



Time Base Synchronizer

The module operate as transcoder between any of the available analog video (composite/component) and digital SDI inputs to outputs, time base corrector and frame synchronizer. The input signal correction features include luminance, and chrominance gain, black level, NTSC hue. The composite signal input, automatic gain & color controlled, detects 50/60 Hz mode, re-clocking with rugged P.L.L. operate with unstable and noisy inputs (VCR), noise reducing by powerful frame recursive to eliminates background noise, luminance/chrominance separation using 3D adaptive comb filter, shapes color components by transient improvement filter, and then converted the analog component signals to digital by using 11 bit A/D converter.

If digital SDI selected as input, then it equalized, re-clocked AND guided to frame storage buffer. The two digital video frames storage used to synchronize and delay the signal output with respect to the analog reference input. Regain the analog component YUV/RGB and analog Composite PAL/NTSC with 12 bit D/A converter simultaneously with digital SDI outputs. In case of no digital input a black /color bar may be generated in the outputs port.

Other features as inputs/outputs selection/parameter adjusting, noise reduction, outputs freeze/field/TPG/delay adjustment, and Vertical blank interval data processing are available via front panel.

Features

- Selectable Analog/Digital Video Inputs:
 - 2 × CVBS signals (PAL/SECAM/NTSC) with active loop-through Output
 - 3 × RGB/YUV Analog Video signals
 - 2 × Serial Digital Video signals (SDI-270Mb/s) with active loop-through Output
 - 2 × Reference Input signal (PAL/NTSC)
- Analog Inputs Correction Include:
 - Horizontal Line Time-Base
 - Temporal Noise Reduction
 - Rugged Clock Recovery Unstable Signal
- Outputs Frame Synchronizer Include:
 - Selectable External/Internal Reference
 - Freeze/Field Picture/ Test Pattern Generator
 - Horizontal/Vertical/ C-L and H-Phase Delays
- 11 bit A/D & 12 bit D/A Broadcast Converter
- Vertical Blank Interval Raw Sample
- Simultaneous Video Outputs:
 - 2 × CVBS signals (PAL/SECAM/NTSC)
 - 2 × RGB/YUV Analog Component signals
 - 2 × Serial Digital Video signals (SDI-270Mb/s)
- Modular TBS, Control Panel and Power supply in 1RU Frame
- User Friendly Function Keys via Front Panel





Time Base Synchronizer

Specifications**Analog video Inputs/Outputs****Composite In:** PAL/NTSC/SECAM**Composite Out:** PAL/NTSC

Input channel (2x2) with active loop-through

Output channel (2)

Standard BT470,

Connector BNC, 75 Ω,

Return Loss > 30db @ 5.5 MHz

Amplitude 1Vp-p with Automatic Gain, Burst and Black Control

Component: RGB/YUV

Input channel (3)

Output channel (3)

Connector BNC, 75 Ω,

Return Loss > 30db @ 5.5 MHz

Amplitude Y: 1Vp-p ± 6db Adjustable,
0.3V negative sync

U,V,R,G,B: 0.7Vp-p ± 6db Adjustable

Analog to Digital Performance

A/D Operation 11 bit resolution

Processing 4x F_s over sampling

AGC Black, Burst, Luma: ±6db

Sync Detection Robust Phase Lock Loop

Y/C Separation 3-D Adaptive Comb Filter

Luma Correction ITUR BT.601 Filter

Chroma Correction Color Transient Improvement

VBI Sampled Raw Processing

TBC H-phase: ±80 pixels offset

Noise Reduction 3-D Frame Recursive

SDI Inputs/Outputs

Input channel (2x2) with Active Loop-Through

Output channel (2), 800mV ±10%

Connector BNC, 75 Ω,

Format BT656-4, 4:2:2, 270Mbit/sec

Jitter BT1363

Equalization > 40 db @ 270MHz, Automatic

Return Loss > 18dB @ 270MHz

Reference Inputs

Input channel (2)

Standard PAL/NTSC

Connector BNC, 75Ω

Return Loss >30db

Amplitude 1~ 4Vp-p

Digital to Analog Performance

Operation 12 bit resolution

Processing 16x F_s Over-sample

VBI Sampled Raw Retrieve

Output Adjustment Luma: ±10%

Chroma: ±10%

Black level: ±7%

Hue: ±10%, NTSC

Frame synchronization

Storage memory Two Frames

Freeze Auto; no input signal

Manual; fields or frame

Delay V-delay: one line/step,

Up to one frame

H-delay: 0.5 pixel/step,

Up to one line

H-phase: ± 32 2 pixel/step

C/L delay: ± 7 4 pixel/step

Sync Internal; A/B Input

External; A/B Ref. Input

Pattern Generator Color-bar or Black-burst,

Power Supply Module

Input 110/220 VAC

Output ± 5 VDC

Consumption 10 Watt

Fuse Current 0.2 Amp

General

Operating temperature 0 to +40°C

Storage temperature -10 to +50°C

Operating humidity 10 to 85%

Storage humidity 0 to 90%

Mass 2.5 Kg

Dimensions (w/h/d) 1RU: 483×44×228 mm

FS/TBC: 336×41×218 mm

Power: 088×41×203 mm