CORIO®**matrix** and CORIO®**matrix** mini

4K modular matrix routers from 2 x 2 to 60 inputs or 24 outputs
with scaling, format conversion, audio management and more

The world's most advanced 4K modular multi-format AV matrix with a proven pedigree
and uncompromised performance in mission critical environments

tvONE
We Engineer Confidence™

CORIO**matrix** solves your most challenging AV problems

CORIO**matrix** and CORIO**matrix** mini are modular systems created for today's mixed signal environments. When faced with the challenge of combining a wide range of signal types, CORIO**matrix** makes the integration simple with flawless 4K performance.

Conquer the AV and Broadcast landscape	Seamlessly mix and match AV, broadcast and IP signals within a single chassis.
Mix and match your content	tvONE's up/down and cross conversion makes your format, aspect ratio and resolution independent, simplifying your installs.
Manage the unusual	CORIO**matrix** supports resolutions from 4K down to 640 x 480 including custom resolutions for LED wall support and unique medical and military resolutions.
Future proof your investment	Our award-winning CORIO® scaling engine supports all current and legacy formats plus it's simple to add new I/O modules as you need them. CORIO**matrix** adapts to your requirements and removes growing pains!
Do more with less	Eliminate system design complexity, headaches and control nightmares with unlimited I/O flexibility while having complete confidence in your inputs and outputs with fully integrated monitoring. Save space and power too!
Set and forget	CORIO**matrix** adapts and adjusts to real-time changes in the working environment. Plug and play any signal type, anytime, with complete confidence.

What CORIO**matrix** users say:

Some CORIO**matrix** users include; Olympus Medical, The European Commission, Bosch, AGI and Wartsila - all depend on rock solid performance backed with source and display independence.

WÄRTSILÄ
AGI
European Commission
OLYMPUS
BOSCH

Wartsila

"In our world, we are running a mixture of broadcast and AV signals in parallel. The CORIO**matrix** is perfect as it enables us to switch between the two seamlessly, especially the HD-SDI output this is quite unique. We also have a range of other sources - Apple TV, media players, SDI cameras, etc. The integrated multiviewer and its ability to combine scaling saves space, time and complexity - if we had to do this without the CORIO**matrix** we would need to integrate a whole load of small little boxes."

Matthew Hodkinson,
Senior Design Engineer UK

Audio General Inc. — AGI

"We're very happy with the CORIO**matrix**, it solves numerous problems especially mixing 4:3 and 16:9 signals – it eliminates wiring complexity and simplifies overall control of an installation. With CORIO**matrix** the upgrade was NO PROBLEM!"

David Spiegel,
Owner

Flexibility and dependability guaranteed!

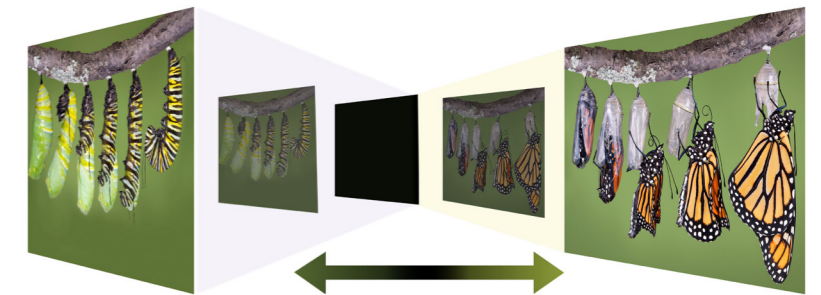## Mixed signal support – Up/Down/Cross Conversion

Whatever the source or format, it's easy to mix and match your content using tvONE's low latency CORIO® scalers featuring the widest range of resolutions with full control of frame rate, aspect ratio and frame/field handling.

Example:

4K Bluray player scaled to 1080p

3G-SDI broadcast image source

4K Bluray player source

OUT   IN   IN

OUT   OUT   IN

3G-SDI scaled to 4K

1080p HDMI media player converted to 3G-SDI

1080p HDMI media player source

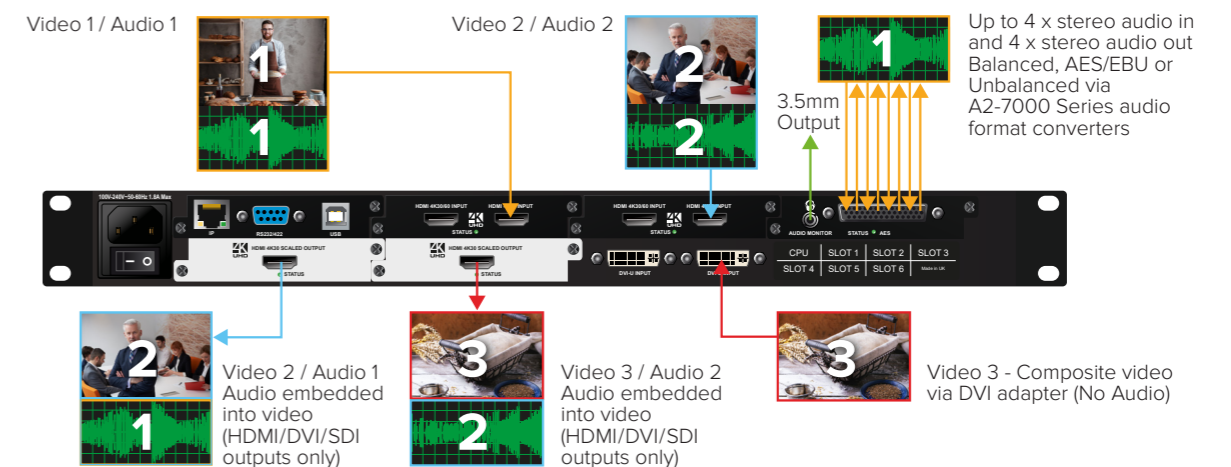## Clean and fast switching or fade-through-black

CORIO**matrix** delivers a dependable visual experience whatever your source with instant, flawless switching or fade-through-black.

Audio routing

Deliver full audio flexibility with audio following video or easily select independent audio and video sources.

Example:

Video 1 / Audio 1

Video 2 / Audio 2

Up to 4 x stereo audio in and 4 x stereo audio out Balanced, AES/EBU or Unbalanced via A2-7000 Series audio format converters

3.5mm Output

Video 2 / Audio 1 Audio embedded into video (HDMI/DVI/SDI outputs only)

Video 3 / Audio 2 Audio embedded into video (HDMI/DVI/SDI outputs only)

Video 3 - Composite video via DVI adapter (No Audio)

Fully modular systems — anything in, anything out

CORIO**matrix** (4RU) and CORIO**matrix** mini (1RU) can accept a huge number of I/O configurations allowing complex functionality to be quickly and simply configured to meet your exact needs. CORIO**matrix** is 100% dependable helping you to eliminate show stopping "AV moments" while also being whisper quiet for in-room installs.

Simplified System Control and Monitoring

Monitor all of your inputs and outputs for ultimate peace of mind using our optional monitoring module

INPUT MODULES

Dual 4K HDMI

Quad 2K HDMI

Dual Long Reach 1080p HDBaseT

Dual DVI Universal

Dual 3G-SDI broadcast
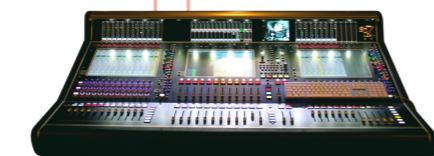
Quad 3G-SDI broadcast

HD-SDI broadcast

Audio routing
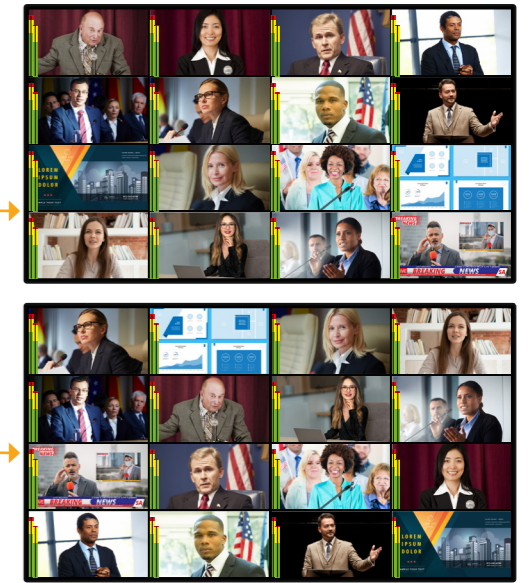
EASY CONTROL

3rd party control

CORIO**matrix** web UI

OUTPUT MODULES
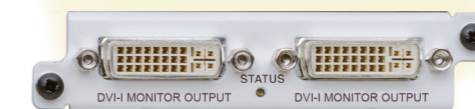
4K HDMI Scaled

Dual DVI-U Scaled

Dual HDBaseT Scaled

Dual 3G-SDI

Dual DVI Monitoring

DVI Universal Adapters
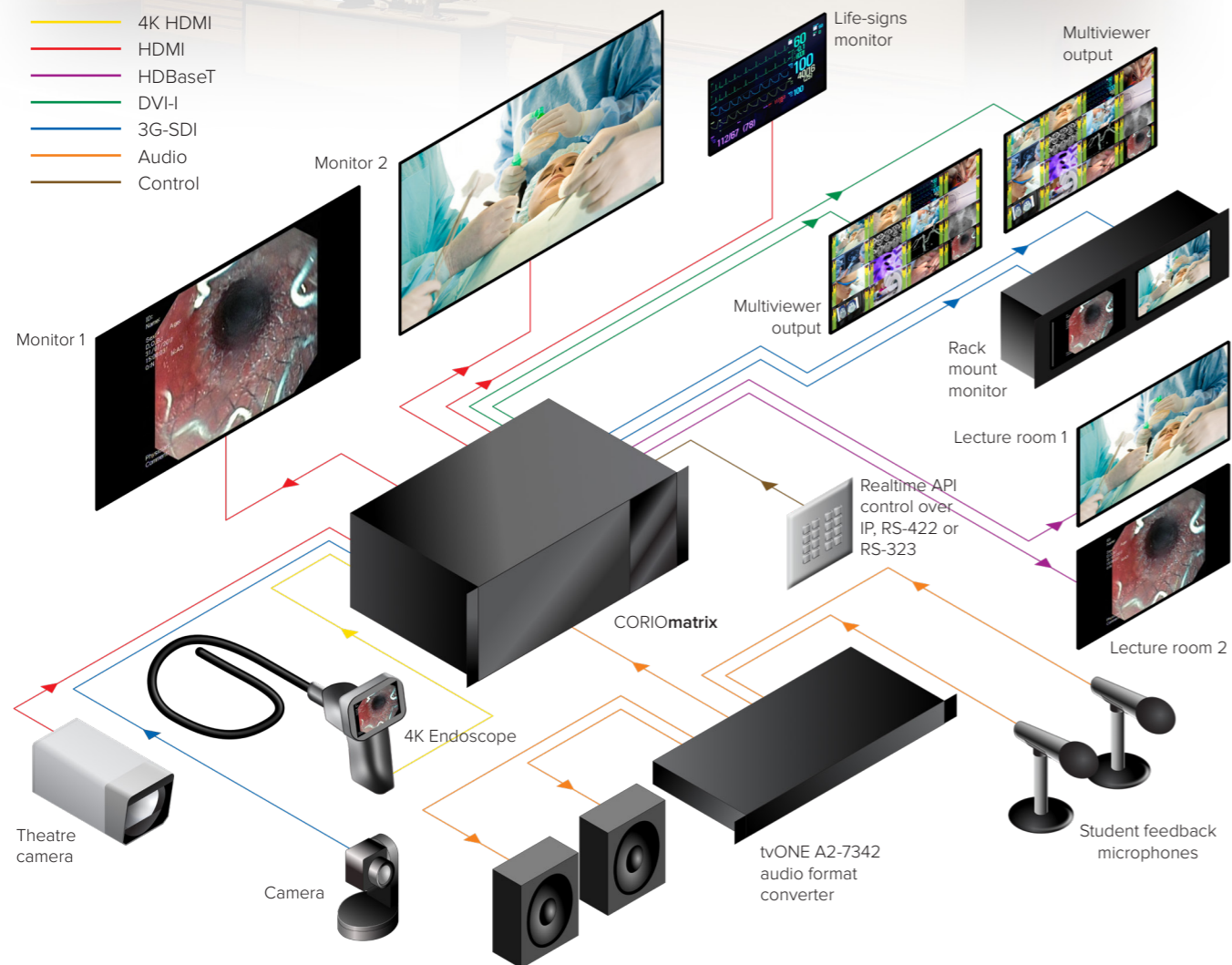
HDMI

CV

YC (S-Video)

Analog PC

YPbPr/YUV

Analog RGBHV

External audio analog or digital

Easily bridge the digital AV and broadcast landscape with a platform designed for your 24/7 mission critical challenges

CORIOmatrix advantages:

- Proven pedigree in mission critical installations
- High quality 4K video with ultra low latency
- Fully integrated format conversion and scaling
- Fit-for-purpose color management (4:4:4, 4:2:2 and 4:2:0)
- Integrated monitoring multiviewer – have absolute confidence in your inputs and outputs
- Optional video extension capability for remote sources and displays

Legend:
- 4K HDMI
- HDMI
- HDBaseT
- DVI-I
- 3G-SDI
- Audio
- Control

Monitor 1
Monitor 2
Life-signs monitor
Multiviewer output
Multiviewer output
Rack mount monitor
Lecture room 1
Lecture room 2
Realtime API control over IP, RS-422 or RS-323
CORIOmatrix
4K Endoscope
Theatre camera
Camera
tvONE A2-7342 audio format converter
Student feedback microphones

Eliminate complexity, simplify control – experience pain-free audio and video distribution

CORIOmatrix advantages:

- The widest range of input and output types simplifies your operation
- Mix and match your source seamlessly with clean switching or fade-through-black
- Guaranteed lip sync with our ultra-low latency solution
- Easily extend your video using HDBaseT or SDI on both inputs and outputs
- Integrated monitoring multiviewer for total control and confidence
- Eliminate "AV moments" with proven CORIOmatrix dependability
- Remove LED wall integration challenges with custom resolution support
- Whisper-quiet for in-room operation

Legend:
- 4K HDMI
- HDMI
- HDBaseT
- DVI-I
- 3G-SDI
- Audio

LED wall
Stage monitor
Engineering Multiviewer output
Laptop 1
Laptop 2
Camera 1
Camera 2
Camera 3
Remote screen 1
Remote screen 2
Camera
CORIOmatrix
tvONE A2-7342 audio format converter
Laptop 3
Laptop 4
Director's Multiviewer output

CORIOmatrix Family

Specifications

Computer Input	C3-310	C3-340
Digital DVI/HDMI (HDCP compliant)	Up to 10 via Universal DVI	Up to 30 via Universal DVI
Digital HDMI (HDCP compliant)	Up to 16 via Quad HDMI	Up to 60 via Quad HDMI
Analog	Up to 10 via Universal DVI	Up to 30 via Universal DVI
Analog Format	RGBHV, RGsB, YPbPr	
Analog Sync	TTL Level, 10KΩ, Pos or Neg	
RGB Level Range	0.5-2.0 Vp-p	
Scan Rate Detection	Automatic	
Analog Signals	PC to 1920x1080, HD to 1080p60	
DVI Signals	PC to 1920x1200, HD to 1080p60	
Max Horiz Scan Rate	150kHz	
Computer Compatibility	PC, Workstations	

Outputs	C3-310	C3-340
Digital DVI/HDMI (HDCP compliant)	Up to 10 via Universal DVI	Up to 24 via Universal DVI
Digital HDMI (HDCP compliant)	Up to 10 via HDBaseT	Up to 24 via HDBaseT
Analog	Up to 10 via Universal DVI	Up to 24 via Universal DVI
Analog format	RGBHV, RGBS, RGsB, YPbPr	
R-G-B Level	0.7 Vp-p	
DVI Signals	PC to 1920x1200, HD to 1080p60	
Analog Signals	PC to 1920x1080, HD to 1080p60	
3G-HD-SDI	HD to 1080/60p	
Settings Memory	Non-Volatile	
Conversion Technology	Proprietary – CORIO®2	
Color	RGB/DVI/HDMI/YPbPr 24-bit 4:4:4, SDI 20-bit 4:2:2	
	Quad inputs (HDMI & 3G-SDI) 4:2:0	
	4K input module (4:2:0)	
Max. Sampling Rate	300MHz	
Firmware Memory	Flash, Upgradeable via micro-SD	
De-Interlacing (NTSC, PAL, 1080i)	Pixel-level Motion Adaptive	
Video Comb Filter	Adaptive	
Film (NTSC, 1080i)	3:2 Pull-down	
Video Adjustments	Contrast, Brightness	

Audio Support		
Digital/Analog	48kHz PCM	
De-embed/embed	SDI & HDMI-I/O via DVI with optional Audio module with AES break-out. HDBaseT output	

Video Resolutions supported (HDMI, DVI, YPbPr, SDI)		
720p (1280x720)	(23.98, 24, 25 SDI only), 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	
1080p (1920x1080)	50, 59.94, 60Hz (not 4x HD-SDI input module)	
4K (3840x2160p)	23.98, 24, 25, 29.97, 30Hz (4K input module only)	
4k (4096x2160p)	23.98, 24, 25, 29.97, 30Hz (4K input module only)	

Video Inputs	C3-310	C3-340
Television Standards	NTSC, PAL, PAL-M/N	NTSC, PAL, PAL-M/N
Composite Video	Up to 10 via Universal DVI	Up to 30 via Universal DVI
YC (S-Video)	Up to 10 via Universal DVI	Up to 30 via Universal DVI
YUV /YPbPr	Up to 10 via Universal DVI	Up to 30 via Universal DVI
SD/HD-SDI	Up to 16 via BNC	Up to 60 via BNC
SD/HD/3G-SDI	Up to 16 via BNC	Up to 30 via BNC
3G-SDI	Up to 16 via BNC	Up to 60 via BNC

Video Outputs	C3-310	C3-340
Television Standards	NTSC, PAL, PAL-M/N	NTSC, PAL, PAL-M/N
Composite Video	Up to 10 via Universal DVI	Up to 24 via Universal DVI
YC (S-Video)	Up to 10 via Universal DVI	Up to 24 via Universal DVI
YUV /YPbPr	Up to 10 via Universal DVI	Up to 24 via Universal DVI
SD/HD/3G-SDI	Up to 10 via BNC	Up to 24 via BNC
HDBaseT	Up to 10 via RJ45	Up to 24 via RJ45
4K30 HDMI	Up to 5 via HDMI	Up to 12 via HDMI

3G/HD/SD-SDI		
SMPTE259M-C	270Mbps < 0.1UI jitter	
(SD-SDI Video)	525/625Line	
SMPTE292M	1.485/1.4835Gbps < 0.2 UI jitter	
(HD-SDI Video)	720p, 1035i, 1080i, 1080p	
SMPTE424M	2.97/2.967Gbps < 0.3 UI jitter	
(3G-SDI Video)	1080p 60/59.94	
SMPTE272M-2004	4 Stereo 24bit Audio Channels	
(SD-SDI Audio)		
SMPTE299M-2004	4 Stereo 24bit Audio Channels	
(3G/HD-SDI Audio)		

Control Methods		
RS-232	via D9 Female Connector	
IP Interface	RJ45 Connector	
Web UI	Browser	

Warranty		
Limited Warranty	5 Years Parts and Labor	

Regulatory Compliance		
Main unit & Modules	FCC, CE, RoHS, UL	

Mechanical		
Size (H x W x D)	1.75"x19.0"x13.25"/15.25" (45x482x336/383mm) (C3-310) 7.0"x19.0"x13.1" (178x482x334mm) (C3-340)	
Weight (Net)	Approx. 5Kg (11.03 lbs) (C3-310) Approx. 15Kg (33 lbs) (with redundant PSU) (C3-340)	

Environmental		
Operating Temperature	0º to +40ºC (+32º to +104ºF)	
Operating Humidity	10% to 85%, Non-condensing	
Storage Temperature	-10º to +70º C (+14º to +158º F)	
Storage Humidity	10% to 85%, Non-condensing	
MTBF	Approximately 50,000 hours (C3-310) Approximately 35,000 hours (C3-340)	
BTU	427 BTU/hr - fully populated (C3-310) 1024 BTU/hr (C3-340)	
Fan Noise	0-35°C = 37.7dB(A) Min @ 1m 40°C = 50.6dB(A) Max @ 1m (C3-310) 40°C = 46.6dB(A) Max @ 1m (C3-340)	

Power		
Internal Power Supply	110v to 240v auto-detecting	
Redundancy	Optional Internal Hot Swap PSU (C3-340 only)	
Consumption (fully populated)	125 watts maximum (C3-310) 300 watts maximum (C3-340)	

Accessories Included		
1x Operations Manual		
1x Power cable	US, UK, Euro or AU	
Control Software	WebUI, no software required to install	

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