AirCleaner

LIVE EVENT PROTECTION DELAY

AirCleaner

ROSS®
LIVING LIVE!

VIDEO CONCEALMENT

MAKE LIVE TELEVISION SAFE

The world's most popular profanity elimination delay has been upgraded with a completely new hardware platform and capabilities. Introducing AirCleaner-2!

Eliminate nudity, offensive language and obscene gestures from live broadcasts and webcasts while maintaining program continuity with a flexible, feature-rich digital delay that provides a variety of video and audio masking techniques.

These techniques include concealments such as variable video defocus and audio jumble, which eliminate the need for auxiliary content and simplifies live production workflows. These concealments also mask unwanted content in a more subtle way when compared to "abrupt scene changes" and jarring "beep tones" — which ensures your live broadcasts and webcasts are cleanly protected from all unscripted and unwanted content.

AirCleaner-2™ is built upon a brand-new, modern hardware platform featuring the latest-generation processing hardware and software. Thanks to this substantial boost in processing power, AirCleaner-2 can now protect a wider variety of live productions, including those that include HDR and WCG content. A much wider range of 3G HD-1080p and 12G UHD-2160p video standards are also supported, including additional frame rates such as 23.98p, 24p and "true 60p" which is essential in the eSports industry.

This next-generation AirCleaner-2 is also "future-ready" for IP video I/Os, featuring dual 100G QSFP cages that accept a variety of customer-supplied transceivers in support of SMPTE-2110 IP video I/Os. When available, AirCleaner-2 can be easily upgraded over the internet with SMPTE-2110 by means of an optional software license.

KEEP IT CLEAN
• Industry-leading concealment delay solution used by major broadcasting networks in various global markets
• Avoids penalties from obscenities, wardrobe malfunctions and offensive gestures
• Independent video and audio delays provide greater concealment flexibility

HIDE CONTENT SMOOTHLY
• Conceals video with variable defocus, luminance matte or auxiliary "safe" input
• Conceals audio with unique audio jumble, mute or auxiliary "safe" input
• Provides concealments that are more elegant and less noticeable for audiences than "video switch" and "beep tone"

SHARE THE LOAD
• Includes unique dual-user operations to ensure offensive content is eliminated during critical, high-profile broadcasts
• Easily divides delay time between two users by simply adding a second "Panic Button Panel"
• Minimizes operator error with simple set up and personalization

KEYBENEFITS

CONCEALMENT CHOICES
Apply unique "Video Defocus" and "Audio Jumble" concealments, internal matte and mute, or choose "Switch to AUX" for alternative "safe" sources
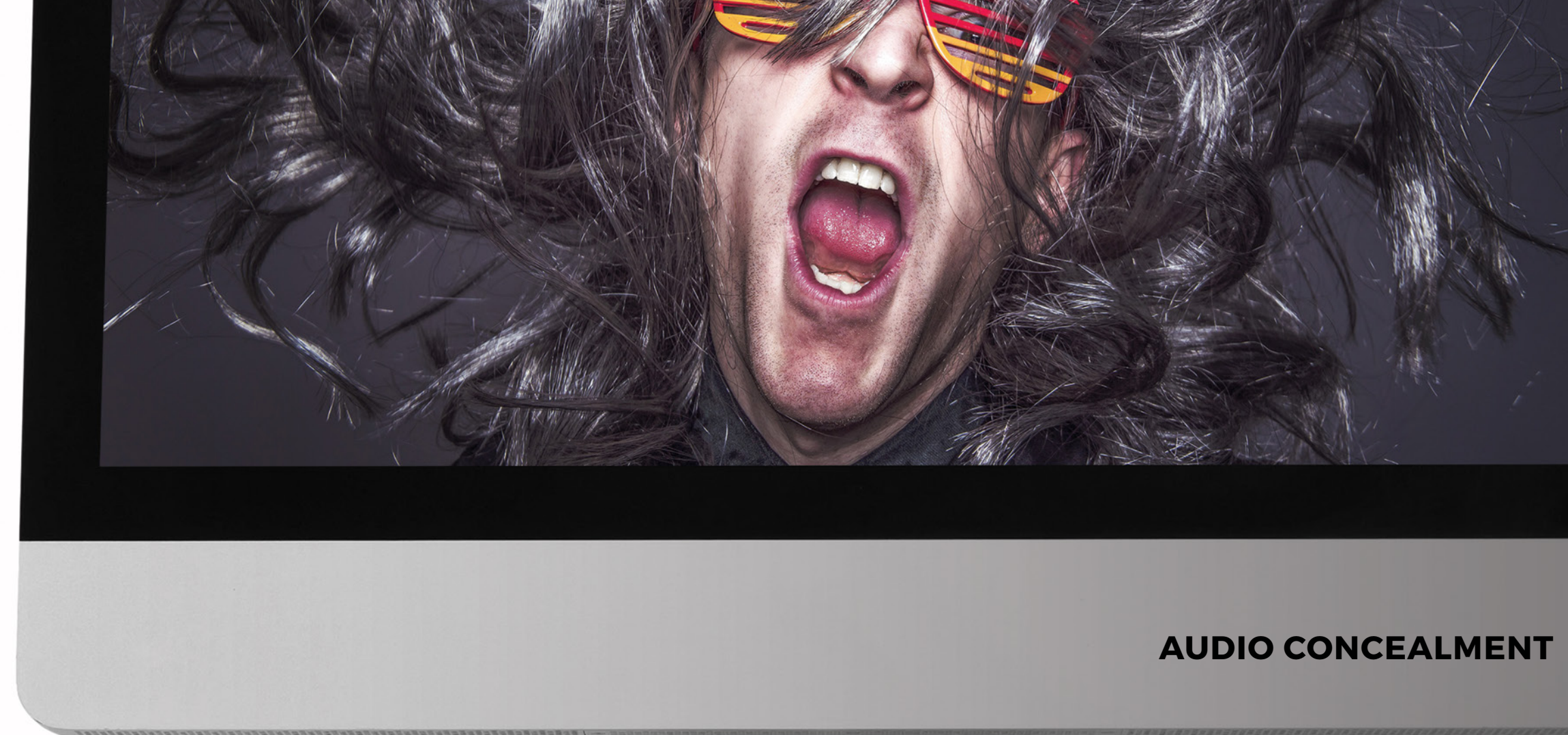
DUAL-USER OPERATION
Easily add a second user to provide additional flexibility and security during high-profile broadcasts

DEDICATED CONTROL PANEL
Robust control panel with two large "Panic Buttons" requires very little desk space
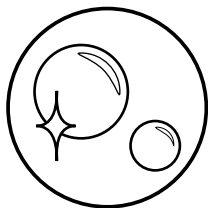
QUICK RESPONSE
Easily conceal with "Press & Hold" button actions, featuring "Reaction Time" compensation

AUDIO CONCEALMENT

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On Audio Trigger = Jumble

ELIMINATE UNDESIRABLE CONTENT

The immediacy of news gathering and the nature of live programming increases your risk of airing an obscenity, "wardrobe malfunction," or offensive gesture, and these can result in fines or other penalties. AirCleaner-2 is the leading digital video and audio delay solution that reduces this risk by easily concealing all unwanted content. Installed in hundreds of live television facilities around the world, AirCleaner-2 provides a digital insurance policy against broadcasting offensive content.

EASY CONCEALMENT OPERATIONS

AirCleaner-2 provides a variety of features to seamlessly eliminate the possibility of costly content violations, and supports 12G UHD, 3G HD and 1.5G HD video I/Os that includes embedded multi-channel audio.

AirCleaner-2 can be programmed to produce a number of concealment effects for both video and audio—either simultaneously or independently—to deliver the utmost in production flexibility. Unlike other delay systems, AirCleaner-2 can mask offensive live content while maintaining program continuity, so your viewing audience is hardly aware that an offense has been concealed. To achieve this, an integrated effects engine provides variable defocus to blur out visual obscenities. The unique Jumble feature scrambles audio in such a way that all speech becomes unintelligible but audio continuity and levels are maintained, effectively concealing any offensive language.

AirCleaner-2 can also switch to an internally generated luminance matte and/or muted audio. Alternatively, auxiliary "safe" sources for video and/or audio can be used as a switched feed. AirCleaner-2 handles AES and embedded audio and has a stereo analog audio output for monitoring purposes. AirCleaner-2 even compensates for audio/video synchronization errors by offsetting video and audio timing.

Video Concealment Effects:
• Variable defocus through built-in effects engine
• Internal luminance matte
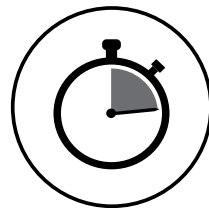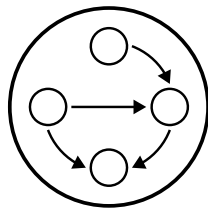• Auxiliary "safe" input

Audio Concealment Effects:
• Unique audio Jumble
• Mute
• Auxiliary "safe" input

The custom-designed control panel requires very little desk space and features two large trigger buttons: one for video and one for audio. Operators can easily conceal video, audio, or both simultaneously.

FLEXIBLE SYSTEM ARCHITECTURE

AirCleaner-2 employs two separate delay circuits consisting of an audio and video delay for up to two outputs with independently adjustable delay times. Since AirCleaner-2 has separate audio and video pathways, each element can be concealed independently from the other, providing more operational flexibility than competing products. The flexible architecture of AirCleaner-2 also uniquely provides dual-user capability.

During dual user operation, AirCleaner-2 effectively becomes two separate delay systems connected in series with assignable delay times for two operators. This feature permits one operator to monitor the incoming live feed to react to any inappropriate content. If the first operator fails to conceal any part of the incident, then the second operator—who receives the feed with additional delay—is able to react accordingly. In this configuration, AirCleaner-2 provides extra insurance by providing two opportunities to conceal any violation before it reaches your audience.
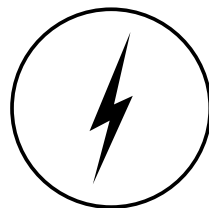
VARIABLE REACTION TIME

Depending on the desired operation, AirCleaner-2 works with one or two operators. Since humans have differing reaction times and respond differently to visual and aural cues, AirCleaner-2 includes AutoClean™, a feature that compensates for the reaction time of human operators to respond to an observed visual or aural event.

With AutoClean, four separate reaction times (two for each operator) can be programmed to automatically "back up" the trigger point of the concealment. This gives each operator the time to recognize a violation prior to the concealment button press, so the masking starts before that point and continues for the entire duration the button is held down.
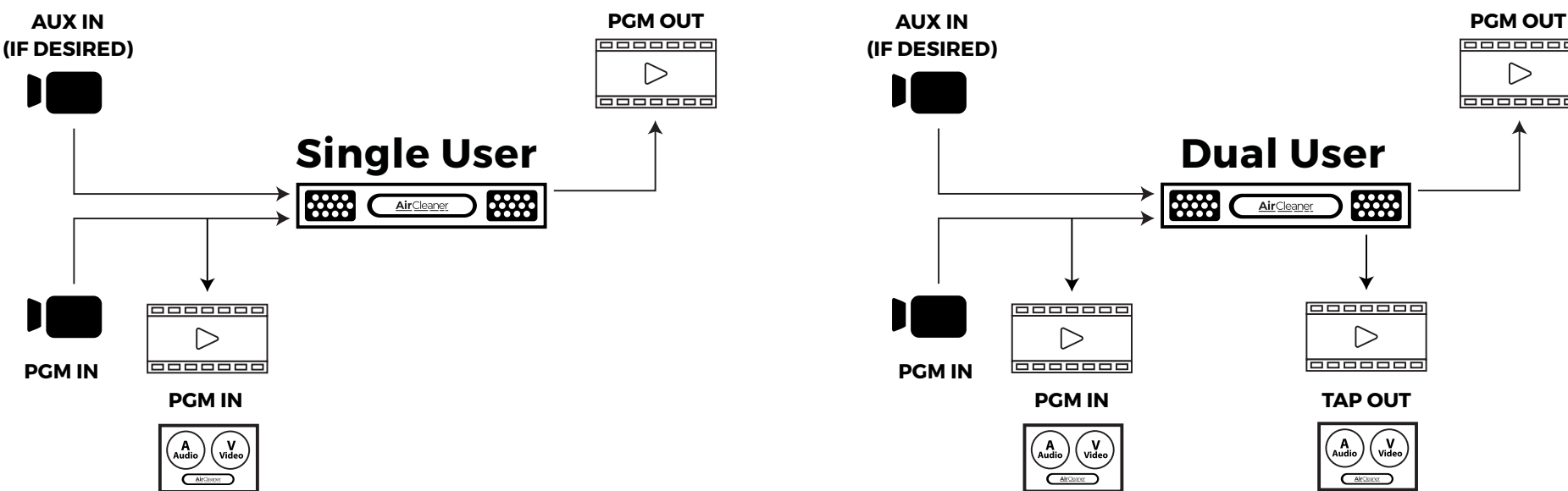
As one example, with the overall delay time set to five seconds and the reaction time set to two seconds, it will take three seconds from the point at which the operator presses the trigger button for the concealment to begin at the output. The total program delay will still be five seconds, but the content will be masked two seconds before the button was pressed and will remain masked for the entire duration the button is held down. Concealment is removed from the live feed at the point at which the button is released.

SYSTEM REDUNDANCY

AirCleaner-2 features solid-state technology and is equipped with a bypass relay circuit to further ensure the integrity of your live television broadcasts and webcasts. This bypass can be operated manually from a "protected" front panel push button, or will trigger automatically in the event of a complete loss of power. To help protect against such a power loss, hot-swap redundant power supplies are a standard feature in AirCleaner-2.

USER WORKFLOWS

Single User

AUX IN (IF DESIRED) — PGM OUT — PGM IN — PGM IN

Dual User

AUX IN (IF DESIRED) — PGM OUT — PGM IN — PGM IN — TAP OUT

SPECIFICATIONS

KEY FEATURES

- Two independent delay circuits, each consisting of an audio and video delay. Total program delay time is variable and is user programmable

- Dual-user configuration supports separate operators in series to provide extra insurance for removing unwanted content from live broadcasts

- Video concealment choices: variable defocus, luminance matte, and auxiliary safe input

- Audio concealment choices: audio jumble, mute, and auxiliary safe input

- High reliability with bypass relay circuit supporting power loss fail-safe and manual switch, as well as hot-swap redundant power supplies

- Optional custom-designed control panel with two large color-coded trigger buttons for video and audio concealment

- Programmable operator reaction time parameters for each concealment trigger button

- Audio support for AC-3 and Dolby-E bit streams

- Compact 2 RU chassis

VIDEO STANDARDS

UHD-4K 4:2:2 YUV @ 12Gb/s HDR Capable (Optional Video Standard[†]):

- 2160p: | 50 | 59.94 | 60 |

HD 4:2:2 YUV @ 3Gb/s HDR Capable:

- 1080p: | 50 | 59.94 | 60 |

HD 4:2:2 YUV @ 1.5Gb/s HDR Capable:

- 720p: | 50 | 59.94 |
- 1080i: | 50 | 59.94 |
- 1080p: | 23.98 | 24 | 25 | 29.97 | 30 |
- 1080psf:| 23.98 |

SAFETY & EMISSIONS COMPLIANCE

- IEC/EN 62368-1
- FCC PART 15
- ICES-003
- CE DIRECTIVE 93/68/EEC
- CISPR 32:2015 | AMD1:2019

DATA / CONTROL

- Gigabit Ethernet ....(1) F RJ45
- GPI I/O (Control Panel & Tally)..............................(1) F 9D

PHYSICAL & ELECTRICAL

- 2RU Rack-Mount Chassis Dimensions:
  W = 17.0 in / H = 3.50 in / D = 23.60 in
  W = 43.18 cm / H = 8.90 cm / D = 60.00 cm

- 2RU Chassis Weight: 27 lbs (12.25 kg) | with supplied Rack Rails: 32 lbs (14.5 kg)

- 2RU Chassis Power Input: 100 to 240 VAC | 47-63 Hz | 8 to 4 Amps (Auto-sensing)

- 2RU Chassis Power Consumption: <500W

- "Panic Button" Control Panel Dimensions:
  W = 6.35 in | H = 2.28 in | D = 3.78 in
  W = 16.13 cm | H = 58.00 cm | D = 9.60 cm
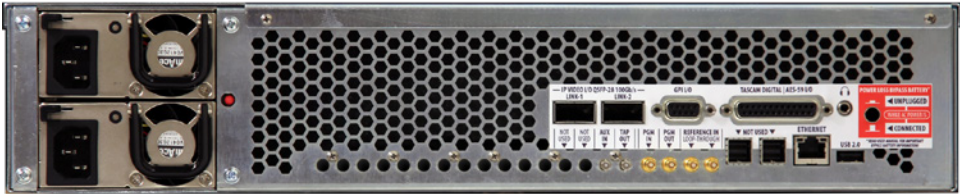
- "Panic Button" Control Panel Weight: 3 lbs. | 1.36 kg.

DIGITAL VIDEO INPUT (PGM IN)...(1) FEMALE BNC*

UHD-4K Video (Optional Video Standard[†]):
- UHD-SDI SMPTE ST-2082 (10-bit at 12Gb/s)

HD Video:
- HD-SDI SMPTE 424M (10-bit at 3Gb/s)
- HD-SDI SMPTE 292M (10-bit at 1.5Gb/s)

DIGITAL VIDEO INPUT (AUX IN)...(1) FEMALE HD-BNC*

UHD-4K Video (Optional Video Standard[†]):
- UHD-SDI SMPTE 2082 (10-bit at 12Gb/s)

HD Video:
- HD-SDI SMPTE 424M (10-bit at 3Gb/s)
- HD-SDI SMPTE 292M (10-bit at 1.5Gb/s)

DIGITAL VIDEO OUTPUT (PGM OUT)...(1) FEMALE HD-BNC*

UHD-4K Video (Optional Video Standard[†]):
- UHD-SDI SMPTE ST-2082 (10-bit at 12Gb/s)

HD Video:
- HD-SDI SMPTE 292M (10-bit at 1.5Gb/s)
- HD-SDI SMPTE 424M (10-bit at 3Gb/s)

DIGITAL VIDEO OUTPUT (TAP OUT)...(1) FEMALE HD-BNC*

UHD-4K Video (Optional Video Standard[†]):
- UHD-SDI SMPTE ST-2082 (10-bit at 12Gb/s)

HD Video:
- HD-SDI SMPTE 424M (10-bit at 3Gb/s)
- HD-SDI SMPTE 292M (10-bit at 1.5Gb/s)

ANALOG REFERENCE INPUT...(2) FEMALE HD-BNC*

Tri-level HD or Composite Analog Bi-Level SD; Loop-Through

DIGITAL AUDIO INPUTS/OUTPUTS..(1) FEMALE 25D

AES-59/TASCAM Audio for PGM IN:
- UHD-SDI & HD-SDI I/Os = 8-tracks (4 stereo pairs); 48kHz @ 24-bit resolution

AES-59/TASCAM Audio for PGM OUT:
- UHD-SDI & HD-SDI I/Os = 8-tracks (4 stereo pairs); 48kHz @ 24-bit resolution

SDI Embedded Digital Audio for PGM IN | AUX IN | TAP OUT | PGM OUT:
- UHD-SDI & HD-SDI I/Os = 16-Tracks (8 stereo pairs); 48kHz @ 24-bit resolution

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ANALOG AUDIO MONITORING OUTPUT..(1) FEMALE 3.5mm

- Unbalanced Line Level @ –10 dBV
- 2-Tracks (1 stereo pair)
- User-selectable to monitor any stereo audio pair (from PGM OUT)

MODEL CONFIGURATIONS

	HD 720p|1080i	HD 1080p	UHD 2160p[†]
AirCleaner-2 Model A:	80s	40s	10s
AirCleaner-2 Model B:	160s	80s	20s
AirCleaner-2 Model C:	360s	180s	45s

• Maximum Delay Times shown in Seconds for 59.94 frame rate

[†] Optional 2160p UHD-4K Video Standards consists of a one-time license installed over the internet; or installed at time of initial purchase of AirCleaner-2.

[‡] Optional SMPTE-2110 IP Video IOs consists of a one-time license installed over the internet; or installed at time of initial purchase of AirCleaner-2; requires installation of (QTY 2) QSFP 100G transceivers into AirCleaner-2 chassis, purchased separately from a range of third-party vendors.

* HD-BNC = 'High-Density BNC' connector; 'HD-BNC to Full-Sized BNC' adapter cables for every HD-BNC connector is included with AirCleaner-2

AIRCLEANER-2 CHASSIS REAR PANEL

AirCleaner

Ross Video has a complete range of technical services available to ensure that your AirCleaner installation is a success.

Operational Training can be provided at Ross Video, on-site, or on the web. Experienced Ross operators will teach your staff to get the most out of your new system and enhance your productions.

Commissioning is a service to help get your production system properly configured, connected, and installed. This service is performed by factory-trained Ross technical staff.

Technical Training can be provided at Ross Video, on-site, or over the web. Technical training will teach your engineering staff the technical details of the system you have purchased. System configuration, interfaces, databases, and routine maintenance procedures are some of the topics covered.

AirCleaner comes standard with a 1 year comprehensive warranty. Extended Warranties on hardware and software maintenance are available for an annual fee.

Technical advice is available on-line, by telephone, or email to Ross Video – Included for the life of your system.

Contact Us

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North America: 1-844-652-0645

Email: solutions@rossvideo.com

Technical Support
Emergency: +1 613 349-0006
Email: techsupport@rossvideo.com

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