HD-SCALER

High-Definition Video Scaler

- *Compact, low-profile surface mount design*
- *Automatically scales any input signal to match the native resolution of your display*
- *Perfect for adapting all kinds of video devices to handle any resolution and format*
- *Supports input/output resolutions up to HD 1080p and UXGA/WUXGA[4]*
- *Performs deinterlacing of NTSC, PAL, and 1080i sources*
- *Handles HDMI® signals with HDCP[5]*
- *Also handles DVI and DisplayPort Multimode sources[2]*
- *Supports analog RGBHV, RGBS, RGsB, component, composite, and S-Video sources[3]*
- *Allows advanced management of EDID[1]*
- *Allows adjustable overscan and underscan up to 7.5%*
- *Features auto-switching between digital and analog sources*
- *Handles 7.1 digital audio and analog stereo audio signals*
- *Allows embedding of analog audio to HDMI*
- *Setup via on-screen display using IR wireless remote (included)*
- *Provides detailed input/output signal information on screen*
- *Includes built-in test patterns for precise display setup*
- *Allows control system integration via Cresnet®*
- *Affords a seamless upgrade for Crestron® MPS and QuickMedia® systems*
- *Provides a powerful portable diagnostic tool for any video setup*

So, you've installed a gorgeous new high-definition display in your boardroom or theater, only to find its onboard scaler doesn't support all the sources you're feeding it. Enter the Crestron® HD-SCALER, a simple and cost-effective universal scaler solution with advanced features for adapting any digital HD display, projector, or codec to handle virtually any video signal regardless of resolution or format. Set-and-forget simplicity married with a compact, low-profile design allows the HD-SCALER to be installed discreetly in the back of an equipment rack, behind a flat panel display, or above a ceiling projector.

Universal HD Scaler

True, every video display has a built-in scaler, and most include a variety of inputs. But, too often these products just aren't designed to display all the different formats and resolutions that you're likely to encounter day-to-day in a dynamic presentation environment. VESA, SMPTE, aspect ratio, scan rate... who cares?! You just need the image to display properly and look good, right?

The HD-SCALER simply connects to the HDMI® or DVI input of your video display and ensures that every source you feed it appears reliably and beautifully. Fully automatic operation is achieved using the display's EDID[1] — just insert the HD-SCALER into the incoming video signal path and it intelligently converts and enhances that signal for optimal appearance on your display.

Both HDMI and RGBHV inputs are provided, accommodating modern digital sources like HDMI, DVI, and DisplayPort Multimode[2], as well as analog VGA/RGB, component, S-Video[3], and composite video[3]. Input source selection can occur automatically via built-in auto-detection, or programmatically via integration with a Crestron control system.

The HD-SCALER handles standard and high-definition video sources with resolutions up to 1080p60 progressive and 1080i30 interlaced, as well as computer sources up to UXGA 1600x1200 and WUXGA 1920x1200. Whatever the source, the HD-SCALER is capable of scaling it up or down, deinterlacing it, reducing noise artifacts, and adjusting its aspect ratio to match the native resolution of your video display or computer monitor. Any display resolution up to 1920x1200[4] can be supported, with auto-calibration ensuring a quick and easy setup and hand-off operation.

On-Screen Display

Advanced setup and diagnostics is facilitated through an intuitive on-screen display (OSD). The OSD appears right on the video display with navigation enabled using an IR remote (included). The OSD displays detailed information about each connected source and display device. This information includes the video resolution, refresh rate, pixel clock, color space, and color depth, as well as the audio format and sampling frequency. The OSD and remote enable manual control over input selection, output resolution, image brightness and contrast, H/V position, phase, RGB color balance, overscan, and underscan. Management of EDID is also accessible through the OSD[1].

Built-in Test Patterns

To ensure optimum performance and a proper setup without necessitating any additional test equipment, the HD-SCALER includes a complete assortment of professional video test patterns right on board. These include various color bars, line and grid patterns, RGB and grayscale ramps, streak and streak boost, raster, solid colors, and several aspect ratio boxes. Even as a portable device, the HD-SCALER provides an invaluable setup tool.

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HD-SCALER – Left Side View

HD-SCALER – Right Side View

Audio Capabilities

Along with video, the HD-SCALER also passes audio signals — with a twist. Normally, the audio source follows the active video input, passing up to 8-channel digital audio via HDMI, and 2-channel analog audio alongside RGBHV. However, audio breakaway capability allows combining analog audio with digital video from an HDMI or DVI source, embedding the analog audio and digital video signals into one HDMI output.

Unparalleled System Integration

The HD-SCALER is well-suited for a wide range of applications including boardrooms and classrooms, home entertainment, rental and staging, and digital signage. Its simple set-and-forget nature and compact size let it go anywhere a high-quality video scaler is needed. It also shines as part of any larger Crestron system, with Cresnet® connectivity built in to allow for remote control over input selection and numerous other functions. It can even be powered through the Cresnet connection or via a local power pack (included).

A Digital Upgrade for Legacy Systems

The HD-SCALER is ideal for adding digital connectivity and scaling to existing AV systems. Through a single VGA cable, its RGBHV input can be connected directly to the output of a Crestron MPS system or QuickMedia® receiver, converting every analog RGB, component, S-Video[3], and composite[3] video signal to HDMI and scaling the output to feed a high-definition digital display or projector. Analog audio is converted similarly through a simple stereo audio cable. Digital AV sources are easily accommodated via the HDMI input, which can be expanded simply using a Crestron QuickSwitch HD® HDMI Switcher (HD-MD8X1 or HD-MD8X2[5]).

The Big Picture

The Pro AV market is strewn with video scalers and processors of all kinds and price ranges, but only the Crestron HD-SCALER offers all the features and controls you need to solve the seemingly simple matter of getting all your AV sources to display correctly — easily and affordably.

SPECIFICATIONS

Features

Universal HD video scaler and deinterlacer, 3D motion-adaptive filter, 3D noise reduction, MPEG noise reduction, 2:2 and 2:3 pull-down sequence detection, diagonal line interpolation, EDID management, input auto-detection and auto-switching[3], built-in test patterns, OSD setup w/IR remote, Cresnet® network controllable, audio breakaway, HDMI audio embedding

Video

Switcher: 2x1 combination digital/analog switch, Crestron QuickSwitch HD®

Input Signal Types: HDMI, DVI[2], DisplayPort Multimode[2], RGB, component (YPbPr)[3], S-Video (Y/C)[3], composite[3]

Output Signal Types: HDMI, DVI[2]

Formats: HDMI, DVI, HDCP content protection support, RGBHV/RGBS/RGsB up to UXGA/WUXGA, HDTV up to 1080p60, NTSC or PAL

Input Resolutions, HDMI & DVI, Progressive: 640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 852x480@60Hz, 854x480@60Hz, 1024x768@60Hz, 1024x852@60Hz, 1024x1024@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1365x1024@60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@24Hz (1080p24), 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz, 2048x1080@24Hz, 2048x1152@60Hz, plus any other resolution up to 165MHz pixel clock

Input Resolutions, HDMI & DVI, Interlaced: 720x480@30Hz (480i), 720x576@25Hz (576i), 1920x1080@25Hz (1080i25), 1920x1080@30Hz (1080i30), plus any other resolution up to 165MHz pixel clock

Input Resolutions, RGB: 640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 1024x768@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz

Input Resolutions, Component[3]: 480i, 576i, 480p, 576p, 720p50, 720p60, 1080p24, 1080i25 (1125 lines), 1080i30, 1080p30, 1080p50 (1125 lines), 1080p60

Input Resolutions, Composite and S-Video[3]: 480i, 576i

Scaler Output Resolutions, Progressive: 640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 1024x768@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz[6], 1280x800@60Hz[6], 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz[6], 1400x1050@60Hz[6], 1440x900@60Hz[6], 1600x900@60Hz[7], 1600x1200@60Hz, 1680x1050@60Hz[6], 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz[7], 2048x1152@60Hz[7], plus any other resolution up to 165MHz pixel clock

Scaler Output Resolutions, Interlaced: 1920x1080@25Hz (1080i25), 1920x1080@30Hz (1080i30)

Analog-To-Digital Conversion: 10-bit 165 MHz per each of 3 channels

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Audio

Switcher: 2x1 combination digital/analog switch
Input Signal Types: HDMI, DisplayPort Multimode[2], analog stereo
Output Signal Types: HDMI
Formats, HDMI: Dolby® Digital, Dolby Digital EX, DTS®, DTS-ES, DTS 96/24, Up to 8ch PCM
Formats, Analog: Stereo 2-channel
Analog-To-Digital Conversion: 24-bit 48 kHz
Performance (analog): Frequency Response: 20Hz to 20kHz ±0.75dB;
S/N Ratio: >90dB, 20Hz to 20kHz A-weighted;
THD+N: <0.05% @ 1kHz;
Stereo Separation: >90dB

Communications

Cresnet: Supports Cresnet slave mode for control
HDMI: Passes CEC, manages EDID, supports HDCP
USB: For console, USB 2.0 client

Connectors

COMPUTER: (1) USB Type B female;
USB 2.0 computer console port (6 ft cable included)

AUDIO IN: (1) 3.5mm TRS mini phone jack;
Unbalanced stereo line-level audio input;
Input Impedance: 10k Ohms;
Input Level: 2 Vrms maximum

RGBHV IN: (1) DB15HD female;
RGB (VGA), component, S-Video, or composite video input[3];
Formats: RGBHV, RGBS, RGsB, YPbPr, Y/C, NTSC, PAL;
Input Levels: 0.5 to 1.5 Vp-p with built-in DC restoration;
Input Impedance: 75 Ohms;
Sync Input Type: Autodetect RGBHV, RGBS, RGsB, YPbPr;
Sync Input Level: 3 to 5 Vp-p;
Sync Input Impedance: 1k Ohms

HDMI IN: (1) 19-pin Type A HDMI female;
HDMI digital video/audio input;
Also supports DVI and DisplayPort Multimode[2]

HDMI OUT: (1) 19-pin Type A HDMI female;
HDMI digital video/audio output;
Also supports DVI[2]

NET: (1) 3.5mm detachable terminal block;
Cresnet slave port, connects to Cresnet control network

PWR 24 VDC 0.75A: (1) 2.1mm barrel DC power jack;
24 Volt DC power input;
PW-2407WU power pack included

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

Controls & Indicators

PWR: (1) green LED, indicates 24 Volts DC power supplied via Cresnet network or local power pack
RGB IN: (1) green LED, indicates RGB input is selected
HDMI IN: (1) green LED, indicates HDMI input is selected
HDMI OUT: (1) green LED, indicates output signal presence
IR IN: (1) IR receiver window for use with remote provided
RESET: (1) Recessed pushbutton for hardware reset
SETUP: (1) Recessed pushbutton and (1) red LED, used for touch-settable ID (TSID)

Remote

19 button IR wireless remote for OSD navigation

Power Requirements

Power Pack: 0.75 Amp @ 24 Volts DC;
100-240 Volts AC, 50/60 Hz power pack, model PW-2407WU included
Cresnet Power Usage: 10 Watts (0.42 Amp @ 24 Volts DC) with no power pack connected
Batteries: (1) CR2032 disposable lithium battery for remote (included)

Environmental

Temperature: 32° to 104°F (0° to 40°C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 30 BTU/hr

Enclosure

Chassis: Metal; matte black finish; with (2) integral mounting flanges; vented front, top, and bottom
Mounting: Freestanding, surface mount, or attach to a single rack rail

Dimensions

Height: 7.36 in (187 mm)
Width: 7.43 in (189 mm)
Depth: 1.24 in (32 mm)

Weight

1.76 lb (0.79 kg)

HD-SCALER High-Definition Video Scaler

MODELS & ACCESSORIES

Available Models

HD-SCALER: High-Definition Video Scaler

Included Accessories

PW-2407WU: Wall Mount Power Pack 24VDC, 0.75A, Universal (Qty. 1 included)

Available Accessories

CBL-HD: Crestron® Certified HDMI® Interface Cables
CBL-HD-DVI: Crestron® Certified HDMI® to DVI Interface Cables
CBL-VGA: Crestron® Certified Computer VGA Interface Cables
CBL-VGA-AUD: Crestron® Certified Computer VGA Interface Cables w/Audio
CBL-AUDIO: Crestron® Certified Mini-TRS Stereo Audio Interface Cables
CRESNET-NP: Cresnet® Control Cable, non-plenum
CRESNET-P: Cresnet® Control Cable, plenum
CRESNET-HP-NP: Cresnet® "High-Power" Control Cable, non-plenum

Notes:

1. EDID (Extended Display Identification Data) is data embedded in an HDMI, DVI, or VGA signal that enables a display device to tell the source device what resolutions and formats it can support, allowing the source to configure itself automatically to feed the best signal that both devices can support.
2. HDMI IN requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. HDMI OUT requires an appropriate adapter or interface cable to accommodate a DVI signal. CBL-HD-DVI interface cables available separately.
3. The RGBHV input can accept component, composite, and S-Video signals via direct interface to Crestron MPS Series products, or through an appropriate adapter (not included). Composite and S-Video signals are not detected automatically and must be selected programmatically or manually.
4. The HD-SCALER supports any input or output resolution and scan rate that has a pixel clock of 165 MHz or lower.
5. Item(s) sold separately.
6. With or without reduced blanking.
7. With reduced blanking only.

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/salesreps or by calling 800-237-2041.

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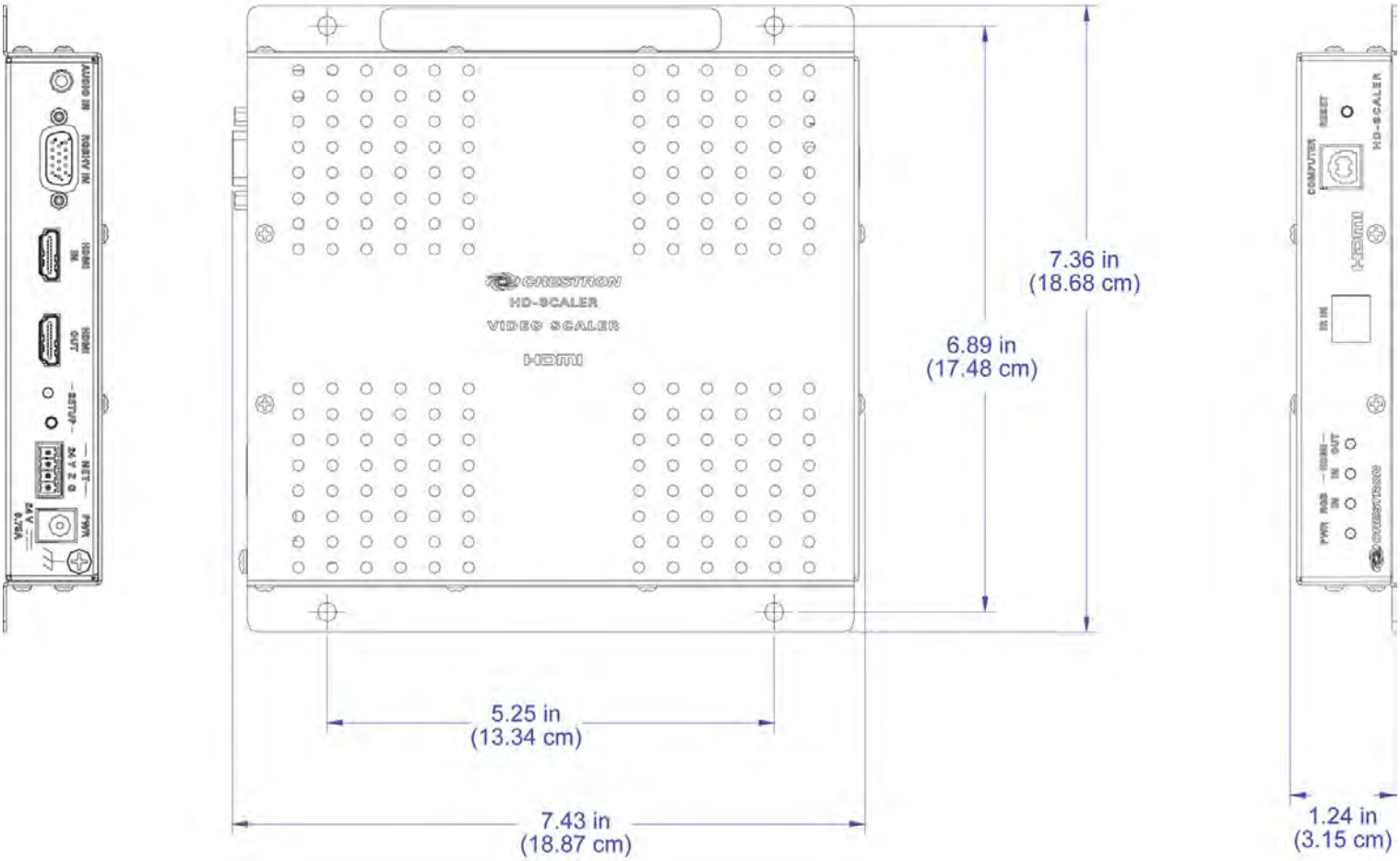

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All Crestron products are proudly manufactured in the United States.

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