



**VISTEK V1664 & V1664SY 12-BIT
SDI TO SECAM VIDEO ENCODER
WITH FRAME SYNCHRONISER
OPTION USER GUIDE**

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VISTEK V1664 & V1664SY 12 bit sdi to secam video encoder with frame synchroniser option

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1. DESCRIPTION

The V1664 is a 12 bit broadcast quality SECAM encoder, and forms part of the Vistek V1600 range of modular interface products. The 3U x 250mm card may be fitted into either the V1601 (1U) or V1606 (3U) rack mountable enclosures, from which it receives its power. A passive rear module is required for all input and output signal interconnections.

In its basic form, without the Frame Synchroniser option fitted (**V1664** product), the unit converts a 270Mbit component Serial Digital Interface (SDI) input to an analogue colour encoded composite SECAM video output. In this configuration the unit derives all its timing information from the D1 input signal.

An on-board Frame Synchroniser may be optionally fitted to the encoder (**V1664SY** product). This option permits the output of the unit to be timed up to an external reference, with a user programmable offset of up to +/-127 lines relative to the reference.

The unit is primarily intended to function with 625/50 format inputs, in which case the output will be a 625/50 SECAM signal. The unit will also accept, and function, with 525/60 format inputs. In this case the card will produce a 525/60 monochrome output.

An external reference input may be applied to the unit. In the case of the **V1664SY** product this input may be used as the synchroniser reference, for timing into a studio system.

The reference input may also be used for colour locking the Db/Dr switching sequence of the output SECAM signal to a known studio reference phase. The unit will lock to either a SECAM reference (by reading the incoming Db/Dr sequence) or to a PAL reference (by reading the incoming PAL V-axis switch sequence). This facility for colour locking the output Db/Dr coding sequence is available on both the **V1664** and **V1664SY** products.

There are two SDI active feed-through outputs. Both are fully re-clocked.

Four analogue outputs are provided. Three are permanently set to produce colour composite video (SECAM), whilst the fourth is selectable between another SECAM output and a reference loop-through output (via an on-board link).

Front panel controls allow the user to set up/adjust various operating parameters, and if a Frame Synchroniser option is fitted they may be used to time the unit into an installation. All local control parameter settings are stored in non-volatile memory, thus a unit may be powered down without settings being lost.

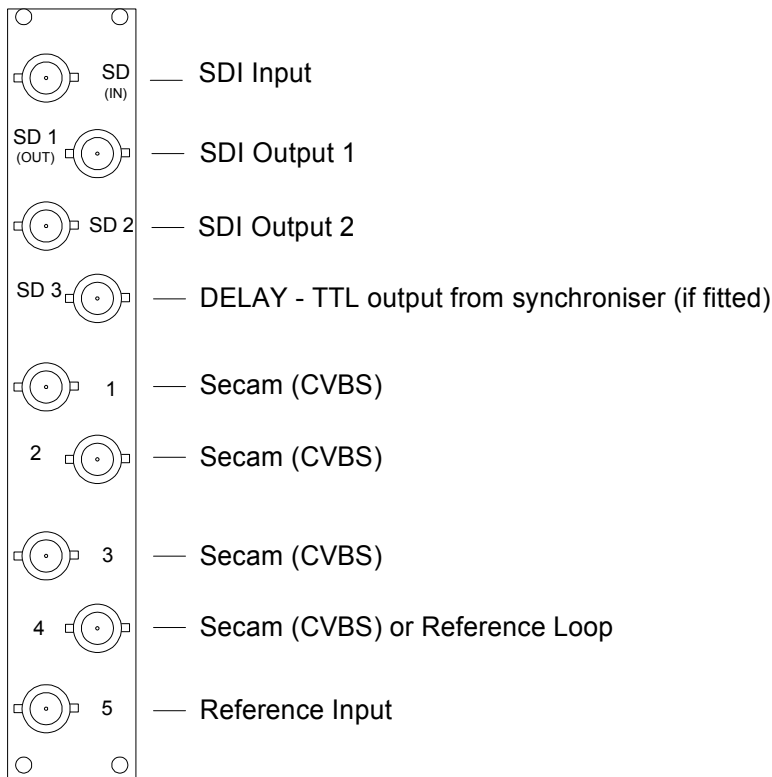
The unit is remote controllable via the Vistek **DARTnet** system using the Vistek V1602/V1605 Control Panels, PC based ViewFind/Viewnet software or a third party control system interfacing to DARTnet.



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2. INSTALLATION

2.1 Rear Panel Layout and Signal Connections



SIGNAL	SOURCE	COMMENTS
POWER	The Rack	12W
SDI I/P	SD (IN)	Equalisation up to 300m
SDI O/P 1	SD1 (OUT)	Cable drive up to 300m
SDI O/P 2	SD2 (OUT)	Cable drive up to 300m
Reference I/P (Black & Burst)	75Ω On board term.	LK2 jumper in position a-b
	High Impedance	LK2 jumper in position b-c
Analogue Outputs	CVBS on BNC 1-3	
	CVBS on BNC 4	LK1 jumper in position a-b
	Ref Loop on BNC 4	LK1 jumper in position b-c
DELAY	SD 3	TTL Delay from Frame Synchroniser

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2.2 Insertion Delay

The insertion delay of the V1664 depends on whether the synchroniser option is fitted. With no synchroniser it is deterministic and fixed.

Table 2.1 - Unit Delay

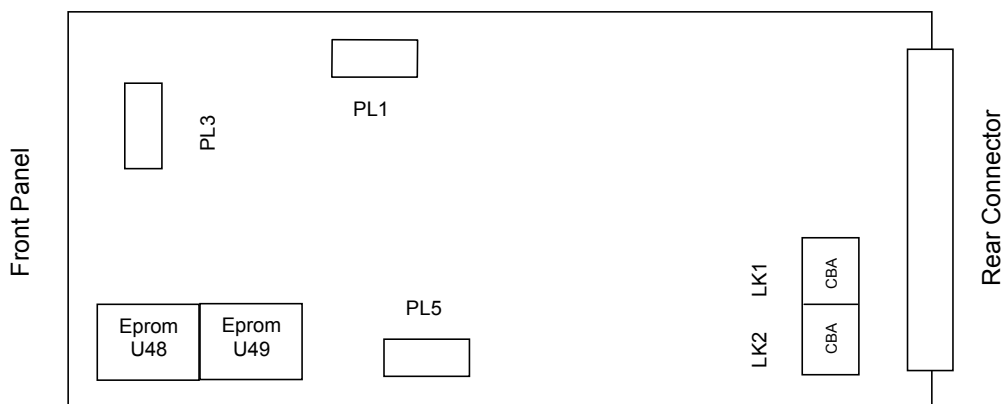
Condition	Delay
No Synchroniser	5.8µs
Frame Synchroniser, Minimum	8.5µs
Frame Synchroniser, Maximum	40.05ms

2.3 Hardware

The figure below shows diagrammatically the main board along with certain components of interest. In particular it shows the position and orientation of the links discussed above.

The EPROM locations are shown, as they are the components that would need to be changed as a result of any in-field software upgrade.

Figure 2.1 - Board Diagram



Ref. On-board termination jumper.	75Ω On board term.	LK2 jumper in position a-b
	High Impedance	LK2 jumper in position b-c
Ref. Loop / CVBS4 selection jumper.	CVBS on BNC 4	LK1 jumper in position a-b
	Ref Loop on BNC 4	LK1 jumper in position b-c



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2.4 Synchroniser Option

With the synchroniser fitted, adjustments can be made to the output timing relative to the reference using the front panel. This is described in Section 4.4.

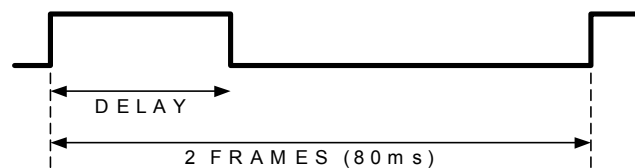
If a synchroniser module is fitted but no reference is supplied, then the output will be locked to the incoming SDI, with insertion delay as with no synchroniser option.

2.5 Frame Synchroniser Delay

When the Frame Synchroniser option is fitted there is a TTL output signal from the rear panel of the unit which indicates the amount of extra delay inserted above the minimum as specified for the unit. The signal has a constant period of two frames and a variable mark space ratio, which depends on the amount of delay inserted. The HIGH portion of the signal indicates the delay.

A typical waveform is as shown below:

Figure 2.2 - Delay Pulse

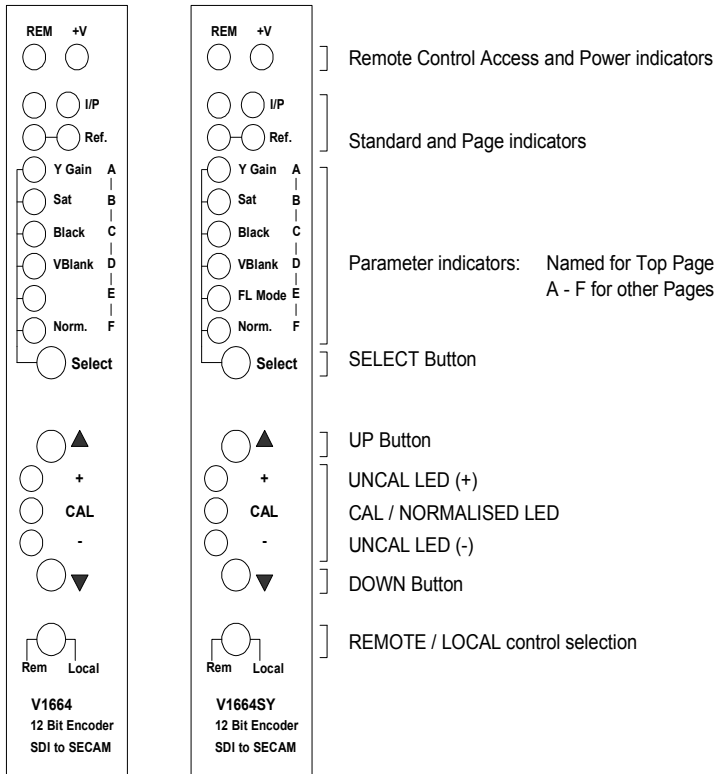


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3. OPERATION

3.1 Front Panel Principles



The V1664 has a versatile front panel, shown above. It uses the concept of Pages and Parameters. There are 5 user Pages and within each Page there are a maximum of 5 parameters, each of which is adjustable; and a normalise function to set the whole page to its default settings. Some have distinct settings, such as **Mono** or **Colour**, while others are true variables, such as **Luminance Gain**.

NOTE: If the REM/LOCAL switch is in the REM position then the control panel buttons will be disabled.

There are 5 user Pages in total, starting with the **Top Page**. This is the page that the unit starts within after first being powered up, and will always return to if no button is pressed for a few minutes.

To change pages, the **Select** button is used as a shift key along with the ▼ button; i.e. you should press and hold the **Select** button and press the ▼ button momentarily. As well as the top page there are four more user control pages. The current page is indicated on the input status LEDs as shown in the diagram overleaf. There is also a sixth page which contains factory calibration controls. This page may be accessed by holding **Select** and ▲ for ~6s, and is indicated by all four input status LEDs on. **The calibration page contains factory calibration settings only, and should not be accessed by the user; it is documented for completeness only.**



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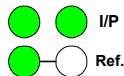
Page 1 -
Standard



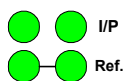
Page 2 -
Blanking



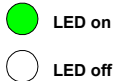
Page 3 -
Timing



Page 4 -
Modes



Cal Page



Within each page there can be up to five parameters. To select any parameter within a page use the **Select** button as many times as necessary until the required LED is ON. After a parameter has been selected it can be adjusted using the **▲** and **▼** buttons, and a measure of its setting can be made by reading the three CAL LEDs. With most parameters the LEDs give an indication of whether and in what direction a variable has been adjusted. Section 4 describes this in more detail.

In the **Top Page** these are labelled on the front panel from **Y Gain** to **FL Mode**. While in other pages the codes **A** to **E** are defined in Table 3.1, and in more detail in Sections 4 and 5. Parameter **F** is used for restoring the current page back to its defaults. To restore the current page to its default settings, select the **F** parameter, and hold down the **▲** and **▼** buttons for 5 seconds; all three CAL LEDs will briefly illuminate to indicate that the page has been reset. In the Top Page there is a seventh menu position for which none of the **A** to **F** LEDs is ON; this is a protected default condition where the **▲** and **▼** buttons have no effect.

In some configurations some parameters may have no effect. For example it is not possible to adjust the timing offsets if the synchroniser option is not fitted. In these cases it is not possible to select the relevant page or parameter (i.e. it will be skipped over, and the menu system will go to the next available control).

The **▲** and **▼** buttons have acceleration on some parameters which have a large range. This allows fine adjustments when required by using momentary button presses, while if the button is held down, large changes may be made rapidly.

The toggle switch at the bottom of the panel selects whether control of the unit is from the front panel, as described here, or through remote control. If REM is selected then all other buttons on the panel are disabled. The REM LED at the top of the panel will flash only if remote control has been selected AND the unit is being accessed by a remote control system.

NOTE: Having the REM/LOC switch in the REMOTE position is the most likely cause of a suspected control fault.

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3.2 Parameter Map

The table below shows all menu options in brief. It may be useful to keep a copy close to the equipment.

	Top Page	Page 1 (STANDARD)	Page 2 (BLANKING)	Page 3 (TIMING)	Page 4 (MODES)	CAL
A	Luminance Gain	Luminance Filter	H Blanking	V Timing	Colour/U/V / Mono	Video O/P Level
B	Saturation	Chrominance Filter	H Blanking (Vertical Int.)	H Timing	Freeze	Blanking Level
C	Black	Bottles	L23 Blanking	Fine H Timing	FS Min Del.	VCO cntr.
D	V blanking	Reference:- Colour Lock	Lim / Mult		Hyteresis Length	
E	Fail Mode	Db/Dr O/P phase				
F	Norm	Norm	Norm	Norm	Norm	

3.3 Restoring Defaults

Hold the ▲ and ▼ buttons to reset current parameter to default. Holding ▲ and ▼ buttons for approximately 5 seconds while parameter F is selected will restore the whole page to its defaults. The whole unit may be reset to its factory default settings by holding the ▲ and ▼ buttons for 10s.

3.4 LED Indications

The front panel LEDs convey a lot of information to the user that may not be obviously intuitive. An explanation of front panel indications may be found in table below.

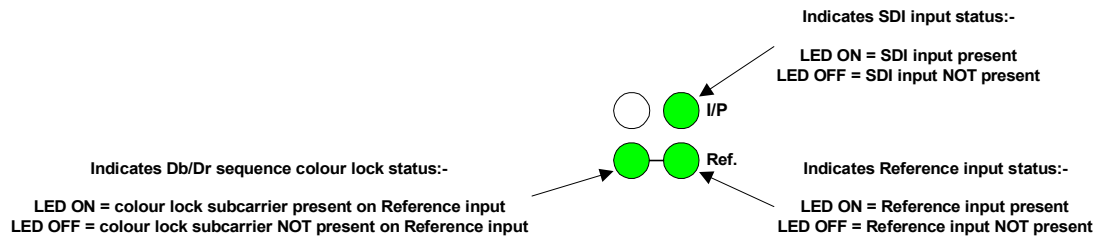
(A) INDICATION	EXPLANATION
I/P LED NOT ON (within Top Page).	SDI input signal not present.
Right hand Ref LED NOT ON (within Top Page).	Reference input signal not present.
Parameter LED blipping	Indicates that that parameter in the current page is off-cal. or not in its default position.
Both UNCAL red LEDs blipping	Some currently unselected parameter is OFF CAL
3 of 4 I/P / Ref LEDs on (within pages 1-4)	Extinguished LED indicates current page.
All 4 I/P / Ref LEDs on	CALIBRATION Page selected.
Green CAL LED on	Current parameter is in its default or calibrated position.
One or both red LEDs ON	Current parameter is OFF CAL, or not in its default state. If the control is continuous (eg Video Gain) the red LEDs indicate the direction in which the control of off-cal, otherwise the cal LEDs indicate the option selected (detailed in Section 4)

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4. PARAMETER DESCRIPTIONS

4.1 Top Page

Figure 4.1 - Top Page SDI Input and Reference Input LED Indications



(A) LUMINANCE GAIN

This provides an adjustment of the luminance signal level, and is applied to the active video only. The adjustment range is subject to the limited headroom of digital systems.

Depressing the ▲ and ▼ buttons for 1 second will reset luminance gain to the normalised value.

(B) SATURATION

This provides an adjustment of the chrominance signal levels (prior to fm modulation), and is applied to the active video only. The adjustment range is subject to the limited headroom of digital systems, at higher gain settings the Db and Dr chrominance gains may limit independently, causing hue changes.

Depressing the ▲ and ▼ buttons for 1 second will reset saturation to the normalised value.

(C) BLACK LEVEL

This provides an adjustment of the overall black level. The adjustment range is approximately $\pm 50\text{mV}$.

Depressing the ▲ and ▼ buttons for 1 second will reset the black level to the normalised value.

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(D) VERTICAL BLANKING

This varies the length of vertical blanking. The ▲ button narrows the blanking and ▼ button widens it (within the limits defined in the table below).

FORMAT	Field 1	Field 2
625/50	7 – 22	320 - 335
525/60	10 – 20	9 - 19

This control defaults to blanking the whole of the vertical interval, and is indicated by the green CAL LED.

Depressing the ▲ and ▼ buttons for 1 second will reset the vertical blanking control to blank the whole of the vertical interval.

(E) SYNCHRONISER FAIL MODE

This selects one of three possible actions in the event of loss of input signal when the frame synchroniser is fitted. The options are to FREEZE, FREEZE for 3 seconds and then cut to BLACK, or cut directly to BLACK.

This control is only available if the synchroniser option is fitted.

Fail Mode	LED status	Direction
Freeze	R-	▲
Freeze 3s, cut to black	R+	
Cut to black	G	▼ ← default

Depressing the ▲ and ▼ buttons for 1 second will reset the fail mode to default (cut directly to black).

(F) NORM

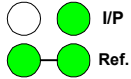
Depressing the ▲ and ▼ buttons for approximately 5 seconds will reset **ALL** parameters within the **Top Page** to the appropriate default values.



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4.2 Page 1 - Standard Selection

Front panel indication :



(A) LUMINANCE FILTER

This control determines the signal processing applied to the luminance channel data.

Luminance Filter Mode	LED Status	Direction
Flat response (No filtering)	R-	▲
Full depth notch	R+	
Adaptive notch	G	▼ ← default

(B) CHROMINANCE FILTER

This control allows selection of a Gaussian chrominance filter within the coder, which ensures the output signal will conform to the published specification. In some cases the signal may be known to already have band limited chrominance signals, in which case the Gaussian filter may be disabled. In the case of the Gaussian filter being turned off, a sharp cut off filter, with a flat pass band response is applied to the chrominance. This function does not cycle, so the ▲ button is for OFF and the ▼ button is for ON.

The green CAL LED indicates that the Gaussian filter is enabled, the R+ LED indicates that the filter is in sharp cut-off mode.

The default state for this control is for the Gaussian filter to be enabled (ON).

(C) BOTTLES

This control allows the user to insert SECAM colour sequence identification signals (otherwise known as Bottles) into the vertical blanking interval at the output of the coder.

The green CAL LED indicates that Bottles are **NOT** applied to the output signal. The R+ LED indicates that Bottles insertion is enabled.

The default state for this control is for BOTTLES insertion to be disabled.

(D) COLOUR LOCK TO REFERENCE INPUT

The reference input may be used for colour locking the Db/Dr switching sequence of the output SECAM signal to a known studio reference phase. The unit will lock to either a SECAM black and burst signal applied to the reference input (by reading the incoming Db/Dr sequence), a PAL black and burst signal applied to the reference input (by reading the incoming PAL V-axis switch sequence) or free run at an arbitrary phase. This control allows the user to set the desired mode of operation for colour lock:-

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Colour Lock Mode	LED Status	Direction
Free run (arbitrary phase)	R-	▲
Lock to PAL V-axis switch	R+	
Lock to SECAM Db/Dr switch	G	▼ ← default

This facility for colour locking the output Db/Dr coding sequence is available on both the **V1664** and **V1664SY** products.

(E) Db/Dr OUTPUT PHASE

This control works in conjunction with the **COLOUR LOCK TO REFERENCE INPUT** control (described above). It allows the user to set the Db/Dr switching phase at the output of the card to match the phase of the incoming reference signal, or to be in anti-phase.

The green CAL LED indicates that the Db/Dr switching phase at the output of the card is in phase with the reference input. The R+ LED indicates that the output is in anti-phase with the reference.

The default state for this control is for the Db/Dr switching phase at the output of the card to be in phase with the reference input.

(F) NORM

Holding down the ▲ and ▼ buttons for ~5 seconds will reset page 1 to its defaults.

4.3 Page 2 – Blanking

Front panel indication :



(A) HORIZONTAL BLANKING WIDTH

This selects either wide or narrow horizontal blanking. Wide blanking ensures that the output signal meets the published specifications, while narrow blanking allows the full CCIR Rec. 601 digital active line to pass. In the case of narrow blanking no shaping is applied to the edges of the video. When wide blanking is active, it may be applied in multiplicatively or by a limiting process, as described in the limit/multiplicative menu option (Section (D)). Note that there is a separate control for the blanking width during the vertical blanking interval (Section (B)).

This function does not cycle, so the ▲ button selects narrow blanking and the ▼ button selects wide blanking.

The green CAL LED indicates that WIDE blanking is applied. The R+ LED indicates that narrow H blanking is being applied.

The default for this control is wide horizontal blanking.



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(B) VBI HORIZONTAL BLANKING WIDTH

This control is similar to the horizontal blanking width control, but applies to any lines which are selected to be passed in the vertical blanking interval. Note that this control has the opposite default to the wide H blanking control – defaulting to narrow (to allow teletext etc. to be passed).

This function does not cycle, so the ▲ button selects narrow blanking and the ▼ button selects wide blanking.

The green CAL LED indicates that NARROW blanking is applied during the vertical blanking interval. The R-LED indicates that WIDE blanking is being applied during the VBI.

This default for this control is narrow blanking during VBI.

(C) L23 BLANK (625)

This enables and disables the blanking on the first half of line 23 in 625/50 format only. If operating in 525/60, then this parameter is bypassed, and therefore not available.

In Europe the first half of line 23 has been allocated for signalling information to wide-screen receivers.

The green CAL LED indicates that Line 23 blanking is applied. The R+ LED indicates that the entire of L23 is passed.

The default for this control is to blank the first half of line 23.

(D) LIMIT/MULT BLANKING

When wide horizontal blanking is applied, there are two methods by which it can be implemented. The first method is by a multiplicative process; in this case the active video is multiplied by a shaped waveform to bandwidth limit the video edges. In some cases where the video may have been pre-blanking, this method can have the effect of sharpening up the video edges, in this case it may be preferable to use limiting blanking.

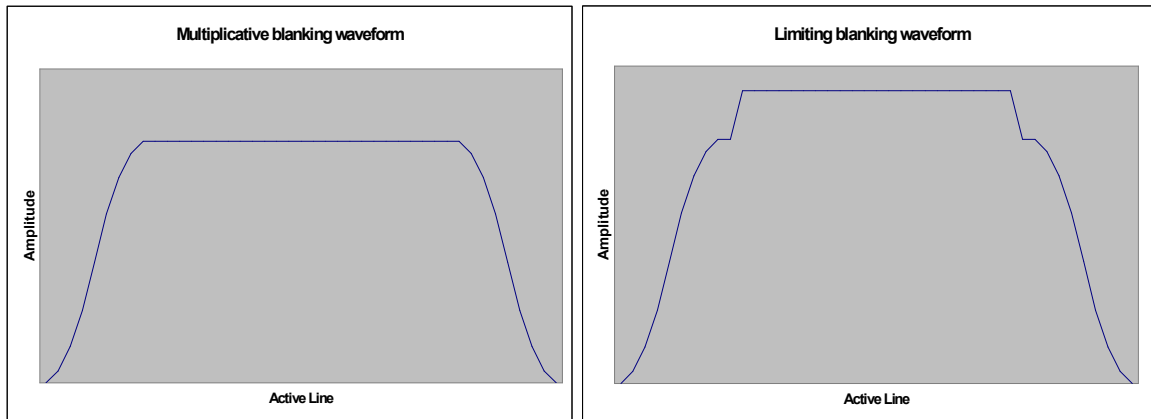
When limiting blanking is applied the video signal is limited to the shape of the waveform shown below, i.e. the shaping waveform limits the maximum excursion of the video signal.

The green CAL LED indicates multiplicative blanking, the R+ LED indicates limiting.

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Figure 4.2 - Blanking Waveforms



- (E) NOT USED
- (F) NORM

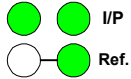
Holding down the ▲ and ▼ buttons for ~5 seconds will reset page 2 to its defaults.



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4.4 Page 3 – Timing

Front panel indication :



(A) V TIMING

This applies a vertical timing offset to the output signal (relative to the reference input) when the synchroniser option is fitted. The range is ± 127 lines. It is only available if the synchroniser option is fitted.

The ▲ button increases the delay with respect to the reference. The ▼ button decreases the delay with respect to the reference.

The green CAL LED indicates that the delay being inserted by the unit is less than 1 field. If both R+ and R- LEDs are illuminated, the unit is inserting more than a field of delay.

(B) H TIMING

This applies a horizontal timing offset to the output signal (relative to the reference input) when the synchroniser option is fitted. The range is continuous in steps of 37ns over the range ± 127 lines. This control is only available if the synchroniser option is fitted.

The ▲ button increases the delay with respect to the reference. The ▼ button decreases the delay with respect to the reference.

The green CAL LED indicates that the delay being inserted by the unit is less than 1 field. If both R+ and R- LEDs are illuminated, the unit is inserting more than a field of delay.

(C) FINE H TIMING

This applies the fine, sub-pixel, horizontal timing offset to the output signal (relative to the reference input) when the synchroniser option is fitted. The range is continuous in steps of ~ 1.2 ns over the range of ± 127 lines. This control is only available if a synchroniser option is fitted.

The ▲ button increases the delay with respect to the reference. The ▼ button decreases the delay with respect to the reference.

The green CAL LED indicates that the delay being inserted by the unit is less than 1 field. If both R+ and R- LEDs are illuminated, the unit is inserting more than a field of delay.

(D) NOT USED

(E) NOT USED

(F) NORM

Holding down the ▲ and ▼ buttons for ~ 5 seconds will reset page 3 to its defaults.

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4.5 Page 4 – Modes

Front panel indication :



(A) COLOUR/MONO

This selects which colour axes are passed: Full Colour, Db Only, Dr Only, and Monochrome (**NO** fm colour subcarrier).

Colour Option	LED Status	Direction
Mono (NO fm colour subcarrier)	R+ and R-	▲
Dr only	R-	
Db only	R+	
Full colour	G	▼ ← default

The green CAL LED indicates that full colour is enabled. The red LEDs indicate that one or both of the colour axes is turned OFF.

The default for this control is full colour.

(B) FREEZE

Forces the frame synchroniser into freeze mode. The freeze is activated at the top of a field (so both fields will be stored 'clean'). This control is only available is the synchroniser option is fitted.

Freeze Option	LED Status	Direction
Freeze both fields	R+ and R-	▲
Freeze field 2	R-	
Freeze field 1	R+	
Pass video	G	▼ ← default

The default for this control is Pass Video.

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(C) FS MIN. DELAY

This forces the synchroniser (if option fitted) into minimum delay mode. (This effectively disables the synchroniser).

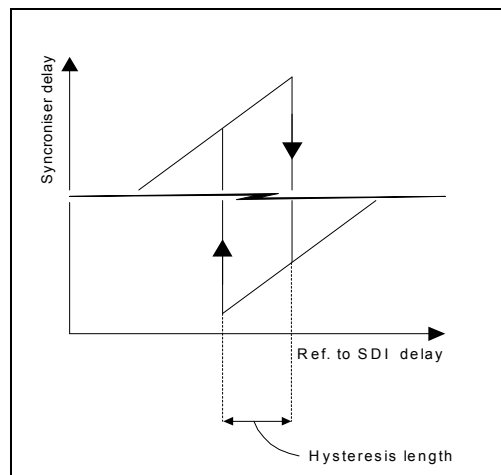
Min. Delay Option	LED status	Direction
Minimum delay.	R+	▲
Normal synchroniser operation.	G	▼ ← default

This control defaults to normal synchroniser operation.

(D) HYSTERESIS LENGTH

The frame synchroniser (if fitted) has some hysteresis around the point of frame drop/repeat so that small amounts of relative shift between source and reference do not produce repeated picture disturbances. In some applications where there is a large amount of low frequency drift on the source (esp. when the source has been passed over a compressed link), a long hysteresis mode has been provided. The default, **short** hysteresis has a length of 5.6µs, whereas the **long** hysteresis mode has a length of 53.3µs.

Figure 4.3 – Synchroniser hysteresis



Hysteresis Option	LED Status	Direction
Long (53.3µs) hysteresis	R+	▲
Short (5.6µs) hysteresis	G	▼ ← default

(E) NOT USED

This menu option is not used, and cannot be selected.

(F) NORM

Holding down the ▲ and ▼ for ~5s will reset Page 4 to its defaults.

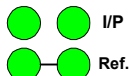
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4.6 Calibration Page Notes

This page allows adjustment of factory set calibrations, and should not be adjusted without the correct test equipment. These parameters should usually only be set up during factory testing, and should not be adjusted. To enter this page depress and hold down the **Select** and **Up** front panel buttons for approximately 5 seconds.

Front panel indication :



(A) VIDEO LEVEL - PAGE CAL A

This is a parameter used in initial production test and alignment, to calibrate the output video level. It should not be adjusted without reference to the Production Test Specification and access to suitable test equipment.

(B) BLANKING LEVEL - PAGE CAL B

This is a parameter used in initial production test and alignment, to calibrate the output blanking level. It should not be adjusted without reference to the Test Specification and access to suitable test equipment.

(C) VCO FREQUENCY - PAGE CAL C

This is a parameter used in initial production test and alignment, to centralise the VCO Frequency used when there is no signal or reference. It should not be adjusted without reference to the Test Specification and access to suitable test equipment.



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5. APPENDIX A – CONTROL QUICK REFERENCE

PAGE		Parameter		RANGE	Default	LEDs
TOP	A	Luminance Gain	▲ ▼	-6dB to +3.5dB	0dB	G – cal
	B	Saturation	▲ ▼	-2.5dB to +1.94dB	0dB	G – cal
	C	Black	▲ ▼	-50mV to +50mV	0mV	G – cal
	D	V Blanking	▲ ▼	Narrowing Widening	←	G – widest
	E	Synchroniser:- Input Fail Mode	▲ ▼	Freeze Freeze-3s-Black Black	←	R- R+ G
	F	Norm. Page		Hold ▲ & ▼ for 5s		
1 (STND)	A	Luminance Filter	▲ ▼	No Filtering (Flat response) Full depth notch Adaptive Notch	←	R- R+ G
	B	Chroma Filter	▲ ▼	Filter OFF Filter ON	←	R+ G
	C	Bottles Insertion	▲ ▼	Enabled Disabled	←	R+ G
	D	Reference:- Colour Lock	▲ ▼	OFF (free run) Lock to PAL V-axis switch Lock to SECAM Db/Dr switch	←	R- R+ G
	E	Db/Dr O/P phase	▲ ▼	Inverted (wrt reference input) In phase (wrt reference input)	←	R+ G
	F	Norm. Page		Hold ▲ & ▼ for 5s		
2 (BLNK)	A	Horizontal Blanking width	▲ ▼	Narrow Blanking Wide Blanking	←	R+ G
	B	VBI Horizontal Blanking width	▲ ▼	Narrow Blanking Wide Blanking	←	G R-
	C	L23 Blank (625)	▲ ▼	Line 23 Pass Line 23 half blanked	←	R+ G
	D	Blanking Type	▲ ▼	Limiting Multiplicative	←	R+ G
	E	Not used				
	F	Norm. Page		Hold ▲ & ▼ for 5s		
3 (TIM)	A	Vert. Timing	▲ ▼	Increase delay Decrease delay		G – delay < 1 field R+, R- together – delay > 1 field.
	B	Horiz. Timing	▲ ▼	Increase delay Decrease delay		
	C	Fine Horiz.	▲ ▼	Increase delay Decrease delay		
	D	Not used				
	E	Not used				
	F	Norm. Page		Hold ▲ & ▼ for 5s		

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4 (MDS)	A	Colour / Db / Dr / Mono	▲ ▼	Monochrome Dr only Db only Colour	←	R+, R- R- R+ G
	B	Force Freeze	▲ ▼	Freeze Both Freeze field 2 Freeze field 1 Pass Video	←	R+, R- R- R+ G
	C	FS Min. Del	▲ ▼	Minimum delay Normal FS operation	←	R+ G
	D	Hysteresis Length	▲ ▼	Long (53.3µs) Short (5.6µs)	←	R+ G
	E	Not used				
	F	Norm. Page		Hold ▲ & ▼ for 5s		
CAL	A	Video Gain	▲ ▼	Increase Video Gain Decrease Video Gain		
	B	Blank. Lev.	▲ ▼	Increase Blanking Lev Decrease Blanking Lev		
	C	VCO cntr.	▲ ▼	Increase VCO freq. Decrease VCO freq.		
	D-F	Not used				



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6. FAQ

Symptom	Possible problem
Teletext is not being passed correctly or at all.	Check vertical blanking control see Section 4.1 (D). Check horizontal blanking width during vertical interval see 4.3 (B).
Timing adjustment options appear in menu structure but do not adjust output timing.	Reference may not be present (check front panel LED) Unit may be in Minimum Delay mode see Section 4.5 (C).
Timing adjustment options do not appear in menu structure (skipped over).	Unit does not have frame synchroniser option fitted.
No output from CVBS 4	See link settings
No reference loop through	See link settings
Reference level low, when externally terminated.	Check on board termination link.
Output frozen	Check SDI source is present (SDI I/P front panel LED) Check unit is not forced into freeze mode See Section 4.5 (B).
Video edges excessively sharp when unit fed with pre-blanked input.	Set unit into either limit-blanking mode. See Section 4.3 (D). Set horizontal blanking to narrow. See Section 4.3 (A).
Wide screen signalling not passed.	Check line 23 blanking. See Section 4.3 (C).