C2-7110 2-Channel 9-Input Video Processor moves well beyond video processing, switching and Up, Down and Cross Conversion by providing many additional features. Two independent video processing and scaling engines and two video mixers provide maximum flexibility in handling DVI, RGB, YPbPr, YUV, Composite Video, and YC (S-Video). At home in both live event and presentation environments, the C2-7110 is multiple products in one.

C2-7110

C2-7100

Three operating modes simplify control:

Switcher Mode - Equally powerful Program and Preview channels allow any function (Next Image, PIP, Keying, Logo, etc.) to be set up and previewed, totally independent of the Program output. Transition from Preview to Program is by Cut, Dissolve or Special Effect.

Independent Mode - Provides all the power of two completely independent scalers in one box, each with a full range of features, including PIP, Keying, etc. Each output can deliver different formats and resolutions simultaneously. For example, a presentation being fed to a high resolution display on Output 1 via DVI can be fed to a VCR for recording on Output 2 via Composite Video. Two projectors may be edge blended from one unit.

Dual PIP Mode - Any video input can be squeezed and placed into either of two windows of any size and positioned anywhere on the screen, even overlapping, with user defined layer priority control. The windows can be placed over any other video input as the background. The window's image can then be seamlessly switched, faded or zoomed. Keying can be independently applied to each window.

Powerful Features – The 4:4:4 sampling provides full bandwidth color which allows precise keying, including Transparent (Soft) Keys. The 11 video inputs can accommodate signals (either analog or digital, video or computer) in a variety of formats and resolutions. It handles most HDTV and RGB resolutions and formats and new resolutions can be easily added. Each of the two independent outputs delivers a wide range of digital and analog video signals.

In addition to SD and HD television formats, the C2-7110 output signal format flexibility assures that the Native Resolution of most digital displays can be matched. Using the software based resolution calculator, new or unusual resolutions can be instantly added to the menu. Signal parameter adjustments can be made for each video input and are stored in individual non-volatile memories. Integral Test Signals are user defined. A logo memory is provided, so the unit can easily be used as a Logo Inserter. Motion compensation, diagonal interpolation and a 3:2 Pulldown feature for NTSC greatly improve the image quality. Pixel Level Motion Adaptive Diagonal Interpolation insures high quality de-interlacing of PAL and NTSC signals
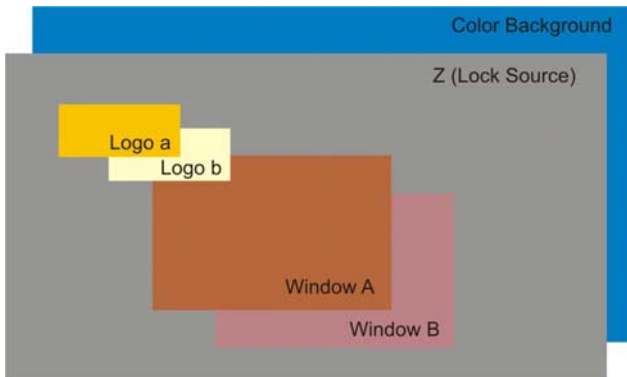
Key Video Features of the C2-7100 Series

- Up, Down, Cross Conversion
- Dual Independent Scaling Engines
- 4:4:4 Sampling for full bandwidth color
- 9 Multi-format Inputs: 3x CV, 3x YC, 3x DVI-I (RGB,YUV & YPbPr)
- 2 Independent Output Channels, each with: Composite Video, YC (S-Video), DVI-I (RGB, YUV & YPbPr)
- Analog RGB to 2048x2048, HD to 1080p
- DVI to 1280x1024/60, HD to 1080p/30
- Genlock any Video Input to any other
- Seamless Switching with Cuts, Fades or Effects
- Pixel Level Motion Adaptive Diagonal Interpolation
- Unrestricted Dual PIP - Any Input over any other
- Multiple Layering and Windowing Capability
- Flexible Key Layering - Background Lock Source can be moved to the Foreground
- RS-232 & IP Interfaces & Windows Control Panel
- External Control by Third Party Control Systems
- External Hardware Control by Optional CC-300
- CORIO2® Technology Conversion Engines
- Zoom up to 1000% with full Positioning
- Image Shrink to 10% with full Positioning
- Multiple Conversion & Scaling products in one

C2-7100 provides all the functions of the C2-7110 with a different front panel. This version has ten programmable buttons and a shift key with removable key caps for flexible labeling. It is intended for applications where custom or restricted access to functions is desirable. The programmability of the buttons provides the ability to setup the unit to allow only specific functions to be accessed directly from the front panel buttons. This is particularly important in situations where public access to the unit is available

Setup and Control is extremely flexible. Local control is provided by the 48-button CORIO EXP Front Panel designed expressly for handling live events. These buttons plus the multi-way navigation control and integrated LCD bring all the control needed for quick and easy access right to the front panel. Remote control via RS-232 or Ethernet (IP) is standard. Macros are provided to facilitate complex command sequences. The Windows Control Panel affords complete control of the unit. The CC-300 CORIOconsole option takes control to the next level by providing the C2-7000 series with the operational feel of a traditional Video Production Switcher. Two rows of 14 buttons, a fader bar, joystick and an integrated LCD touch screen provide access to the powerful C2-7000 series functions with a minimum of keystrokes. Event control directly from the CC-300 is available by the integral interface to Calypso control systems. Virtually any third party device is controllable

Image Layer Processing within the C2-7000 series utilizes a multiple layer video display system whose stacking order can be altered as desired by the user. Using the dual PIP as an example, the layers consist of:

- 1 or 2 image windows (A & B) that can be resized and positioned as desired
- a lock source (the Z layer) which can be an active video background
- 1 or 2 logo images (a & b)
- a color background

Should the user wish, the layers can be re-ordered (example: B in front of A) and the individual layers can also be made opaque, semi-opaque or transparent. Windows A & B can be positioned anywhere on the screen and used as either key sources or key background images. Logos a & b can also be positioned anywhere on the raster and have their appearance set to opaque normal keying or to semi-transparent for channel branding. When keying, the Z Layer may be moved from the background to the foreground.

Multiple Products in One

- 9-Input Multi-format Seamless Switcher
- 2x HDTV to HDTV Cross Converters
- 2x PC to HDTV Cross Converters
- 2x Video to PC/HDTV Up Converters
- 2x PC/HDTV to Video Down Converters
- 2x Video Transcoders
- 2x Universal Video Scalers
- 2x Single Window PIP Devices
- 1x Dual Window PIP Device
- 2x Worldwide TV Standards Converters
- 2x Logo Inserters
- 2x Frame Synchronizer/Timebase Correctors
- 2x Aspect Ratio Converters
- 2x Chroma/Lumakeyers

Edge Blending is a standard feature of the C2-7000 series. Because of the ability to 'feather' any or all of the edges, multiple images can be aligned vertically, horizontally, or both to create unusual displays. Since it is dual channel, only one unit is required to blend two edges. Using multiple C2 units, a large number of images can be blended. Edge Blending is not limited to high resolution RGB computer images, but can be applied to any input. Gamma correction is employed to compensate for many of the problems faced when blending between projectors. Special preparation of the video in advance is not necessary, since all processing is done within the unit.

Other products in the C2-7000 family

C2-7200 provides all the functions of the C2-7100, plus two SD/HD-SDI Inputs and two SD/HD-SDI Outputs.

C2-7210 provides all the functions of the C2-7110 plus two SD/HD-SDI Inputs and two SD/HD-SDI Outputs.

C2-7260 provides all the functions of the C2-7210 but with six additional HD-SDI Inputs for a total of 17 inputs.

C2-7310 provides all the features and functions of the C2-7210, plus 32 channels of integral stereo processing. This allows for simultaneous extraction of eight stereo channels from each of the two SD/HD-SDI inputs and embedding of eight stereo channels into each of the two SD/HD-SDI outputs. Due to the highly flexible internal audio routing, 32 stereo channels (16 in, 16 out) are not restricted for SDI use, but can be assigned to any of the other Composite, Component, YC, analog RGB or DVI inputs and outputs by using the optional A2-7000 units.

CC-300 CORIOconsole works with all C2 products.

Video Specifications

Video Inputs
Composite Video	3x via BNC Connector
YC (S-Video)	3x via 4-PIN Mini-DIN Connector
DVI-I (Note 1)	3x via DVI-I Connector
Reference Signal	Genlock to any of the Video Inputs

Independent Output 1
Composite Video	1x via BNC Connector
YC (S-Video)	1x via 4-PIN Mini-DIN Connector
DVI-I (Note 1)	1x via DVI Connector

Independent Output 2
Composite Video	1x via BNC Connector
YC (S-Video)	1x via 4-PIN Mini-DIN Connector
DVI-I (Note 1)	1x via DVI Connector

Input/Output Range
Computer Resolutions	Analog: Up to 2048x2048
	DVI: Up to 1280x1024 @30Hz
HDTV Resolutions	Analog: Up to 1280x1024 @60Hz
	DVI: Up to 1080p @30Hz
Max Vert Refresh Rate	250Hz
Max Horiz Frequency	150KHz
Interlace Support	Progressive and Interlaced
Television Standards	NTSC 3.58, 4.43, PAL-B,G,I ,D, H, PAL-M, PAL-N. SECAM (In Only)

Input RGB Sync
Type	RGBHV, RGBS, RGsB
Level / Impedance	TTL, 10KΩ
Polarity	Positive or Negative
Maximum Level	5Vp-p

Output RGB Sync
Type	RGBHV, RGsB
Level / Impedance	5Vp-p, 220Ω
Polarity	Positive or Negative

Input/Output YPbPr Sync
Type	Tri-Level

Control Methods
Front Panel (C2-7110)	48 Button +LED and LCD
Front Panel (C2-7100)	20 Button +LED and LCD
RS-232 Interface	DB-9 Male Connector
IP Interface	RJ45 Connector

Environmental
Operating Temperature	4° to +45° C (+40° to +113° F)
Operating Humidity	10% to 85%, Non-condensing
Storage Temperature	0° to +60° C (32° to +140° F)
Storage Humidity	10% to 85%, Non-condensing

Regulatory Approvals
Video Scaler Unit	FCC, CE, RoHS
Power Supplies	UL, CUL, CE, PSE, GS, RoHS

Mechanical
Desktop Case (HWD)	44x420x200mm (1.75"x17"x7.9")
With Rack Ears (HWD)	44x482x200mm (1.75"x19"x7.9")
Weight (Net)	3.16 kg (6.95 lbs)

General
Image Size & Position	AutoSet or Manual
Image Zoom Range	Continuous to 1000%
Image Shrink Range	Continuous to 10%
Image Mirroring	Horizontal and/or Vertical
Image Freeze	Full Frame
Video Sampling Rate	108MHz
Resolution Memory	Approximately 1,000 Definable
Firmware Memory	Flash, Upgradeable via RS-232
Flicker Filter	4-Level Vertical
Picture-in-Picture	2 Windows + Background from any 3 Video Inputs
Number PIP Windows	2 in Dual PIP Mode
	1 in Switcher & Ind. Modes
Video I/O Impedance	75Ω
Video Decoder	9-bit Digital
Comb Filter Decoding	Adaptive
De-Interlacing (PAL-NTSC)	Pixel-level Motion Adaptive Diagonal Interpolation
Film Mode (NTSC)	3:2 Pull Down Detection
Video Encoder	10-bit Digital
Digital Sampling	24-bit, 8-bits per R, G and B
Colors	16.7 Million
Video Scaling Engine	Proprietary CORIO2®
Internal Format	4:4:4 YUV
Internal Test Patterns	User Defined
LCD Panel	24x2 Character
Logo Inserter	Flash Programmable
Proc Amp Adjustments	Brightness, Contrast, Saturation, & Hue for CV & SV Inputs, plus Video Level for RGB Input
Proc Amp Memory	Settings for each Video Input

Warranty
Limited Warranty	2 Years Parts and Labor

Power Requirement
Internal Power Supply	100-240VAC, 47-63Hz, 50W

Accessories Included
1x AC Power Cord	6' (2m) US, UK or Euro
2x VGA to DVI Adapters	HD-15 Female to DVI-I
1x Operations Manual	
1x Rackmount Kit	2 Ears and 4 Screws
1x Control Software	Downloadable from website

Product Item Number
C2-7110	with CORIO EXP front panel
C2-7100	with 20 button front panel

Optional Accessories
CC-300	CORIOconsole
A2-2000	Audio Switcher

Notes
(1) DVI-I Input/Output connectors also accommodate RGsB, RGHV, YUV & YPbPr signal formats.

A2-2000 Specifications

Audio Switching
Stereo Inputs	10x Balanced and Unbalanced
Program Output	1x Balanced and Unbalanced
Preview Output	1x Balanced and Unbalanced
Connectors per I/O	2x RCA for Unbalanced

Note
(2) A2-2000 is controlled from the C2-7100 Series unit and provides Audio Follow Video or Breakaway. A Separate Spec Sheet is available for this option.
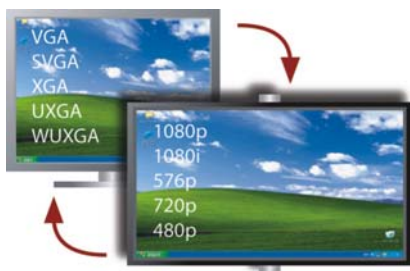
A2-2000

Sample Capabilities

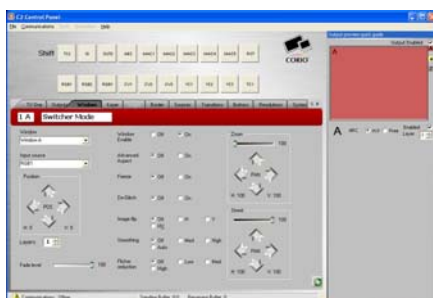Dual Channel Universal Signal Conversion – Up, Down, Cross

Dual Channel Chromakey with simultaneous PIP Insertion

Multi-Format, Dual PIP over an Active Video Background

Sample Windows Control Panel Screens
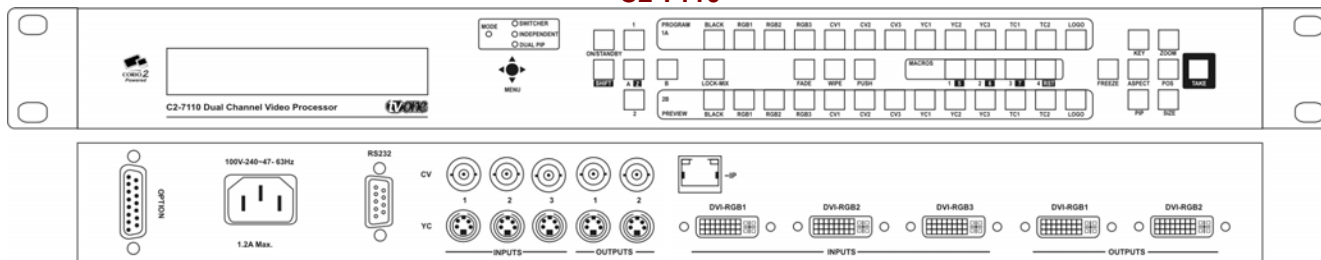
Window Setup Menu

Switcher Dual PIP Menu

Outputs Menu

Resolution Editor Menu

Keyer Menu

Panel Drawings

C2-7110

C2-7100