

Aquilon Cmax

Ref. AQL-CMAX



ANALOG WAY®

Fully modular and scalable 4K/8K/16K multi-screen presentation system and videowall processor with up to 32x 4K60p inputs, 24x 4K60p outputs and 16x 4K mixing layers



TAA Compliance: This product is manufactured in France, a TAA-designated country, and is fully compliant with the Trade Agreements Act (17 U.S.C. & 2501-2581).



Aquilon Cmax at a glance

- ▶ Industrial grade reliability
- ▶ Fully modular and scalable architecture
- ▶ Future proof modular design with a full set of field swappable I/O cards: 8x HDMI 1.4, HDMI 2.0, DP 1.2/1.4, 8x 3G-SDI, 12G-SDI, 2.5GbE NDI + 12G-SDI, SFP+, Optical Fiber, SDVoE, ST 2110 and more to come
- ▶ Ultra-low latency 10/12-bit 4:4:4 video processing
- ▶ Up to 160 Megapixels throughput on Program at 10-bit 4:4:4 @60Hz
- ▶ Up to 32x 4K60p or 64x 2K/DL inputs depending on installed input cards
- ▶ Up to 24x 4K60p outputs
- ▶ Up to 8x 5K, 16x 4K or 32x 2K/DL mixing layers (+live backgrounds)
- ▶ High Frame Rate up to 144Hz
- ▶ Stereoscopic 3D
- ▶ Real-time 3D-LUT based SDR/HDR10/HLG conversion and color correction
- ▶ Intuitive HTML5-based user interface with live source thumbnails
- ▶ Native Dante™ audio networking hardware and support
- ▶ Option to link to up to 3 other Aquilon systems

Up to 32
4K60p
inputs

Up to 64
2K/DL
inputs

Up to 24
4K60p
outputs

2
multi-
viewers

HDMI™1.4
HDMI™2.0
DP1.2/1.4

3G-SDI
12G-SDI
SFP+

Optical
fiber

SDVoE
NDI
ST 2110

4K60p
4:4:4
10-12 bit

HFR
&
3D

HDR &
3D LUTs

Dante®
64x64

Up to 16
4K Mix.
layers

Split
layers

Web
RCS

Link
option

Aquilon models	RS alpha	RS1	RS2	RS3	RS4	RS5	RS6	Cmini	C	C+	Cmax
4K60p input connectors	8	16	16	24	24	32	32	8 ¹	16 ¹	24 ¹	32 ¹
2K/DL input connectors	16 ²	32 ²	32 ²	48 ²	48 ²	64 ²	64 ²	16 ¹	32 ¹	48 ¹	64 ¹
4K60p output connectors	4	8	12	12	16	16	20	12 ¹	16 ¹	20 ¹	24 ¹
Max 4K mixing layers ³	4	4	8	8	12	12	16	4 ¹	8 ¹	12 ¹	16 ¹
Max 2K/DL mixing layers ³	8	8	16	16	24	24	32	8 ¹	16 ¹	24 ¹	32 ¹
4K still image channels	12	12	12	24	24	24	24	12 ¹	12 ¹	24 ¹	24 ¹
Build-to-Order (BTO)								✓	✓	✓	✓
Rack units	4	4	4	5	5	6	6	3	4	5	6

1) Up to

2) Up to, using 8-plug input cards, available separately as accessories

3) Doubled for split layers

Outstanding performances

Like all the products of the **Aquilon** series, **Aquilon Cmax** offers versatile 4K digital connectivity, unmatched real-time 10/12-bit 4:4:4 video processing power, best-in-class image quality and pure 4K60p on each input and output with ultra-low latency. Ideally tailored to large scale auditoriums, conference rooms, staging live events, houses of worships, corporate lobbies and sports venues, **Aquilon Cmax** offers almost unlimited possibilities for future applications and possesses enough bandwidth to support evolving requirements, such as 8K and higher framerates.

Versatile for the highest flexibility of configurations

Aquilon Cmax's modular design allows you to configure the system to accommodate a variety of connectivity arrangements and match your source and display requirements. In its largest configuration, **Aquilon Cmax** features up to 32x 4K60p inputs and up to 24x 4K60p outputs, configurable as single screens, edge-blended widescreens or scaled auxiliary outputs, 2 dedicated Multiviewer outputs, up to 16x 4K or 32x 2K/DL freely assignable mixing layers, as well as powerful features that will allow you to handle any creative display configuration, such as Captive PiPs, custom output formats, output rotation, AOI, bezel compensation and pixel pitch management..

Scalability for the largest events and installations

For even more impressive performances, **Aquilon Cmax** can be linked to up to 3 other Aquilon systems of any type and any size, installing the hardware options **OPT-AQL-LINK** and **OPT-AQL-OUT-LINK-QSFP** in the last output slot. Linked units can be interconnected using DAC copper cables for distances up to 3m/10ft or 40GbE QSFP+ modules with single mode LC fibers for distances up to 500m/1640ft. The linked system offers up to 64x 4K Program outputs and 16x 4K Auxiliary Screens (example of 4 fully loaded **Aquilon Cmax** linked together). Up to 8x 4K or 16x 2K/DL inputs can be shared among the linked units to be displayed anywhere on the multi-chassis pixel canvas. A global multiviewer can be defined to monitor any screens (including multi-chassis screens), auxiliary screens and inputs, regardless of the units they come from. The linked system is controlled by a single web interface, API or console.

Smart functionalities

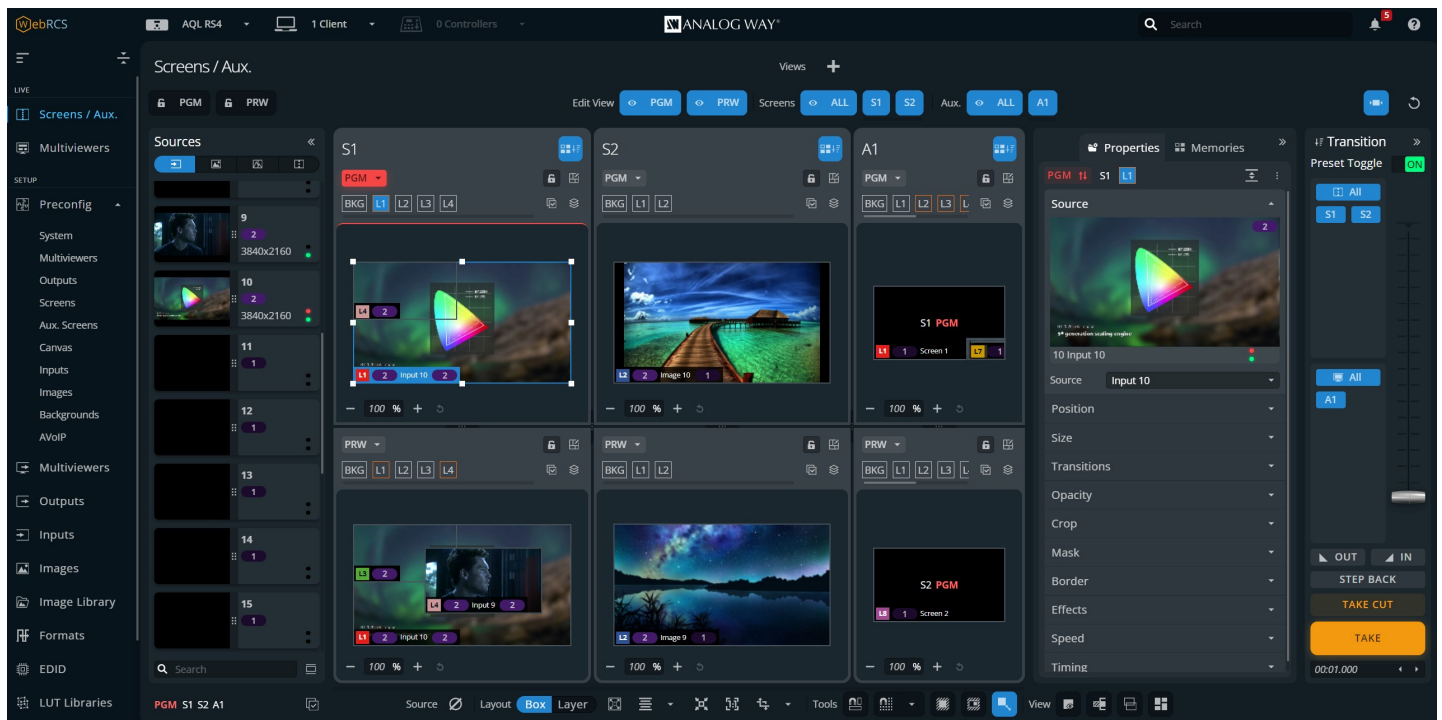
Aquilon Cmax features state-of-the-art real time processing features that will help you to unleash all your creative potential and produce flawless, stunning shows: true seamless switching, real-time LUT based SDR/HDR conversion and color correction, flying layer movement, advanced cut and fill, cutting-edge keying engine and many other effects. **Aquilon Cmax** also allows to remove external audio de-embedding boxes: In just a few easy clicks, audio can be de-embedded from video sources, routed directly using onboard Dante™ card and re-embedded from external audio processor for sending to display, recording device, or streaming.

Industrial grade reliability

Aquilon Cmax was specifically engineered to perform to the highest standards in mission-critical applications and road-hardened to survive frequent shipping and tough live events. By combining a heavy-duty modular design, the highest quality components selected for their proven reliability, and features such as redundant swappable power supplies and smart thermal management, **Aquilon Cmax** delivers

Unrivalled ease of use

For the best ease of setup and to ensure flawless control of multi-screen presentations, **Aquilon Cmax** features a totally new, cutting-edge HTML5-based user interface, the **Web RCS**, compatible with any device or platform including iOS and Android devices. Conceived to greatly increase productivity and reduce learning curve, the **Web RCS** offers dozens of unique features that simplify configuring and operating, such as live resizable program/preview workspaces with high-resolution dynamic thumbnails of connected sources, multi-operator collaboration with password protection, keyword search and much more...



Powerful and Flexible Control Options

In addition to the powerful Web RCS, **Aquilon Cmax** features IP (Ethernet) control via a standard TCP/IP socket connection supported by all major third-party control systems. It can also be controlled by the free Q-SYS, AMX and Crestron drivers as well as by **AW VideoCompositor**, a unique solution that gives system integrators and Crestron developers all the tools they need to easily incorporate the power of Aquilon image processors video compositing into a single point of control Crestron touch-screen application. Additionally, **Aquilon Cmax** can be controlled by a comprehensive range of remote control solutions from the **Shot Box²** and the **Control Box³** to the powerful standalone event controller, the **RC400T**, featuring premium buttons with dynamic LCD labels, a T-Bar and a Joystick, that will streamline your control of the Aquilon series...



Key features

Based on Aquilon platform

Up to 160 Megapixels throughput at 10-bit 4:4:4 on Program, without restricting Preview or Multiviewer

True 4K60p 4:4:4 performance on every compliant I/O channel

Ultra-low latency 10 and 12-bit processing

High Frame Rate processing (up to 144Hz) for Dual/2K signals

Real-time SDR/HDR10/HLG conversion and color correction based on 3D LUTs (no additional latency)

Up to 32x 4K60p inputs or 64x 2K/DL inputs depending on installed input cards

Up to 24x 4K60p active outputs

2x configurable 4K Multiviewers with 64x resizable widgets

Future proof modular design

Full set of field swappable input cards available separately for any connectivity arrangements:

8x HDMI1.4, HDMI 2.0, DP 1.2/1.4, 8x 3G-SDI, 12G-SDI, NDI+12G-SDI, SFP+, Optical, SDVoE and ST 2110

Full set of field swappable output cards available separately for any connectivity arrangements:

HDMI 2.0, DP 1.2/1.4, 8x 3G-SDI, 12G-SDI, SFP+, Optical, SDVoE and ST 2110

Support 4K60p input and output as single, double or quad plugs

Compatible with Analog Way DPH104 video processor: easily convert one 4K DP 1.2 output to 4 independent full HD outputs (requires a DP output card)

Almost limitless video canvas space and free positioning of outputs

Advanced pixel pitch management for LED wall applications

EDID management on every input and output

Compatible with HDCP 1.4 and HDCP 2.2

Rotation capability on each output (90° increment)

Independent output rates

Custom output formats for non-standard display applications

Area of Interest feature to customize active areas of outputs

Framelock or internal sync. generator

Optional expandability via simple linking to up to 3 other Aquilon units (ref. OPT-AQL-LINK + OPT-AQL-OUT-LINK-QSFP)

Up to 16x 4K or 32x 2K/DL mixing layers per system (32x 4K or 64x 2K/DL split layers), depending on the screens setup

Up to 24x 4K or 48x 2K concurrent still images

Unscaled seamless background mixer on each output (using instantaneous still images or live sources)

Flexible layer management (Region Captive PiPs)

Seamless crossfade on all mixing layers, on all 24 sources

Scaled 4K60p AUX feature for all non-PGM outputs

Ability to create layers on AUX outputs without using processing resources

Inboard clocks, timers and countdowns for screens, auxiliary outputs and multiviewers

Cut and Fill at the input and layer levels depending on the use case

Freeze at the input, layer and output levels

Input and background set backup

Still images supporting variable alpha-channels for transparent background on logos

Native Dante™ audio networking hardware and support (64x64)

Web RCS: highly intuitive, lightning-fast web-based user interface based on HTML5 with password protection

HTTP for standard connection or HTTPS for secure connection

Live video thumbnails shown on GUI

Multi operator real-time collaboration

Up to 3 customizable virtual RC400T controllers on GUI

Easily create and recall preset looks on all your screens and auxiliary outputs

Fully functional simulator for offline configuration and practice

Remote services and maintenance

Backup and restore functions

Highly ruggedized chassis with cleanable air filter

Swappable redundant power supplies (2+1)

Quiet: 49dB average noise at 1m

Technical Specifications

VIDEO PROCESSING

Based on Analog Way exclusive 5th generation scaling engine

Ultra-low latency, as low as 1 frame in proper configuration

BT.601; BT.709; BT.2020 color spaces

High Frame Rate processing up to 144Hz for Dual/2K signals

Real-time SDR/HDR10/HLG conversion and color correction based on 3D LUTs for all inputs and outputs

High-end keying algorithms: Luma-Key, Chroma-Key and Cut and Fill at input and layer levels. 3D LUT based CremaTTe 3D at input level only (requires AW CremaTTe 3D software available on the website)

Compatible with HDCP 1.4 and HDCP 2.2

AUDIO PROCESSING

Audio de-embedding/embedding on every input & output (raw audio)

De-embed audio from sources and route directly to Dante™ network / Re-embed audio from external audio processor for sending to display

64x64 Dante™ channels @48 kHz or 32x32 Dante™ channels @96 kHz

Dual redundancy Ethernet ports - AES67 support

COMPREHENSIVE SET OF INPUT AND OUPUT CARDS

8x HDMI 1.4 input card	- up to 2560x1600 8-bit 4:4:4 - up to 1920x1080 120Hz 8-bit 4:4:4
4x HDMI 2.0 input card / 4x HDMI 2.0 output card	- up to 4K60p 8-bit 4:4:4 - up to 2560x1440 144Hz 8-bit 4:4:4
4x Optical Fiber input card / 4x Optical Fiber output card	- up to 4K60p 12-bit 4:2:2 - up to 1920x1080 144Hz 10-bit 4:4:4
4x SDVoE input card / 4x SDVoE output card	up to 4K30p 12-bit 4:4:4
4x DisplayPort 1.2/1.4 input card / 4x DisplayPort 1.2 output card	4x inputs/outputs in DP 1.2 mode: - up to 4K60p 10-bit 4:4:4 - up to 4K60p 12-bit 4:2:2 - up to 4K30p 12-bit 4:4:4 2x inputs/outputs in DP 1.4 mode: - up to 5K60p 10-bit 4:4:4 - up to 5K60p 12-bit 4:2:2 - up to 2560x1440 144Hz 8-bit 4:4:4 - up to 1920x1080 144Hz 10-bit 4:4:4
4x 12G-SDI input card / 4x 12G-SDI output card 4x SFP+ cage input card / 4x SFP+ cage output card	- up to 4K60p 10-bit 4:2:2 - compatible with 3G-SDI and 6G-SDI - up to 3840x2160RB 120Hz 8-bit 4:4:4 - up to 7680x4320RB 30Hz 8-bit 4:4:4
8/4x 12G-SDI/3G-SDI input card	- up to 2K60p 10-bit 4:2:2 (3G-SDI) - up to 4K60p 10-bit 4:2:2 (12G-SDI) - up to 2K120p 10-bit 4:2:2 (12G-SDI)
4x 12G-SDI + 1x 2.5GbE NDI-enabled input card	12G-SDI: same as 4x12G-SDI input card +NDI Full bandwidth (2.5GbE network ,TCP): - Up to 4x 2160p30 8-bit 4:2:2 - Up to 4x 1080p60 8-bit 4:2:2 w/ alpha - Up to 3x 2160p60 8-bit 4:2:0
4/8x ST2110 input card / 4x ST 2110 output card	- Up to 8x 1080p60 10-bit 4:2:2 (inputs only) + redundancy - Up to 4x 2160p60 10-bit 4:2:2+ redundancy

INPUTS

8, 16, 24 or 32 4K60p inputs via 2, 4, 6 or 8 field swappable input connector cards

Support 4K60p input as single, double or quad plugs (incl. 4x 3G-SDI 2SI)

Support custom input formats such as “8k x 1k” on a single connector

Stereoscopic 3D supported on DisplayPort inputs: frame sequential mapping with in-band sync

Connector status LEDs for easy troubleshooting

OUTPUTS

Up to 24 active 4K60p outputs via 6 field-swappable output cards

Support 4K60p output as single, double or quad plugs

Support custom output formats such as “8k x 1k” on a single connector

Stereoscopic 3D supported on DisplayPort outputs: frame sequential mapping with in-band sync

Connector status LEDs for easy troubleshooting

Technical Specifications

IMAGES

Up to 2 image processing cards - each supporting 6x 5K, 12x 4K or 24x 2K concurrent fully resizable still images

Support of alpha-channel

Still image library with 100 memories

Multi-file download/upload via Web RCS

Capture from live inputs, outputs and multiviewers

MULTIVIEWER OUTPUTS

2 references of Multiviewer cards with either 2x DP1.2 outputs compatible with AW DPH104 video processor (ref. DPH104) or 2x HDMI2.0 outputs

2x HDMI 2.0 outputs configurable as:

- up to 2x 4K30p
- up to 2x 2560x1440@60p
- up to 1x 4K60p + 1 duplicated

64 resizable widgets on each output

Customizable layouts with 50 memories

Monitor inputs, still images, screens (PGM & PVW) and inboard clocks, timers and countdowns

1x VU meter per Multiviewer output to monitor audio from the inputs

LAYERS & BACKGROUND

Mixing layers (true seamless transitions) and split layers (Cut or Fade To Black transitions) configurable per screen

Up to 4 video processing cards, each supporting 2x 5K, 4x 4K or 8x Dual/2K mixing layers (x2 if split layers) depending on screens setup:

=> Up to 8x 5K, 16x 4K or 32x Dual/2K mixing layers per system (x2 if split layers), depending on the screens setup

Layer sources: live inputs, still images, screens (split layers only), inboard clocks, timers and countdowns

One unscaled background mixer per output, with seamless transitions

Background sources: live inputs, still images

Input and background set backup: up to 2 backup sources with manual or automatic switch

SCREENS

Outputs configurable as single screens or edge-blended widescreens

Up to 24x Dual/2K60p program outputs or up to 16x 4K60p program outputs cloneable to any other unused outputs

Ability to place the outputs anywhere on an almost limitless video canvas space for special LED wall applications

Flexible layer management: various content sizes (2K, 4K, ...), Region Captive PiPs for resource optimization, screens without layers (background only)

500 master memories, 1000 screen memories and 50 layer memories

Advanced pixel pitch management & bezel compensation

SCALED AUX OUTPUTS

Any unused output configurable as a scaled auxiliary output

Up to 24x 4K60p scaled auxiliary outputs

Can display any input, screen (1:1 or scaled) or inboard clocks, timers and countdowns

Ability to create resizable layers on AUX outputs without using processing resources (using adjacent outputs to increase the layer count)

TRANSITIONS & EFFECTS

True A/B Mix

Misc. layer border effects/colors and separate shadow

Transitions: Cut, Fade, Slide, Wipe, Circle, Stretch, Depth, Flying layer movement with programmable paths

Layer effects: Transparency, Cropping, H&V Flip, Cut and Fill, Strobe

Colors effects: B&W, Negative, Sepia and Solarize

CONTROL

Web RCS: On-board intuitive web-based user interface

HTTPS for secure connection with downloadable certificate and private key

Shot Box² (ref. SB80-2)/Control Box³ (ref SB124T-3): Cost effective control solutions

RC400T (ref. RC400T): Ergonomic event controller, customizable via Web RCS

Simple REST API (HTTP) and advanced TCP protocol based on JSON

Q-SYS, AMX and Crestron drivers & AW VideoCompositor (Premium Crestron GUI)

Technical Specifications

EXPANDABILITY

Expansion via simple linking possible (ref. **OPT-AQL-LINK + OPT-AQL-OUT-LINK-QSFP**)

Set of 3 link DAC Copper cables:

- 1 meter ref. **ACC-AQL-LINK-DAC-SET-1M**
- 3 meters ref. **ACC-AQL-LINK-DAC-SET-3M**

40GbE QSFP+ transceiver with single mode fiber LC interface up to 500m/1640ft (fiber not provided):

- 1 module ref. **ACC-AQL-LINK-SM-TRX**
- Set of 6 modules ref. **ACC-AQL-LINK-SET-SM-TRX**

Inter-chassis synchronization card featuring integrated SFP cages and an additional RJ45 control interface ref. **ACC-AQL-SYNC-SFP**

SFP modules for inter-chassis synchronization card:

- Generic SFP module with RJ-45 copper interface, up to 1 Gbps over Cat5e/6 cables up to 100m ref. **ACC-AQL-RJ45-1G-SFP**
- Generic SFP module with duplex LC connectors, up to 1 Gbps over single-mode fiber up to 2km ref. **ACC-AQL-SM-TRX-1G-SFP**

OTHER FEATURES

Compatible with Analog Way DPH104 video processor (ref. DPH104 - available separately)

Tally/GPI-O - EDID management on every input and output

Dedicated BNC with loop out for Framelock, blackburst and tri-level sync

Fully functional simulator for offline configuration & practice

Dimension (in Rack Units - RU)

- ▶ 6RU

Dimensions (without rack ears & rack mount)

- ▶ W 17.28" x H 10.39" x D 27.56"
- ▶ L 439.8 mm x H 264 mm x P 700 mm

Dimensions (with handles)

- ▶ W 18.89" x H 10.39" x D 27.59"
- ▶ L 482.4 mm x H 264.2 mm x P 701 mm

Weight without accessories

- ▶ 45 kg / 99.2 lbs

Shipping weight (accessories included)

- ▶ 64 kg / 141.1 lbs

Operating conditions

- ▶ Temperature: 0 to 40°C (32 to 104°F)
- ▶ Humidity: 10% to 80%, non-condensing

Noise (@1,6m height @25°C)

- ▶ Front: 52 dBA@1m
- ▶ Rear: 54 dBA@1m

Thermal dissipation

- ▶ 5120 BTU/h (fully loaded with SDVoE input and output cards)

Warranty

- ▶ 3-year warranty on parts and labor back to factory
- ▶ Broken connectors are not covered by warranty

Power Supply

- ▶ 100-240 VAC, 12-7A 50/60Hz
- ▶ Swappable redundant power supplies (2+1)
- ▶ Max consumption: 1500 W (fully loaded with SDVoE input and output cards)

EMC & Environmental Compliance

- ▶ EN55032, EN55024, EN61000, FCC part15, ICES

Safety Compliance

- ▶ IEC/UL/EN 62368-1
- ▶ CSA22.2 #62368-1
- ▶ UL Listed (E359143)

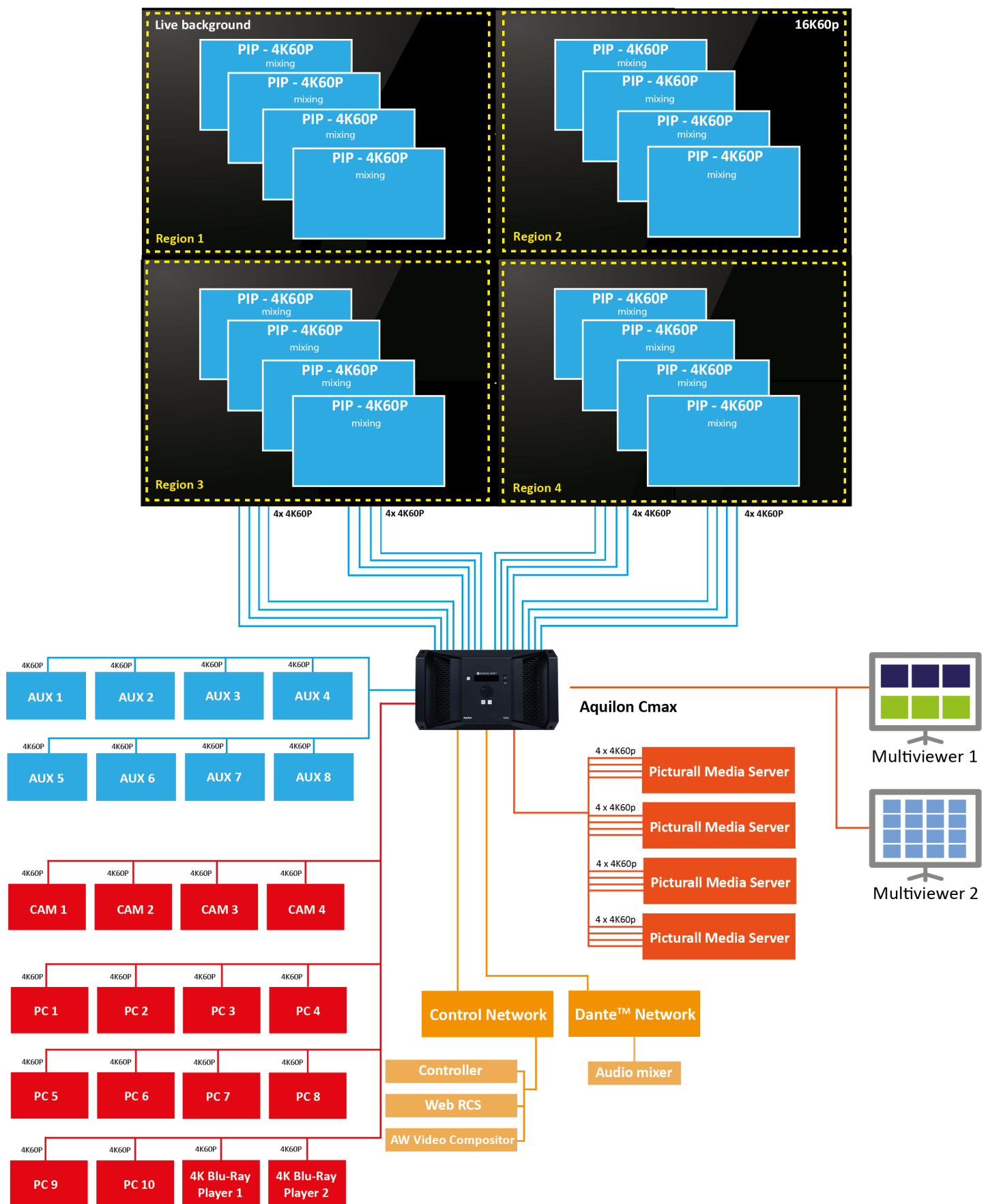
Supplied with:

- ▶ 3x Power supply cords
- ▶ 1x Web-based remote control software
- ▶ 1x Rackmount kit
- ▶ 1x Ethernet cross cable
- ▶ 3x MCO 5 pin connectors
- ▶ 1x User manual (PDF)
- ▶ 1x Quick start guide + safety instructions

The terms HDMI, HDMI High-Definition Multimedia Interface, HDMI trade dress and the HDMI Logos are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

① Specifications subject to change without prior notice

Aquilon Cmax can drive a 16K60p LED wall with up to 16x 4K mixing layers and eight 4K60p AUX outputs



Aquilon Cmax has an extensive ecosystem for control and management

