

DLC170DA

SDI to Composite Video (NTSC/PAL) Analog Audio Conversion with Optical Receiver/Repeater

DL4000 VIDEO TRANSPORT SYSTEM

Features

Single card SDI to composite video and analog audio conversion with optical receiver/repeater

Convert SDI (SMPTE 259M) to composite video

- NTSC or PAL
- Analog composite 75ohm video output BNC
- 10-bit component digital 525/625 line to NTSC-M or PAL-B/G conversion
- Composite 12-bit processing

Convert SDI to analog or AES audio

- SMPTE 272M-ABC audio de-embedding with 24-bit audio conversion
- Balanced analog audio outputs (4)
- Balanced AES audio outputs (2)

Optical transport of:

- Analog video and audio
- 1.485Gb/s HD-SDI (SMPTE 292M)
- 270Mb/s
 - SD-SDI (SMPTE 259M-C, ITU 656)
 - SDTI (SMPTE 305M)
 - DVB-ASI
 - Artel 270

Optical to optical repeater

Externally accessible SFP transceiver optics

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

Interoperation with

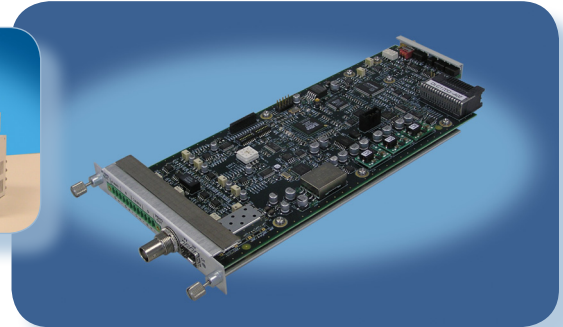
- Other DL4000 platform video modules
- DigiLink 1220 /2701
- Other non-scrambled or non-dithered SDI optical transmitters and receivers

Multiple monitoring options

- Front panel monitor (mini 75ohm SMB) selectable between:
 - NTSC or PAL (post-conversion)
 - SDI (pre-conversion)
- Front and rear panel status LEDs

Remote management via DL-Manager

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

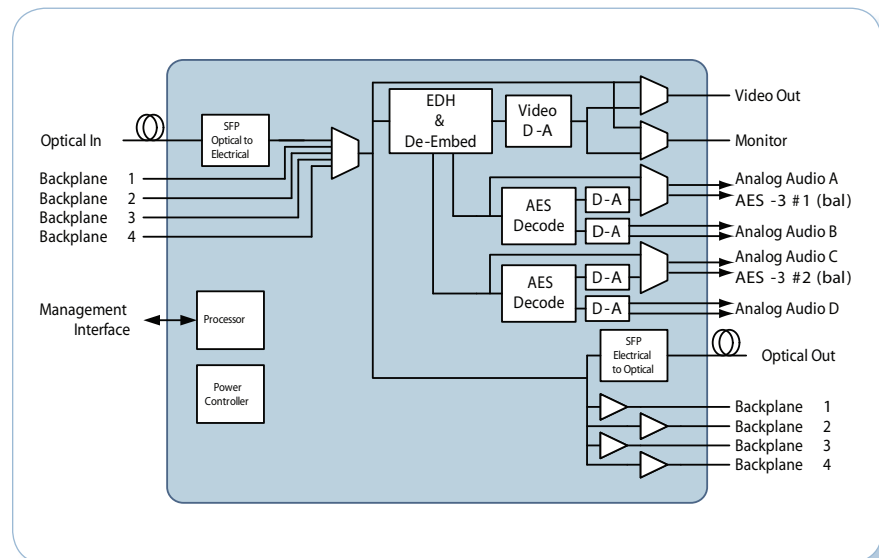


The DLC170DA converts optically received SDI to composite analog video (NTSC or PAL) and analog or AES audio. Used with the DLC170AD, the design insures full TV-1 RS250-C "short haul" analog performance over a true SMPTE 259M SD-SDI optical transport link. Additionally it can be used as an optical receiver for all digital signals from 19.39 ATSC to 1.485Gb/s HD-SDI making the DLC170DA ideal for the eventual conversion from analog to digital video transport.

The innovative module uses advanced video and audio processing for exceptional quality conversion of SDI (SMPTE 259M) to composite video and analog audio. It accepts a 270Mb/s 525/625 line SDI input from either the optical SFP receiver or the backplane then converts it to composite analog and audio signals.

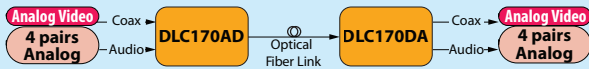
The received optical signal can be directed to the backplane for additional channel groups to be processed by other cards in the DL4000 chassis. Audio embedded per SMPTE 272M levels A, B, and C can be extracted as either four balanced analog audio channels or two stereo AES digital audio streams.

A front panel video monitor with analog or digital selector switch allows the incoming digital (with embedded audio) or composite analog output to be monitored using conventional digital/analog video equipment.

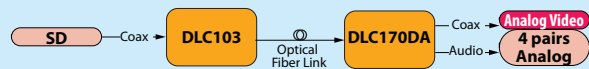


DLC170DA Applications

Composite Video (NTSC/PAL) and Analog Audio Optical Transport



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



Specifications

SDI-to-Analog Video Conversion (6)

Output format	SMPTE-170M NTSC-M or ITU-R BT.624-4 PAL-B/G Composite Video
Output amplitude	1 V p-p nominal
Output impedance	75ohm
Output 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 5.5 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	<5ns
Signal to noise, weighted	>67 dB

SDI Audio-to-Analog Audio Conversion (6)

Output signal	Balanced Analog (1)
Output impedance	< 50ohm (2)
Nominal (test) level	18 dBm (3)
Maximum level (clip)	+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 dBA
Crosstalk @10kHz	70 dB
Audio to video lead/lag	<2 ms

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

(2) Designed to drive 600ohm loads.

(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 DLC170AD.

SDI-Mode

Input/output bit rate	270Mb/s ±100ppm
BER	10 ⁻¹³ @270Mb/s
Output jitter	<500ps
I/O connectors	BNC female / 75ohm
I/O levels conforms to SMPTE	259M

(1) Specifications are with 48 kHz, 24-bit audio SMPTE 272M-C embedded audio.

AES Audio Output

Output signal	Balanced digital (1)
Output format	AES3-2003 compliant
Output impedance	110ohm

Environmental

Ambient operating temperature of DL4000/4300 chassis	0 to 50°C
Ambient storage temperature	-40 to 80°C
Relative humidity	10 to 95% (non-condensing)
Power dissipation	10 watts

Physical

Dimensions	0.8" x 5" x 10.8" 1 slot in DL4000 platform
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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 170DA Function Module

Model	Description	Part #
DLC170DA	SDI to Analog Conversion and Optical Transport	390-008080-00

SFP Optics See optics compatibility chart

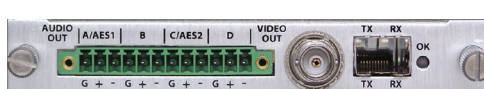
Monitor Cable

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

Specifications are subject to change without notice.



Front panel monitoring and status displays



Rear panel includes electrical digital or analog video output, analog or AES audio outputs and SFP transceiver cage



SFP Optics (Small Form-Factor Pluggable)