



OVERVIEW

C3-540 CORIOmaster is a powerful, efficient approach to building large video display systems. Multiple video windows can be positioned on LED, display based videowalls or projector edge blends, displaying any of the sources connected to CORIOmaster. Windows can be visually “transitioned” into position, resized, or rotated to any proportion allowing designers to achieve striking visual effects. Each system can support up to 4 separate video canvasses with up to 14 windows depending upon the source resolution, frame rate and size of windows. CORIOgrapher, the control software for the CORIOmaster series of processors, is a simple, easy to use design interface that enables window and source positioning and transition effects. This dynamic feature is easily managed through presets in CORIOgrapher or by simple commands executed by third party control systems. 50 presets can be saved permanently in the system.

NEW FEATURES

- ◆ **Dual HDMI output HD resolution Keying module** – add icons, layer data feeds and areas of interest.
- ◆ **Synchronized playback** – Optional mode for dual 4K streaming and media input module allow synchronized playback of up to 8 HD clips.
- ◆ **Low latency IP mode** – view an incoming IP stream from a live source with a typical latency below 300ms in this mode.
- ◆ **FTP workflows** – Receive media files over the network and store them for playback.
- ◆ **AES Decryption** - Decode IP streams that have been encrypted using the AES CBC standard using 128 or 256-bit key length
- ◆ **EDID manager** – Easily manage system default EDID's and upload new EDID's.
- ◆ **Custom resolution management** - Increased storage for up to 20 custom resolutions.
- ◆ **New look CORIOgrapher** – Design and control your video walls quickly and easily

KEY FEATURES

- ◆ Patented CORIO®3 videowall processing technology
- ◆ 4RU frame size
- ◆ Manage up to 4 canvasses
- ◆ Extremely low latency of typically 1 but maximum two video frames input to output
- ◆ Windows and Displays can be freely positioned, sized, scaled, and freely rotated in 1° increments
- ◆ Customisable borders can also be added to windows
- ◆ Combination of different size and resolution of displays can be used on the same canvas
- ◆ Customizable bezel compensation
- ◆ Multi-Edge blending of projectors
- ◆ Up-down-cross conversion
- ◆ Custom input and output resolutions are supported
- ◆ Secure Command Line Interface and REST API – for third party control
- ◆ Control via serial or network
- ◆ AMX & Crestron modules available
- ◆ Uses CORIOgrapher; simple to use but powerful software interface

OPTIONS

- ◆ Redundant power supply
- ◆ Universal DVI adapters
- ◆ Onsite system commissioning (US Only)

Part Numbers

C3-540	4RU CORIOmaster with 16 slots available for video I/O modules. Interfaces for R2-232 & IP. Single power supply	CM-AUD-2IN-4OUT	S/PDIF and Analog Audio module (C3-540/C3-510 only)
CM-HDMI-4K-2IN	Dual 4K30 Or Single 4K60 HDMI input module	CM-HDMI-SC-4OUT	Quad HDMI scaled output module (C3-540 only)
CM-AVIP-IN-1USB-1ETH	4K Streaming & Media input module (Dual channel HD streaming, 8K still image support, USB 3.0 for File Playback, 16GB Internal SSD storage for Content)	CM-HDMI-SC-2OUT-KEY	Dual Keying Output module
CM-AVIP-IN-1USB-1ETH-128	4K Streaming & Media input module (Dual channel HD streaming, 8K still image support, USB 3.0 for File Playback, 128GB Internal SSD storage for Content)	ZDH2050	Composite video adaptor DVI-I
CM-DVIU-2IN	Dual DVI-U input module (Custom DVI-I adapters provide connections for: composite, S-Video, component, VGA, RGBHV and HDMI (DVI-D connects directly).	ZDB2048	YC (S-Video) adapter DVI-I male to 2-BNC female
CM-3GSDI-2IN	3G-SDI input module	ZDS2046	YC (S-Video) adapter DVI-I male to 4-Pin mini-din female
CM-HDSDI-4IN	HD-SDI input module	ZDH2040	Analog PC adapter DVI-I male to HD-15 female
CM-HDBT-2IN-1ETH	Dual HDBaseT Input with Single Ethernet	ZDB2038	1.5' (0.5m) analog RGBHV adapter Cable DVI-I male to 5-BNC female
CM-HDMI-4K-SC-1OUT	4K HDMI scaled output module	ZDB2044	1.5' (0.5m) YPbPr/YUV adapter cable DVI-I male to 3-BNC female
CM-HDBT-SC-2OUT	Dual HDBaseT output module with Single Ethernet	ZDB2042	YPbPr/YUV adapter DVI-I male to 3-RCA female
CM-DVI-I-SC-2OUT	Dual DVI Scaled output module	CMD1941	HDMI adapter DVI-I male to HDMI female
CM-3GSDI-SC-2OUT	Dual 3G-SDI output module	Magenta Encoder-100	Single channel IP encoder
		CM-4RPS	Optional dual redundant, hot swappable power supply (C3-540 only)
		FE-1	Onsite system commissioning (US Only)

Modular Flexibility

CORIOmaster can accommodate numerous I/O configurations in the 16 universal video slots available; when inserted, the modules are automatically recognized & configured. This flexibility allows end user configurations to be based on their own needs.



NEW FEATURES (M410 firmware upgrade)

Keying

Uses optional keying dual output module CM-HDMI-SC-2OUT-KEY to provide keying using two layers, background and foreground. The module uses a luminance keyer so any video information in the foreground layer that is darker than the defined luminance key level will be keyed out allowing the background layer below it to become visible. There's also a softness factor so that edges appear anti-aliased. Keying is done in real time with no visible latency.

8HD Player

Uses a 4K streaming media and playback module to deliver synchronised playback of up to 8x 1080P/30 stored files. Create and store fully synchronised video groups and deliver to up to eight outputs. For example, a single source can be split into 8 multiple files to create an 8 x 1 synchronised layout. Other layouts are possible depending upon how your displays are arranged and how your source files are created. Files are grouped for synchronised playback and multiple file groups can be added to a playlist for presentation.

Low Latency Streams

When you need to view an incoming IP stream from a live source, enable this feature to process it with the lowest possible latency input to encoder to output from CORIOmaster. Typical latency is below 300ms in this mode. The incoming stream needs to have been configured for low latency streaming. Audio is not supported in low latency mode.

EDID Manager

Manage system default EDID's and upload new EDID's as .edd files and assign these to your inputs as required. User added EDID files can be deleted if no longer needed.

Handle More Custom Resolutions

Increased storage with up to 20 custom resolutions stored in the system. Now up to 20 new custom resolutions can be uploaded, stored, and used in CORIOmaster in addition to the resolutions already supported by default.

IP Stream and Media Playback Labelling

Add customizable labels to IP streams and playback media files Text Labels of up to 20 characters can be added and positioned in one of nine areas on screen. Font size can be adjusted, background and foreground color can be inverted, and borders can be added and customized. There are four user selectable formats for displaying the label, custom text, friendly name or file name, file title or file name or file name only.

FTP

Connect your 4K streaming media and playback module to an FTP server to enable media files to be received over the network and stored for playback. New files uploaded to the server can be synchronized to the module by using a simple API command. Files that are part of a playlist can be updated to the server by uploading them to a sync folder, synchronized with the module using the API command and played automatically by the module when next due to play in a playlist. Download speed to the module is managed so as not to overwhelm your network.

Handle Encrypted Streams

Decode IP streams that have been encrypted using the AES CBC standard using 128 or 256-bit key length.

Increased Number of Stored IP Encoders

Information from up to 40 IP encoders can now be stored and handled by the 4K streaming media and playback module, enabling twice as many decoders to be accessed than before.

SPECIFICATIONS

Video Processing Power	
Parallel Processing Architecture	Yes
CORIO3 Video Processing	Yes
Up/Down/Cross Conversion	Yes
Number of Canvasses	4
Display Size Compensation	Yes, different sizes in video walls (using different sized monitors in the same wall can degrade picture quality)
Output Rotation	Yes for any outputs and windows
Projector Edge Blending	Yes
HDCP Key Handling	Yes
Computer Input	
Digital DVI	Up to 28 via Universal DVI (HDMI & HDCP compatible)
Analog	Up to 28 via Universal DVI
Analog Format	RGBHV, RGBS, 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 Horizontal Scan Rate	150 kHz
Computer Outputs	
DVI Signals	Up to 28 via DVI-I (HDMI & HDCP compatible)
Analog	Up to 28 via DVI-I
Analog format	RGBHV, RGBS, RGsB, YPbPr
R-G-B Level	0.7 Vp-p
DVI Signals w/EDID	PC to 1920x1200, HD to 1080p60
Analog Signals	PC to 1920x1080, HD to 1080p60
Vertical Refresh Rate	Any to 250Hz
Size and Position	User Adjustable
Settings Memory	Non-Volatile
Conversion Technology	Proprietary – CORIO®3
Color	RGB/DVI/HDMI/YPbPr 24-bit 4:4:4, SDI 20-bit 4:2:2
Max. Sampling Rate	162MHz
Firmware Memory	Flash, Upgradeable via download
Video Comb Filter	Adaptive
Video Adjustments	Contrast, Brightness, RGB Gamma
HD Video Resolutions supported (HDMI, DVI, YPbPr, SDI, & HDBaseT)	
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, 50, 59.94, 60Hz
4K Video Input Resolutions supported (via HDMI & HDBaseT)	
3840x2160: 4:4:4	23.98/24/25/29.97/30Hz 8-bit
3840x2160: 4:2:0	50/59.94/60Hz 8-bit
4096x2160: 4:2:0	50/59.94/60Hz 8-bit
4K Video Output Resolutions supported (via HDMI)	
3840x2160: 4:4:4	23.98/24/25/29.97/30Hz 8-bit
Video Inputs	
Television Standards	NTSC, PAL
Composite Video	Up to 28 via DVI
YC (S-Video)	Up to 28 via DVI

YUV /YPbPr	Up to 28 via DVI
SD/HD-SDI	Up to 56 via BNC
SD/HD/3G-SDI	Up to 28 via BNC
4K/30	Up to 28 via HDMI & HDBaseT
4K/60	Up to 14 via HDMI & HDBaseT
HDBaseT	Up to 28 via RJ45
AV over IP	
Interface	1 x GbE Ethernet Port
Video Decoding	H.264 (Main, High), MPEG4, H.265/HEVC (Main) 8-bit
Bit Rates	Up to 50Mbit H264, 25Mbps H265 per stream (dual stream)
Colour Depth	4:2:0, 4:2:2
Resolution Support	640x480p (60, 72, 75, 85Hz), 720x480i (59.94Hz), 720x480p (59.94Hz), 720x576i (50Hz), 720x576p (50Hz), 800x600p (56, 60, 72, 75, 85Hz), 1024x768p (60, 70, 75, 85Hz), 1152x864p (75Hz), 1280x720p (23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz), 1280x768p (59.94, 60, 75, 85Hz), 1280x800p (60, 75, 85Hz), 1280x960p (60, 85Hz), 1280x1024p (60, 75, 85Hz), 1360x768p (60Hz), 1400x1050p (60, 75Hz), 1440x900p (60, 75, 85Hz), 1600x1200p (60Hz), 1680x1050p (60Hz), 1920x1080i (50, 59.94, 60Hz), 1920x1080p (23.98, 24, 25, 29.97, 30, 50, 59.94, 60Hz), 1920x1200p (60Hz), 3840x2160p (23.98, 24, 25, 29.97, 30Hz), 4096x2160p (23.98, 24, 25, 29.97, 30Hz)
Unicast Streams	RTSP, RTMP, HTTP, MPEG-TS
Multicast Streams	RTSP, MPEG-TS
Control Interface	via CORIOgrapher
Media Handling	
External	1 x USB 3.0 Interface
Supported Devices	Flash file systems FAT, FAT32, ext3, ext4, NTFS
Internal	High-speed storage 128GB
Remote	File transfer supported
Maintenance	via CORIOgrapher
Media/Images	
Interfaces	USB 3.0, Internal Storage, Network
Video Codecs	H.264 (CBP, Main, High), H.265/HEVC (Main)
Video Formats	mp4, mov, mkv, m4v, ts, mts, m2ts, mt2, mpeg2
Playback Bit Rates (Streaming and Media Playback)	H264 total data handling 100Mbs, single channel up to 50Mbps @4K30 (2nd render HD). H265 total data handling 50Mbs, single channel up to 25Mbps @4K30 (2nd render HD)
Still Image	JPEG, PNG, BMP
File Playback Resolutions Supported	
Up to 3480x2160 @ 30fps	Up to 1 (2nd render HD)
Up to 1080p60 @ 60fps	Up to 2
Up to 7680 x 4320	Still Images
Warranty	
Limited Warrant	5 year parts and labor

SPECIFICATIONS

Video Outputs	
YUV /YPbPr	Up to 28 via DVI
SD/HD/3G-SDI	Up to 28 via BNC
HDBaseT	Up to 28 via RJ45
HD (720P, 1035i, 1080i, 1080P)	Up to 56 via HDMI
4K	Up to 14 via HDMI
3G/HD-SD/SDI	
SMPTE259M-C (SD-SDI Video)	270Mbps < 0.1UI jitter 525/625Line
SMPTE292M (HD-SDI Video)	1.485/1.4835Gbps < 0.2 UI jitter 720p, 1035i, 1080i, 1080p
SMPTE424M (3G-SDI Video)	2.97/2.967Gbps < 0.3 UI jitter 1080p 60/59.94
Control Methods	
RS-232	via D9 Female Connector
IP Interface	RJ45 Connector for both HTTP(s)
Warranty	
Limited Warranty	5 Years Parts and Labor
Regulatory Compliance	
Main unit	FCC, CE, RoHS, ULc

Mechanical	
Size (H x W x D)	7.0" x 19.0" x 13.1", (178 x 482 x 334mm)
Weight (Net)	Approx. 33 lbs (15Kg) with redundant PSU option
Environmental	
Operating Temperature	32° to 104°F (0° to +40°C)
Operating Humidity	10% to 85%, Non-condensing
Storage Temperature	14° to +158° F (-10° to +70°C)
Storage Humidity	10% to 85%, Non-condensing
MTBF	Approximately 50,000 hours
BTU	1024 BTU/hr
Fan Noise	0-35°C = 37.7dB(A) Min / 40°C = 50.6dB(A) Max
Power	
Internal Power Supply	110v to 240v auto-detecting
Redundancy	Optional Internal Hot Swap PSU
Consumption	300 watts maximum (fully populated)

