

# DVC 501 SD

MULTI-RATE SDI TO DVI, RGB, AND  
COMPONENT CONVERTER

- Accepts multi-rate SDI signals up to 2.97 Gbps
- Simultaneous DVI-D and analog RGB or component video outputs
- AES3 audio de-embedding
- Input equalization and reclocking on buffered output
- Internal test patterns for calibration and setup
- Output muting control
- RS-232 control port



The Extron DVC 501 SD converts multi-rate SDI signals to DVI-D as well as analog RGB or component video. It accepts data rates from NTSC and PAL up to HDTV 1080p/60 and 2048x1080, automatically equalizes incoming SDI signals to optimize transmission over long cables, and extracts embedded AES3 audio. The DVC 501 SD is ideal for applications that require interfacing SDI signals from broadcast-type sources to professional/consumer-level displays and signal distribution systems that only accept DVI or analog signals.



**Extron® Electronics**  
INTERFACING, SWITCHING AND CONTROL

## DESCRIPTION

The Extron **DVC 501 SD** converts SDI, HD-SDI, and 3G-SDI serial digital video signals to DVI-D and analog RGB or component video formats. It features automatic equalization of input signals, extraction of embedded AES3 audio, and RS-232 serial control. The DVC 501 SD is ideal for applications including television production, medical imaging, military simulation, houses of worship, and live events that require interfacing SDI signals from broadcast-type sources to professional/consumer-level displays and signal distribution systems that only accept DVI or analog signals. It is compliant with SMPTE 259M, 292M, 424M, and ITU digital video standards.

The DVC 501 SD accepts data rates from NTSC and PAL to HDTV 1080p/60 and 2048x1080. An input loop-through delivers reshaped and restored multi-rate SDI signals. The RGB output can be set for RGBHV, RGBS, and RGsB. Bi-level or tri-level sync can be selected when the unit is set for component video output.

## FEATURES

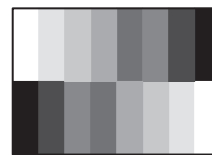
- **Accepts multi-rate SDI signals up to 2.97 Gbps** – The DVC 501 SD accepts data rates from standard definition NTSC and PAL to HDTV 1080p/60 and 2048x1080. It complies with SMPTE 259M, 292M, 424M, and ITU digital video standards.
- **Simultaneous DVI-D and analog RGB / component video outputs** – The DVC 501 SD offers high resolution digital and analog video outputs that allow for easy integration of multi-rate SDI signals into DVI or RGB-based A/V devices and systems.
- **AES3 audio de-embedding** – An embedded AES3 stereo audio stream can be extracted and then output from the DVC 501 SD. Audio output can be balanced or unbalanced, and adjusted for gain and attenuation.
- **Audio gain and attenuation control**
- **Input equalization and relocking on buffered output** – The DVC 501 SD automatically equalizes incoming multi-rate SDI signals, and reshapes and restores the signals on the buffered output.
- **Analog RGB or component video output** – The DVC 501 SD can be set to output analog RGB as RGBHV, RGBS, or RGsB, or component video as Y, R-Y, B-Y.
- **Bi-level or tri-level sync available for component video output**
- **Internal test patterns for calibration and setup** – Nine test patterns are available with the DVC 501 SD, including a crop pattern, color bars, and alternating pixels.
- **Output muting control** – Provides the capability to mute the video and/or audio output.
- **RS-232 control port** – Using serial commands, the DVC 501 SD can be controlled and configured via the Extron Windows®-based control program, or integrated into a control system. Extron products use the SIS™ - Simple Instruction Set command protocol, a set of basic ASCII code commands that allow for quick and easy programming.

## FEATURES (Cont.)

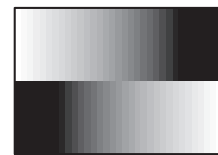
- **Front panel USB configuration port** – Provides convenient access to the DVC 501 SD for setup, configuration, and firmware updates.
- **Front panel security lockout** – This feature locks out all front panel functions except for input selection; all functions however, are available through RS-232 control.
- **Rack-mountable 1U, half rack width metal enclosure**
- **Internal universal power supply** – The 100-240 VAC, 50/60 Hz, international power supply provides worldwide power compatibility.

### Test Patterns

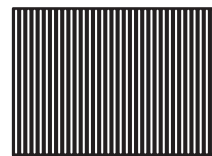
The DVC 501 SD has an internal test generator with nine test patterns, including color bars, grayscale, alternating pixels, 4x4 crosshatch, a crop pattern, and four aspect ratio patterns.



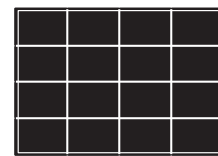
Color Bars



Grayscale



Alt. Pixels



Crosshatch



Crop



1.78 Aspect Ratio



2.35 Aspect Ratio



1.85 Aspect Ratio



1.33 Aspect Ratio

VIDEO	
Signal type.....	SDI, HD-SDI, and 3G-SDI digital video signals
Resolution.....	8 or 10 bits, automatic
Data rates.....	270 Mbps, 1.485 Gbps, 2.970 Gbps
Operation standards.....	SMPTE 259M-C, SMPTE 292M, SMPTE 424M
Auto data rate lock.....	Yes

VIDEO INPUT AND LOOP THROUGH	
Number/signal type.....	1 SDI (SMPTE 259M-C, 270 Mbps; NTSC; PAL), HD-SDI (SMPTE 292M, 1.485 Gbps), or 3G-SDI digital component video (SMPTE 424M, 2.97 Gbps)
Connectors.....	1 female BNC
Data rates.....	19 Mbps to 2.97 Gbps
Nominal level.....	0.8 Vp-p
Impedance.....	75 ohms
Horizontal frequency.....	15 kHz to 100 kHz
Vertical frequency.....	24 Hz to 60 Hz
Resolution range.....	NTSC, PAL, 720p, 1080i, 1080p, 2048x1080
Return loss.....	<-15 dB @ 2.97 GHz
DC offset (max. allowable).....	5 V
Input cable equalization.....	Automatic for up to -30 dB of cable loss
HD-SDI.....	120 m (400') using Extron RG6 cable 90 m (300') using Extron RG59 cable
SDI.....	150 m (500') using Extron RG6 cable 120 m (400') using Extron RG59 cable
NOTE: The transmission distance varies depending on the signal resolution and on the type of cable, graphics card, and display used in the system.	

VIDEO PROCESSING	
Digital sampling.....	24 bit, 8 bits per color, 165 MHz standard
Colors.....	16.78 million

VIDEO OUTPUT	
Number/signal type.....	1 single link DVI-D 1 RGB, YUV / YPbPr
Connectors.....	1 female DVI-I 1 female 15-pin HD
Re-clocking.....	Automatic for 270 Mbps, 1.485 Gbps, 2.97 Gbps, or bypassed for unrecognized rates
Nominal level	
TMDS.....	1.0 Vp-p swing
Analog.....	1 Vp-p for Y of component video 0.7 Vp-p for RGB and for R-Y and B-Y of component video
Impedance	
TMDS.....	100 ohms
RGB.....	75 ohms
Return loss.....	<-25 dB @ 100 MHz
DC offset.....	±5 mV with input at 0 offset

SYNC	
Output type.....	RGBHV, RGBS, RGsB, component video (bi-level or tri-level)
Output level.....	5.0 Vp-p for RGB 0.6 Vp-p for component video tri-level sync 0.3 Vp-p for component video bi-level sync
Output impedance.....	75 ohms
Output polarity.....	Positive or negative (selectable)

AUDIO	
Gain.....	Unbalanced output: 0 dB; balanced output: +6 dB
Frequency response.....	20 Hz to 20 kHz, ±0.2 dB
THD + Noise.....	0.03% @ 1 kHz at nominal level, 0 dB gain
S/N.....	>90 dB at maximum output (unweighted)
Crosstalk.....	<-103 dB @ 1 kHz
Stereo channel separation.....	>80 dB @ 1 kHz
CMRR.....	>75 dB @ 20 Hz to 20 kHz

AUDIO INPUT	
Number/signal type.....	1 SDI embedded audio (SMPTE 272M, SMPTE 299M)
Connector.....	1 female BNC
Gain adjustment range.....	-15 dB to +9 dB

AUDIO OUTPUT	
Number/signal type.....	1 stereo, balanced/unbalanced
Connectors.....	(1) 3.5 mm captive screw connector, 5 pole
Impedance.....	50 ohms unbalanced, 100 ohms balanced
Gain error.....	±0.1 dB channel to channel
Maximum level (Hi-Z).....	>+21 dBu, balanced or unbalanced at 1% THD+N
Maximum level (600 ohm).....	>+15 dBm, balanced or unbalanced at 1% THD+N

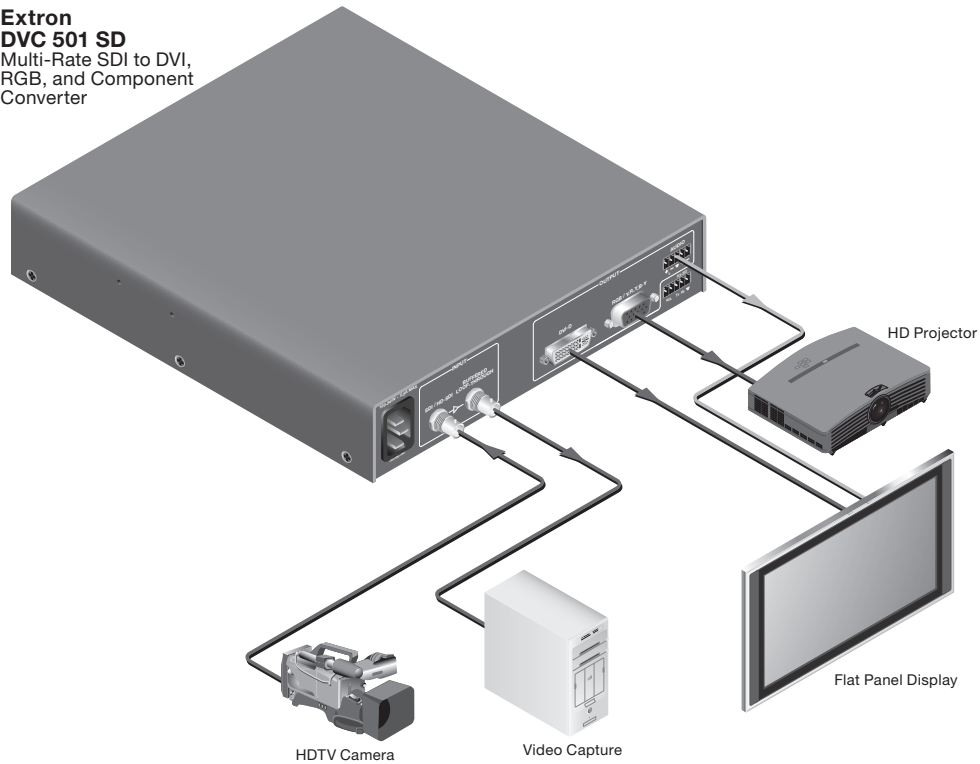
CONTROL/REMOTE — DECODER/SCALER	
Serial control port.....	1 RS-232, 3.5 mm captive screw connector, 5 pole (uses 3 poles)
Baud rate and protocol.....	9600 baud, 8 data bits, 1 stop bit, no parity
Serial control pin configuration.....	3 = Tx, 4 = Rx, 5 = GND
USB control ports.....	1 front panel female mini USB B
USB standards.....	USB 2.0, low speed
Program control.....	Extron control/configuration program for Windows® Extron Simple Instruction Set™ (SIS™)

GENERAL		
Power.....	100 VAC to 240 VAC, 50-Hz, 30 watts, internal	
Temperature/humidity.....	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing	
Cooling.....	Convection, sides to top	
Mounting		
Rack mount.....	Yes, with optional 1U rack shelf	
Furniture mount.....	Yes, with optional through-desk mounting kit or under-desk mounting kit	
Enclosure type.....	Metal	
Enclosure dimensions.....	1.75" H x 8.75" W x 9.5" D (half rack wide) 4.4 cm H x 22.2 cm W x 24.1 cm D (Depth excludes connectors and knobs.)	
Product weight.....	2.32lbs (1.05kg)	
Vibration.....	ISTA 1A in carton (International Safe Transit Association)	
Regulatory compliance		
Safety.....	CE, c-UL, UL	
EMI/EMC.....	CE, C-tick, FCC Class A, ICES, VCCI	
MTBF.....	30,000 hours	
Warranty.....	3 years parts and labor	
NOTE: All nominal levels are at ±10%.		
NOTE: Specifications are subject to change without notice.		
Model	Version Description	Part number
DVC 501 SD	3G-SDI to DVI/RGB/Component Converter.....	60-1033-01

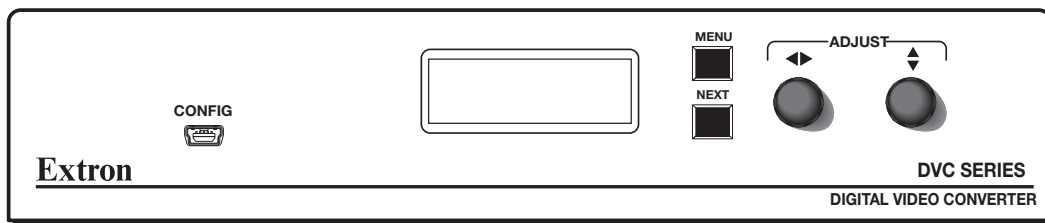
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# APPLICATION DIAGRAM

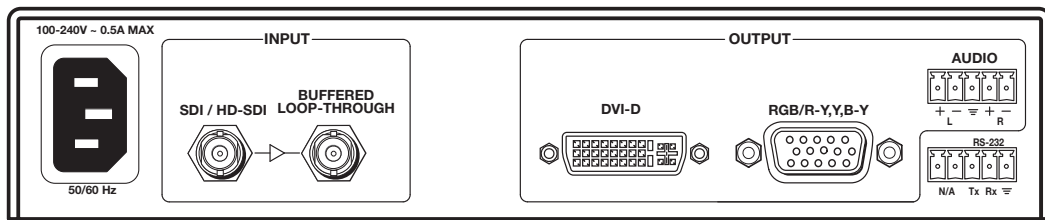
**Extron  
DVC 501 SD**  
Multi-Rate SDI to DVI,  
RGB, and Component  
Converter



# PANEL DRAWINGS



Front



Back



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