embed both analogue and digital audio at the same time, Demon 2 is a product for you.

What outputs do you get?



SPECIFICATION



MECHANICAL

Standard Crystal Vision module
266mm x 100mm
Weight: 200g
Power consumption: 6.5 Watts

VIDEO SDI INPUT

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

Automatic de-embedding of SMPTE or Sony formats
Video input is 10 bit processed for 12 bit output DACs

ANALOGUE VIDEO OUTPUTS

Maximum of five video outputs (depending on rear module) which can be combination of analogue (RGB, YUV, Y/C, composite) and SDI
RM04 allows seven different output combinations, while RM05, RM06, RM22 and RM36 allow 15 combinations

COMPONENT VIDEO PERFORMANCE

YUV and RGB into 75Ohm, Y and G
1 Volt with syncs. U/V and R/B 700mV +/-2%
RGB sync: 300mV sync with no burst
Frequency Response:
Luminance: +/-0.3dB to 5.5MHz
Chrominance: +/-0.4dB to 2.5MHz
Noise: <-67dB weighted luminance or chrominance
Gain Error: <1%

COMPOSITE VIDEO PERFORMANCE

Frequency Response:
Luminance: +/-0.3dB to 5MHz
Chrominance: +/-0.4dB to 2.5MHz
Noise: <-67dB weighted luminance or chrominance
Differential Gain: +/-2% typ.
Differential Phase: +/-3° typ.
Blanking: VBI blanking on or off.
PAL lines 6 to 22 and 318 to 335.
NTSC lines 10 to 20 and 272 to 283

ANALOGUE AUDIO OUTPUTS

Two analogue stereo pairs or four mono channels. 20 bit quantising D to As. Low output impedance (66Ohm) balanced
Two 20 bit AES/EBU stereo pairs
110Ohm balanced or 75Ohm unbalanced

OUTPUT LEVEL RANGE

0dBFS = +28dBu max / 0dBFS = +12dBu min
Factory set default: 0dBFS = +18dBu or +24dBu by on board jumper link setting

SIGNAL TO NOISE

-82dBu / -100dBFS (+18dBu) rms., 22Hz to 22kHz typ.

TOTAL HARMONIC DISTORTION

0.005% THD+N rms., 22Hz to 22kHz typ.

INTERCHANNEL CROSSTALK

-112dB at 1kHz, -98dB at 20kHz, rms., typ.

MONITORING

One miniature front mounted audio jack. Switch selected for individual stereo audio monitoring

AUDIO PROTECTION IN DE-EMBEDDER

A variety of sophisticated techniques are employed to protect and minimise the effects of cuts to untimed and asynchronous SDI, SDI corruption and TRS loss in the SDI signal

TEST PATTERNS

PAL 100% EBU Colour Bars
Fail of input: Blue

GPI INPUT LEVELS

Electrically: Will tolerate 0V to 30V, pulled up to +5V through 6.8kOhm

GPI OUTPUT LEVELS

Active: connect to ground, 270Ohm current limit resistors.
Pulled up to +5V through 6.8kOhm

GPI INPUTS

Four GPIs allow the recall of 16 presets

GPI OUTPUTS

Two GPIs for loss of video, audio silence, video frozen/black and EDH error

LED INDICATION OF:

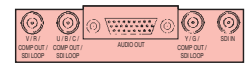
Power supplies on board

LOCAL CONTROL

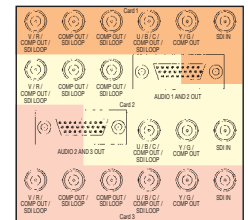
Board edge with ten character alphanumeric display
Alphanumeric display shows SDI input present, audio input present and audio silence
On board links configure video outputs

REMOTE CONTROL

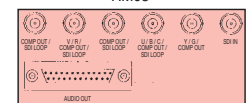
RS422/485
19200 baud, 8 bits, 1 stop no parity
Control from frame active front panel and remote panel
Statesman allows control from any PC on a network



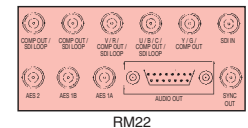
RM04



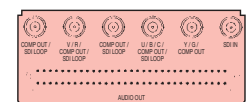
RM05



RM06



RM22



RM36

ORDERING INFORMATION

Demon 2	12 bit de-embedding monitor
Indigo 4	4U frame with passive front panel for up to 24 Crystal Vision modules
Indigo 4SE	4U frame with passive front panel fitted with Statesman CPU for up to 24 Crystal Vision modules
Indigo 2	2U frame with passive front panel for up to 12 Crystal Vision modules
Indigo 2AE	2U frame with active front panel for up to 12 Crystal Vision modules
Indigo 2SE	2U frame with passive front panel fitted with Statesman CPU for up to 12 Crystal Vision modules
Indigo 1	1U frame with passive front panel for up to six Crystal Vision modules
Indigo 1A	1U frame with active front panel for up to six Crystal Vision modules
Indigo 1S	1U frame with passive front panel fitted with Statesman CPU for up to six Crystal Vision modules
Indigo DT	Desk top box with passive front panel for up to two Crystal Vision modules
Indigo DTA	Desk top box with active front panel for up to two Crystal Vision modules
Indigo DTS	Desk top box with passive front panel fitted with Statesman CPU for up to two Crystal Vision modules
RM04	Single slot frame rear module. Allows maximum number of Demon 2 in frame (24 in 4U, 12 in 2U, six in 1U, two in desk top box). Gives access to three video outputs and both 110Ohm balanced AES and analogue audio
RM05	Four slot frame rear module. One rear module used for three Demon 2, allowing 18 Demon 2 in 4U and nine in 2U. Gives access to the maximum five video outputs and both 110Ohm balanced AES and analogue audio
RM06	Two slot frame rear module. Allows 12 Demon 2 in 4U, six in 2U, three in 1U and one in desk top box. Gives access to the maximum five video outputs and both 110Ohm balanced AES and analogue audio
RM22	Two slot frame rear module. Allows 12 Demon 2 in 4U, six in 2U, three in 1U and one in desk top box. Gives access to the maximum five video outputs and both 75Ohm unbalanced AES and analogue audio
RM36	Two slot frame rear module (with DIN 41612 connector). Allows 12 Demon 2 in 4U, six in 2U, three in 1U and one in desk top box. Gives access to the maximum five video outputs and both 110Ohm balanced AES and analogue audio
REMIN D	19" remote control panel
Statesman	PC Control System

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