



**VISTEK V1663
PAL/NTSC TO SDV
ADAPTIVE DECODER
USER GUIDE**

www.pro-bel.com



VISTEK V1663 pal/ntsc to sdv adaptive decoder

Contents

1.	GENERAL DESCRIPTION	3
2.	REAR PANEL LAYOUT AND SIGNAL CONNECTIONS	4
3.	FRONT PANEL LAYOUT	5
4.	FRONT PANEL DESCRIPTION (NORMAL OPERATION)	6
4.1	+V Indicator	6
4.2	REM Indicator.....	6
4.3	Video Standard Indicators / Selection of Video Standard.....	6
4.4	Parameter Indicators and Adjustment	6
4.5	Remote / Local Switch	7
5.	SECONDARY PANEL MODE (ENGINEERING SETUP)	8
5.1	Engineering Mode Entry.....	8
5.2	Engineering Parameter Selection	8
5.3	Engineering Mode Exit	8
6.	TECHNICAL SPECIFICATION	9
6.1	Analogue Input (Looping)	9
6.2	Serial (SDV) Outputs (2).....	9
6.3	Video Performance	9
6.4	Miscellaneous	9
7.	APPENDIX.....	10

VISTEK V1663 pal/ntsc to sdv adaptive decoder



1. GENERAL DESCRIPTION

The V1663 is a broadcast quality multi-standard adaptive decoder, and forms part of the Vistek V1600 modular range of interface products. The 3U x 250mm card may be fitted into either the V1601 (1U) or V1603 (3U) 19" rack mountable enclosures, from which it derives its power. All signal inputs and outputs are made via a passive rear module.

The V1663 has a high impedance looping input, into which an analogue colour encoded input is presented. The card will detect, and consequently automatically decode any of the standards listed below:-

PAL B, G, I, M, N
NTSC M or NTSC JAPAN (See note 1, below)
NTSC 443

The decoder may also be forced into any one of the specified standards, although it is generally recommended that the user leave it in automatic (**AUTO**) mode.

The V1663 has two 270Mbit component Serial Digital Video (SDV) outputs.

Front panel controls enable the user to set the working standard, and to make certain signal parameter adjustments. Namely:-

Video Standard
Video Gain
Chrominance Gain
Demodulation Phase
Setup (or Black) level

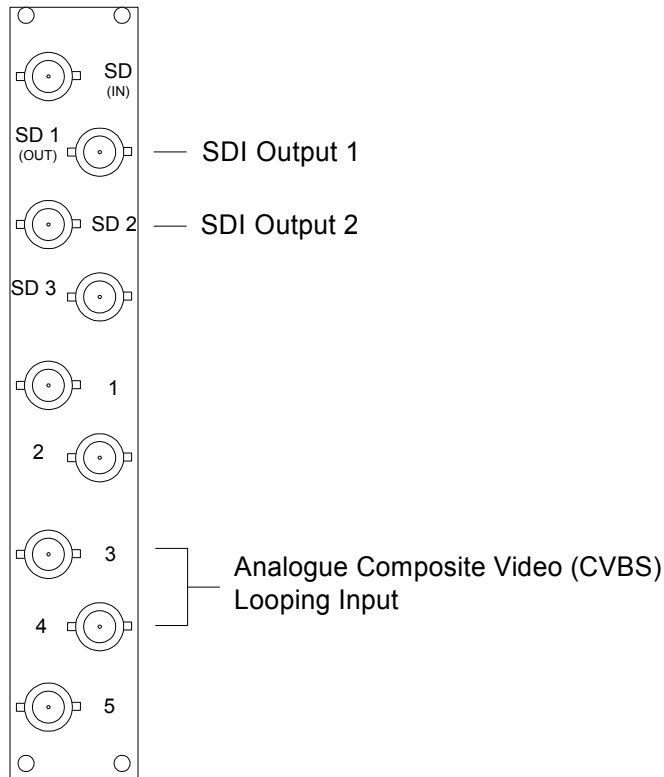
All parameter settings, for each standard, are stored in non-volatile memory. Thus a unit may be powered down without the settings being lost.

There is also a secondary (**Engineering**) panel mode, within which it is possible for the the user to switch on (or off) various processing modes offered by the decoder. These include:-

Pass / blank vertical interval data (VITS, teletext, etc.)
Adaptive delay line PAL / simple PAL selection
NTSC / NTSC JAPAN selection

*Note 1 The V1663 decoder will operate with either NTSC or NTSC JAPAN. Selection is made via the secondary (**Engineering**) panel mode.*

2. REAR PANEL LAYOUT AND SIGNAL CONNECTIONS

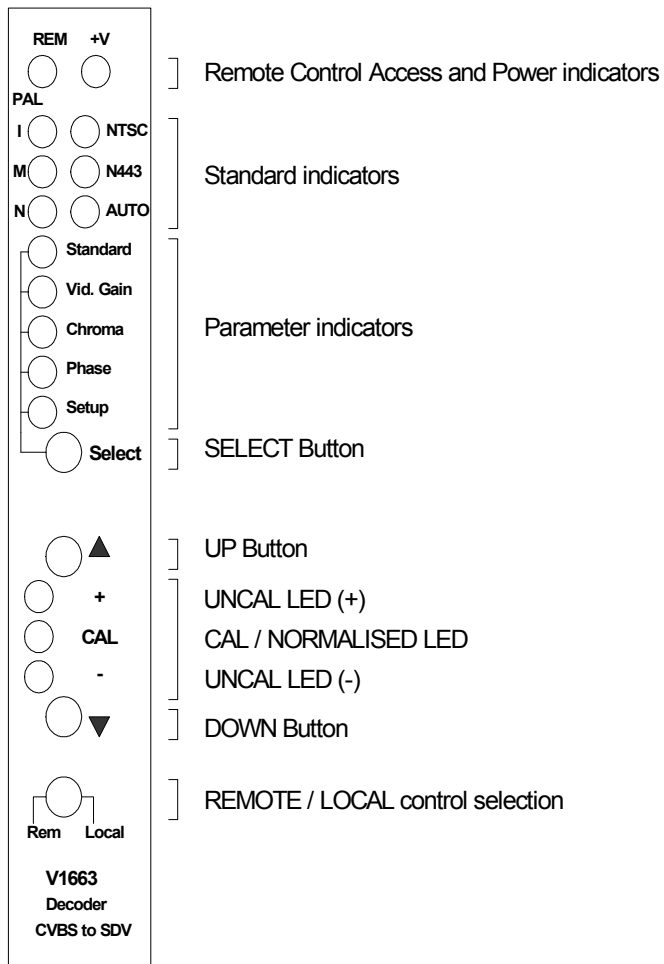


BNC Connector	Input / Output Description	Comments
SD (IN)		Not used.
SD 1 (OUT)	SDV Output 1	Cable drive length:- up to 200 metres.
SD 2	SDV Output 2	Cable drive length:- up to 200 metres.
SD 3		Not used.
BNC 1		Not used.
BNC 2		Not used.
BNC 3	CVBS Looping Input	High impedance looping input.
BNC 4		
BNC 5		Not used.

VISTEK V1663 pal/ntsc to sdv adaptive decoder



3. FRONT PANEL LAYOUT





VISTEK V1663 pal/ntsc to sdv adaptive decoder

4. FRONT PANEL DESCRIPTION (NORMAL OPERATION):-

4.1 +V Indicator

This is a green LED that is illuminated when the module is powered.

4.2 REM Indicator

This yellow LED is illuminated when remote operation has been selected and the module is accessed by the DART remote control system.

4.3 Video Standard Indicators / Selection of Video Standard

This is a bank of six yellow LEDs which indicate the operating standard and the status of the input signal. Please note that selection of the video standard via the front panel may only be achieved if the Local / Remote switch is set to **Loc**. When this switch is set to **Rem** there is a front panel lockout condition. Selection of the operating standard is made by first pressing the Select button until the green Standard parameter LED is illuminated, then secondly by pressing the Up or Down buttons (▲ or ▼ respectively) to select the desired standard of operation.

The software allows the user to force any one standard, depicted by the relevant LED being illuminated, or to enter an automatic detect and decode mode, whereby the AUTO LED will be illuminated together with the relevant detected standard LED.

If there is no input signal present, or if the input signal is of poor quality, then the decoder will indicate this by flashing the selected standard LED when in force mode. When in automatic mode the AUTO LED will flash and none of the standard LEDs will be illuminated.

4.4 Parameter Indicators and Adjustment

There are five parameters that may be adjusted by the decoder. These are the video standard, video gain, chrominance gain, demodulation phase and setup/black level. The row of five green parameter LEDs indicate which parameter has been selected, and the status of the non-selected parameters. Please note that selection and adjustment of any video parameter via the front panel may only be achieved if the Local / Remote switch is set to **Loc**. When this switch is set to **Rem** there is a front panel lockout condition.

Selection of the parameter to be adjusted is made by repeatedly pressing the **Select** button until the relevant green parameter LED is illuminated. The software cycles through each parameter in turn plus a sixth 'dummy' position, within which no parameter is selected (no LED illuminated). This helps to prevent accidental mis-alignment of a parameter.

After selecting the desired parameter, adjustment is made by using the Up and Down buttons (▲ or ▼ respectively). If the selected parameter is adjusted away from the calibrated position the green Cal LED will be extinguished, and one of the red LEDs (+ or -) will be illuminated, dependent on whether the chosen parameter has increased or decreased. The chosen parameter green LED will also flash. Any non-selected parameter that has been adjusted away from the calibrated position will also flash at the same frequency, but with a lower duty cycle. To reset the selected parameter to its calibration position depress the Up and Down buttons (▲ and ▼) simultaneously.

Adjustment of the video standard (**Standard**) is described in the section **4.3 Video Standard Indicators / Selection of Video Standard**.

VISTEK V1663 pal/ntsc to sdv adaptive decoder



Video gain (**Vid. Gain**) may be increased by pressing the Up button (**▲**) or reduced by pressing the Down button (**▼**). Video gain amplifies or attenuates all three of the component signals (Y, Cb, Cr) after the demodulation process and each by the same ratio.

Video gain	Max	200%	Resolution	0.25% steps
	Cal.	100%		
	Min	0%		

Chrominance gain (**Chroma**) may be increased by pressing the Up button (**▲**) or reduced by pressing the Down button (**▼**). Chroma gain amplifies or attenuates both of the colour difference signals (Cb, Cr) after the demodulation process and by the same ratio.

Chroma gain	Max	200%	Resolution	0.5% steps
	Cal.	100%		
	Min	0%		

Demodulation phase (**Phase**) may be adjusted either side of the calibration position by using the Up and Down buttons (**▲** and **▼**).

Phase adj.	Max	+180°	Resolution	0.3° steps (approx.)
	Cal.	0°		
	Min	-180°		

The luminance output black level (**Setup**) of the signal may be adjusted either side of the calibration position (0mV black level in all standards) by using the Up and Down buttons (**▲** and **▼**).

Setup	Max	+150mV	Resolution	0.75mV steps (approx.)
	Cal.	0mV		
	Min	-50mV		

Please note: this adjustment is made **after** a nominal 54mV pedestal has been removed from 525 line standard inputs (excluding NTSC Japan).

4.5 Remote / Local Switch

The V1663 may be controlled locally via the front panel, hence this switch will be set to **Local**. Alternatively, the card may be controlled via the DART remote control system, in which case the switch will be set to **Rem**. When in the **Rem** position the front panel is locked out ie. it is not possible to modify the video standard or to make signal parameter adjustments.



VISTEK V1663 pal/ntsc to sdv adaptive decoder

5. SECONDARY PANEL MODE (ENGINEERING SETUP):-

5.1 Engineering Mode Entry

Press the Select button and hold in, followed by the Down (▼) button.
Keep both buttons depressed for 5 seconds until all six yellow standard LEDs become illuminated simultaneously. This indicates that the decoder has entered the Engineering Mode.

5.2 Engineering Parameter Selection

Scroll around the five parameters using the Select button. The secondary panel functions may be switched ON and OFF by using the Up and Down (▲ and ▼) buttons respectively. Engineering parameters are defined as:-

Parameter (Panel Legend)	Cal. LED	Secondary Panel Function	Comments
Standard	ON OFF	NTSC NTSC Japan	Default (1)
Vid. Gain	ON OFF	Pass vertical interval data Blank vertical interval data	Default 625 Default 525
Chroma	ON OFF	Not used	
Phase	ON OFF	Adaptive delay line PAL Simple PAL	Default (2)
Setup	ON OFF	Not used	
All 5 LEDs	Depress the + and - buttons for 5 seconds for Factory Initialisation of all standards		

- (1) NTSC or NTSC Japan selection is only available when in the NTSC standard setting.
- (2) The adaptive delay line PAL processing is only available for PAL standards.
ie. PAL B,G,I , PAL M and PAL N.

5.3 Engineering Mode Exit

Press the Select button, followed by the Down (▼) button. The decoder will exit the Engineering Mode immediately, and resume normal front panel operation.

If the unit is left in engineering mode for more than five minutes, during which no button has been pressed, then the decoder will timeout from this mode and revert to normal front panel operation.

VISTEK V1663 pal/ntsc to sdv adaptive decoder



6. TECHNICAL SPECIFICATION

6.1 Analogue Input (Looping)

Format	PAL B, G, I, M, N, NTSC M, NTSC Japan, NTSC 443
Level	1V p-p composite (terminated)
Connector	BNC
Impedance	75 Ω (external)
Return loss	< - 35dB to 5.5MHz

6.2 Serial (SDV) Outputs (2)

Format	EBU Tech.3267 ANSI / SMPTE T14.22/082
Data rate	270 Mb/s
Connector	BNC
Impedance	75 Ω
Return loss	< - 15dB 5-270MHz
Amplitude	800mV p-p terminated
DC offset	0V +/- 0.5V
Rise and fall times	0.75-1.5 ns
Drive length	up to 200m (Belden 8281)

6.3 Video Performance

Y frequency response	< 0.2dB to 5.5MHz
Y non-linearity	< 1.5 %
Chrominance non-linearity	< 1.5 %
2T pulse	< 1 % K
2T pulse / bar	< 0.5 % K
Chroma/luma timing error	< 10 ns
Subcarrier rejection	> 40 dB
Signal to noise ratio	> 55 dB (unweighted)

6.4 Miscellaneous

Power consumption	11W (approx.)
Insertion delay	7us (approx.)



VISTEK V1663 pal/ntsc to sdv adaptive decoder

7. APPENDIX

On board adjustable components:-

Circuit Reference	Description
VR1	Syncs to picture timing alignment.
VR2	625/525 line standard discrimination.
VR3	Luminance gain alignment:- 625 input
VR4	Luminance gain alignment:- 525 input