

## C2-7000 Series Dual Channel Video Processor

features two independent video processing and scaling engines and two video mixers for maximum flexibility in handling DVI, RGBHV, RGBS, RGsB, YCbCr, YPbPr, CV and Y/C signals. The C2-7200 model also has HD-SDI and SD-SDI. At home in both broadcast and display environments, the C2-7000 series is multiple products in one unit. A few examples are listed in the box to the right. 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.

**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 each other with user defined layer priority control. The windows can be placed over any other video input or a static image from memory as the background. The image in the window can then be seamlessly switched, faded or even zoomed. Keying can be applied to each window independently.

**Powerful Features** - 4:4:4 sampling provides full bandwidth color which allows precise keying, including Transparent (Soft) Keys. The unit's 11 Video Inputs accommodate multiple analog and digital video and computer signal formats and resolutions. It handles all known HDTV formats plus any analog RGB resolution up to 2048x2048 - and new resolutions can be easily added. Each of the two independent outputs delivers HD-SDI (or SD-SDI), DVI-I, RGBHV (or RGBS or RGsB), YCbCr, YPbPr, Composite and Y/C (S-Video).

C2-7000 series output signal format flexibility assures that the Native Resolution of virtually any Digital Display 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 fast Logo memory is provided, so the unit can easily be used as a Logo Inserter. Advanced motion compensation (NTSC and PAL) is employed to smooth out fast moving images and its automatic 3:2 Pull-down detection efficiently de-interlaces video from 24 fps film (NTSC). Finally, the C2-7200 provides delay free HD-SDI and SD-SDI audio pass-through as a standard feature.



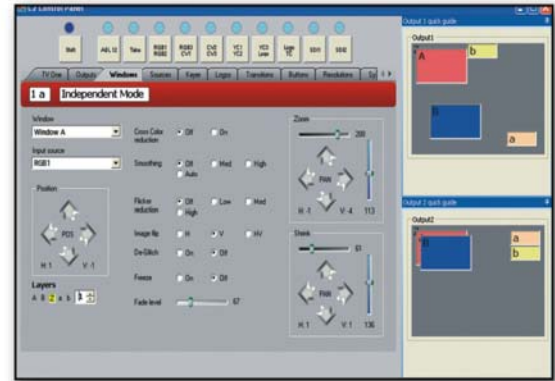
C2-7000 Series Front



C2-7100 Rear



C2-7200 Rear



Windows Control Panel



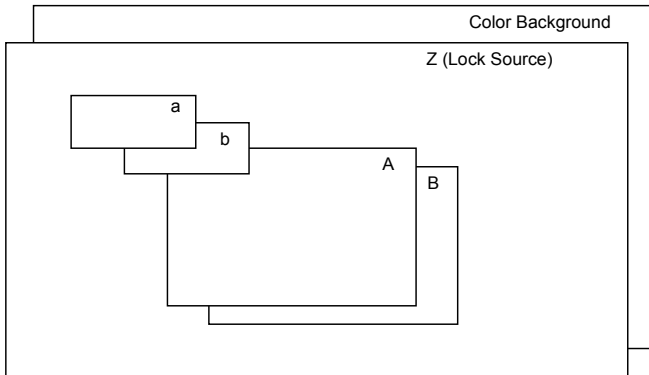
CC-300 CORIOconsole

### Multiple Products in One

- Seamless Switcher
  - 2x Video Scalers
  - 2x Down Converters
  - 2x Frame Sync/TBCs
  - 2x PC ◀-▶ HDTV
  - 2x PC ◀-▶ PC
  - 2x SDTV ◀-▶ HDTV
  - 2x HDTV ◀-▶ HDTV
  - 2x Analog ◀-▶ DVI
  - 2x SD-SDI ◀-▶ HD-SD\*
  - 2x DVI ◀-▶ SDI\*
  - 2x Analog ◀-▶ SD/HD-SD\*
  - Dual Window P-I-P
  - 2x Single Window P-I-Ps
  - 2x Logo Inserters
  - 2x Standards Converters
  - 2x Video Transcoders
  - 2x Multi-Format Genlock
  - 2x Chromakeyers
  - 2x Lumakeyers
  - 2x Aspect Ratio Converters
- \* C2-7200 Only

## Image Layer Processing

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 P-I-P mode as an example, the layers consist of up to two image windows (A & B) that can be resized and positioned as desired, a lock source, (the Z layer, which can be an active video or still image background), two logo images (a & b) and a color background. Graphically, the images appear as shown:



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 raster 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.

## External Control

The C2-7100 and C2-7200 can be controlled from the front panel buttons and integrated LCD or remotely by RS-232 or by IP. The Windows Control Panel affords complete control of the unit and adds Macros to facilitate long, complex command sequences. In addition, the optional CC-300 CORIOconsole provides a control capability similar to traditional Video Switchers.

**C2-7100 Dual Channel Video Processor** provides all the features and functions of the C2-7200, except without the SDI/HD-SDI Inputs and Outputs.

**A2-2000** Stereo Audio Switcher provides optional audio follow video or audio breakaway for the C2 series. It handles both Low Impedance Balanced and High Impedance Unbalanced Audio. The A2-2000 is connected to either the C2-7100 or C2-7200 by a single interconnect cable and obtains power and control from the host unit.

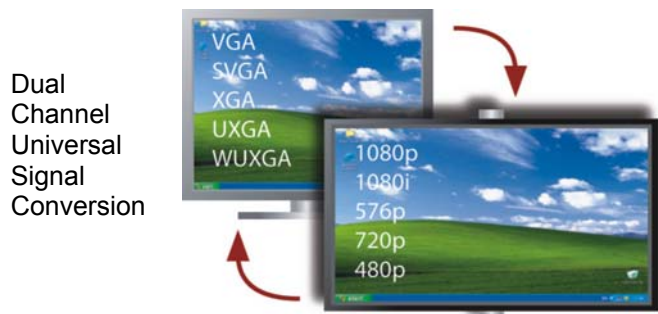
## Key Features of the C2-7100, C2-7200

- Dual Independent Scaling Engines
- Delay free HD-SDI Audio Pass-Thru (C2-7200)
- 4:4:4 Sampling for full bandwidth color
- 3x Composite & 3x S-Video Inputs
- 2x 10 bit SD/HD-SDI I/O (C2-7200 Only)
- 3x DVI Inputs (also used for RGB and YUV)
- 2 Independent Multi-Format Outputs
- All DVI channels support EDID v1.3
- Multiple Conversion & Scaling products in one
- Up to 11 Multi-format Inputs – Digital and Analog
- Analog RGBHV to 2048x2048
- All known HDTV Resolutions
- Genlock any Video Input to any other
- Seamless Switching with Cuts, Fades or Effects
- Unrestricted Dual P-I-P - Any Input over any other
- RS-232 & IP Interface for external control
- CORIO2® Technology Conversion Engines
- Zoom up to 1000% with 100% with Positioning
- Image Shrink to 10% with 100% with Positioning

## Sample Capabilities



Dual Channel Chroma-key with simultaneous P-I-P Insertion



Dual Channel Universal Signal Conversion



Multi-Format, Dual P-I-P Over an Active Video Background

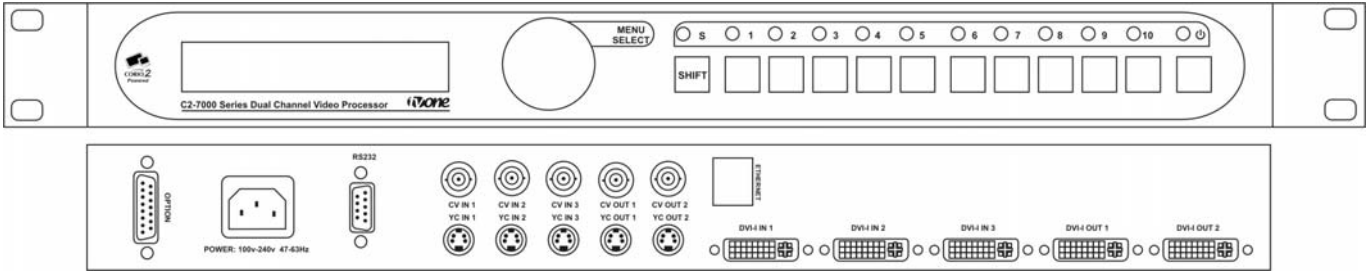
## Specifications

<b>Video Inputs</b>	
Composite Video	3x via BNC Connector
S-Video (Y/C)	3x via 4-PIN Mini-DIN Connector
DVI-I (Note 1)	3x via DVI-I Connector
SDI (SD or HD-SDI)	2x via BNC (C2-7200 Only)
<b>Genlock Input</b>	
Reference Signal	Any of the Video Inputs
<b>Independent Output 1</b>	
Composite Video	1x via BNC Connector
S-Video (Y/C)	1x via 4-PIN Mini-DIN Connector
DVI-I (Note 1)	1x via DVI Connector
SDI (SD or HD-SDI)	1x via BNC (C2-7200 Only)
<b>Independent Output 2</b>	
Composite Video	1x via BNC Connector
S-Video (Y/C)	1x via 4-PIN Mini-DIN Connector
DVI-I (Note 1)	1x via DVI Connector
SDI (SD or HD-SDI)	1x via BNC (C2-7200 Only)
<b>Input/Output Range</b>	
Computer Resolutions	Analog: Up to 2048x2048 DVI: Up to 1280x1024
Max Vert Refresh Rate	250Hz
Max Horiz Frequency	150KHz
HDTV Resolutions	480p, 576p, 720p, 1080i and 1080p (Note 3)
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)
SDI (C2-7200 Only)	SD-SDI or HD-SDI
<b>Input RGB Sync</b>	
Type	RGBHV, RGBS, RGsB
Level / Impedance	TTL, 10KΩ
Polarity	Positive or Negative
Maximum Level	5Vp-p
<b>Output RGB Sync</b>	
Type	RGBHV, RGBS, RGsB
Level / Impedance	5Vp-p, 220Ω
Polarity	Positive or Negative
<b>Audio Switching</b> (Optional A2-2000)	
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 1x Terminal Block for Bal & Unbal
<b>Control Methods</b>	
Local Front Panel	10x2 Programmable Buttons +LED, Rotary Selector, and LCD
RS-232 Interface	DB-9 Male Connector
IP Interface	RJ45 Connector
Audio Switcher Control	Via D-15 Options Connector from the Main Unit
<b>Mechanical</b>	
Desktop Case (HWD)	1.75"x17"x7.9" (44x420x200mm)
With Rack Ears (HWD)	1.75"x19"x7.9" (44x482x200mm)
Weight (Net)	8.4 lbs (3.8 kg)
<b>Environmental</b>	
Operating Temperature	+40° to +113° F (4° to +45° C)
Operating Humidity	10% to 85%, Non-condensing
Storage Temperature	32° to +140° F (0° to +60° C)
Operating Humidity	10% to 85%, Non-condensing

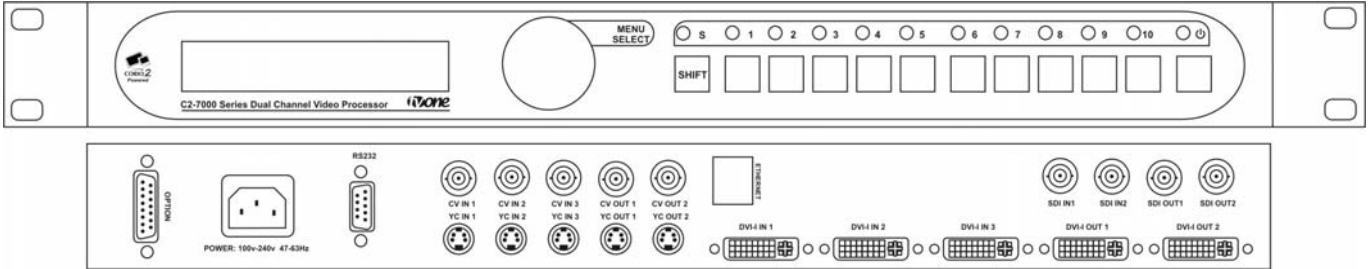
<b>General</b>	
Image Size & Position	AutoSet or Manual
Image Zoom Range	Continuous to 1000%
Image Shrink Range	Continuous to 10%
Image Mirroring	Horizontal and/or Vertical
Image Freeze	Full Frame
Video Sampling Rate	108MHz
Resolution Memory	Approximately 1,000 Definable
Firmware Memory	Flash, Upgradeable 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
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
<b>Power Requirement</b>	
Internal Power Supply	100-240VAC, 47-63Hz, 50W
<b>Warranty</b>	
Limited Warranty	2 Years Parts and Labor
<b>Regulatory Approvals</b>	
Video Scaler Unit	FCC, CE
Power Supplies	UL, CE, CSA
<b>Accessories Included</b>	
1x C-Video I/O Cable	6' (2m) BNC to BNC
1x S-Video I/O Cable	6' (2m) 4-Pin S-V to 4-Pin S-V
1x DVI I/O Cable	6' (2m) DVI-I to DVI-I
5x RGBHV I/O Adapters	DVI to HD-15 Adapters
1x AC Power Cord	6' (2m) US, UK or Euro Type
1x RS-232 Cable	6' (2m) D9F to DB9F
1 DVI-A to 5 BNC	6' (2m) DVI-A to 5 BNC
1x Operations Manual	
1x Rackmount Kit	2 Ears and 4 Screws
1x Control Software	Downloadable from website
<b>Optional Accessories</b>	
A2-2000	Audio Switcher (Note 2)
CC-300	Hardware Control Panel
<b>Product Item Number</b>	
C2-7100	Dual Channel Video Processor
C2-7200	Version with SD/HD-SDI
<b>Notes</b>	
(1) DVI-I Input/Output connectors also accommodate RGBHV, RGBS, RGsB, YCbCr & YPbPr signal formats.	
(2) A2-2000 is controlled from the C2-7100 or C2-7200 and provides Audio Follow Video or Audio Breakaway.	
(3) 1080p not supported on HD-SDI (only in analog).	

## Panel Drawings

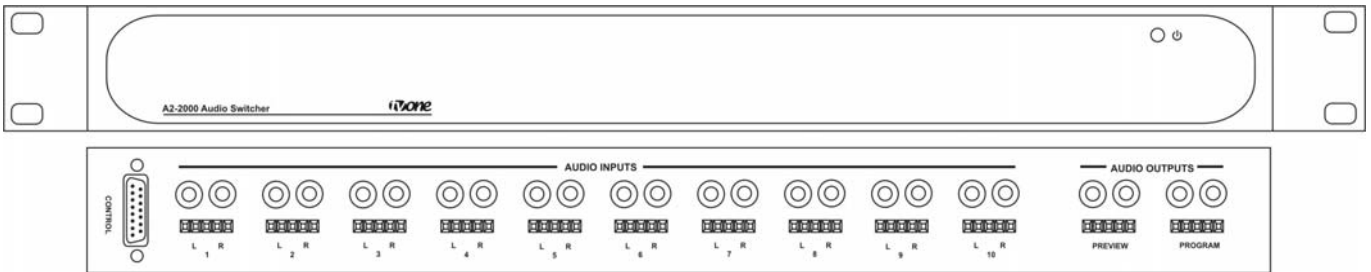
### C2-7100



### C2-7200



### A2-2000



### CC-300

