

DLC170AD

Composite Video (NTSC/PAL) and Analog Audio to SDI Conversion with Optical Transmitter

DL4000 VIDEO TRANSPORT SYSTEM

Features

Single card Composite Video and Analog Audio to SDI conversion with optical transmitter (electrical to optical)

Convert composite (NTSC/PAL) to SDI (SMPTE 259M)

- Analog composite 75-ohm video input BNC
- Automatic NTSC-M / PAL-B/G format detection
- 12-bit video composite to 10-bit component digital processing
- Advanced, adaptive 3D comb filter
- Comprehensive VBI data handling
- SMPTE 259M SD-SDI 270Mb/s output
- Automatic and manual gain and equalization (150 meters)

Convert Analog Audio to AES and Embed into SDI

- Balanced 600ohm analog audio inputs (4)
- SMPTE 272M 24-bit, 48 kHz audio embedding

Use with DLC170DA for optical transport of Analog Video and Audio

- Exceeds TV-1 and ANSI T1.502 "short haul" specification

Externally Accessible SFP Transceiver Optics

- Optical budget to 34dB
- WDM (1310nm, 1550nm)
- CWDM ITU G.694.2 (Channels 27-61)
- DWDM ITU G.694.1 (Channels 21-60)

Interoperates with

- Other DL4000 video modules
- DigiLink 1220/2701 (SDI mode)
- Other non-scrambled or non-dithered SDI optical transmitters and receivers

Multiple Monitoring Options

- Front panel monitor (Mini 75ohm SMB) selectable between:
 - NTSC or PAL (Pre-conversion)
 - SDI (Post-conversion)
- Front and rear panel status LEDs

Remote Management via DL-Manager

- No external software required
- HTTP or SNMP v2
- Monitor
- Configure
- Upgrade firmware

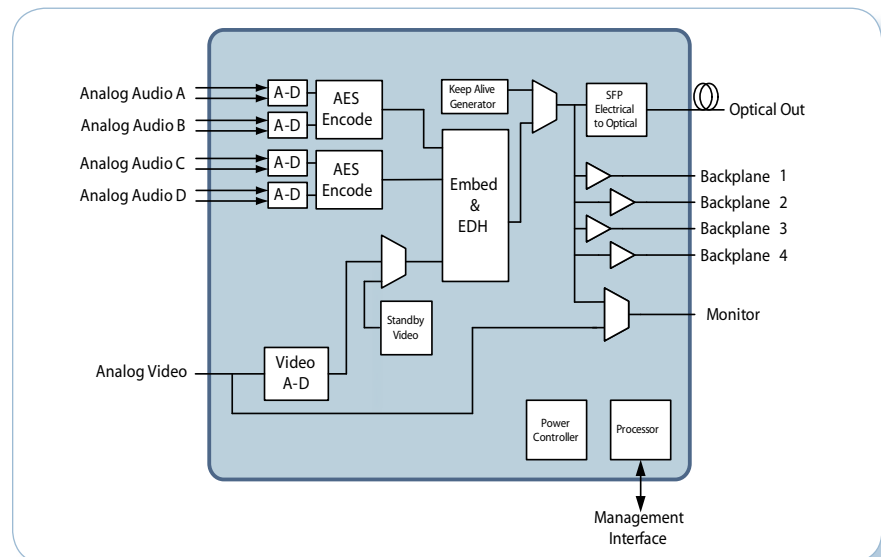


The DLC170AD converts analog video and audio to SDI (SMPTE 259M) and provides optical transport. Used with the DLC170DA, the design insures full TV-1 RS250-C "short haul" analog performance over a true SMPTE 259M SD-SDI optical transport link.

The DLC170AD uses advanced high performance 12-bit video processing with adaptive 3D comb filters to convert NTSC-M / PAL-B/G analog composite video to ITU-R BT.601/656 compliant, 525 or 625 line, 4:2:2 component digital video. Four channels of analog audio are converted to 24 bit digital signals and sampled at 48 kHz and then embedded into the digital video per SMPTE 272M for a total of 4 analog channels. The audio can be inserted into any one of the four groups.

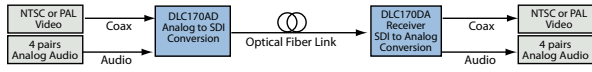
Using the backplane to provide jumper free connections, additional audio channel groups can be added by cascading the DLC170AD digital output to one or more DLC150E audio embedders. An SFP installed into the final module provides the optical output of the combined signals.

A front panel monitor jack can be selected to output either analog or digital video. When set to analog, the incoming analog video can be checked for signal level and quality using conventional analog video equipment. When set to digital, the converted video in 270 Mb/s SDI format with embedded audio can be checked using digital video test equipment.

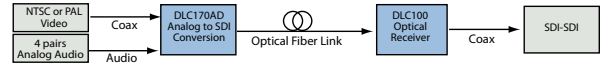


DLC170AD Applications

Composite Video (NTSC/PAL) and Analog Optical Transport



Composite Video (NTSC/PAL) and Analog Audio to SDI Conversion with Optical Transport



Specifications

Analog Video to SDI Conversion (6)

Output Format	SMPTE 259M via optical interface or backplane
Input Format	SMPTE-170M NTSC-M or ITU-R BT.624-4 PAL-B/G Composite Video
Input Amplitude	1.0 V p-p nominal
Input Gain Range	± 3 dB (1)
Input Common Mode Range	±10 V
Input Common Mode Rejection (0 to 5.5 MHz)	>30 dB
Input Impedance	75ohm or Hi-Z
Input Return Loss (0 to 5.5 MHz)	>30 dB, 75ohm
Freq Amplitude Response	
NTSC to 4.5 MHz	<0.10 dB
NTSC to 5.0 MHz	<0.10 dB
PAL to 4.8 MHz	<0.10 dB
PAL to 6.0 MHz	<0.10 dB
Differential Gain	<1.0%
Differential Phase	<0.7 Degrees
Line Time Distortion	<1.0%
Chroma-Luma Gain	<±2%
Chroma-Luma Delay	<5 nS
Signal to Noise, weighted	>67 dB

Analog Audio to AES and Embed (6)

Channels	4(2)
Input	Balanced Analog
Input Impedance	600ohm or >100Kohm
Input Common Mode Range	±30V
Input Common Mode Rejection	>60 dB
Nominal (test) Level	18 dBm (3)
Maximum Level (0 dBFS clipping)	+10 to +24 dBm (4)
Insertion Gain	±0.25 dB (5)
Freq Amplitude Response (20 Hz to 20 kHz)	±0.3 dB
THD+N (20-20k @ +18 dBm)	0.01%
SNR (weighted)	>95 dB
Crosstalk @10kHz	70 dB
Audio to Video Lead/Lag	<2 ms

(1) Automatic or manual control.

(2) Specifications are with 48 kHz, 24-bit audio.

(3) Nominal level is +20 dBm for 0 dBFS (clipping) with performance specifications based on a +18 dBm test level.

(4) User selectable maximum (0 dBFS) level in eight 2 dB steps

(5) Each end set to the same nominal 0 dBFS level.

(6) Analog Specifications based on end-to-end performance with DLC170DA

Environmental

Operating Temperature of DL4000 Chassis	0 to 50°C
Ambient Storage Temperature	-40 to 80°C
Relative Humidity	10 to 95% (non-condensing)
Power Dissipation	10W

Physical

Dimensions	0.8" x 5" x 10.8"
	1 slot in DL4000 chassis

Optical Interface

Artel Video SFP See SFP Specification Sheet

Regulatory Conformance

Compliance: NEBS Level 3, CSA 60950, EN60950, EN55022 FCC Part 15 (Class A), CISPR 22

Ordering Information

DLC 170AD Function Module

Model	Description	Part #
DLC170AD	Analog to SDI Conversion with Optical Transport	390-008070-00

SFP Optics

Model	Description	Part #
DLS31VX-11	Video SFP 1310nm Transceiver 11dB	393-021310-11
DLS31VX-30	Video SFP 1310nm Transceiver 30dB	393-021310-00
DLS55VX-30	Video SFP 1550nm Transceiver 30dB	393-021550-00
DLSCxxVX-30	Video SFP CWDM Transceiver 30dB	393-041xx1-00
DLSWxxHX-33	2.5Gb/s SFP DWDM Transceiver 33dB	393-240033-xx

Monitor Cable

Model	Description	Part #
DL100MC-72	Monitor Cable, 75-ohm Mini-SMB to BNC, 72"L	396-001001-00

Specifications are subject to change without notice.



Front panel monitoring and status displays



Real panel includes electrical video input, analog or AES audio inputs and SFP transceiver cage



SFP Optics (Small Form-Factor Pluggable)