Crestron DVPHD

High-Definition Digital Video Processor

- > *High-performance multi-window video processor*
- > *Out-of-the-box functionality — no programming required*
- > *Standalone operation — no control system required*
- > *Enhanced LCD front panel and built-in Web interface for easy setup and operation*
- > *Supports full integration with a Crestron® control system*
- > *Touchpanel interface — turns a 3rd-party touchscreen display into an Isys® touchpanel*
- > *Up to 8 simultaneous fully-scalable video windows**
- > *True 10-bit video processing for astonishing realism*
- > *Latest generation high-definition scaling and de-interlacing*
- > *All-digital internal backplane*
- > *Input & output resolutions up to 1920 x 1200 pixels§*
- > *720p, 1080i, and 1080p60 HDTV support*
- > *Fully-customizable 24-Bit Isys graphics*
- > *Synapse™ image rendering algorithm*
- > *DNav dynamic menu objects*
- > *Horizontal crawling text object*
- > *Pop-up windows*
- > *Enhanced transition effects*
- > *Windows® SideShow™ enabled*
- > *Remote interactive annotation capability*
- > *Built-in test patterns*
- > *Auto-detecting multi-format video inputs**
- > *High-resolution digital DVI or analog RGB/component‡ inputs**
- > *HDMI and DisplayPort compatibility*
- > *Advanced HDCP compliance*
- > *Available SDI and QuickMedia®** inputs**
- > *DVI, RGB, and QuickMedia outputs*
- > *Wired or wireless USB mouse support*
- > *High-speed Ethernet and Cresnet® communications*
- > *Three-space rack-mountable*
- > *Built-in international power supply*

The DVPHD is an advanced multi-window digital video processor and touchpanel interface. Available in a variety of input and output configurations, the DVPHD is ideal for videoconference rooms, lecture halls and training labs, command centers, operating rooms, ground and air traffic control, security and surveillance, public information displays, houses of worship, home theater, sports bars, and all kinds of entertainment venues. Each DVPHD model combines a unique set of features to deliver a dramatic and versatile presentation solution. Out-of-the-box functionality means the DVPHD can be used standalone or as part of a complete Crestron control system.

Multi-Window Video Processor—The DVPHD displays up to 8 simultaneous video windows* on a single high-resolution monitor, projector, or flat panel display. The video windows can be displayed onscreen in any combination over a fully-customizable graphic background. Each window is fully-scalable and independently controllable, allowing for display at any position, size, or aspect ratio. Each window is fed by a dedicated input†, with a complete selection of input types available*.

Front Panel Control—Out of the box, the DVPHD front panel enables easy setup without necessitating a computer. Through its large LCD display, the installer can quickly configure the inputs, display output, window positioning and sizing, IP network, and many other system settings. Built-in test patterns eliminate the need for an external pattern generator for proper display calibration. Both the LCD display and buttons may be custom labeled with user-friendly names for clear designation of sources and functions. For security, the front panel can be password protected or locked out.

Built-in Web Interface—Setup and operation is also facilitated through a simplified Web browser interface. Hosted onboard the DVPHD, the Web interface enables configuration and control of the DVPHD from any location, allowing the DVPHD hardware to be installed remotely and accessed over a LAN or Internet connection. Of course, the DVPHD may also be integrated with a Crestron control system, allowing for advanced control from Crestron touchpanels, keypads, hand-held remotes, or e-Control®.

Multi-Format Support—The DVPHD is available in a variety of input configurations* to accommodate a wide range of signal types and systems. The flagship DVPHD-PRO model features 4 DVI-I inputs and 4 multi-format BNC video inputs. The DVI-I inputs support DVI, HDMI, and DisplayPort‡ digital video sources with HDCP content protection, as well as analog RGB and component sources‡, with resolutions up to 1920 x 1200 pixels§ including high definition 1080p. The multi-format BNC video inputs accept analog signals from component HDTV sources up to 1080i, as well as standard definition NTSC/PAL composite and S-Video. Other available inputs include SDI and Crestron QuickMedia**. Input signal auto-detection†† configures the DVPHD automatically to match the input sources.

The DVPHD features both DVI-I and QuickMedia outputs, providing a choice of digital or analog output signals to feed a non-interlaced RGB, DVI, or HDMI display.‡

Pure Digital HD Video—A 100% digital backplane means the DVPHD's internal signal is never degraded by noise, and its DVI digital inputs and output ensure a pure digital signal throughout. DVI affords simplified connectivity through a single-cable interface that combines uncompressed digital high-definition video with intelligent format and command data. The DVI-I format employed on the DVPHD supports the choice of digital or analog signals through a single connector. EDID information on the digital output affords easy and reliable setup when connected to an EDID-compliant display.

100% HDCP Compliance—Advanced HDCP implementation ensures compliance with a complete range of digital video players, cable and satellite receivers, multimedia computers, displays, and projectors. The DVPHD can manage 4 separate HDCP input connections from DVI, HDMI, and DisplayPort sources‡,

DVPHD Rear Panel (DVPHD-PRO model shown)

Other available input modules (see "AVAILABLE MODELS" below)

and generate a new HDCP-encrypted output combining any of the inputs. The authentication key from the connected display device is passed back to each source to enable full high-definition display of copy-protected content.

Advanced Image Processing—Whether displaying a single full-screen image, or multiple windows with graphics, the DVPHD scales the output signal perfectly to match the native resolution of your high-definition display, supporting any aspect ratio with output resolutions up to 1920 x 1200 pixels§. Featuring Gennum Visual Excellence Processing™ with TruMotionHD™ fully adaptive deinterlacing, the DVPHD achieves exceptional image sharpness and resolution from SDTV, HDTV, and computer sources. RealityExpansion™ 10-bit image processing employing FidelityEngine™ image enhancement delivers astounding realism and detail. FineEdge™ dynamic directional interpolation eliminates the jaggy artifacts typical of traditional deinterlacing algorithms.

Isys® Graphics—The DVPHD includes our 24-bit Isys graphics engine, allowing for the creation of stunning graphics using DNav dynamic menu objects, dynamic graphics and text, crawling text, animations, multimode objects, PNG translucency, and exclusive Synapse™ image rendering. Advanced antialiasing delivers crisp, sharp objects and text, while enhanced 3D effects add alluring depth and style. The position and appearance of the video windows within the graphical environment can be fully customized with the ability to apply digital transition effects for a dynamic look and feel.

Touchpanel Interface—With both USB and RS-232 connections, the DVPHD can be used to transform a third-party touchscreen monitor, pen display, white-board, or touch-enabled plasma display into a full-featured, large-scale Crestron touchpanel. This opens a host of possibilities for special control and presentation applications such as interactive kiosks, museum and tradeshow exhibits, training rooms, and command centers. As an alternative to touch-screen, its graphical interface can also be navigated using an onscreen cursor driven by a wired or wireless mouse, or discrete commands from a separate touchpanel, computer, keypad, or handheld remote.

Interactive Annotation—Built-in annotation capability allows presenters to write or draw over live computer and video images right on the touchscreen using a finger, stylus, or mouse. Moving images can also be frozen onscreen to allow annotation over a still picture. Brush sizes and colors are selectable on the fly. Remote annotation capability allows multiple touchpanel users to draw over the same image, supporting interactive annotation between several participants in a courtroom, classroom, or similar environment.

QuickMedia® Output—A QM Output port is included on the DVPHD, providing a very streamlined, low-cost, long-distance wiring solution for driving a display device. The Crestron exclusive QuickMedia transport transmits a full-resolution analog RGB output signal up to 450 feet over a single low-skew CAT5e type cable without compression or downscaling. Just one CresCAT-QM cable and a QM receiver are needed for complete signal routing and device control, eliminating all the bulky, expensive cabling that would otherwise be required.

High-Speed Connectivity—Both Cresnet® and high-speed Ethernet are standard on the DVPHD, providing for easy network integration and seamless communications with Crestron control systems.

AVAILABLE MODELS

DVPHD-PRO 8-Window High-Definition Digital Video Processor — 4 DVI-I & 4 multi-format BNC video inputs

DVPHD-PRO-BNC 8-Window High-Definition Digital Video Processor — 8 multi-format BNC video inputs

DVPHD-PRO-QM 8-Window High-Definition Digital Video Processor — 2 QuickMedia, 2 DVI-I, & 4 multi-format BNC video inputs

DVPHD-PRO-SDI 8-Window High-Definition Digital Video Processor — 1 SDI, 3 DVI-I, & 4 multi-format BNC video inputs

DVPHD-QUAD Quad-Window High-Definition Digital Video Processor — 2 DVI-I & 2 multi-format BNC video inputs

DVPHD-QUAD-BNC Quad-Window High-Definition Digital Video Processor — 4 multi-format BNC video inputs

DVPHD-DUAL Dual-Window High-Definition Digital Video Processor — 1 DVI-I & 1 multi-format BNC video inputs

Other DVPHD configurations are available. Consult the Crestron pricelist or contact your Crestron sales representative to select or specify a configuration for your application.

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SPECIFICATIONS

Video

Scaling/Windowing Processor: Gennum VXP™ with eight channel image processing
Input Signal Types: Auto-detecting DVI, HDMI, SDI, RGB, component, S-Video, and composite video‡
Input Formats: NTSC/PAL interlaced video; HDTV up to 1080i and 1080p60; DVI/HDCP, HDMI/HDCP, DisplayPort/HDCP, SDI, HD-SDI, RGB up to WUXGA
Input Resolutions, Interlaced: 480i, 487i (SDI), 576i, 1080i
Input Resolutions, Progressive: Up to 1920 x 1200§
Output Signal Types: DVI, HDMI, or RGB, plus RGB via QuickMedia (QM)‡
Output Formats: Progressive scan HDTV up to 1080p60, DVI/HDCP or HDMI/HDCP w/EDID up to WUXGA, RGB up to WUXGA
Output Resolution, Interlaced: 1080i via DVI
Output Resolutions, Progressive: Up to 1920 x 1200§
Color Depth: 24-bit, 16.7M colors
Analog Gain: 0dB (75 ohms terminated)
Analog Bandwidth: 400MHz

Graphics

Processor: 32-bit Freescale ColdFire® Microprocessor
Engine: Isys engine, 24-bit non-palette graphics + 8-bit alpha channel transparency, 16.7 million colors, Synapse image rendering algorithm, multi-mode objects, DNav dynamic menu objects, dynamic graphics, crawling text, Windows® SideShow™ enabled, PNG translucency, full-motion (60 fps) animation, transition effects, color key video windowing, remote annotation

Memory

DDR RAM: 256 MB
Flash: 64 MB
Compact Flash: 1 GB Type II CF provided; expandable to 4 GB
Maximum Project Size: 200 MB

Touch/Mouse Device Support

For latest touchscreen and mouse device support information, refer to Crestron True Blue Online Help Answer ID 4666, or contact Crestron True Blue Support
Website URL: http://www.crestron.com/true_blue_support

Ethernet

10BaseT/100BaseTX, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, IEEE 802.3U compliant

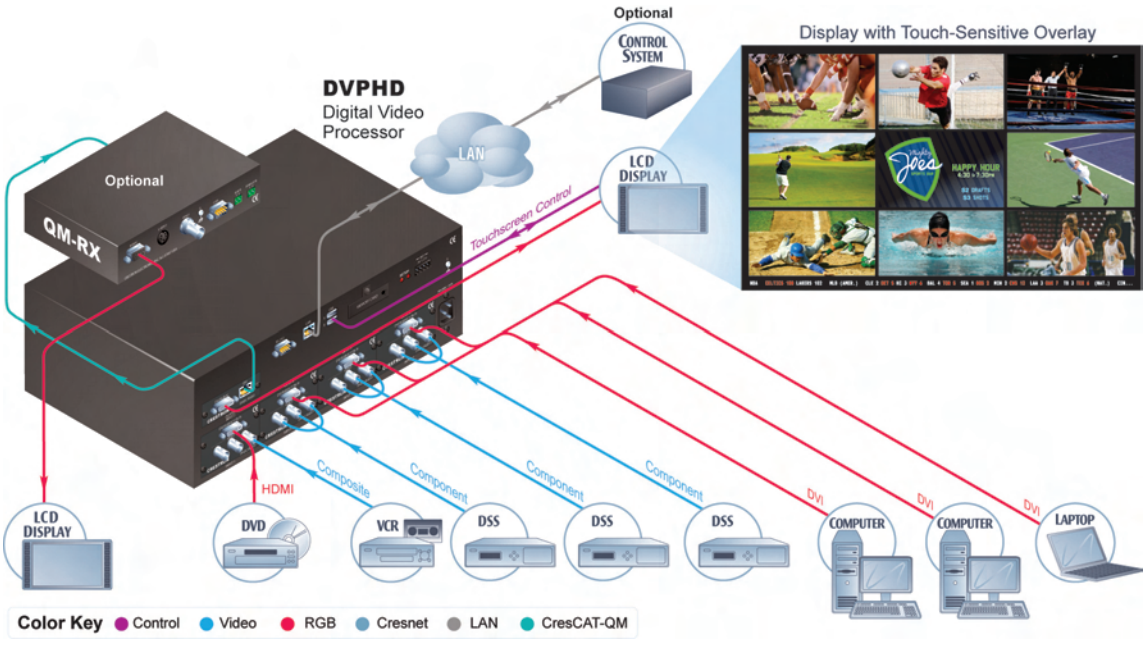
Connectors

INPUT – VIDEO: Up to (8) sets* of (3) BNC female
Signal Types: Each set dynamically configurable under system control as (1) auto-detecting component (YP_BP_R), S-Video (Y/C), or composite video input;
Formats: 480i (NTSC), 576i (PAL), 480p, 576p, 720p, 1080i
Input Levels: 0.5 to 1.5 V_{P-P} with built-in DC restoration
Input Impedance: 75 ohms
Horizontal Frequency: 15 to 67.5 kHz
Vertical Frequency: 25 to 60 Hz

INPUT – DVI/RGB/YP_BP_R: Up to (4)* DVI-I female (or DB15HD female via adapter included);
DVI, HDMI, RGB (VGA), or component (YP_BP_R) video inputs‡
Digital Format: DVI 1.0 (HDMI 1.2 compatible) with HDCP 1.1 protocol
Analog Formats: RGBHV, RGBS, RG_SB, YP_BP_R (Supports EDTV 480p/576p and HDTV 720p/1080i/1080p);
Input Resolution, Progressive: Up to 1920 x 1200§
Horizontal Frequency: 15 to 112 kHz
Vertical Frequency: 25 to 85 Hz
Analog Input Levels: 0.5 to 1.5 V_{P-P} with built-in DC restoration
Analog Input Impedance: 75 ohms
Analog Sync Input Type: Autodetect RGBHV, RGBS, RG_SB, YP_BP_R
Analog Sync Input Level: 3 to 5 V_{P-P}
Analog Sync Input Impedance: 1k ohms

INPUT – SDI/HD-SDI: Up to (4)* BNC female, SDI video input
Signal Types: SDI (SMPTE 125M), HD-SDI (SMPTE 274M, 295M, 296M)
Formats: SDI and HD-SDI interlaced 487i, 576i, 1080i25, 1080i30; HD-SDI progressive 720p24, 720p25, 720p30, 720p50, 720p60, 1080p24, 1080p25, 1080p30

INPUT – QM: Up to (4)* 8-wire RJ45 female, QuickMedia input ports
Signal Types: Dynamically configurable under system control as (1) RGB, component (YP_BP_R), S-Video (Y/C), or composite video input**;
RGB Format: RGBHV, RGBS, or RG_SB
RGB Input Resolution, Progressive: Up to 1920 x 1200§
Video/HDTV Formats: 480i (NTSC), 576i (PAL), 480p, 576p, 720p, 1080i, 1080p
Horizontal Frequency: 15 to 91 kHz
Vertical Frequency: 25 to 85 Hz
Delay Skew Compensation: 0 to 22 ns
Connect to QM out ports of QuickMedia devices via CRESCAT-QM or CRESCAT-IM cable
Maximum Cable Length: 450 ft (aggregate distance from QM origination)



DVPHD Typical Application

OUTPUT – DVI/RGBHV: (1) DVI-I female (or DB15HD female via adapter included); DVI, HDMI, or RGB (VGA) video output‡;
Digital Format: DVI 1.0 (HDMI 1.2 compatible) with HDCP 1.1 and EDID 1.3 protocols
Analog Formats: RGBHV (Supports EDTV 480p/576p and HDTV 720p/1080p output as RGB)
Output Resolution, Interlaced: 1080i via DVI (digital only)
Output Resolution, Progressive: Up to 1920 x 1200§
Horizontal Frequency: 30 to 91 kHz
Vertical Frequency: 50 to 85 Hz
Analog Sync Output Type: RGBHV
Analog Sync Output Level: TTL, 5 V_{P-P}

OUTPUT – QM: (1) 8-wire RJ45 female, QuickMedia output port containing analog RGB only (same as RGBHV OUTPUT);
Format: RGBHV (Supports EDTV 480p/576p and HDTV 720p/1080p output as RGB)
Output Resolution: Same as RGBHV OUTPUT§
Connects to QM in port of any QuickMedia device via CresCAT-QM or CresCAT-IM cable
Note: QM Output is disabled if HDCP is utilized

RS-232: (1) DB9 female, bidirectional RS-232 port
Computer console and mouse/touchscreen input
Up to 115.2k baud; hardware and software handshaking support

LAN: (1) 8-wire RJ45 with 2 LED indicators
10/100BaseT Ethernet port for console and control
Green LED indicates link status, yellow LED indicates Ethernet activity

USB A - B: Type A USB 1.1 host ports for mouse or touchscreen input

MEMORY CARD: (1) Type II CF card slot, for memory expansion up to 4GB, 1GB included

NET: (1) 4-pin 5mm detachable terminal block, Cresnet Slave Port
Connects to Cresnet control network

G: (1) 6-32 screw, chassis ground lug

100-250V~4.0A 50/60Hz: (1) IEC male, main power input
Mates with removable power cord (included)

COMPUTER (front): Type B USB client port for computer console

LCD Display

Green LCD alphanumeric, adjustable backlight, 4 lines x 40 characters per line

Controls and Indicators

PWR: (1) Green LED, indicates connection to AC power source
NET: (1) yellow LED, indicates Cresnet bus activity
HW-R: (1) recessed miniature pushbutton for hardware reset, reboots the processor
SOFTKEYS: (6) pushbuttons for activation of LCD driven functions and passcode entry
MENU: (1) pushbutton, steps menu back one level
∧, V: (2) pushbuttons, scroll up or down through menu and adjust menu parameters
ENTER: (1) pushbutton, executes highlighted menu or value
DISPLAY 1 – 4: (4) pushbuttons and red LEDs, used to configure Out-Of-The-Box-Functionality (OOTBF)

INPUTS 1 – 8: (8) pushbuttons and red LEDs, select input source
SETUP (rear): (1) miniature pushbutton and (1) red LED, used for TSID and Ethernet autodiscovery

Power Requirements

Main Power: 4 Amps @ 100-250 Volts AC, 50/60 Hz
Cresnet Power Usage: Does not draw power from Cresnet

Environmental

Temperature: 32° to 104°F (0° to 40°C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 342 BTU/hr

Enclosure

Chassis: Steel, black matte powder coat finish, side-vented variable-speed fan cooling
Faceplate: Extruded aluminum, black matte powder coat finish with polycarbonate label overlay
Mounting: Freestanding or 3U 19-inch rack-mountable (adhesive feet and rack ears included)

Dimensions

Height: 5.32 in (13.52 cm), 5.20 (13.21 cm) without feet
Width: 17.29 in (43.90 cm), 19.0 in (48.26 cm) with ears
Depth: 14.44 in (36.66 cm)

Weight

15.32 lb (6.95 kg)

** The quantity of video windows and input types depends on the model/configuration specified. Consult the Crestron pricelist or contact your Crestron sales representative to select or specify a configuration for your application.*

† While it is possible to dynamically change which input appears in a single video window, it is not possible to view a single input in more than one window at a time. For multi-window applications requiring the free assignment of inputs to windows, a separate external switcher or matrix router may be required.

‡ DVI-I connections require an appropriate adapter to accommodate HDMI, DisplayPort, RGB, or component signals.

§ Refresh rate is limited to 60Hz or lower for resolutions of 1600 x 1200 or higher; Support for 1920 x 1200 via analog RGB or QM requires a source or display device that supports reduced blanking.

*** Supports QuickMedia video only. Audio signals cannot be routed through the DVPHD.*

†† QuickMedia (QM) inputs do not support auto-detection.

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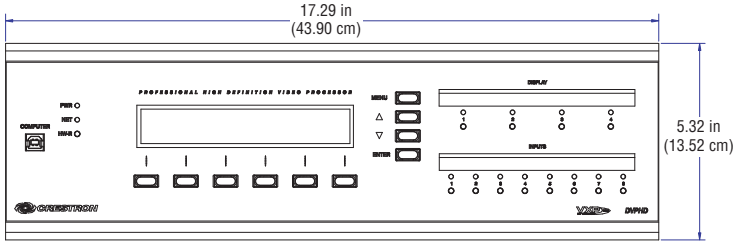
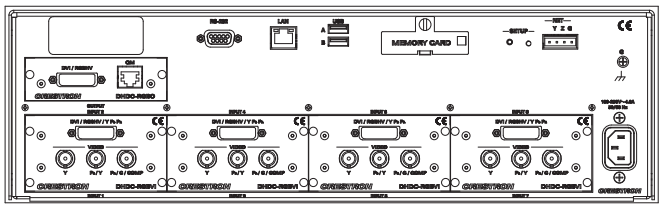
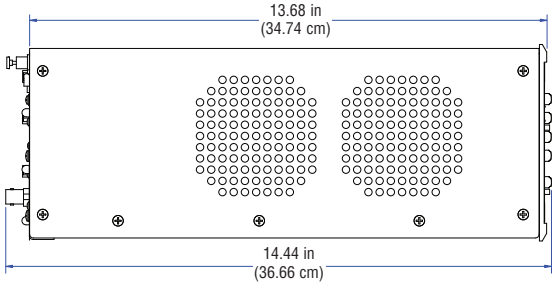


Front View



Rear View



Left Side View

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