**C2-2355A HD Up-Down-Cross Converter** is based on TV One's exclusive CORIO®2 technology and provides high quality bi-directional conversion between a variety of analog and digital video formats. Input and Outputs can be SD/HD-SDI, DVI, Composite Video, YC, YUV, YPbPr or RGB. 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. Ten user defined presets are also available to customize settings for various applications. The high resolution RGB/YPbPr output is selectable as virtually any PC or HDTV resolution. 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.

All the functions can be controlled via the front panel Push Buttons, an Infrared Remote Control Unit, an RS-232 or IP connection. The CORIOtools Suite integrates fully with the unit. 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 desktop case and an optional rackmount kit is available that holds one or two units.

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. Motion compensation, diagonal interpolation and a 3:2 Pulldown feature for NTSC greatly improve the image quality. Temporal interpolation greatly improves frame-rate conversion by analyzing and merging successive frames. Pixel Level Motion Adaptive Diagonal Interpolation insures high quality de-interlacing of PAL and NTSC signals.

**Advanced Features -** The **Key Mode** allows computer graphics to be keyed over an external Composite or YC signal. The keyed image may be faded in and out. Due to the 4:4:4 sampling format, precise keying at the pixel level can be achieved. The **Mix Mode** permits Seamless Cut, Fade or Wipe transitions between input sources. The **PIP Mode** allows either of the computer inputs to be inset in a window over either of the video inputs or vice versa. The PIP window may be placed anywhere on the screen. The **Edge Blending** feature allows feathering any or all of the edges; multiple images can be aligned vertically, horizontally, or both to create unusual displays. Using multiple units, any number of images can be blended. The **Genlock** feature ensures precise synchronization of the incoming signals by providing a wide Subcarrier lock range with Subcarrier phase adjust

## Key Features of the C2-2355A

- Up-Down-Cross Conversion
- Digital Inputs: SD/HD-SDI, DVI-D
- Analog Inputs: YUV/YPbPr, RGB/YPbPr , CV, YC
- Digital Outputs: SD/HD-SDI, DVI-I
- Analog Outputs: DVI-I (RGB/YPbPr/YUV), CV, YC
- Analog: PC to 2048x2048, HDTV to 1080p/60
- DVI: PC to 1920x1200, HDTV to 1080p/60
- Supports: NTSC, PAL, PAL-M, PAL-N, SECAM
- Motion Compensation & 3:2 Pulldown
- Temporal Interpolation & Diagonal Interpolation
- Automatic Incoming Resolution Detection
- AutoSet - Automatic picture sizing of PC inputs
- 4:4:4 Full bandwidth Chroma Sampling
- Video signal parameter adjustments
- Integral 4x1 Stereo Audio Routing Switcher
- RS-232 and IP Interface, CORIOtools Suite & WCP
- Variable Image Zoom to 10X and Shrink to 10%
- Genlock With Subcarrier Phase Adjustment
- PIP, Chromakey and Lumakey, Edge Blending
- Optional Single/Dual Rackmount Kit
- Optional Input Expansion with S2 Switchers

**Input Expansion** is possible by using the optional S2 Series Input Expansion Modules for SD/HD-SDI, DVI, RGB, YPbPr, YUV, Composite or YC. These units link to C2-2355A unit via an OPTIONS Interconnect Cable and become an integral part of the main unit from a control and operational standpoint. The routing of these additional inputs is controlled directly from the control system of the C2-2355A. Multiple different S2 models may be simultaneously connected to a single C2 unit.

**Basic Integral Stereo Audio** switching is provided by an integral 4x1 audio routing switcher. The four impedance-independent unbalanced inputs follow the video input selection. A rear panel terminal block provides access.
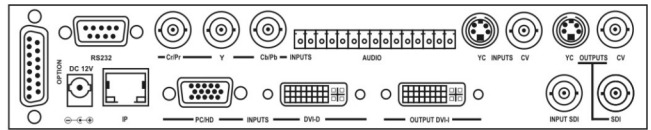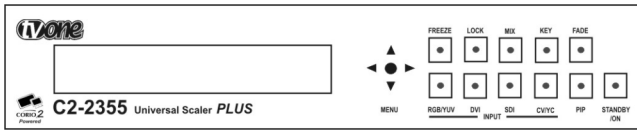
**Advanced Stereo Audio** is available via the optional S2-106AD Input Expansion Switcher, providing six differential audio inputs, which can be used for low impedance balanced or high impedance unbalanced sources. The user controls audio level, audio sampling frequencies and up to 999ms of adjustable audio delay independently for each input. The unit has numerous choices for audio I/O connectors, including a terminal block. The S2-106AD connects to the C2-2355A via the OPTIONS interconnect cable and is then fully integrated into the control system of the host unit.
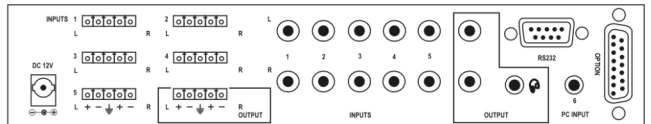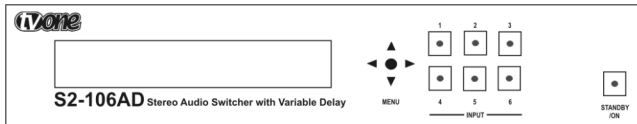
## Specifications

### Video Inputs

| | |
|---|---|
| Television Standards | NTSC, PAL, PAL-M, PAL- N, SECAM |
| Composite Video | 1x via BNC |
| YC (S-Video) | 1x via 4-Pin Mini-DIN Connector |
| YUV /YPbPr | 1x via 3-BNC |
| SD/HD-SDI | 1x via BNC |

### Computer Inputs

| | |
|---|---|
| Signal Type | 1x Analog via HD15 Connector |
| | 1x DVI-D via DVI-I Connector |
| Format | RGBHV, RGBS, RGsB, YPbPr |
| Sync | TTL Level, 10KΩ, Pos or Neg |
| Termination | 75Ω |
| R-G-B Level Range | 0.5-2.0 Vp-p |
| Scan Rate Detection | Automatic |
| Analog Signals | PC to 2048x2048 ,HD to 1080p/60 |
| DVI Signals | PC to 1920x1200,HD to 1080p/60 |
| Max Horiz Scan Rate | 150KHz |
| Computer Compatibility | PC, Macintosh, Workstations |

### Video Outputs

| | |
|---|---|
| Television Standards | NTSC, PAL, PAL-M, PAL- N, SECAM |
| Impedance | 75Ω |
| Composite Video | 1x via BNC |
| YC (S-Video) | 1x via 4-PIN Mini-DIN |
| YUV, YPbPr | 1x via 3-BNC (shared w/ RGB Out) |
| SD/HD-SDI | 1x via BNC |

### Computer Outputs

| | |
|---|---|
| Signal Type | 1x DVI-I via DVI-I Connector |
| Format | RGBHV, RGBS, RGsB, YPbPr |
| R-G-B Level | 0.7 Vp-p |
| Analog Signals | PC to 2048x2048 ,HD to 1080p/60 |
| DVI Signals | PC to 1920x1200,HD to 1080p/60 |
| Vertical Refresh Rate | Any to 250Hz |
| Size and Position | Automatic via AutoSet or Manual |
| Image Size | User-Definable Presets |
| 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 |
| Horizontal Filtering | Full Digital |
| Conversion Technology | Proprietary – CORIO®2 |
| Framerate Conversion | Temporal |
| Color Resolution | 24 -bit (16.8 Million Colors) |
| Sampling Rate | 162MHz |
| Digital Sampling | 24 -bit, 4:4:4 format |
| Firmware Memory | Flash, Upgradeable via RS -232 |
| Video Encoder | 8-bit Digital |
| Video Decoder | 9-bit Digital |
| De-Interlacing (NTSC-PAL) | Pixel-level Motion Adaptive, Diagonal Interpolation |
| Comb Filter Decoding | Adaptive |
| Film Mode (NTSC) | 3:2 Pulldown |
| Video Adjustments | CV/YC: Contrast, Brightness, Saturation, Hue (NTSC). Analog RGB/YPbPr levels (Note 1) |

### Audio Input/Output

| | |
|---|---|
| Inputs | 4x Unbalanced via Terminals |
| Output | Unbalanced via Terminals |
| I/O Impedance | Impedance-Independent |

### Operational Modes

| | |
|---|---|
| Key | Chromakey or Lumakey |
| Mix | PC to/from Video |
| PIP | Variable Window Size & Position |

### Genlock Adjustments

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

### SDI Jitter

| | |
|---|---|
| SMPTE259M-C (SD-SDI) | (270Mbps:525/625Line) Jitter 0.070 +/-0.01 UI |
| SMPTE292M (HD-SDI) | (1.485/1.4835Gbps: 720p, 1035i, 1080i, 1080p) Jitter 0.176 +/- 0.02 UI |

### I/O Vertical Rates - SMPTE259M -C (SD-SDI)

| | |
|---|---|
| 525i (720x488) | 59.94Hz |
| 625i (720x576) | 50 Hz |

### I/O Vertical Rates - SMPTE292M (HD-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 |

### Control Methods

| | |
|---|---|
| Local | via Front Panel Buttons & OSD |
| RS-232 Interface | via D9 Female Connector |
| IP Interface | RJ45 Connector |
| Infrared Remote | via IRC-5 Remote Unit |
| Input Expansion Control | via D-15 Options Connector |

### Warranty

| | |
|---|---|
| Limited Warranty | 5 Years Parts and Labor |

### Regulatory Compliance

| | |
|---|---|
| Main Units | FCC, CE, RoHS |
| Power Supplies | UL, CUL, CE, PSE, GS, RoHS |

### Mechanical

| | |
|---|---|
| Size (H-W-D) | 41.5x218x150mm(1.63"x8.6"x5.9") |
| Weight (Net) | 1.30kg (2.86 lbs) |

### 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 |

### Power Requirement

| | |
|---|---|
| External Power Supply | 12VDC @1.5A (Note 2) |

### Accessories Included

| | |
|---|---|
| 1x Operations Manual | |
| 1x Power Adapter | US, UK, Euro or AU |

### Product Item Number

C2-2355A

### Optional Accessories

| | |
|---|---|
| RM-220 | Single/Dual Rackmount Kit |
| S2 Series | Input Expansion Switchers |
| Control Software | Downloadable form Website |

### Notes

(1) Balanced Audio (6-inputs) and Audio Delay is available via the S2-106AD accessory.
(2) The C2 unit uses less than 1A, however, if an S2 unit is powered via the OPTIONS connector, 1.5A is required.

## Panel Drawings



**C2-2355** Universal Scaler *PLUS*

## S2-106AD Advanced Audio Processor Module



**S2-106AD** Stereo Audio Switcher with Variable Delay

## Typical S2 Input Expansion Modules



**S2-108HD** HD-SDI Video Switcher



**S2-105DVIA** DVI-D Stereo Audio Switcher



**S2-110CV** Composite Video Switcher



**S2-105CVA** Composite Video Switcher Stereo Audio Switcher



**S2-109PC** RGB/YPbPr Switcher



**S2-105YCA** S-Video Stereo Audio Switcher