Aquilon Cmini

Ref. AQL-CMINI

ANALOG WAY®

Fully modular and scalable 4K/8K multi-screen presentation system and videowall processor with up to 8x 4K60p inputs, 12x 4K60p outputs and 4x 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).

TAA COMPLIANT

Aquilon Cmini 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, Optical Fiber, SDVoE , ST 2110 and more to come
- Ultra-low latency 10/12-bit 4:4:4 video processing
- Up to 40 Megapixels throughput on Program at 10-bit 4:4:4 @60Hz
- Up to 8x 4K60p or 16x 2K/DL inputs depending on installed input cards
- Up to 12x 4K60p outputs
- Up to 4x 4K or 8x 2K/DL mixing layers (+live backgrounds)
- High Frame Rate up to 144Hz
- 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 8 4K60p inputs	Up to 16 2K/DL inputs	Up to 12 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 up to 144Hz	HDR & 3D LUTs	Dante 64x64
Up to 4 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 Cmini** 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 Cmini** 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 Cmini'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 Cmini** features up to 8x 4K60p inputs and up to 12x 4K60p outputs, configurable as single screens, edge-blended widescreens or scaled auxiliary outputs, 2 dedicated Multiviewer outputs, up to 4x 4K or 8x 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 Cmini** 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 16x 4K Program outputs and 16x 4K Auxiliary Screens (example of 4 fully loaded **Aquilon Cmini** 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

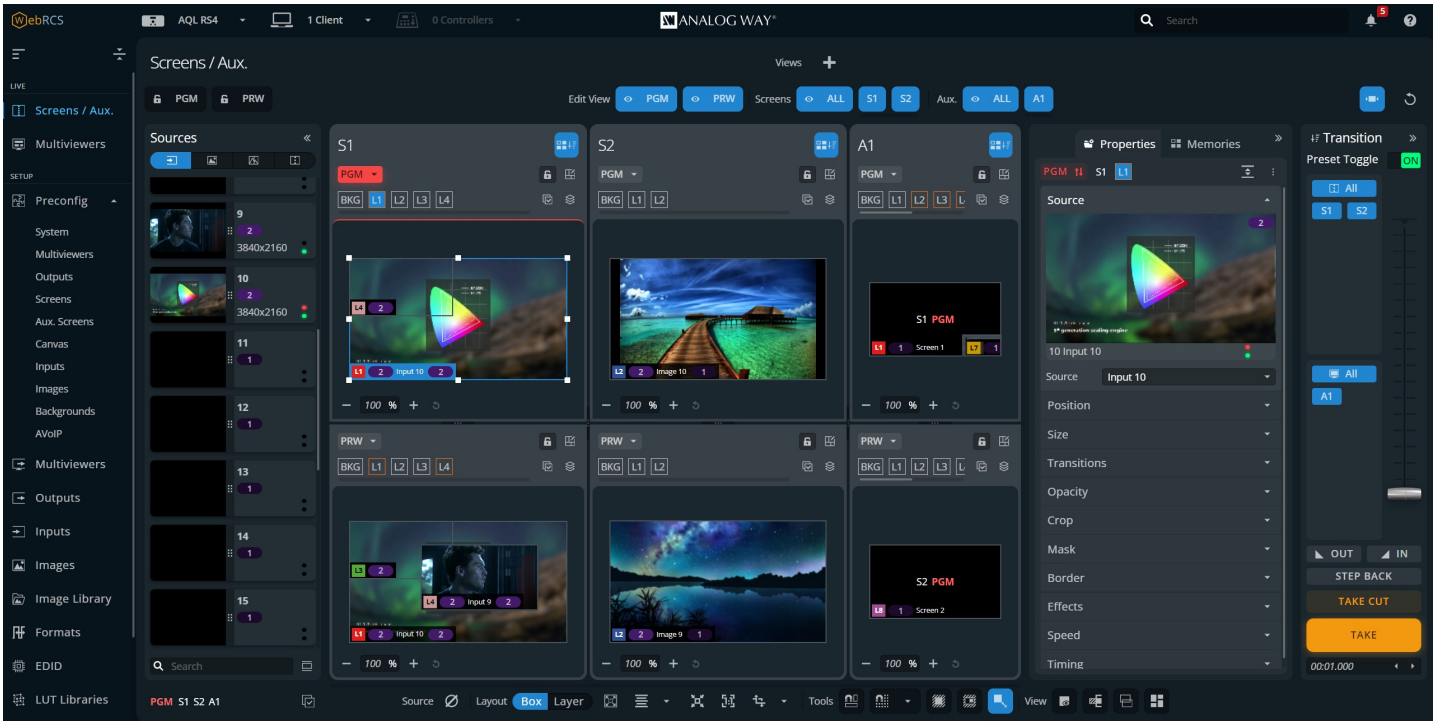
Aquilon Cmini features state-of-the-art real time processing features that will help you to unleash all your creative potential and produce flawless, stunning shows: true seamless switching, real-time LUT based SDR/HDR conversion and color correction, flying layer movement, advanced cut and fill, cutting-edge keying engine and many other effects. **Aquilon Cmini** 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 Cmini 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 Cmini** delivers

Unrivaled ease of use

For the best ease of setup and to ensure flawless control of multi-screen presentations, **Aquilon Cmini** 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 Cmini** 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 Cmini** can be controlled by a comprehensive range of remote control solutions from the **Shot Box**[2] and the **Control Box**[3] 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 40 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 8x 4K60p inputs or 16x 2K/DL inputs depending on installed input cards
- Up to 12x 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 HDMI 1.4, 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, 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 4x 4K or 8x 2K/DL mixing layers per system (8x 4K or 16x 2K/DL split layers), depending on the screens setup
- Up to 12x 4K or 24x 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 (1+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 4x Optical Fiber input card / 4x Optical Fiber output card 4x SDVoE input card / 4x SDVoE output card	• up to 4K60p 8-bit 4:4:4 • up to 4K60p 12-bit 4:2:2 • up to 4K30p 12-bit 4:4:4	• up to 2560x1440 144Hz 8-bit 4:4:4 • up to 1920x1080 144Hz 10-bit 4:4:4
4x DisplayPort 1.2 / 2x DisplayPort 1.4 input card 4x DisplayPort 1.2 / 2x DisplayPort 1.4 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 • up to 3840x2160RB 120Hz 8-bit 4:4:4 • up to 7680x4320RB 30Hz 8-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 2K120p 10-bit 4:2:2
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 3x 2160p60 8-bit 4:2:0	• up to 4x 1080p60 8-bit 4:2:2 w/ alpha
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 4K60p inputs via 2 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

Connector status LEDs for easy troubleshooting

OUTPUTS

Up to 12 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

Connector status LEDs for easy troubleshooting

IMAGES

One image processing card 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

Technical Specifications

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 1x 4K60p + 1 duplicated	• up to 2x 2560x1440@60p
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
One video processing card supporting 2x 5K, 4x 4K or 8x Dual/2K mixing layers (x2 if split layers) depending on 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 8x Dual/2K60p program outputs or up to 4x 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 12x 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 Box[2] (ref. SB80-2)/Control Box[3] (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)

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

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**

Dimension (in Rack Units - RU)
- 3RU

Dimensions (without rack ears & rack mount)
- W 17.28'' x H 5.23'' x D 27.56''
- L 439.8 mm x H 133 mm x P 700 mm

Dimensions (with handles)
- W 18.89'' x H 5.23'' x D 27.59''
- L 482.4 mm x H 133 mm x P 701 mm

Weight without accessories
- 26.4 kg / 57.32 lbs

Shipping weight (accessories included)
- 44.6 kg / 97 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: 45 dBA@1m
- Rear: 47 dBA@1m

Thermal dissipation
- 2081 BTU/h

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 (1+1)
- Max consumption: 610 W

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:
- 2x 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.

ⓘ Specifications subject to change without prior notice

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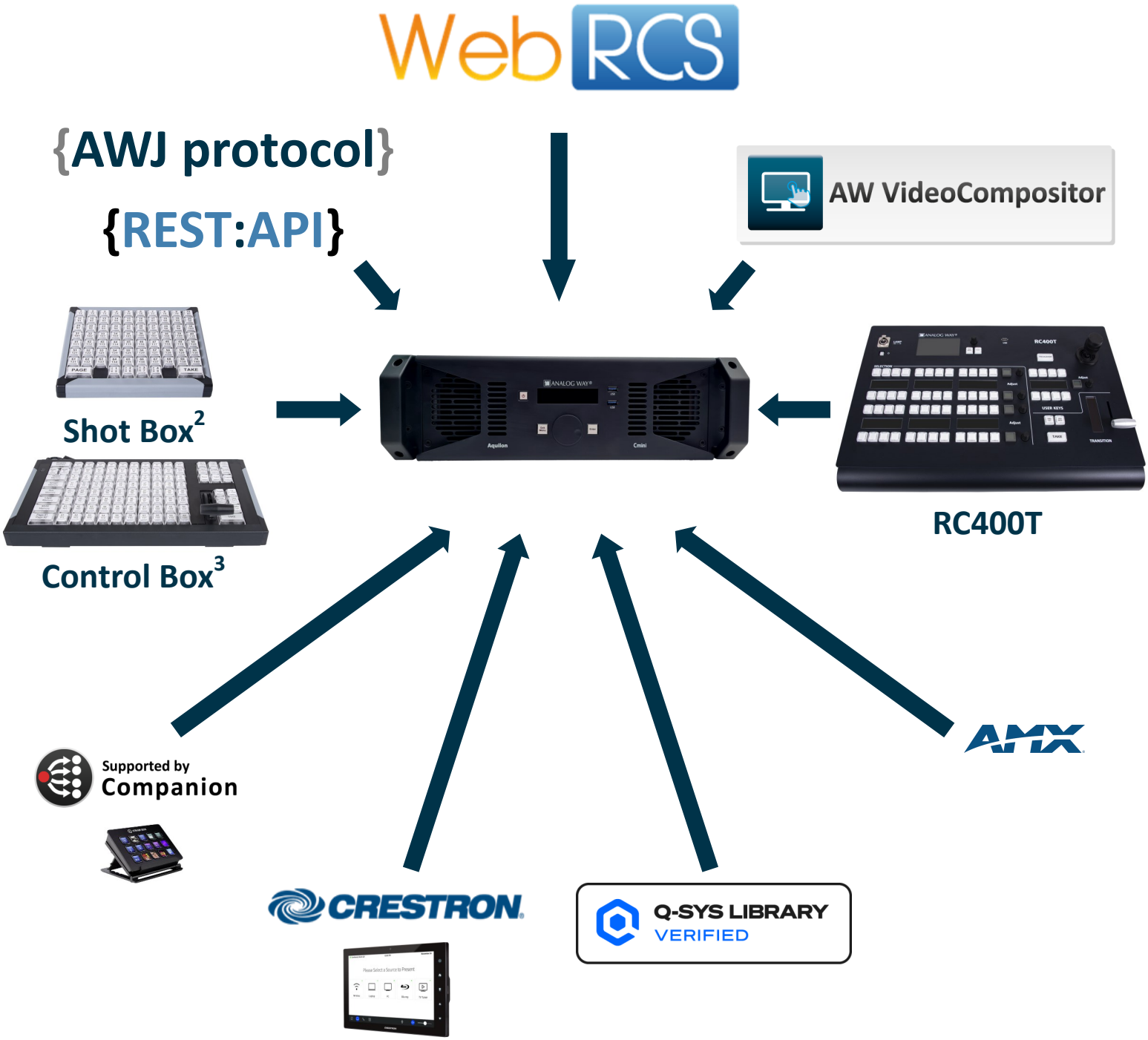
Aquilon Cmini has an extensive ecosystem for control and management