Innovation in the
Multi-Screen World

User Manual

Sirius 600 Monitoring Cards

2436 & 2426 Input and Output Monitoring Cards

Contents

1. About this Manual

This manual describes the Input and Output Monitoring cards fitted in the Sirius 600 router range.

If you have any questions regarding the installation and setup of your product, please refer to the Customer Service contact details (see section 1.1).

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Customers with a support contract should call their personalized number, which can be found in their contract, and be ready to provide their contract number and details.

1.2 Copyright and Disclaimer

2. Introduction

2.1 2436/2426 Input and Output Monitoring Cards

This manual describes the 2436 and 2426 Input and Output Monitoring cards. The 2426 card was supplied with earlier Sirius 600 router systems and is shown in this manual for users that already have them fitted.

The 2436 Input and Output Monitoring card is fitted to newer Sirius 600 systems instead of the 2426. The 2436 and 2426 cards cannot be mixed in Sirius 600 frames that are equipped with more than one input and output monitoring card. In earlier routers fitted with multiple 2426 cards the 2426 card can be supplied for replacement purposes if required.

Video output performance of the 2436 & 2426 cards differs slightly, see below for details:

- **2436** - Monitor outputs up to HD (1.5 Gb/s) in all Sirius 600 frames
- **2426** - Monitor outputs up to HD (1.5 Gb/s) when fitted in the Sirius 610 and Sirius 620 frames (up to SD only when fitted in the Sirius 630 frame)

2.2 Input and Output Monitoring

One of the most useful features of a crosspoint router in a broadcast environment is the ability to monitor any outgoing signal on an independent destination. Not only does this offer an automatic 'listening' facility, but it also provides a powerful diagnostic tool used by engineers to pinpoint a signal path failure. With Sirius, Snell have enhanced this feature further by including the ability to monitor any input signal, as well as any output.

Input and output monitoring is present for both video and audio, either digital or analogue for audio signals, in the same Sirius frame; meaning that the monitoring will not just function for a video or audio router, but also for both video and audio routing levels simultaneously in the same frame. If every Sirius frame in a routing system had this facility, the user would be able to monitor any input or output on all levels, singly or simultaneously, on up to eight levels of routing.

All Sirius router components have input and output monitoring built-in, and it only requires the addition of the Sirius input and output monitoring card to fully enable the feature. The different Sirius 600 frames require different numbers of monitoring cards, as follows:

- 4U frame requires 1 x Input and Output Monitoring card
- 7U frame requires 2 x Input and Output Monitoring cards*
- 16U frame requires 4 x Input and Output Monitoring cards*

Important: * When fitting multiple input and output monitoring cards in a Sirius 600 router frame do not mix the 2436 and 2426 card types.

The monitoring card uses specific slots in each frame, and provides the user with digital video and both analogue and digital audio outputs. The AES audio output is available on both balanced and unbalanced connectors. The digital video output will also monitor and pass High Definition video.

To use the monitoring, a monitoring control panel must be configured in the controlling system database, which may be Nebula, the system included with Sirius, or Aurora. The user must refer to the appropriate system handbooks for details on configuring these panel types.

If the Sirius frame is fitted with video DAC converter cards, the monitoring card provides another important function since it supplies the digital and analogue reference signals used by these cards. Video Digital to Analogue converter cards use the references supplied by the monitoring card to conform their outputs to a PAL eight frame sequence, or an NTSC four frame sequence.

Since each monitoring card can only supply one reference signal it follows that a Sirius 4U frame can only support one video standard, but the 7U and 16U frames allow their host frames to function in a dual standard environment. Another consequence of this is that in a 16U frame, if input and output monitoring is not required, only two monitoring cards are required to support a dual standard hybrid analogue video router.

2.3 Schematic Diagrams

2.3.1 7U Sirius 600 Frame Schematic Diagram

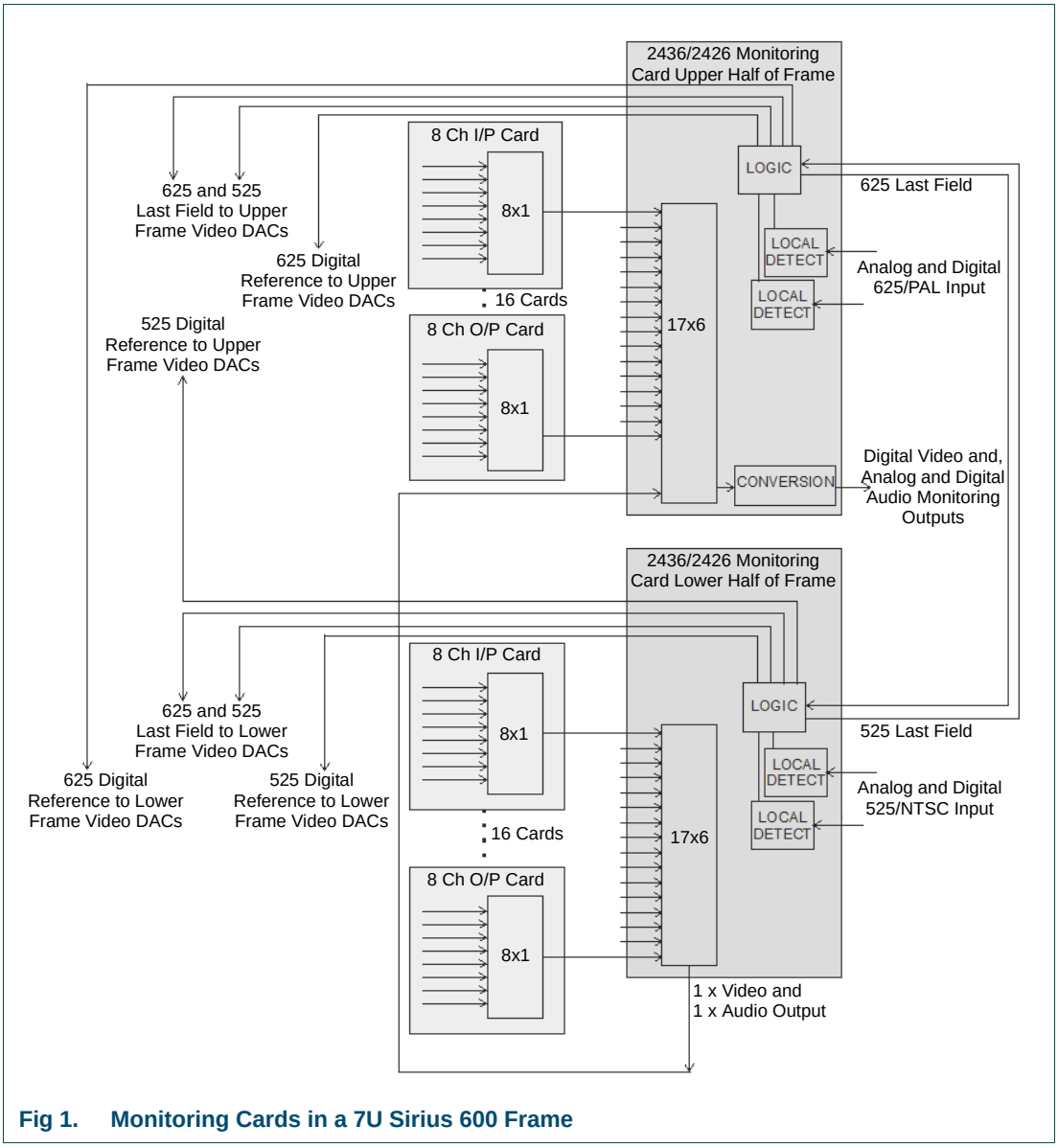

Fig 1. Monitoring Cards in a 7U Sirius 600 Frame

The above diagram represents a 7U frame with two monitoring cards, allowing both 525 and 625 references to be used. In a 4U frame only one monitoring card can be fitted, represented by the upper card in the diagram, and only one reference, of either 625 or 525 may be connected which will be auto-detected.

2.3.2 16U Sirius 600 Frame Schematic Diagram

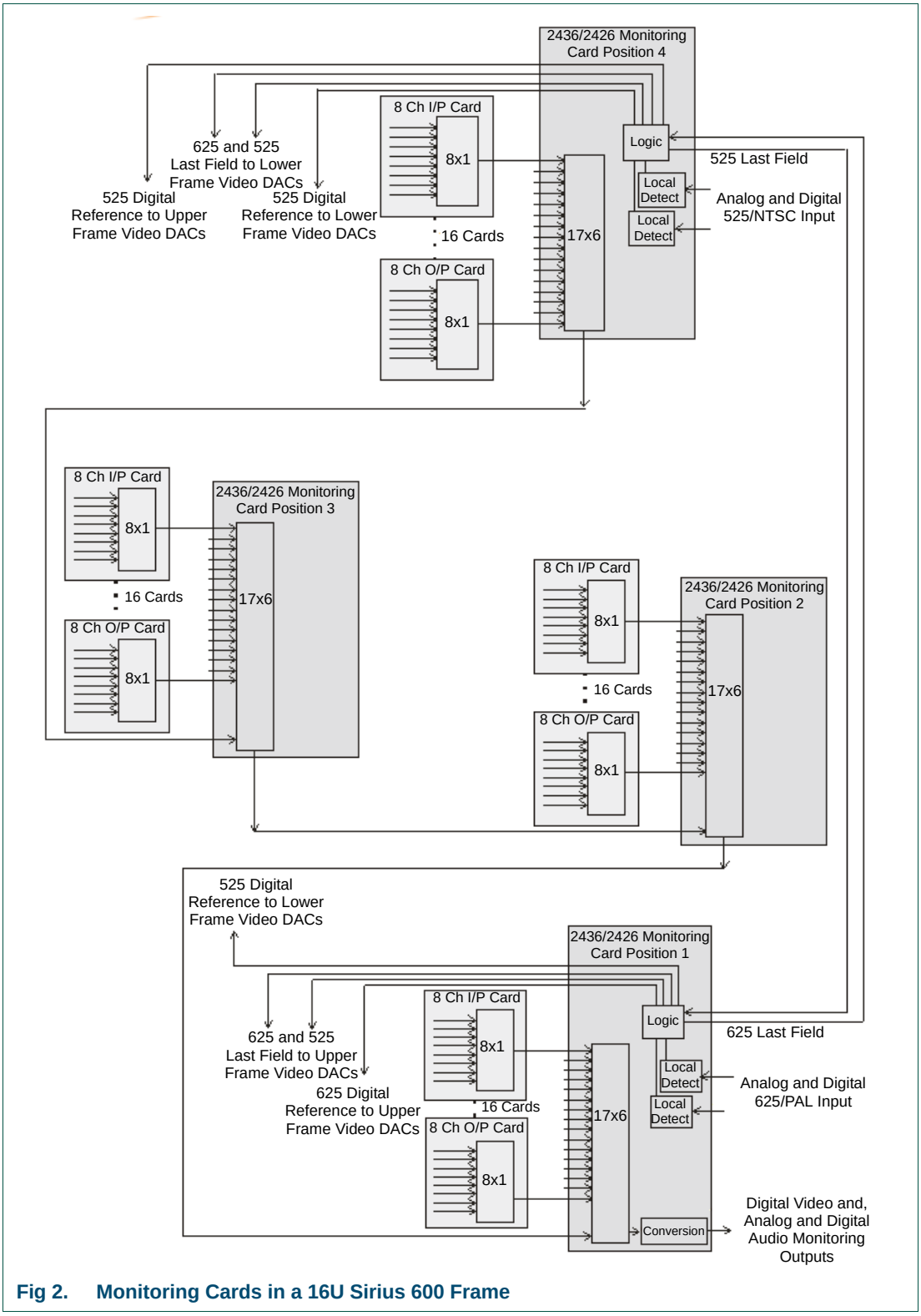

Fig 2. Monitoring Cards in a 16U Sirius 600 Frame

The above diagram represents a 16U frame with four monitoring cards fitted, allowing both 525 and 625 references to be used.

3. Card and Connector Details

3.1 Input and Output Monitoring Cards

The input and output monitoring cards have no user adjustments or settings available. Two green LEDs on the front edge indicate that 5 and 3.3 Volts are present on the card, both having been locally converted from the Sirius 48 Volt supply. It must be noted that the photos shown in Fig 3. may not represent the latest version of this module.

2436 Input and Output Monitoring Card

2426 Input and Output Monitoring Card (No longer supplied)

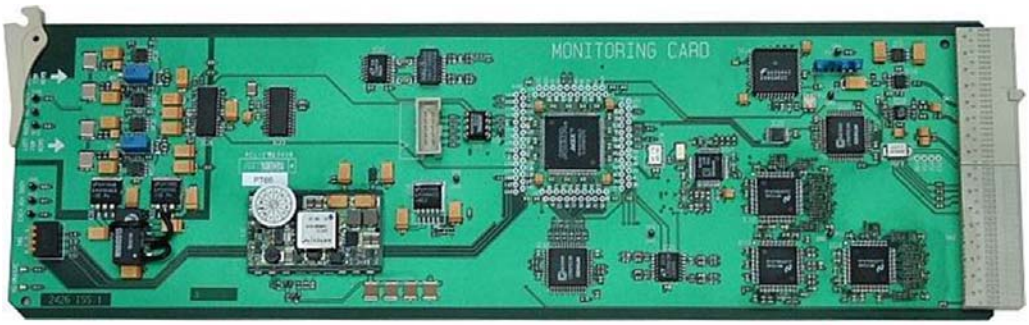

Fig 3. Input and Output Monitoring Cards

Two connector assemblies, or 'spine' cards, are available for use with the monitoring card:

- 1765 for use in all frames, with all outputs and one reference input
- 1772 for use in 7U and 16U frames, with one reference input

3.2 1765 Rear Panel Connectors

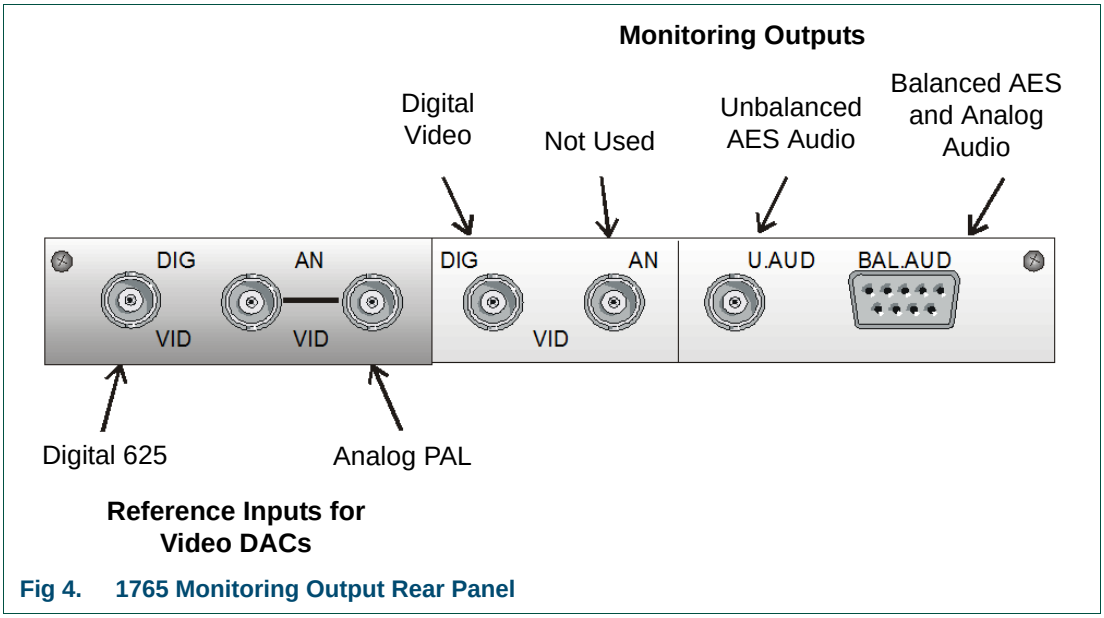

Fig 4. 1765 Monitoring Output Rear Panel

Note: When the 1765 panel is fitted in a 4U frame, the reference input is auto-detecting, and this is the only situation in which a 525 reference may be connected to a 1765 rear panel.

3.2.1 Audio Connector Pin Out

The 9 pin D Type socket on the 1765 rear panel has the following pin allocations:

Pin Number	Function	
1	0 Volts	
5		
6		
2	Left +	Analog Audio Output
7	Left -	
4	Right +	
9	Right -	
3	AES +	Digital Audio Output
8	AES -	

Table 1. 1765 9 Way D-Type Connector Pin Out

3.3 1772 Rear Panel Connectors

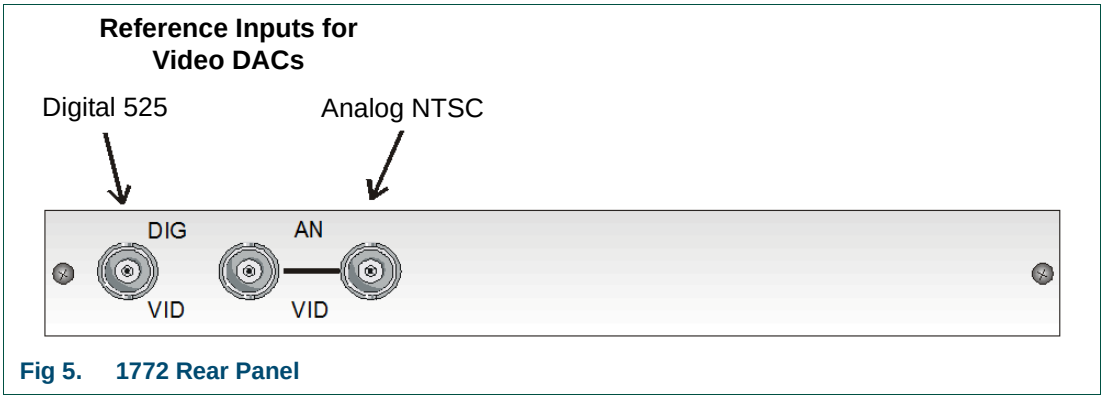

Fig 5. 1772 Rear Panel

3.4 4U Frame Monitoring Configuration

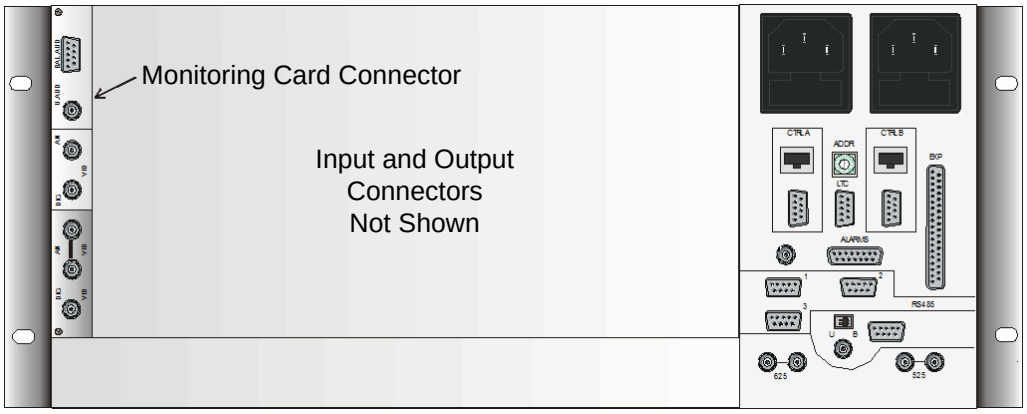

Fig 6. 4U Frame Monitoring Configuration

3.5 7U Frame Monitoring Configuration

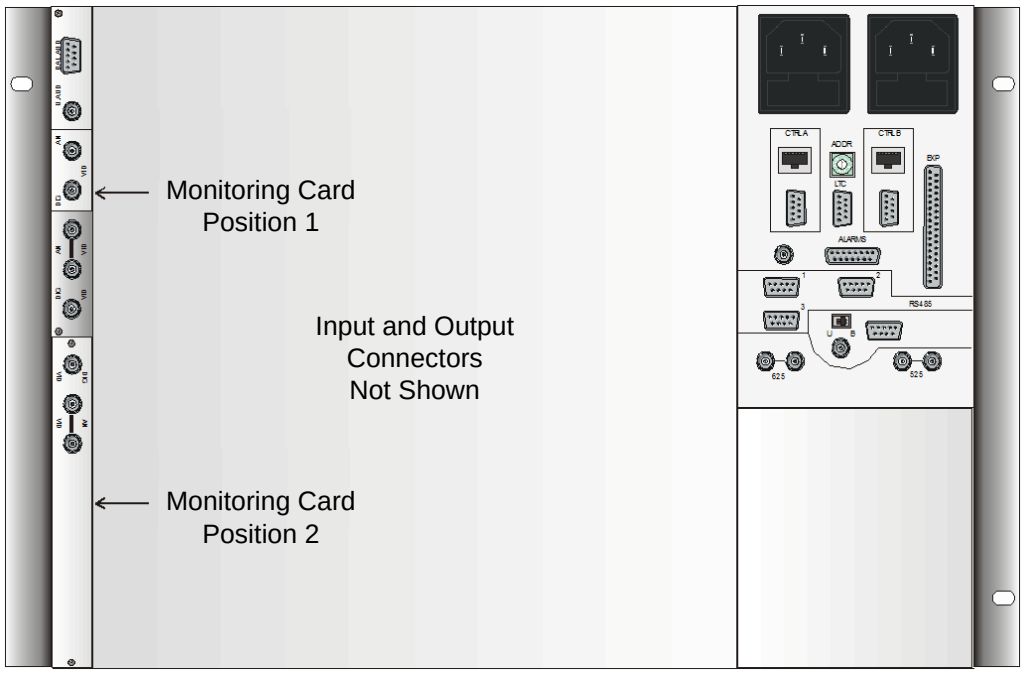

Fig 7. 7U Frame Monitoring Configuration

3.6 16U Frame Monitoring Configuration

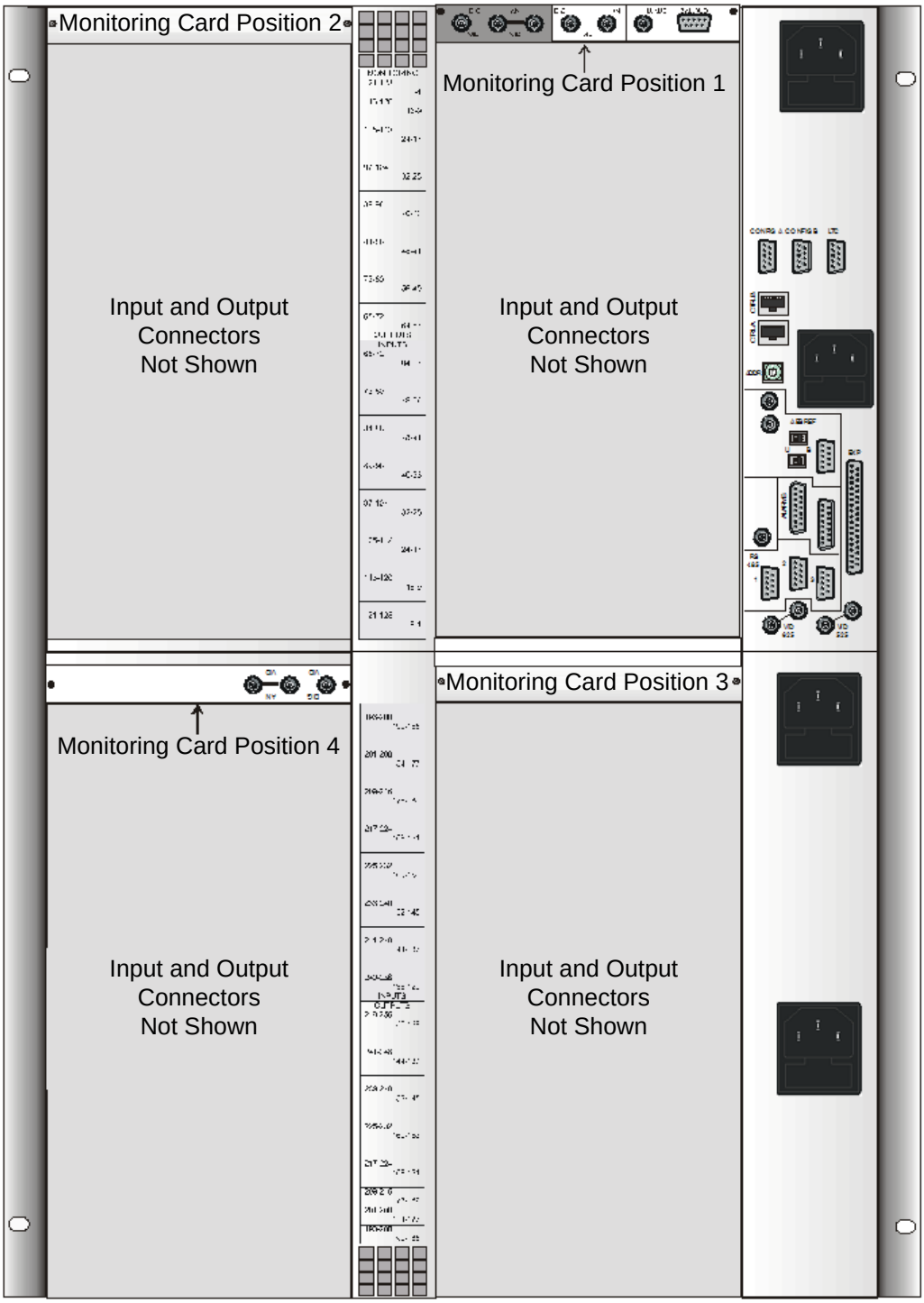

Fig 8. 16U Frame Monitoring Configuration

4. Specifications

4.1 Inputs

Analog Video Reference:	
Level	1V p-p nominal (typically 'black and burst')
Impedance	75 Ω
Return Loss	>46dB to 4.43MHz
Superimposed DC	±2V maximum
Sc-H Phase	0 (+/-20)
Digital Video Reference:	
Number and Type	To EBU Tech 3276E, SMPTE 259M
Data Rate	270Mbit/s
Impedance	75 Ω
Return Loss	>15dB 10MHz to 300MHz
Equalization	>70 metres low loss video cable (Belden 8281 or PSF 1 / 2). Typically 90m

Table 2. Input Specifications

4.2 Outputs

Digital Video:	
Number and Type	One to SMPTE 292M* serial digital interface for high definition television systems, also compliant with SMPTE 344M* and 259M ***2426** - SMPTE 292M & SMPTE 344M not supported when fitted in a Sirius 630 frame
Data Rate	270Mb/s, 1.485Gb/s* ***2426** - 1.485Gb/s not supported when fitted in a Sirius 630 frame
Impedance	75 Ω
Return Loss	>15dB 10MHz to 1.485GHz
Rise Time	<270ps at 1.485Gb/s, <800ps at 270Mb/s
Jitter	<0.2 UI
Overshoot/Undershoot	<10%
Digital Audio:	
Number and Type	One reclocking serial to AES 3 - 1992
Impedance	110 Ω - balanced or 75 Ω - unbalanced
Analog Audio:	
Number and Type	One, electronically balanced
Impedance	>10k Ω balanced, 20Hz to 20kHz
Maximum Level	+24dBu

Table 3. Output Specifications

