Universal Input Seamless Switcher

C2-8000 Series

OVERVIEW

C2-8000 Universal Input Seamless Switcher is based on tvONE's exclusive CORIO®2 technology and provides high quality video switching with two-channel bi-directional conversion between a variety of analog and digital video formats. The standard system features multiple DVI-U input modules (allowing any of HDMI, DVI, Composite Video, YC, YUV, YPbPr or RGB) that can be scaled and switched between, along with two independent processing channels. The system can also have 3G-SDI input/output modules fitted, as well as audio I/O.

The high resolution DVI-U (HDMI, DVI, CV, YC, YUV, YPbPr or RGB) outputs are selectable as virtually any PC or HDTV resolution (or SDI with the 3G-SDI I/O module). Our exclusive AutoSet feature takes the hassle out of setup by automatically sizing and positioning the computer image to fit exactly on the video screen. NTSC, PAL, PAL-M, PAL-N, SECAM standards are supported.

In Switcher mode, transitions include Cross-fade, Push, Wipe and Cut. Independent mode gives two channels of video conversion. Dual PIP mode allows two windows to appear together on the same output. All modes allow Background sources to be used along with Keying and Logo insertion.

Signal parameters of the incoming video may be adjusted. All settings are stored in non-volatile memory and are retained even when power is switched off. User defined presets are also available to customize settings for various applications.

All the functions can be controlled via the front panel Push Buttons, an RS-232/422/485 or IP connection. Windows Control Panel software is provided and most third party control systems interface directly with the entire C2 range of products. A front panel LCD makes setup easy. The unit is housed in a standard 1U rack mount case and features an optional redundant internal PSU and power inlet.

Variable Zoom to 10X enlarges any part of the computer screen to fill the entire video screen and position controls allow movement to any area desired. Variable Shrink to as little as 10% allows fitting the image onto most displays. The advanced Digital Flicker Elimination circuitry and high sampling rate ensures crisp, clear images, while full bandwidth chroma sampling ensures faithfully reproduced, high resolution colors. Pixel Level Motion Adaptive Diagonal Interpolation and Noise Reduction ensures high quality de-interlacing of PAL, NTSC and 1080i signals. 3:2 Pull-down ensures proper 24 fps film extraction from NTSC and 1080i sources.

Advanced Features - The Key Mode allows one input to be keyed over another. The keyed image may be faded in and out. Due to the 4:4:4 RGB/DVI sampling format, precise keying at the pixel level can be achieved.

The Mix Mode permits Seamless Cut, Fade or Wipe transitions between input sources whilst a background is in use. The Genlock reference input is SD and HD compatible and ensures precise synchronization of the incoming signals by providing a wide Subcarrier lock range with Subcarrier phase adjust. Integral Audio switching is provided to route audio from the (HDMI-compatible) DVI input or SDI input to the DVI and SDI outputs. An optional Audio Module can provide AES I/O abilities and audio delay and can link to our A2-7300 range of audio break-out units.

KEY FEATURES

- 1RU size
- High Quality Seamless Switching
- Up-Down-Cross Conversion
- DVI-U inputs (HDMI/CV/YC/RGB/YPbPr): up to 12
- SDI inputs: up to 2 SD/HD/3G-SDI + re-clocked out
- DVI-U outputs: 2 (HDMI/CV/YC/RGB/YPbPr)
- SDI outputs: up to 2 (SD/HD/3G)
- Genlock inputs: 1x Tri/Bi with loop-through
- Analog: PC to 2048x2048, HDTV to 1080p/60
- DVI: PC to 1920x1200, HDTV to 1080p/60
- Supports: NTSC, PAL, PAL-M, PAL-N, SECAM
- HDMI-compatible input & output with HDCP
- Motion Compensation & 3:2 Pull-down
- Diagonal Interpolation
- Noise Reduction for PAL, NTSC and 1080i inputs
- Automatic Incoming Resolution Detection
- AutoSet - Automatic picture sizing of PC inputs

- 4:4:4 Full bandwidth sampling
- Variable Image Zoom to 10X and Shrink to 10%
- Chroma and Luma keying
- Fade, Wipe, Push, Cut transitions
- Video signal parameter adjustments
- Audio de-embed / embed for SDI and DVI
- Closed-caption de-embed / embed for CV / SDI
- Integral Audio Routing
- User-defined Logo insertion
- Still image store
- Borders with variable size and colour
- IP Interface
- RS-232/422/485 interface
- Optional Audio Module with AES break-out and adjustable delay
- Optional Tally Module
- Optional Redundant Power Supplies
- Optional Rear Rack mount supports
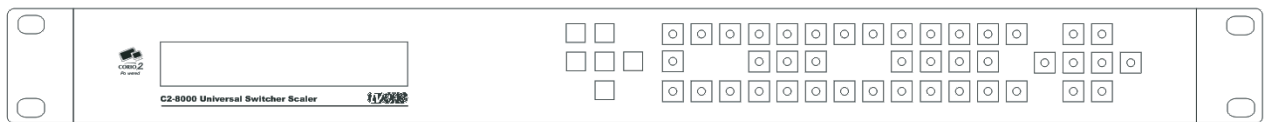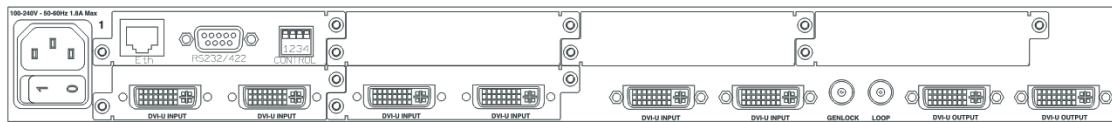
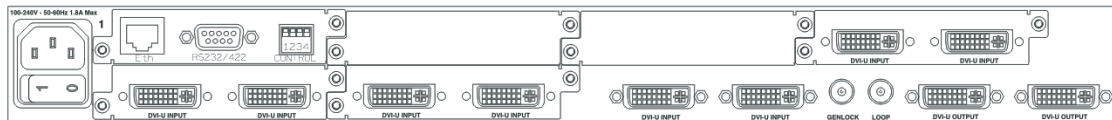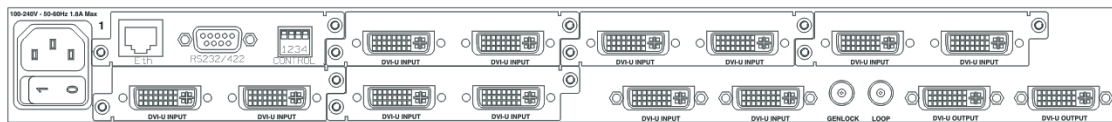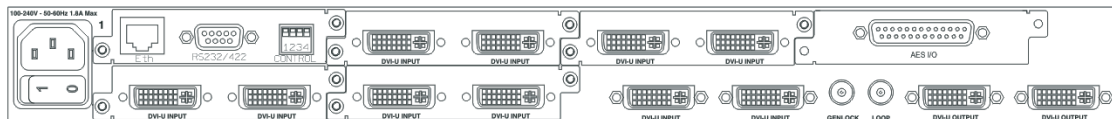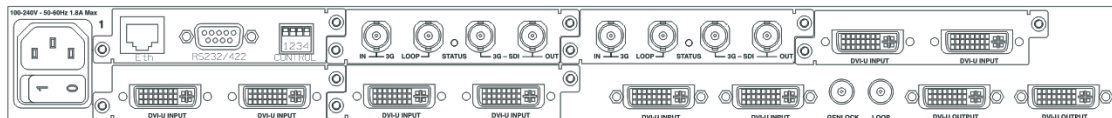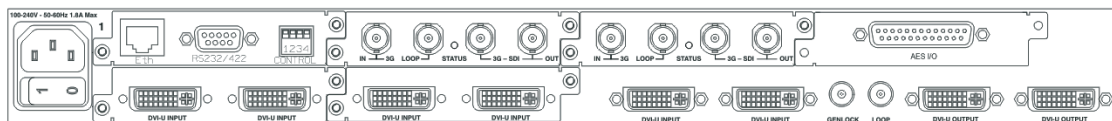## Panel Drawings

Video Inputs

Television Standards	NTSC, PAL, PAL-M/N, SECAM
Composite Video	Up to 12x via DVI-U
YC (S-Video)	Up to 12x via DVI-U
YUV /YPbPr	Up to 12x via DVI-U
SD/HD/3G-SDI	Up to 2x via BNC + re-clocked out

Computer Inputs

Digital DVI	Upto 12x via DVI-U (HDMI & HDCP compatible)
Analog	Upto 12x via DVI-U
Analog Format	RGBHV, RGBS, RGsB, YPbPr
Analog Sync	TTL Level, 10KΩ, Pos or Neg
RGB Level Range	0.5-2.0 Vp-p
Scan Rate Detection	Automatic
Analog Signals	PC to 2048x2048, HD to 1080p60
DVI Signals	PC to 1920x1200, HD to 1080p60
Max Horiz Scan Rate	150kHz
Computer Compatibility	PC, Macintosh, Workstations

Video Outputs

Television Standards	NTSC, PAL, PAL-M/N, SECAM
Composite Video	2x via DVI-U
YC (S-Video)	2x via DVI-U
YUV /YPbPr	2x via DVI-U
SD/HD/3G-SDI	Up to 2x via BNC

Computer Outputs

DVI Signals	2x via DVI-U (HDMI & HDCP compatible)
Analog	2x via DVI-U
Analog format	RGBHV, RGBS, RGsB, YPbPr
R-G-B Level	0.7 Vp-p
DVI Signals	PC to 1920x1200, HD to 1080p60
Analog Signals	PC to 2048x2048, HD to 1080p60
Vertical Refresh Rate	Any to 250Hz
Size and Position	Automatic via AutoSet or Manual
Image Size	User-Definable
Image Freeze	One Video Frame
Settings Memory	Non-Volatile
Zoom Range	Variable to 10X Zoom
Shrink Range	Variable to 10%
Image Mirroring	Horizontal and/or Vertical
Conversion Technology	Proprietary – CORIO®2
Frame-rate Conversion	Temporal
Color	RGB 24-bit 4:4:4 YPbPr 20-bit 4:2:2
Max. Sampling Rate	162MHz
Firmware Memory	Flash, Upgradeable via RS-232
De-Interlacing (NTSC, PAL, 1080i)	Pixel-level Motion Adaptive, Diagonal Interpolation, Noise Reduction.
Video Comb Filter	Adaptive
Film (NTSC, 1080i)	3:2 Pull-down
Video Adjustments	CV/YC: Contrast, Brightness, Saturation, Hue (NTSC). Analog RGB/YPbPr levels

Audio support

De-embed / embed	SDI & HDMI-I/O via DVI
Delay	Via optional module

Closed Captions

De-embed / embed	SDI (608 & 608 in 708)

Genlock Adjustments

Subcarrier Lock Range	+/- 200Hz for NTSC Operation
	(+/- 250Hz for PAL Operation)
Subcarrier Phase	+/- 180° Adjustment

3G/HD/SD-SDI

SMPTE259M-C (SD-SDI)	270Mbps < 0.1UI jitter 525/625Line
SMPTE292M (HD-SDI)	1.485/1.4835Gbps < 0.2 UI jitter 720p, 1035i, 1080i, 1080p
SMPTE424M (3G-SDI)	2.97/2.967Gbps < 0.3 UI jitter 1080p 60/59.94

HD Resolutions supported (DVI, YPbPr, SDI)

720p (1280x720)	23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz
1035i (1920x1035)	59.94, 60Hz
1080i (1920x1080)	50, 59.94, 60Hz
1080p (1920x1080)	23.98, 24, 25, 29.97, 30Hz
1080p (1920x1080)	50, 59.94, 60Hz

Control Methods

Local	via Front Panel Buttons & LCD
RS-232/422/485	via D9 Female Connector
IP Interface	RJ45 Connector

Warranty

Limited Warranty	5 Years Parts and Labour

Regulatory Compliance

Main unit	FCC, CE, RoHS, (UL PSU)

Mechanical

Size (H x W x D)	1.73" x 17.0" x 13.1" 44 x 431 x 334mm
Weight (Net)	Approx. 5Kg (with redundant PSU option)

Environmental

Operating Temperature	0° to +50° C (+32° to +122° F)
Operating Humidity	10% to 85%, Non-condensing
Storage Temperature	-10° to +70° C (+14° to +158° F)
Storage Humidity	10% to 85%, Non-condensing
MTBF	Approx. 35,000 hours

Power Requirement

External Power Supply	110v to 240v auto-detecting
Redundancy	Optional redundant internal PSU

Accessories Included

1x Operations Manual	
1x Front Rack Ears	
1x Power cable	US, UK, Euro or AU

Product Item Number

C2-8110	6x DVI-U In, 2x DVI-U Out
C2-8120	8x DVI-U In, 2x DVI-U Out
C2-8130	12x DVI-U In, 2x DVI-U Out
C2-8160	10x DVI-U In, 2x DVI-U Out, + Audio Interface
C2-8210	8x DVI-U, 2x 3G/HD/SD-SDI In 2x DVI-U Out, 2x 3G/HD/SD-SDI Out
C2-8260	6x DVI-U, 2x 3G/HD/SD-SDI In, + Audio Interface 2x DVI-U Out, 3G/HD/SD-SDI Out

Optional Accessories

CM-AUD-8IN-8OUT	Audio delay module (2)
CM-1RPS	Redundant PSU (2)
RM-120	Rack Support Rails(24")
RM-130	Rack Support Rails(32")
Control Software	Downloadable from Website

Notes
(1)   Each of these uses a module slot and will reduce inputs.
(2)   These are Factory or TV One Tech Center Fitted only.