

50 IV

DIGITAL / ANALOG TBC & FRAME SYNCHRONIZER

New for 2009



NTSC / PAL

Time Base Correction

Infinite Horizontal and Vertical Timing

Selectable Video Freeze

SDI Video Proc Amp Settings

Analog Video I/O Proc Amp Settings

Bi-Directional Digital Analog Decoder / Transcoder

Audio Embedding and De-embedding

Two AES Stereo Channels

AES Audio Delay

Color Bar and Black Generator

DAC and ADC 12 bit Processing

Bi-Directional Digital Analog Decoder

Embedded Audio Group Move

SDI, CV, CAV (YUV), Y/C and S-Video

50 IV SPECIFICATIONS



VIDEO SPECIFICATIONS

INPUTS: SDI, CV, YUV, Y/C and S-Video

Analog Inputs:

Composite and Y level

U/V level:

C level:

S-Video:

Serial Digital Interface (SDI):

Gen-Lock Reference:

7 (CV, Y/C, YUV and S-Video)

1Vpp, 75Ω BNC

0.525Vpp, 75Ω BNC

0.624Vpp, 75Ω BNC

4-Pin Mini-DIN

0.8Vpp ±10%, EQ -750°, 75Ω BNC

1Vpp, Looping BNCs

OUTPUTS: SDI, CV, YUV and Y/C

Analog Outputs:

Composite and Y level:

U/V level:

C level:

Serial Digital Interface (2 BNCs):

EAV-SAV:

3 (3CV, CV, Y/C or YUV)

1Vpp, 75Ω BNC

0.707Vpp Beta / 0.525Vpp SMPTE, 75Ω BNC

0.625Vpp, 75Ω BNC

0.8Vpp ±10%, 75Ω BNC

Meets SMPTE ITU-656

SIGNAL PROCESSING:

ADC/DAC Encoding/Decoding:

Component YUV Pipeline:

Video Range:

Chroma Range:

Set-Up Range:

Burst Amplitude:

Sync Tip Adjustment:

Horizontal Timing:

Vertical Timing:

Sub-carrier Timing:

Hue Phase:

12 bit

10 bit

50 to 150%, 100% @ unity

50 to 150%, 100% @ unity

-19.9 to +19.9 IRE/NTSC, -142 to +142 mV/PAL

20 to 50 IRE/NTSC, 143 to 357 mV/PAL

30 to 60 IRE/NTSC, 214 to 428 mV/PAL

0 to 1715 NTSC / 1727 PAL pixels (infinite)

0 to 524 NTSC / 624 PAL lines (infinite)

0° to 359° (∞)

0° to 359° (∞)

FREQUENCY RESPONSE and SIGNAL to NOISE:

Frequency Response:

Tilt:

Hum:

Overshoot and Ringing:

Signal to noise ratio:

Differential Gain:

Differential Phase:

± 2.5dB at 4.22MHz

<1% ref. 30Hz squarest of waves

>70dB, 1.0Vp-p

<1%

>65dB

<1%

<2°

The DIGITAL 50 IV is designed to boldly take you into the future with “state of the art” FPGA based processing. This product comprises a 4 field TBC / Frame Synchronizer, including analog input full transcoding and user selectable sets of triple analog outputs, along with SDI input / output. The DIGITAL 50 IV, as the name implies, is a all digital processor including a full processing amplifier with adjustable output levels and timing.

The DIGITAL 50 IV is a standalone gen-lock-able frame synchronizer with a variety of both analog and digital inputs / outputs.

The DIGITAL 50 IV provides dual standard composite and SDI timebase correction / synchronization to an external reference. It decodes multiple composite standards (NTSC, NTSC-J, PAL-B, G, H, I N). All analog inputs are sampled at 10 bit resolution and decoded using a 3 line digital comb filter.

The DIGITAL 50 IV has four video input / output (composite video, component analog video [YUV], Y/C [S-VHS] and SDI). Component output is YUV (SMPTE/Beta-cam) and analog output via 3 BNC connectors programmable from the front panel (component or composite [3CV, CV, Y/C, YUV SMPTE or YUV Beta]).

The DIGITAL 50 IV features dual standard composite and SDI connection with synchronization to an external analog reference. The synchronizer decodes multiple composite formats (NTSC, PAL). Analog inputs are sampled at 12-bit resolution and decoding using a 5 line adaptive comb filter. The DIGITAL 50 IV has built-in color bar or black burst generator and can synchronize non TBC signals from VHS.



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50 IV SPECIFICATIONS



Cont.:

Differential Phase:	< 2°
K-Factor:	< 0.5%, 2T Pulse
Line Rate Tilt:	< 0.5%, 2T Pulse
Field Rate Tilt:	< 0.1%

AUDIO:

AES / EBU INPUT:

Input:	2 AES/EBU Stereo Channels
Resolution:	20/24 bit, 48KHz
Input Type:	1Vpp ±10%, 75Ω BNC
Channel Status:	Professional S/PDIF

AES / EBU OUTPUT:

Output:	2 AES/EBU Stereo Channels
Resolution:	20/24 bit, 48KHz
Output Type:	2 75Ω BNCs

SDI EMBEDDED INPUT:

Input:	2 AES/EBU Stereo Channels
Resolution:	20/24 bit, 48KHz
Connection:	BNC (SDI Video Input)

SDI EMBEDDED OUTPUT:

Output:	2 AES/EBU Stereo Channels
Resolution:	24 bit
Sampling Rate:	48KHz
Connection:	BNC (SDI Video Output)
Delay Resolution:	640ms in steps of 80ms
THD:	0.0002%
THD +N:	0.0006%
Signal to noise ratio:	>100dB
Channel Separation:	134dB
Channel Crosstalk:	123dB

During video loss the DIGITL 50 IV synchronizer freezes the video or generates a test pattern. There are three selectable video freezes: freeze to last good frame, field 1 or frame 2. Test patterns generated are SMPTE, color bar for NTSC, 75% color bar for PAL, and black burst for both.

The DIGITAL 50 IV embeds and de-embeds 2 channels of stereo AES audio. De-embedded AES audio is output via 2 separate BNCs and AES input for embedded via 2 separate BNCs. Features include choice to embed the de-embedded audio / move to another group or channels with audio delay to match video delay.

This product includes an all-digital composite NTSC / PAL encoder which provides an image quality superior to other designs.

The DIGITAL 50 IV has 3 built-in processing amplifiers (one for analog allowing you to control Luma, Chrominance, Synchronizing, Burst, set-up levels, Black Clip and Phase adjustment; the second for SDI output for control of Luma, Chrominance, et-up level, and Black Clip; the third for analog input affecting both analog and SDI outputs providing control to Luma, Chrominance and Hue phase adjustments).

As an all new “state-of-the-art” product it continues the “Powered by Prime” tradition of setting the standard in reliability and quality while backed by an unequalled commitment to service.



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50 IV SPECIFICATIONS



PHYSICAL:

FRONT PANEL CONTROLS:

AC Power:	On/Off
By-Pass, Gen-Lock, Freeze:	Push/Push Maintained Selection
Input Select, Output Format, PROC ADJ.:	Selection
LEDs:	Output Format, Standard Detection

VFD DISPLAY:

Characters:	20X2
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ELECTRICAL:

Input Power:	Auto Detection 90 to 264 V-AC
Frequency:	47 to 63Hz
Power:	30 Watts

DIMENSIONS:

Height:	1.75"
Width:	19.0"
Depth:	11.0"
Weight:	4.75lbs

ENVIRONMENTAL:

Operating Temperature:	0° to 50° C (ambient)
Humidity:	10% to 90% Non-Condensing



REAR PANEL KEY:

1: YUV Input SMPTE levels only	8: AES inputs
2: N Composite input	9: AES outputs
3: Y input	10: Analog outputs
4: C input	11: Looping reference input
5: S-Video input	12: RS-232 connection (future use)
6: SDI input	13: Fuse holder
7: SDI output	14: Power receptacle, 85V-AC to 260V-AC

For more information, please visit us at
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