C2-2350A Universal I/O Video Switcher/Scaler is based on TV One's exclusive CORIO®2 technology and provides high quality bi-directional conversion between a variety of video formats. Inputs and Outputs can be DVI, RGB, YUV, YPbPr, Composite or S-Video (YC). Incoming video parameters 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 input image to fit exactly on the video screen. NTSC, PAL, PAL-M, PAL-N, SECAM standards are supported. The **C2-2355A** provides an SD/HD-SDI Input and Output in addition to all of the features of the C2-2350A.

All the functions can be controlled via the front panel Push Buttons, Infrared, RS-232 or IP. 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 insures crisp, clear images, while full bandwidth chroma sampling insures faithfully reproduced, high resolution colors. Motion compensation, diagonal interpolation and a 3:2 Pulldown feature for NTSC improves 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, YC or SDI (C2-2355A) signal, or vice-versa. 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. Gamma correction is employed to compensate for many of the problems faced when blending projectors. The **Genlock** feature insures precise synchronization of the incoming signals by providing a wide Subcarrier lock range with Subcarrier phase adjust.

Key Features of the C2-2350A, C2-2355A

- Up-Down-Cross Conversion
- Inputs: DVI-D, YUV/YPbPr, RGB/YPbPr , CV, YC, plus SD/HD-SDI on model C2-2355A
- Outputs: DVI-I (RGB/YPbPr/YUV), CV, YC, plus SD/HD-SDI on model C2-2355A
- 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 & Windows Control Panel
- Variable Image Zoom to 10X and Shrink to 10%
- Genlock With Subcarrier Phase Adjustment
- Mix, PIP, Chroma/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 Switchers for SD/HD-SDI, DVI, RGB, YPbPr, YUV, Composite or YC. These units link to C2 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 unit. Multiple different S2 models may be simultaneously connected to a single C2 unit.

Basic Stereo Audio switching is accomplished by an integral 4x1 audio routing switcher. The four impedance-independent, unbalanced inputs follow the video input selection. A rear panel terminal block provides input and output 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 unit 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 (C2-2355A only)

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 DVI/RGB Conn. (shared)
SD/HD-SDI	1x via BNC (C2-2355A only)

Computer Outputs
Signal Type	1x DVI-I via DVI-I Connector
	1x Analog RGB (C2-2350A only) via HD-15 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 (C2-2355A only)
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

SD-SDI I/O Vertical Rates (C2-2355A only)
SMPTE259M-C
525i (720x488)	59.94Hz
625i (720x576)	50 Hz

HD-SDI I/O Vertical Rates (C2-2355A only)
SMPTE292M
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	via RJ45 Connector
Infrared Remote	via optional IRC-5 Remote Unit
Input Expansion Control	via D-15 Options Connector

Warranty
Limited Warranty	2 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 or Euro

Product Item Number
C2-2350A	Universal I/O Switcher Scaler
C2-2355A	Version with SD/HD-SDI In/Out

Optional Accessories
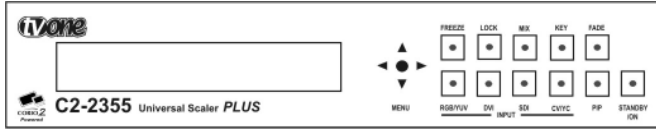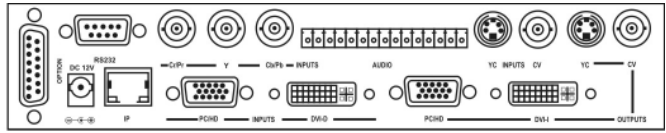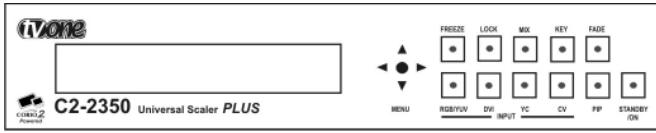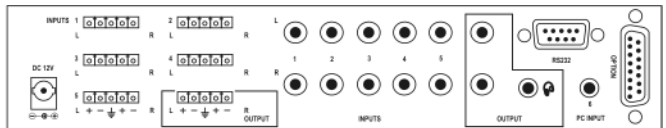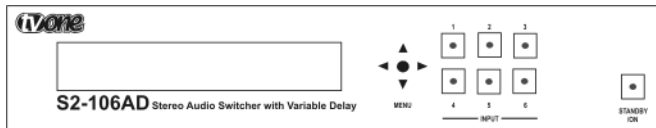|	
RM-220	Single/Dual Rackmount Kit
IRC-5	IR Remote Control Unit
S2 Series	Input Expansion Switchers
Control Software	Downloadable form Website

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

C2-2350 Universal Scaler *PLUS*

FREEZE LOCK MIX KEY FADE
MENU RGB/YUV DVI YC CV PIP STANDBY/ON
INPUT

OPTION · DC 12V · RS232 · IP · CrPr · Y · Cb/Pb · INPUTS · AUDIO · YC · INPUTS · CV · YC · CV · PC/HD · INPUTS · DVI-D · PC/HD · DVI-I · OUTPUTS

C2-2355 Universal Scaler *PLUS*

FREEZE LOCK MIX KEY FADE
MENU RGB/YUV DVI SDI CV/YC PIP STANDBY/ON
INPUT

OPTION · DC 12V · RS232 · IP · CrPr · Y · Cb/Pb · INPUTS · AUDIO · YC · INPUTS · CV · YC · OUTPUTS · CV · PC/HD · INPUTS · DVI-D · OUTPUT DVI-I · INPUT SDI · SDI

S2-106AD Advanced Audio Processor/Switcher

S2-106AD Stereo Audio Switcher with Variable Delay

MENU · 1 2 3 · 4 5 6 · INPUT · STANDBY/ON

INPUTS 1 · L · R · 2 · L · R · DC 12V · 3 · L · R · 4 · L · R · 5 · L · R · OUTPUT · 1 2 3 4 5 · INPUTS · OUTPUT · RS232 · OPTION · PC INPUT

Typical S2 Input Expansion Switchers

S2-108HD HD-SDI Video Switcher

1 2 3 4 5 6 7 8 · INPUTS · STANDBY/ON

DC 12V · INPUTS · 1 2 3 4 5 6 7 8 · RS232 · OPTION · OUTPUT

S2-105DVIA DVI-D Stereo Audio Switcher

1 2 3 4 5 · INPUT · STANDBY/ON

DC 12V · INPUTS · 1 · 2 · AUDIO INPUTS · 1 2 3 4 5 · AUDIO OUTPUT · RS232 · OPTION · 3 · 4 · 5 · OUTPUT

S2-110CV Composite Video Switcher

1 2 3 4 5 6 7 8 9 10 · INPUTS · STANDBY/ON

DC 12V · INPUTS · 1 2 3 4 5 · RS232 · OPTION · INPUTS · 6 7 8 9 10 · 1 OUTPUT 2

S2-105CVA Composite Video Switcher Stereo Audio Switcher

1 2 3 4 5 · INPUTS · STANDBY/ON

INPUTS 1 · L · R · 2 · L · R · DC 12V · 3 · L · R · 4 · L · R · INPUTS · 1 2 3 4 5 · RS232 · OPTION · 5 · L · R · OUTPUT · LOOP-THRU · 1 OUTPUT 2

S2-109PC RGB/YPbPr Switcher

1 2 3 4 5 6 7 8 9 · INPUTS · STANDBY/ON

RS232 · DC 12V · INPUTS · 1 2 3 4 5 · OPTION · 6 7 8 9 · OUTPUT

S2-105YCA S-Video Stereo Audio Switcher

1 2 3 4 5 · INPUTS · STANDBY/ON

INPUTS 1 · L · R · 2 · L · R · DC 12V · 3 · L · R · 4 · L · R · INPUTS · 1 2 3 4 5 · RS232 · OPTION · 5 · L · R · OUTPUT · LOOP-THRU · 1 OUTPUT 2