

# CORIO®matrix mini

## C3-310 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 1920x1080p/60, 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 RGBHV, RGsB and YUV/YPbPr Inputs
- Integral Audio Routing
- Audio de-embed/embed for SDI and DVI/HDMI
- Control: RS-232, TCP/IP, and WebUI
- Upgrade: USB and TCP/IP
- Command Line Interface - Third Party Control
- 1RU Frame Size
- Modularity Provides Flexible I/O

### Scaler Modules Provided, Factory fit only

- 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 I/O
- Digital & Analog Audio Breakout Boxes
- Rear Rackmount Supports
- Universal DVI Adapters (DVI to other connectors)



### Overview

C3-310 CORIO®matrix mini is a high quality modular video matrix router that utilizes CORIO®softswitch, a firmware based video routing, switching and signal conversion platform. This is a 1 Rack Unit with 6 modular AV slots that 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 1RU rackmount case.

### 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 as well as audio delay 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, RBBS, RGsB, Y/C and Composite Video. A variety of adapters are available to convert from DVI-I to other connectors.

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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 input 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 outputs for signal verification. Embedded audio signals can be monitored along with source and destination identification. This module is only available with Universal DVI Outputs

### 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

C3-310 Main Chassis w/Blank Front Panel

- 6 Slots available for Video/Audio Modules\*
- Up to 10 I/O for DVI, HDMI, RGB/YPbPr
- Up to 10 I/O for 3G/HD/SD-SDI
- Up to 16 inputs for HD-SDI using all 4x Input Modules
- Up to 10 Outputs for HDBaseT
- Single Power Supply
- Interfaces for RS-232, USB, IP
- Web GUI

### Input Modules

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

### 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	Up to 10 via Universal DVI (HDMI & HDCP compatible)	Television Standards	NTSC, PAL, PAL-M/N
Analog	Up to 10 via Universal DVI	Composite Video	Up to 10 via DVI
Analog Format	RGBHV, RGBS, RGsB, YPbPr	YC (S-Video)	Up to 10 via DVI
Analog Sync	TTL Level, 10KΩ, Pos or Neg	YUV /YPbPr	Up to 10 via DVI
RGB Level Range	0.5-2.0 Vp-p	SD/HD/3G-SDI	Up to 10 via BNC
Scan Rate Detection	Automatic	HDBaseT	Up to 10 via RJ45
Analog Signals	PC to 1920x1080p/60, HD to 1080p60	<b>3G/HD/SD-SDI</b>	
DVI Signals	PC to 1920x1200, HD to 1080p60	SMPTe259M-C (SD-SDI Video)	270Mbps < 0.1UI jitter
Max Horiz Scan Rate	150kHz	SMPTe292M (HD-SDI Video)	525/625Line
Computer Compatibility	PC, Workstations	SMPTe424M (3G-SDI Video)	1.485/1.4835Gbps < 0.2 UI jitter
<b>Computer Outputs</b>		SMPTe272M-2004 (SD-SDI Audio)	720p, 1035i, 1080i, 1080p
DVI Signals	Up to 10 via Universal DVI (HDMI & HDCP compatible)	SMPTe299M-2004 (3G/HD-SDI Audio)	2.97/2.967Gbps < 0.3 UI jitter
Analog	Up to 10 via Universal DVI	Note: Video & Audio	1080p 60/59.94
Analog format	RGBHV, RGBS, RGsB, YPbPr	<b>Control Methods</b>	4 Stereo 24bit Audio Channels
R-G-B Level	0.7 Vp-p	RS-232	4 Stereo 24bit Audio Channels
DVI Signals	PC to 1920x1200, HD to 1080p60	IP Interface	Support Only
Analog Signals	PC to 1920x1080, HD to 1080p60	Web UI	
Vertical Refresh Rate	Any to 250Hz	<b>Warranty</b>	
Size and Position	User Adjustable	Limited Warranty	via D9 Female Connector
Settings Memory	Non-Volatile	<b>Regulatory Compliance</b>	RJ45 Connector
Conversion Technology	Proprietary – CORIO <sup>®</sup> 2	Main unit	Browser
Color	RGB 24-bit 4:4:4, YPbPr 20-bit 4:2:2	<b>Mechanical</b>	
Max. Sampling Rate	162MHz	Size (H x W x D)	5 Years Parts and Labor
Firmware Memory	Flash, Upgradeable via micro-SD	Weight (Net)	
De-Interlacing	Pixel-level Motion Adaptive, Diagonal Interpolation, Noise Reduction.	<b>Environmental</b>	
(NTSC, PAL, 1080i)		Operating Temperature	0° to +40° C (+32° to +104° F)
Video Comb Filter	Adaptive	Operating Humidity	10% to 85%, Non-condensing
Film (NTSC, 1080i)	3:2 Pull-down	Storage Temperature	-10° to +70° C (+14° to +158° F)
Video Adjustments	Contrast, Brightness, RGB Gamma	Storage Humidity	10% to 85%, Non-condensing
<b>Audio Support</b>		MTBF	Approximately 50,000 hours
De-embed/embed	SDI & HDMI-I/O via DVI with optional audio interface module	BTU	427 BTU/hr (fully populated)
<b>HD Video Resolutions supported (DVI, YPbPr, SDI)</b>		<b>Power</b>	
720p (1280x720)	(23.98, 24, 25 SDI only), 29.97, 30, 50, 59.94, 60Hz	Internal Power Supply Consumption	110v to 240v auto-detecting
1080i (1920x1080)	50, 59.94, 60Hz	<b>Accessories Included</b>	125 watts maximum (fully populated)
1080p (1920x1080)	23.98, 24, 25, 29.97, 30Hz	1x Operations Manual	
1080p (1920x1080)	50, 59.94, 60Hz (not 4x HD-SDI input module)	1x Power cable	US, UK, Euro or AU
<b>Video Inputs</b>		Control Software	WebUI, no software required to install
Television Standards	NTSC, PAL, PAL-M/N	<b>Optional Accessories</b>	
Composite Video	Up to 10 via DVI	See list above and check website for latest list	
YC (S-Video)	Up to 10 via DVI		
YUV /YPbPr	Up to 10 via DVI		
HD-SDI	Up to 16 via BNC		
SD/HD/3G-SDI	Up to 8 via BNC		

Specifications subject to change

\*Only 5 slots are modular. 1 Universal DVI Input card is included in all frames.

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

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### Panel Configuration Drawings

