



### VIP 3000 - Low-latency, Switcher/Scaler & Warp, Rotation and Blend Solution

Digital Projection International's VIP 3000 is a powerful multi-format switcher with the highest quality image processing, specifically optimized for projection applications. Easy to use and broadly flexible warp and blend capability, combined with superb image scaling, broadcast grade de-interlacing, outstanding noise reduction and image enhancement technology make the VIP 3000 the most capable warp-enabled image scaler available.

Warp alignment can be mapped to accurately match nearly any projection surface via a straightforward PC-based application. Once the warp map is defined and loaded, the VIP 3000 automatically recalculates warp parameters as required to suit changes in input resolution, aspect ratio, image height, width and over-scan. The warp performance, ease of use and flexibility are best-in-class.

Edge-blending is performed using proprietary algorithms which allow precise control of blend S-curve, gamma, and blend region width, and can be configured to support from one to four-side-per-channel edge-blend applications. Black level correction is also provided with independent control of up to 9 regions with 10-bit black level adjustment resolution. Internal blend processing is 10-bit accurate when employing the VIP 3000 for both blend and warp, and 16-bit accurate with de-gamma and re-gamma when only blend is employed.

For multi-channel applications, automatic image pan/zoom/tilt can be enabled to allow each projector to present the required portion of the displayed image by simply defining each VIP 3000's X & Y location within the overall blended image. Alternatively, pan/zoom/tilt can be manually configured, or completely disabled for use with multi-head graphics cards.

Video image stability and motion performance are outstanding with per pixel motion adaptive de-interlacing for both SD and HD video sources. Motion adaptive noise reduction and image enhancement, on a per-pixel basis, not only improve the quality of HD sources, but can make SD sources virtually indistinguishable from HD.

Source connectivity is extensive and precise: High Definition, Extended Definition and Standard Definition component video in YPbPr or RGBS format and VGA graphics are supported via 12-bit ADCs. HD-SDI and SD-SDI are supported with automatic cable equalization and full broadcast grade hardware implemented EQ, clock recovery and de-serializer for the best possible stability and signal integrity. HDMI and DVI inputs provide compatibility with HDMI 1.3 and DVI sources with or without HDCP, with regular 8-bit or 10-bit deep color support from HD and SD disc players and media management systems.

Further source optimization is achieved through color temperature, gains and cut-offs, which are adjustable with 10-bit accuracy. Gamma control is provided and applied with 10-bit accuracy, with internal processing up to 16 bits to alleviate gray-scale contouring and to improve image rendition.

Professional grade genlock is provided with the ability to vertically lock to DS/HD-SDI digital house sync, bi-level or tri-level sync, separate H&V sync, or DVI/HDMI with broadcast-grade output stability and extremely fast lock-up time. For free-run applications, Video I/O Track can automatically switch between 50Hz and 59.94Hz depending on the input signal type, or conversion can be performed to a fixed output frame rate for seamless switching applications. Internal I/O Lock is also available for 50Hz/59.94Hz/60Hz signals where the output accurately locks to the input. All modes include frame buffering for time-base synchronization.

With its extensive source connectivity, highest performance scaling, system integration integrity and precise warp and blend capabilities, the VIP 3000 stands alone as an extraordinarily flexible and surprisingly easy to use solution for quality-intensive applications that multiple projection channels and/or irregular projection surfaces.

### Challenging Multi-Channel and Complex Surface Applications are Easily Managed with These Extensive Capabilities:

- Multi format, multi input switching with precise image scaling
- Flexible and easy warp configuration via PC application with drag and drop grid points
- Multi-region Professional Grade Edge Blending
- Outstanding warped image quality with up to 512 tap scaling filters
- Programmable Blend Curves, Blend Width, Blend Gamma Matching and Black Level Correction
- Image Flip L/R/U/D, Image Rotation in 1 degree steps
- Picture in Picture (PiP) including PiP across blend region capability
- Automatic Audio Delay Correction for Video
- 2D image detail enhancement, real-time unsharp mask and sharpness control
- Broadcast grade motion adaptive SD & HD de-interlacer with 3:2, 2:2 and non-standard/variable cadence detection
- Temporal/film noise filtering HD & SD MPEG noise reduction for SD
- Genlock, Video I/O lock and I/O Track
- Stunning HD performance, near-HD quality from SD sources
- Analog and Digital inputs, DVI/HDMI 1.3 & HDSDI
- Seamless Switching
- User selectable processing levels for best picture quality and image enhancement
- Versatile range of audio input and output connections
- System control via a front-panel LCD menu with rugged keypad
- Four user-programmable input selection keys
- "Live feed" indication via the Input Status key
- Remote control via TCP/IP or RS232. An intuitive PC-based application is included

### INPUTS - Video

- 1x HDMI 1.3 with audio, HDCP compatible, Deep Color support
- 1x DVI-D, HDCP compatible
- 1x HD-SDI (SD-SDI compatible)
- 2x Composite Video via BNC (NTSC/PAL/SECAM)
- 2x S-Video via MiniDIN (NTSC/PAL/SECAM)
- 2x Component video YPbPr/YPbPrS/RGB/RGBS HD/ED/SD via BNCs
- 1x SVGA via 15HDD

### INPUTS - Audio

- 2x SPDIF coaxial digital audio via RCA
- 2x Toslink fiber-optic audio
- 4x Stereo analog audio pair via 2 RCAs

### GENLOCK

- Genlock in house sync, component input, HDMI/DVI, SVGA or HDSDI. (NB DVI cannot be used for genlock if HDMI is displayed and vice-versa.)

### OUTPUTS

- 1x DVI-D, HDCP compatible, Deep Color HDMI 1.3 capable dual-function output automatically switches between DVI, HDMI or HDMI1.3 depending on display device connected.
- 1x SVGA via 15HDD (NB: SVGA is blanked when the HDMI or DVI input is HDCP encrypted, this is due to HDCP licensing rules).
- 1x SPDIF coaxial digital audio via RCA
- 1x Toslink fiber-optic audio
- 1x Stereo analog audio pair via 2 RCAs

### DISPLAY MODES

- 640x480, 800x600, 852x480, 853x480, 1024x768, 1280x720, 1280x768, 1024x1024, 1360x768, 1365x768, 1366x768, 1368x768, 1400x768, 1366x1024, 1400x1050, 1600x1200, 1920x1080, 1920x1200, 2048x1080 and custom modes user configurable via menu or PC software

### USER CONTROLS

#### Control/Ports

- Front panel controls with character LCD display
- OSD available via two-stage user configuration process
- 4 user configurable presets
- Programmable soft keys for fast input switching
- Remote control via RS232 serial port
- Remote control via TCP/IP
- IR remote control (optional)
- USB port for firmware update
- PC control software included

#### Signal Paths

- 10-bit ADCs for composite, S-Video
- 12-bit ADCs for component video
- 10-bit HDMI, 8-bit DVI support
- 10-bit HD/SD-SDI
- Up to 512-tap filters in warp engine
- Internal scaling and processing up to 16-bit

#### Modes of Operation

- (1) Full image processing and filtering, with or without I/O frame rate tracking, or I/O lock mode. (NB I/O lock mode only recommended for use with DVI-D output, not SVGA output)
- (2) Low latency mode with reduced processing

### POWER

- Integral PSU, 100-240VAC 50/60Hz, power via IEC connector
- Rear-mounted power switch
- Front standby/on control key
- Fan cooled for installation into equipment racks



### Full Feature List

- Flexible, easy to configure real-time image warping for projection onto curved screens and complex shapes. Simultaneous arbitrary image rotation, 1 degree step size
- 8-Region Edge-Blend with programmable blend widths, curve and gamma and 9-region black level correction with separate per region calibration. 10-bit blend processing when using warp functionality, 16-bit blend processing with de-gamma and re-gamma when warp is disabled
- Chroma improvement processing with CSS, CUE, ICP filtering
- Motion Adaptive adjustable TNR (temporal/film noise) filtering - HD & SD
- Motion Adaptive adjustable CNR (MPEG mosquito and block noise filtering) - SD
- 4-field per-pixel motion adaptive de-interlace with MDDF (multi-directional diagonal filtering) - HD & SD
- 3:2, 2:2 and non-standard cadence pull-down correction with automatic adaptation to non-standard and broken cadences.
- Frame-rate conversion
- 2D image detail enhancement and sharpness control HD & SD
- Gamma selection - HD & SD
- Aspect ratio conversion - HD & SD
- Picture in Picture (PiP) with PiP across blend region capability
- Audio delay correction automatically adjusts for video processing delay
- Per input channel, per signal type parameter storage and automatic configuration
- Uses Silicon Optix Realta with HV by Teranex video processing
- Seamless switching
- Zoom, pan and tilt function
- Image flip left-right, up-down

**Product**  
VIP 3000

**Part #**  
110-150