DVS 510

10 INPUT HDCP-COMPLIANT SCALING PRESENTATION SWITCHER

High Performance Switching and Scaling for Presentation Systems

- Integrates DVI, RGB, HDTV, video, and audio sources into presentation systems
- HDCP compliant
- RGB, HDTV, and video scaling
- Simultaneous DVI and analog RGB or component video outputs
- Selectable output rates from 640x480 to 1920x1200, including HDTV 1080p/60
- Auto Input Memory
- EDID emulation
- PIP - picture-in-picture
- Glitch-free switching
- Audio switching with input gain / attenuation and output volume control
- Available stereo power amplifier model
- RS-232, Ethernet, and optional IR remote control

Extron Electronics
INTERFACING, SWITCHING AND CONTROL

Introduction

The Extron **DVS 510** is a 10 input, multi-format Presentation Scaling Switcher that accepts and scales DVI, RGB, HDTV, and standard definition signals to a common, high resolution output rate. The DVS 510 is HDCP-compliant and features simultaneous DVI and two analog RGB/YUV outputs. It is a true presentation switcher for professional environments, with audio switching for all video input sources, an available 50 watt stereo integrated amplifier, picture-in-picture, and glitch-free switching. The DVS 510 also offers flexible control options including front panel control, Ethernet, RS-232, and IR.

Ten Input Multi-Format Video Switcher

To accommodate a variety of sources, the DVS 510 features a 10 input switcher that accepts DVI, RGB computer-video, HDTV, S-video, and composite video. The DVS 510 therefore provides the capability to integrate analog and digital video devices, and HDCP compliance enables integration of Blu-ray Disc players and cable or satellite HD receivers.

Audio Switching and Available Integrated Amplifier

The DVS 510 also includes 10 input stereo audio switching to accompany incoming video sources. Gain and attenuation adjustment is provided for each input, and the DVS 510 provides master volume control on the front panel. Also included are bass and treble controls, as well as integrated audio delay to maintain audio sync with the processed video output.

The DVS 510 is available with two audio output variations: the standard DVS 510 offers fixed and variable line level audio outputs, while the DVS 510 SA adds an integrated stereo amplifier with 25 watts rms output per channel into 4 or 8 ohms. The DVS 510 SA features an Extron exclusive, highly efficient, advanced Class D amplifier design with patented CDRS™ - Class D Ripple Suppression technology that provides a smooth, clean audio waveform and an improvement in signal fidelity over conventional Class D amplifier designs.

High Performance Video Processing

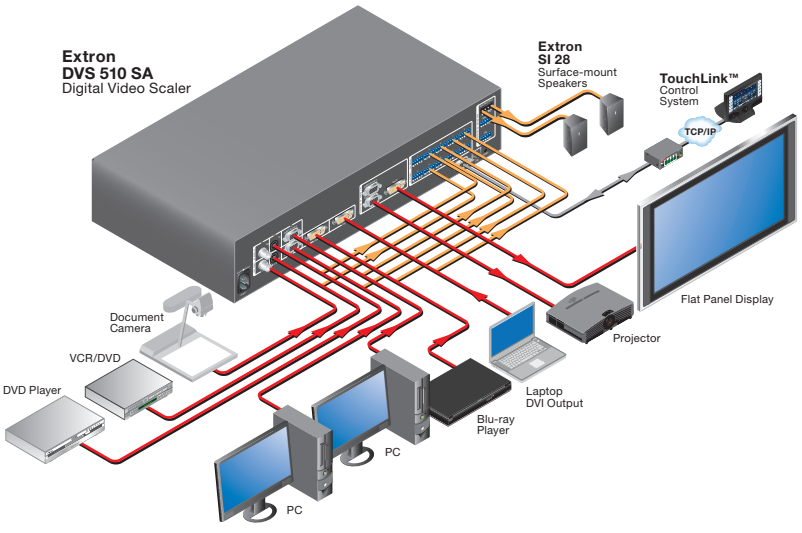
The DVS 510 features a high performance 30-bit scaling engine with the ability to scale standard definition video, HDTV, and RGB signals up or down in resolution. It accepts computer-video signals up to 1920x1200 and HDTV 1080p/60, and outputs DVI and analog RGB or component video at selectable output rates from 640x480 to 1920x1200 resolution, as well as HDTV up to 1080p/60.

Create Professional Quality Presentations

For more effective, professional presentations, the DVS 510 includes glitch-free switching with selectable cut or fade to black transitions. The DVS 510 also features a PIP picture-in-picture mode that allows a video source and a high resolution source to be shown on one display. Several PIP presets are available, including side-by-side windows, and the PIP window can be dynamically positioned anywhere in the image.

Multiple Options for Control and Operation

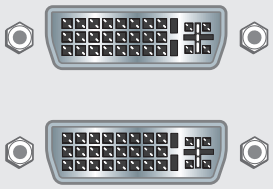
The DVS 510 features front panel controls for quick access to functions. Remote configuration and control are available via RS-232, Ethernet, and optional IR remote control. The DVS 510 is housed in a 2U, full rack width enclosure and can easily be integrated into many environments.



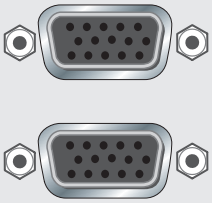
Features

Integrated 10-Input Presentation Switcher

The DVS 510 accepts and switches up to 10 digital and analog AV sources with glitch-free switching and HDCP compatibility.



Two DVI-I connectors simultaneously accept HDCP-encrypted DVI and analog RGB/YUV inputs



Two 15-pin HD connectors accept RGB or YUV inputs

Two S-video inputs on mini-DIN connectors

Two composite video inputs on BNC connectors

Integrates DVI, RGB, HDTV, video, and audio sources into presentation systems

The DVS 510 provides centralized switching for a wide range of AV sources.

HDCP compliant

The DVS 510 fully supports HDCP-encrypted signals.

RGB, HDTV, and video scaling

RGB computer-video, high definition video, and standard definition video sources can all be scaled to the desired output resolution.

RGB upscaling and downscaling

The DVS 510 features an advanced scaling engine with high quality upscaling and downscaling of high resolution computer-video signals.

Simultaneous DVI and analog RGB or component video outputs

A DVI-D and two analog RGB/YUV outputs are provided for driving up to three display devices.

Selectable output rates from 640x480 to 1920x1200, including HDTV 1080p/60

Available output rates include computer-video rates up to 1920x1200, HDTV rates up to 1080p/60, and 2048x1080.

Image freeze control

A live image can be frozen using RS-232 serial control or Ethernet control.

Auto-Image™

When activated, the unit automatically analyzes the incoming video signal and then automatically adjusts sizing, centering, and filtering to optimize image quality. This can save time and effort in fine tuning displayed images.

Auto Input Memory

When activated, the DVS 510 automatically stores size, position, and picture settings based on the incoming signal. When the same signal is detected again, these image settings are automatically recalled from memory.

EDID emulation

The DVS 510 provides a means for specifying the rate of the incoming DVI or VGA signal. EDID emulation allows proper communication with the video source.

Picture controls

Multiple image adjustments are available including brightness, contrast, color, tint, detail, as well as horizontal and vertical positioning, sizing, and zoom. A total of 16 memory presets are available for each input to store all image settings.

Automatic 3:2 and 2:2 pulldown detection

The DVS 510 offers advanced film mode processing techniques that help maximize image detail and sharpness for NTSC, PAL, and HDTV 1080i sources that originated from film.

Motion adaptive 1080i deinterlacing

The DVS 510 provides high performance deinterlacing for 1080i signals from HD sources including cable or satellite set-top boxes, delivering optimized image quality through advanced motion compensation.

Internal test patterns for calibration and setup

The DVS 510 offers 12 test patterns, including a crop pattern, crosshatch, 16 bar grayscale, color bars, alternating pixels, ramp, white field, 4 x 4 crosshatch for use with video walls, and four aspect ratio patterns – 1.33, 1.78, 1.85, and 2.35.

Aspect ratio control

The output can be designated to meet a specific aspect ratio requirement so that the image fills the screen, or is displayed at the native aspect ratio.

PIP - picture-in-picture

Allows a video source to be displayed within a high resolution image, or vice versa. Six preprogrammed PIP window options are available, including side-by-side windows, with dynamic, fully adjustable window positioning. Audio switching can be set to follow either the main or PIP window.

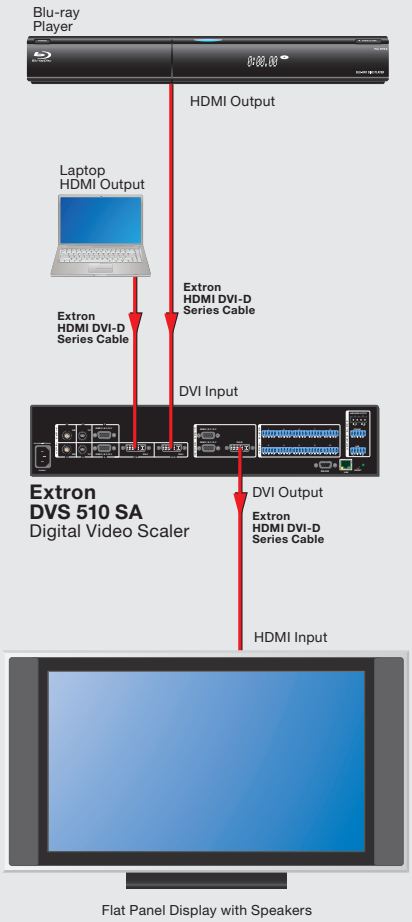
Glitch-free switching

Switching is glitch-free with selectable cut or fade to black transitions. Presentations are enhanced

Features

HDMI Compatible

The DVS 510 DVI inputs and output are compatible with HDMI. HDCP compliance enables support of Blu-ray Disc and other sources that encrypt HDMI signals. The DVS 510 fully passes audio and auxiliary data including InfoFrames as part of the HDMI signal, ensuring audio and video compatibility with downstream HDMI-equipped devices including displays.



Flat Panel Display with Speakers

by eliminating distracting visual jumps, glitches, and distortion commonly seen when switching between computer and video sources.

Audio switching and output volume control

The DVS 510 features audio switching for 10 stereo balanced or unbalanced input sources, and provides master volume control and muting as well as bass and treble controls. Fixed and variable line level outputs are available, and each output can be balanced or unbalanced. Stereo input signals can be output as dual mono.

Audio crossfade

During a switch, the audio of the switched-out source is lowered while the audio of the activated source is simultaneously raised. The duration of the audio crossfade matches the duration of the video switching transition.

Audio input gain and attenuation

Gain or attenuation can be adjusted for each input to eliminate noticeable differences when switching between sources.

Audio breakaway

Audio breakaway provides the capability to break an audio signal away from its corresponding video signal and route to the audio outputs, allowing the audio channels to be operated as a separate switcher.

Integrated audio delay

When enabled, the audio output is automatically delayed to compensate for latency introduced by the video processing.

Available stereo power amplifier model

The DVS 510 SA includes a stereo power amplifier with 25 watts rms per channel into 4 or 8 ohms. It features an Extron exclusive, highly efficient, advanced Class D amplifier design with CDRS™ - Class D Ripple Suppression, an Extron Patented technology that provides a smooth, clean audio waveform and an improvement in signal fidelity over conventional Class D amplifier designs. CDRS eliminates the high frequency switching ripple characteristic of Class D amplifiers, a source of RF emissions which can interfere with sensitive AV equipment such as wireless microphones.

Automatic clip limiter

The DVS 510 SA includes technology for the integrated amplifier that detects the onset of clipping by comparing input and output signals. Gain is automatically reduced with a slow attack and fast release to eliminate clipping. This advanced limiter design protects the speakers from clipping distortion and offers superior sonic characteristics compared to limiters that use signal compression.

Front Panel Control with tri-colored, backlit buttons

The buttons can be custom-labeled for easy identification. Because the buttons illuminate, they are helpful for presenters in low-light environments.

Power Save Mode

The DVS 510 can be set to automatically mute video and sync output to the display device when no active input signal is detected. This allows the projector or flat-panel display to automatically enter into standby mode to save energy and enhance lamp or panel life.

Optional IR remote control

The optional Extron IR 904 handheld remote control allows for input source switching, picture-in-picture, and direct access to picture adjustments.

Ethernet monitoring and control

The DVS 510 can be controlled and proactively monitored over a LAN, WAN, or the Internet. An intuitive Web interface is included for such common functions as input switching and master volume control.

RS-232 control

Using serial commands, the DVS 510 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.

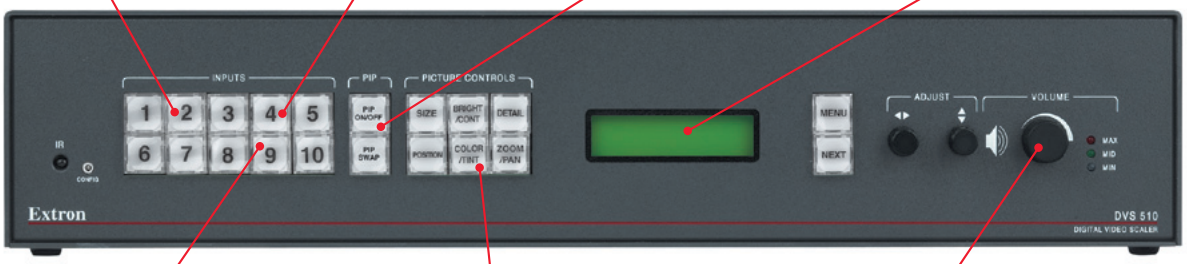
Overview

Integrated 10 input switcher
The DVS 510 accepts up to 10 input sources including DVI, RGB computer-video, HDTV, and S-video, and composite video.

Glitch-free switching
A touch of a button engages a selectable cut or fade to black transition between input video sources.

PIP - picture-in-picture
Allows a video source to be displayed within a DVI or RGB image, or vice versa.

User-friendly interface
An intuitive LCD interface, direct access buttons, and precise rotary controls simplifies system setup and operation.



DVS 510

Back-lit input selection buttons
Input selection buttons are easily identifiable using back-lit buttons with clear overlay labels, enabling simple front panel operation.

Picture adjustments
Adjustments for brightness, contrast, color, tint, and detail, as well as position, size, and zoom, can be directly accessed through the front panel.

Volume control
Allows for adjustment of master volume, with accompanying LEDs to indicate volume level.

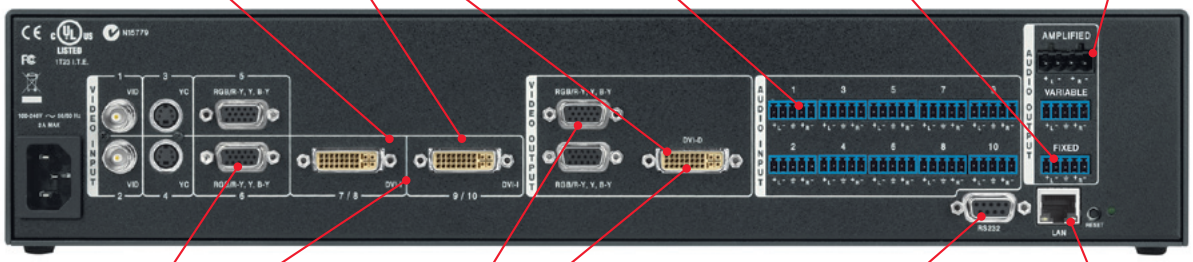
Two DVI-I inputs
The DVS 510 features two DVI-I inputs that simultaneously accept DVI and analog RGB/YUV signals.

HDCP compliant
The DVS 510 fully supports HDCP-encrypted signals.

10 input audio switcher
The DVS 510 offers balanced and unbalanced audio switching to accompany the video input sources.

Fixed and variable line outputs
Each output can be set for balanced for unbalanced, as well as stereo or dual mono. The variable line output allows for direct connection to a power amplifier.

Stereo audio amplifier output
The DVS 510 SA includes an integrated stereo amplifier with 25 watts rms output per channel into 4 or 8 ohms.



DVS 510 SA

High resolution input compatibility
The high resolution inputs accept RGB or HDTV component video at resolutions up 1920x1200, including HDTV 720p, 1080i, and 1080p.

DVI and analog RGB/YUV outputs
Three simultaneous, scaled outputs are available for RGB or HDTV component video signals, at selectable output rates up to 1920x1200, including HDTV 1080p.

RS-232 control
The DVS 510 can be controlled and configured via the Extron Windows® control program, or integrated into a control system.

Ethernet monitoring and control
The DVS 510 can be controlled and proactively monitored over a LAN, WAN, or the Internet.

Specifications

VIDEO INPUT

Number/signal type ..... 2 composite video
2 S-video
4 RGBHV, RGBS, and component video (interlaced, progressive, or HDTV)
2 DVI-D digital video (single link)
Connectors ..... 2 female BNC (composite video)
2 female 4-pin mini DIN (S-video)
2 female 15-pin HD (RGB/component video)
2 female DVI-I (digital and analog signals are accepted)
Horizontal frequency ..... 24 kHz to 100 kHz
Vertical frequency ..... 50 Hz to 120 Hz
Resolution range ..... 640 x 480 to 1920 x 1200*, 480p, 576p, 720p, 1080i, and 1080p, sampled pixel for pixel
Higher resolutions are accepted and undersampled.*
Reduced blanking version

VIDEO PROCESSING

Decoder ..... 10 bit digital
Digital sampling ..... 30 bit, 10 bits per color; 165 MHz standard

VIDEO OUTPUT

Number/signal type ..... 1 scaled RGBHV, RGBS, RGsB; Y, R-Y, B-Y
Connectors ..... 2 female 15-pin HD
1 female DVI-I (HDCP; only digital signal active)
Vertical frequency ..... 50 Hz, 60 Hz, or 75 Hz, depending on selected output resolution
Scaled resolution ..... 640x480[1,2,3], 800x600[1,2,3], 852x480[1,2,3], 1024x768[1,2,3], 1024x852[1,2,3], 1024x1024[1,2,3], 1280x768[1,2], 1280x800[1,2], 1280x1024[1,2,3], 1360x765[1,2,3], 1360x768[1,2,3], 1365x768[1,2,3], 1366x768[1,2,3], 1365x1024[1,2,3], 1400x1050[1,2], 1440x900[1,2,3], 1600x1200[1,2], 1680x1050[1,2], 1920x1200[1,2], 2048x1080[1,2,4,5,6,7,8,9], 480p[2,9], 576p[1], 720p[1,2,6,7,8,9], 1080i[1,2,9], 1080p[1,2,4,5,6,7,8,9]
[1] = at 50 Hz, [2] = at 60 Hz, [3] = at 75 Hz, [4] = at 23.98 Hz, [5] = at 24 Hz, [6] = at 25 Hz, [7] = at 29.97 Hz, [8] = at 30 Hz, [9] = at 59.94 Hz

SYNC

Input type ..... RGBHV, RGBS, RGsB, bi-level or tri-level component video
Output type ..... RGBHV, RGBS, RGsB; Y, R-Y, B-Y (tri-level)
Standards ..... NTSC 3.58, NTSC 4.43, PAL, SECAM
Polarity ..... Positive or negative (selectable)

AUDIO

Gain ..... Unbalanced output: 0 dB; balanced output: +6 dB
Frequency response ..... Fix and variable: 20 Hz to 20 kHz, ±0.5 dB
Direct (4/8 ohms): 20 Hz to 20 kHz, ±1.0 dB
THD + Noise ..... Power amp: 0.01% at 1 kHz at nominal level (1 watt, 8 ohms load)
Variable: <0.11% at 1 kHz, 20 kHz bandwidth
Fixed: <0.025% at 1 kHz, 20 kHz bandwidth
S/N ..... Power amp: 72 dB at 20 to 20 kHz
Variable: 90 dB at rated maximum output
Fixed: 90 dB at rated maximum output
Crosstalk ..... -80 dB at 1 kHz, fully loaded
Stereo channel separation ..... 84 dB at 1 kHz
Bass ..... ±10 dB at 100 Hz
Treble ..... ±10 dB at 10 kHz

AUDIO INPUT

Number/signal type ..... 10 stereo, unbalanced
Connectors ..... (10) 3.5 mm 5-pole captive screw connectors (stacked)
Impedance ..... >10k ohms unbalanced, DC coupled
Nominal level ..... +4 dBu (1.23 Vrms), -10 dBV (316 mVrms)
Maximum level ..... +10.4 dBu, (unbalanced) at 1% THD+N
Input gain adjustment ..... ±12 dBu, adjustable per input
NOTE: 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu

AUDIO OUTPUT

Number/signal type ..... 2 stereo or mono, balanced/unbalanced (1 fixed and 1 variable)
Connectors ..... (2) 3.5 mm captive screw connectors, 5-pole
Impedance ..... 50 ohms unbalanced, 100 ohms balanced
Gain error ..... ±0.1 dB channel to channel
Maximum level (Hi-Z) ..... >+21 dBu, balanced at 1% THD+N
>+11 dBu, unbalanced at 1% THD+N
Maximum level (600 ohm) ..... >+14 dBm, balanced at 1% THD+N
>+10 dBm, unbalanced at 1% THD+N

AUDIO OUTPUT — AMPLIFIED (OPTIONAL)

Number/signal type ..... 1 stereo or mono (2 channels total)
Connectors ..... (1) 5 mm captive screw, 4-pole
Minimum load impedance ..... 4 ohms
Continuous power with a full load ..... At 2, 4, or 8 ohms: 25 watts (rms) per channel
Amplifier type ..... Improved Class D
Damping factor ..... >30 (with a 4 ohm load)

CONTROL/REMOTE — DECODER/SCALER

Serial control port 2 RS-232:
1 rear panel female 9-pin D connector
1 front panel 2.5 mm stereo mini jack
Ethernet control port ..... 1 RJ-45 female

GENERAL

Power ..... 100 VAC to 240 VAC, 50-60 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 ..... Fan, vents right to left as viewed from front panel
Mounting
Rack mount ..... Yes, with included brackets
Enclosure dimensions ..... 3.5" H x 17.5" W x 9.4" D (2U high, full rack wide)
(8.9 cm H x 44.4 cm W x 23.9 cm D)
(Depth excludes connectors and knobs. Width excludes mounting brackets.)
Product weight ..... 7.0 lbs (3.2 kg)
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
DVS 510	Standard Version	60-835-01
DVS 510 SA	2x25 Watt Stereo Power Amplifier	60-835-02

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