

## Specifications

Analog Inputs:	NTSC, PAL or SECAM Analog
Differential Input	Composite, Y/C or Component YPbPr
Input Return Loss	Common Mode rejection >3.5V
Input A to D Quantization	> 35 dB at 5 MHz
A/D sampling rate	10-bit
Frequency Response	8:4:4 (2x)
K-Factor	Y 0-5.0 MHz +/- 0.25 dB
SCH Phase	< 1%
Differential Gain	< 1 degrees
Differential Phase	< 1.8%
S/N	< 0.8%
Chroma Luma Delay	> 50 dB
Y/C Separation	< 2 ns
Conversion Time	4-line adaptive, 4-line non-adaptive, 3-line adaptive and notch filter
Digital Outputs:	1.25H
Output Quantization	4 with EDH
Output Return loss	10-bit
Output Error Coding	>17 dB @ 270Mbit
Jitter Filter LBW	SMPTE EDH
Operating Temperature Range	2Hz
Humidity	40-100 degrees F.
Power Input	40-120F Optional Heat Sink
Size	(non-condensing)
	+5V @ 0.6 amps
	Optional 7-28 VDC 4 W
	BNC-BNC 6"x3"x1" (153x76x25mm)

This product is not authorized for use in life support systems. Product liability limited only to the replacement of this unit. Cobalt Digital Inc. does not assume any liability for loss of use due to failure of this component.

*Specifications subject to change without notice.*

**Cobalt Digital Inc.**  
[www.cobaltdigital.com](http://www.cobaltdigital.com)

2406 E. University Ave. Urbana, IL 61802 USA  
Office: 217-344-1243 Fax: 217-344-1245

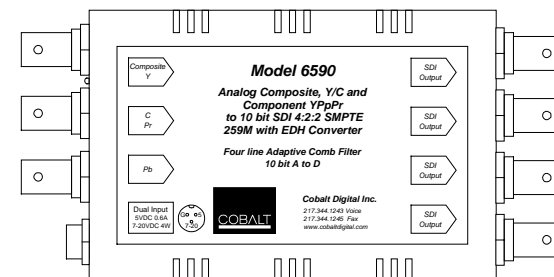
Rev. 2.2 tjh

Copyright 2005

Cobalt Digital Inc.



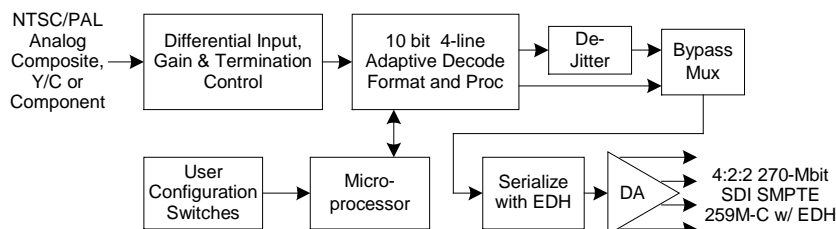
## Model 6590 Analog Composite with 4-line Adaptive Comb Filter, Y/C or Component YPbPr 10-bit A/D to 270Mb 4:2:2 SDI Decoder with EDH



## Owner's Manual

Cobalt Digital Inc. 2005







The COBALT 6590 is a high-quality 10-bit analog to digital decoder for converting 525 and 625 line, analog composite, Y/C and component signals (YPbPr) to 270 Mb 4:2:2 SDI (SMPTE 259M-C) output with SMPTE EDH. The user can select four different Y-C separation modes (4-line adaptive, 4-line non-adaptive, 3-line adaptive and notch filter) for composite input and three different YPbPr inputs (BetaCam™, MII™, or SMPTE/N10) for component inputs.





**6590 Block Diagram**

Features include auto-detection of input standard (NTSC/PAL/SECAM), differential inputs, user configurable 75-ohm input termination and user input and output Proc. gain controls. The user has a choice of direct clock output or de-jittered SDI output. Color Bar test pattern and Pedestal On/Off functions are under user control via setup switches accessible from the bottom of the 6590.

**Figure 2 - External configuration settings.**

6590 SWITCH SW1-X SETTINGS									
1	2	3	4	5	6	7	8	Function	
On	On	On	On					Composite 4 line Adaptive Comb	
On	On	On	Off					Composite 4 line Non-adaptive Comb	
On	On	Off	On					Composite 3 line Adaptive Comb	
On	On	Off	Off					Composite Notch Filter	
On	Off	xx	xx					Y/C	
Off	On	On	On					Component YPrPb BetaCam™	
Off	Off	On	On					Component Y Only BetaCam™	
Off	On	Off	Off					Component YPrPb MII™	
Off	Off	Off	Off					Component Y Only MII™	
Off	On	Off	On					Component YPrPb SMPTE/N10	
Off	Off	Off	On					Component Y Only SMPTE/N10	
SW1-5 Automatic Gain Control				On = Enabled Off = Manual Gain					
SW1-6 Test Bars				On = Bars output Off = Input video output					
SW1-7 Clock Filter				On = Filtered Off = No-Filter					
SW1-8 Pedestal				On = Remove Ped Off = Bypass				1 	
<b>Examples:</b>								2 	
1	2	3	4	5	6	7	8	Function	3 
On	On	On	On	On	Off	On	On	Composite 4L Ad-Comb AGC On	4 
Off	On	On	On	On	Off	On	On	Component BetaCam™ AGC On	5 
Off	Off	On	On	Off	Off	On	On	Component Y Only, AGC Off	6 
On	Off	xx	xx	Off	Off	On	On	Y/C (S-Video) AGC Off	
On	Off	xx	xx	Off	Off	On	On	Y/C (S-Video) AGC On	

 ◀ OFF ▶ 

## SWITCH SW1 SETTINGS

### SW1-1 thru SW1-4

#### VIDEO INPUT AND COLOR SEPARATION MODE

(See figure 2.)

### SW1-5 MANUAL GAIN CONTROL

OFF -Manual gain control enabled  
ON -Automatic gain control enabled

### SW1-6 COLOR BARS ON/OFF

OFF - Display Video  
ON - Display COLOR BARS

### SW1-7 JITTER FILTER (interior switch)

OFF - Jitter Filter Off  
ON - Jitter Filter On

### SW1-8 SETUP (interior switch)

OFF - Pedestal not removed (not recommended)  
ON - 7.5 IRE pedestal removed (recommended mode)

## TERMINATION CONFIGURATION

Remove top cover and locate the three termination switches located next to each BNC input. Moving the switch away from the BNC turns on 75 ohm termination. Moving the switch towards the BNC removes the termination.

## LED INDICATOR

The front panel LED indicates video lock when On and loss of video when blinking. A dark LED indicates loss of power.

## INPUT GAIN ADJUST

Set unit to Manual gain control (SW1-5). Apply 1V-video at all three inputs. Remove covers and adjust RP1, RP2 and RP3 and RP4 for 1V gain at TP7, TP8, RP9 & TP48. Under Proc Gain Adjustments, recall factory Proc. settings. Apply test bars and confirm output signal with digital waveform monitor. Replace covers.

## PROC. CONROL ADJUSTMENTS

Full control of Y-Gain, Y-Black level, Color Saturation and Hue can be User controlled via internal switches. YPbPr has no hue control.

To set Proc. values set SW8 & SW7 as shown below and press UP or DWN.

To save settings set SW8 & SW7 to 9-9 and press UP or DWN.

To restore factory defaults set SW8 & SW7 to 8-8 and press UP or DWN.

To restore last user saved settings set SW8 & SW7 to 0-0 and press UP or DWN.

### SW8-SW7 PROC. CONTROLS:

Output	Y-Gain	Y-Black	Saturation	Hue
Composite and Y/C	1-1	1-2	1-3	1-4
Component	1-1	1-2	1-3	N/A