

# CORIO®matrix

## C3-340 Series

### Key Features

- Universal DVI Inputs/Outputs: (HDMI/CV/YC/RGB/YPbPr)
- SDI Inputs/Outputs: (SD/HD/3G-SDI)
- High Resolution Inputs/Outputs: Analog: PC to 1920x1080, HDTV to 1080p/60
- DVI: PC to 1920x1200, HDTV to 1080p/60 w/EDID
- SDI: SD, HDTV to 1080p/60
- HDMI-Compatible Input & Output with HDCP
- Automatic Incoming Resolution Detection
- 4:4:4 Full Bandwidth Sampling
- Video Signal Parameter Adjustments
- Horizontal alignment on Analog PC Inputs
- Integral Audio Routing
- Audio de-embed/embed for SDI and DVI/HDMI
- Control: RS-232, TCP/IP, and WebUI
- Command Line Interface - Third Party Control
- 4RU Frame Size
- Modularity Provides Flexible I/O

### Scaler Modules Provide

- Seamless, Cross Format Matrix Switching
- Up-Down-Cross Conversion
- Diagonal Interpolation
- Noise Reduction for PAL, NTSC & Analog 1080i
- Motion Compensation & 3:2 Pull-down

### Options

- Audio Module with AES Out
- Digital & Analog Audio Breakout Boxes
- Redundant Hot-Swappable Power Supplies
- Rear Rackmount Supports
- Universal DVI Adapters (DVI to other connectors)



### Overview

C3-340 CORIO®matrix is a high quality modular video matrix router that utilizes CORIO®softswitch, a firmware based video routing, switching and signal conversion platform. Sixteen modular AV slots are available and can be populated as inputs or outputs\* as needed.

CORIOmatrix scaled output modules provide Up, Down and Cross conversion between a wide variety of analog and digital video formats. The quantity and type of modules selected determines which formats will be accommodated and the matrix size.

All CORIOmatrix functions can be controlled via RS-232 or IP. A web interface is provided for both video and audio routing and setup of the router and can be used as the main control interface if desired. The built-in command line interface easily permits a wide choice of control options we also provide free AMX & Creston modules for integration.

The unit is housed in a standard 4RU rackmount case and features an optional redundant hot swappable internal PSU and power inlet.

### Advanced Features

The CORIO®matrix includes advanced Digital Flicker Elimination circuitry and high 4:4:4 full bandwidth sampling rate ensures crisp, clear images, while full bandwidth chroma sampling ensures faithfully reproduced, high resolution colors. Pixel Level Motion Adaptive Diagonal Interpolation 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.

Integral audio switching is provided to route audio from the DVI (HDMI-compatible) input or SDI input to the DVI and SDI outputs. An optional Audio Module can provide AES and analog or digital I/O breakout capabilities and can link to our A2-7300 range of audio break-out units. Audio routing control is implemented in the Web interface and also available using the command line interface.

### Universal DVI

The universal DVI interface utilizes a single DVI-I connector to provide the following signal formats: HDMI, DVI-I, plus analog YUV, YPbPr, RGBHV, RGBS, RGsB, Y/C and Composite Video. A variety of adapters are available to convert from DVI-I to other connectors.

\*Top row can only be Inputs

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### Universal DVI Modules

tvONE Universal DVI modules allow for direct connections to most common analog or digital sources and destinations.

Custom DVI-I adapters provide connections for: Composite, S-Video, component, VGA, RGBHV and HDMI (DVI-D connects directly).

A DVI module provides 2 connections per AV Slot.

- Universal DVI Input Module
- Universal DVI Scaling Output Module, supporting virtually any PC or HDTV resolution.

### HDBaseT Module

- HDBaseT Scaling Output Module - 2 HDBaseT Outputs w/Ethernet

### SDI Modules

- 3G/HD/SD-SDI Input Module - 2 Inputs
- HD/SD-SDI Input Module - 4 Inputs
- 3G/HD/SD-SDI Scaling Output Module - 2 Outputs  
The scaling 3G/HD/SD-SDI output module allows any source to be converted to SD-SDI, HD-SDI or 3G-SDI for output.\*\*

### Monitoring Module

A single monitoring card allows the inputs and outputs to be viewed on 1 or 2 DVI outputs for signal verification. Embedded audio signals can be monitored along with source and destination identification.

### Audio Interfaces

The optional CM-AUD-8IN-8OUT Audio Interface Module allows connection to any of the following optional external breakout units via HD-44 connector.

- A2-7312 Converts AES-3id I/O to 16x BNC connectors
- 8x AES-id In and 8x AES-3id Out
- A2-7302 Converts AES-3id I/O to 16x XLR Connectors 8 AES Stereo In and 8x Stereo Out
- A2-7342 Converts AES-3id I/O to 16x XLR Connectors 4x Analog Stereo In & 4x Analog Out
- A2-7322 Converts AES-3id I/O to Analog Stereo on Terminal Blocks, 8x Analog Stereo In and 8x Analog Stereo Out, Balanced or Unbalanced

### Future Modules

Additional types and formats of Video, Audio and Data Modules will be added in the future.

### Main Chassis

C3-340-1001 Main Chassis w/Blank Front Panel

- 16 Slots available for Video/Audio Modules
- 3 Slots available for Possible Future Data Modules
- Up to 32 I/O for DVI, HDMI, 3G-SDI, RGB/YPbPr
- Up to 62 I/O for HD/SD-SDI using all 4x Input Modules
- Single Power Supply
- Interfaces for RS-232, USB, IP

### Input Modules

- CM-DVIU-2IN 2x via DVI-I Connectors
- CM-3GSDI-2IN 2x (3G/HD/SD-SDI) via BNC
- CM-HDSDI-4IN 4x (HD/SD-SDI) via BNC

### Scaling Output Modules

- CM-DVIU-XSC-2OUT 2x via DVI-I
- CM-3GSDI-XSC-2OUT 2x (3G/HD/SD-SDI) via BNC
- CM-HDSDI-XSC-4OUT 4x (HD/SD-SDI) via BNC
- CM-HDBT-XSC-2OUT-1ETH 2x HDBaseT w/Ethernet

Note: Full A-to-D or D-to-A, Format and Framerate Conversion is provided with Scaling Output Modules.

### Additional Modules

- CM-DVIU-MON-2Out DVI Monitoring Module
- CM-AUD-8IN-8OUT Audio Interface Module  
8x In & 8x Out via HD-44 Connector
- CM-4RPS Redundant Hot-Swappable Power Supply

### Optional DVI-U Adapters

- ZDH2050 Composite Video Adapter  
DVI-I Male to BNC Female
- ZDB2048 YC (S-Video) Adapter  
DVI-I Male to 2-BNC Female
- ZDS2046 YC (S-Video) Adapter  
DVI-I Male to 4-Pin Mini-Din Female
- ZDH2040 Analog PC Adapter  
DVI-I Male to HD-15 Female
- ZDB2038 Analog RGBHV Adapter  
Cable DVI-I Male to 5-BNC Female – 1.5' (0.5m)
- ZDB2044 YPbPr/YUV Adapter  
Cable DVI-I Male to 3-BNC Female – 1.5' (0.5m)
- ZDB2042 YPbPr/YUV Adapter  
DVI-I Male to 3-RCA Female
- CMD1939 HDMI Adapter  
DVI-I Male to HDMI Female

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### Specifications

<b>Computer Input</b>		<b>Video Outputs</b>	
Digital DVI/HDMI	Up to 30 via Universal DVI (HDCP compliant)	Television Standards	NTSC, PAL, PAL-M/N
Analog	Up to 30 via Universal DVI	Composite Video	Up to 24 via Universal DVI
Analog Format	RGBHV, RGsB, YPbPr	YC (S-Video)	Up to 24 via Universal DVI
Analog Sync	TTL Level, 10KΩ, Pos or Neg	YUV /YPbPr	Up to 24 via Universal DVI
RGB Level Range	0.5-2.0 Vp-p	SD/HD/3G-SDI	Up to 24 via BNC
Scan Rate Detection	Automatic	HDBaseT	Up to 24 via RJ45
Analog Signals	PC to 1920x1080, HD to 1080p60	<b>3G/HD/SD-SDI</b>	
DVI Signals	PC to 1920x1200, HD to 1080p60	SMPTTE259M-C (SD-SDI Video)	270Mbps < 0.1UI jitter 525/625Line
Max Horiz Scan Rate	150kHz	SMPTTE292M (HD-SDI Video)	1.485/1.4835Gbps < 0.2 UI jitter 720p, 1035i, 1080i, 1080p
Computer Compatibility	PC, Workstations	SMPTTE424M (3G-SDI Video)	2.97/2.967Gbps < 0.3 UI jitter 1080p 60/59.94
<b>Computer Outputs</b>		SMPTTE272M-2004 (SD-SDI Audio)	4 Stereo 24bit Audio Channels
Digital DVI/HDMI	Up to 24 via Universal DVI (HDCP compliant)	SMPTTE299M-2004 (3G/HD-SDI Audio)	4 Stereo 24bit Audio Channels
Digital HDMI	Up to 24 via HDBaseT (HDCP compliant)	<b>Control Methods</b>	
Analog	Up to 24 via Universal DVI	RS-232	via D9 Female Connector
Analog format	RGBHV, RGBS, RGsB, YPbPr	IP Interface	RJ45 Connector
R-G-B Level	0.7 Vp-p	Web UI	Browser
DVI Signals	PC to 1920x1200, HD to 1080p60	<b>Warranty</b>	
Analog Signals	PC to 1920x1080, HD to 1080p60	Limited Warranty	5 Years Parts and Labor
3G-HD-SDI	HD to 1080/60p	<b>Regulatory Compliance</b>	
Size and Position	User Adjustable	Main unit	FCC, CE, RoHS, UL
Settings Memory	Non-Volatile	<b>Mechanical</b>	
Conversion Technology	Proprietary – CORIO <sup>®</sup> 2	Size (H x W x D)	7.0" x 19.0" x 13.1" 178 x 482 x 334mm
Color	RGB/DVI/HDMI/YPbPr 24-bit 4:4:4, SDI 20-bit 4:2:2	Weight (Net)	Approx. 15Kg (33 lbs) (with redundant PSU option)
Max. Sampling Rate	162MHz	<b>Environmental</b>	
Firmware Memory	Flash, Upgradeable via micro-SD	Operating Temperature	0° to +40°C (+32° to +104°F)
De-Interlacing (NTSC, PAL, 1080i)	Pixel-Level Motion Adaptive, Diagonal Interpolation	Operating Humidity	10% to 85%, Non-condensing
Video Comb Filter	Adaptive	Storage Temperature	-10° to +70° C (+14° to +158° F)
Film (NTSC, 1080i)	3:2 Pull-down	Storage Humidity	10% to 85%, Non-condensing
Video Adjustments	Contrast, Brightness	MTBF	Approximately 35,000 hours
<b>Audio Support</b>		BTU	1024 BTU/hr
Digital/Analog	48kHz PCM	<b>Power</b>	
De-embed/embed	SDI & HDMI-I/O via DVI with optional Audio module with AES break-out. HDBaseT output	Internal Power Supply	110v to 240v auto-detecting
<b>HD Video Resolutions supported (HDMI, DVI, YPbPr, SDI)</b>		Redundancy	Optional Internal Hot Swap PSU
720p (1280x720)	(23.98, 24, 25 SDI only), 29.97, 30, 50, 59.94, 60Hz	Consumption	300 watts maximum (fully populated)
1035i (1920x1035)	59.94, 60Hz	<b>Accessories Included</b>	
1080i (1920x1080)	50, 59.94, 60Hz	1x Operations Manual	
1080p (1920x1080)	50, 59.94, 60Hz	1x Power cable	US, UK, Euro or AU
1080p (1920x1080)	23.98, 24, 25, 29.97, 30Hz	Control Software	WebUI, no software required to install
1080p (1920x1080)	50, 59.94, 60Hz (not 4x HD-SDI input module)	<b>Optional Accessories</b>	
<b>Video Inputs</b>		See list above and check website for latest list	
Television Standards	NTSC, PAL, PAL-M/N		
Composite Video	Up to 30 via Universal DVI		
YC (S-Video)	Up to 30 via Universal DVI		
YUV /YPbPr	Up to 30 via Universal DVI		
SD/HD-SDI	Up to 60 via BNC		
SD/HD/3G-SDI	Up to 30 via BNC		

Specifications subject to change

\*\*HDCP protected sources are not allowed to be converted in this way.

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### Panel Drawing

Eight Input Universal DVI, four 3G-SDI and four HD-SDI inputs  
Eight input/eight output AES audio card.  
Four scaling 3G-SDI Outputs, Ten Scaling Output Universal DVI,  
Dual DVI-U monitoring card



32 HD-SDI input, 16 Scaling 3G-SDI Scaled Output Configuration

