Products Engineering

Specification

Table of Contents

[1 Abstract 3](#_Toc472941845)

[2 Disclaimer 3](#_Toc472941846)

[2.1 Manufacture 3](#_Toc472941847)

[2.2 Installation, testing, and system’s acceptance 3](#_Toc472941848)

[3 Specifications summary 4](#_Toc472941849)

[3.1 HDVS-200-TX / PSK Product Specifier 5](#_Toc472941850)

[3.2 HDVS-200-TX-WP Product Specifier 6](#_Toc472941851)

[3.3 HDVS-200-RX Product Specifier 7](#_Toc472941852)

[3.4 HDVS-150-TX Product Specifier 8](#_Toc472941853)

[3.5 HDVS-150-TX-WP Product Specifier 9](#_Toc472941854)

[3.6 HDVS-150-RX Product Specifier 10](#_Toc472941855)

[3.7 UHD-EX-100CE-RX-PSE Product Specifier 11](#_Toc472941856)

[3.8 UHD-EX-100CE-TX-PD Product Specifier 12](#_Toc472941857)

[3.9 AT-HDVS-300-KIT Product Specifier 13](#_Toc472941858)

[3.10 AT-UHD-SW-5000ED Product Specifier 14](#_Toc472941859)

[3.11 AT-UHD-SW-52ED Product Specifier 15](#_Toc472941860)

[3.12 AT-HD-SC-500 Product Specifier 16](#_Toc472941861)

[3.13 AT-UHD-CLSO-601 Product Specifier 17](#_Toc472941862)

[3.14 AT-UHD-CLSO-612ED 17](#_Toc472941863)

[3.15 AT-UHD-CLSO-824 18](#_Toc472941864)

[3.16 AT-UHD-CLSO-840 19](#_Toc472941865)

[3.17 OmniStream VC-2 (AT-OMNI-111, AT-OMNI-112, AT-OMNI-121, AT-OMNI-122) 21](#_Toc472941866)

[3.17.2 Video Encoder and Decoder Specification 21](#_Toc472941867)

[3.17.3 Audio Sub System Specifications 21](#_Toc472941868)

[3.17.4 System 22](#_Toc472941869)

[3.17.5 Hardware 24](#_Toc472941870)

[3.17.6 Environmental 25](#_Toc472941871)

[4 Definitions and Abbreviations 26](#_Toc472941872)

# Abstract

The objective of this document is to serve as an engineering source or Specifier for Altona’s products, to help the designer in their project specification. The document is provided as a convenience to our customers and will require editing and customization to meet the project scope and requirements.

# Disclaimer

Atlona Technologies shall not be liable for any damages arising out of using this guide. To insure accuracy of your design, please contact our design and support team at (800)-536-3976.

## Manufacture

Basis of design subject to compliance with requirements to provide products of Atlona Technologies head quartered at 70 Daggett Drive, San Jose CA 95134. U.S. Office: +1.877.536.3976, or international +1.408.962.0515

## Installation, testing, and system’s acceptance

Product installation, testing, customer training, and system acceptance shall be done by an Atlona Certified Partner/ Engineer.

# Specifications summary

The AV system and devices shall meet the following as minimum for product operation:

1. The UHD/4K, and HD Digital Transport System shall operate as a stand -alone point to point system, as well as a part of larger switching system for delivering local AV content to a far end sinks.
2. Audio/Video switching and distribution at native resolution without compression.
3. HDMI signal transport
4. Audio signal transport
5. CEC support
6. RS232 support
7. HDCP 1.4 or greater support
8. Deep Color support.
9. EDID pass through and or EDID management.
10. Display control support
11. Auto signal detection
12. Field Firmware upgradable
13. Backed up with 10 years limited product warranty
14. Specification

## HDVS-200-TX / PSK Product Specifier

The 3X1 switcher / transmitter shall have two HDMI and one VGA inputs, as well as audio on 3.5 connector. The transport shall extend HDMI, VGA (including audio), RGBHV, YUV, and Composite, as well as RS-232 and Ethernet over HDBaseT port. The switching shall have input select, as well as display and volume control buttons on the front panel. Device configuration, operation and, maintenance shall be available via software management and Web GUI access. When two or more signal inputs are available, the transmitter shall include integrated switcher with signal sensing. The switcher shall switch to the last detected input (when not used with a control system by the same manufacturer). The 4K /UHD Input Switcher shall be an advanced signal extender system incorporating the following device specifications, and backed up with 10 years manufacture limited warranty

1. 3X1 HDBaseT Switcher - two HDMI inputs plus a VGA input with 3.5mm audio connector
2. Front panel input select button
3. Front panel display on/off control
4. Front panel volume control
5. Front LED indication for PWR, Input source selected, and signal status
6. Video resolution support for 4096×2160@24/25/30/50\*/60Hz, 3840×2160@24/25/30/50/60Hz, 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
7. VESA resolution support for 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
8. YUV and RGB Color Space
9. 4:4:4, 4:2:2, 4:2:0 Chroma Subsampling
10. 8-bit, 10-bit, 12-bit Color Depth
11. Automatic display control: Selects active input when sources are connected
12. Automatic input selection using video detection technology
13. EDID management support
14. CEC support
15. HDCP 1.4 support
16. PCM 2CH input audio
17. PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio for HDMI IN and HDBaseT OUT
18. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
19. Up to 24-bit rate
20. TCP/IP and RS-232 control of switcher
21. Ethernet enabled, HDBaseT extension
22. Transmits IP and AV signals up to 328 ft. (100m)
23. CAT5e/6 @ 4K up to 70 meters
24. CAT5e/6 @ 1080p up to 100 meters
25. CAT6a/7 @ 4K up to 100 meters
26. HDMI IN/OUT @ 4K up to 5 meters
27. HDMI IN/OUT @ 1080p up to 10 meters
28. Signal bandwidth of 10.2 Gbps
29. Web GUI setup, management and support
30. Compatible with IP- Management System software
31. Firmware upgradable via mini USB
32. CE and FCC certified

## HDVS-200-TX-WP Product Specifier

The 2X1 switcher/ transmitter shall be able to extend HDMI, VGA (including audio), RGBHV, YUV, and Composite over HDBaseT port. The 2X1 switcher / transmitter shall have input select, as well as display and volume control buttons on the front panel. Device configuration, operation and, maintenance shall be available via software management and Web GUI access. When two signal inputs are available, the transmitter shall include integrated switcher with signal sensing. The switcher shall switch to the last detected input (when not used with a control system by the same manufacturer). The 4K /UHD Input Switcher shall be an advanced signal extender system incorporating the following device specifications, and backed up with 10 years manufacture limited warranty.

1. US, 2-gang Decora-style wall plate
2. 2X1 HDBaseT Switcher - One HDMI input plus a VGA input with 3.5mm audio connector
3. Front panel input select button
4. Front panel display on/off control
5. Front panel volume control
6. Front LED indication for PWR and signal status
7. Video resolution support for 4096×2160@24/25/30/50/60Hz, 3840×2160@24/25/30/50/60Hz, 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
8. VESA resolution support for 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
9. YUV and RGB Color Space
10. 4:4:4, 4:2:2, 4:2:0 Chroma Subsampling
11. 8-bit, 10-bit, 12-bit Color Depth
12. Automatic display control: Selects active input when sources are connected
13. Automatic input selection using video detection technology
14. EDID management support
15. CEC support
16. HDCP 1.4 support
17. PCM 2CH input audio
18. PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio for HDMI IN and HDBaseT OUT
19. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
20. Up to 24-bit rate
21. TCP/IP and RS-232 control of switcher
22. Ethernet enabled, HDBaseT extension
23. Transmits IP and AV signals up to 328 ft. (100m)
24. CAT5e/6 @ 4K up to 70 meters
25. CAT5e/6 @ 1080p up to 100 meters
26. CAT6a/7 @ 4K up to 100 meters
27. HDMI IN/OUT @ 4K up to 5 meters
28. HDMI IN/OUT @ 1080p up to 10 meters
29. Signal bandwidth of 10.2 Gbps
30. Web GUI setup, management and support
31. Compatible with IP- Management System software
32. Firmware upgradable via mini USB
33. Power consumption up 30W
34. CE and FCC certified

## HDVS-200-RX Product Specifier

The HD Scaling receiver shall accept HDBaseT audio and video Signal, and outputs HDMI, as well as de-embedded balanced audio output. It shall have two RS-232 ports, and contact closure port for screen or display lift control. The scaler receiver shall have automatic display control via CEC or control system, as well as menu and volume adjustment via software management, web GUI, or front panel button control. The HD scaling receiver shall be an advanced signal extender system incorporating the following device specifications, and backed up with 10 years manufacture limited warranty.

1. HD video scaler with HDMI output and input resolution control
2. Automatic display control - Automatically changes projector power state based on active or standby mode of scaler. Control signals transmitted via IP, RS-232, or CEC
3. Front Panel Control for Menu, Auto, and Volume
4. Front LED indication for PWR and signal status
5. Video resolution support for 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
6. VESA resolution support for 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
7. Dual TCP/IP and RS-232 control
8. Ethernet enabled, HDBaseT extension
9. Contact closure for screen control or display lift control
10. Auto Display Control
11. Power over Ethernet for associated TX
12. YUV and RGB Color Space
13. 4:4:4, 4:2:2, 4:2:0 Chroma Subsampling
14. 8-bit, 10-bit, 12-bit Color Depth
15. CEC support
16. HDCP 1.4 support
17. EDID management support
18. PCM 2Ch, de-embedding analog audio out
19. PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio for HDMI OUT and HDBaseT IN
20. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
21. Up to 24-bit rate
22. Transmits IP and AV signals up to 328 ft. (100m)
23. CAT5e/6 @ 1080p up to 100 meters
24. HDMI IN/OUT @ 1080p up to 10 meters
25. Signal bandwidth of 10.2 Gbps
26. Web GUI setup, management and support
27. Compatible with IP- Management System software
28. Firmware upgradable via mini USB
29. 48V Input Power
30. CE and FCC certified

## HDVS-150-TX Product Specifier

The 3X1 switcher / transmitter shall have two HDMI and one VGA inputs, as well as audio on 3.5 connector. The transport shall extend HDMI, VGA (including audio), RGBHV. The switching shall have input select, as well as display control buttons on the front panel. Device configuration, operation and, maintenance shall be available via Web GUI access. When two or more signal inputs are available, the transmitter shall include integrated switcher with signal sensing. The switcher shall switch to the last detected input (when not used with a control system by the same manufacturer). The 4K /UHD Input Switcher shall be an advanced signal extender system incorporating the following device specifications, and backed up with 10 years manufacture limited warranty

1. 4K/UHD capability @ 60 Hz with 4:2:0 Chroma subsampling
2. Full support of 4K/UHD streaming services and playback device
3. Video resolution support for 4096×2160@24/25/30/50/60Hz\*, 3840×2160@24/25/30/50/60Hz, 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
4. VESA resolution support for 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
5. YUV and RGB Color Space
6. 4:4:4, 4:2:2, 4:2:0 Chroma Subsampling
7. 8-bit, 10-bit, 12-bit Color Depth
8. Signal bandwidth of 10.2 Gbps
9. CEC Pass through
10. HDCP 1.4 compliant - Adheres to latest specification for High-bandwidth Digital Content Protection
11. PCM 2CH input audio
12. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
13. Up to 24-bit rate
14. CAT5e/6 @ 4K up to 35 meters
15. CAT5e/6 @ 1080p up to 60 meters
16. CAT6a/7 @ 4K up to 40 meters
17. HDMI IN/OUT @ 4K up to 5 meters
18. HDMI IN/OUT @ 1080p up to 10 meters
19. Signal bandwidth of 10.2 Gbps
20. Web GUI setup, management and support
21. Firmware upgradable via mini USB
22. CE and FCC certified

## HDVS-150-TX-WP Product Specifier

The 2X1 switcher/ transmitter shall be able to extend HDMI, VGA (including audio), RGBHV, YUV, and Composite over HDBaseT port. The 2X1 switcher / transmitter shall have input select, as well as display control on the front panel. Device configuration, operation and, maintenance shall be available via software management and Web GUI access. When two signal inputs are available, the transmitter shall include integrated switcher with signal sensing. The switcher shall switch to the last detected input (when not used with a control system by the same manufacturer). The 4K /UHD Input Switcher shall be an advanced signal extender system incorporating the following device specifications, and backed up with 10 years manufacture limited warranty.

1. US, 2-gang Decora-style wall plate
2. 2X1 HDBaseT Switcher - One HDMI input plus a VGA input with 3.5mm audio connector
3. Front panel input select button
4. Front panel display on/off control
5. Front LED indication for PWR and signal status
6. Video resolution support for 4096×2160@24/25/30/50/60Hz, 3840×2160@24/25/30/50/60Hz, 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
7. VESA resolution support for 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
8. YUV and RGB Color Space
9. 4:4:4, 4:2:2, 4:2:0 Chroma Subsampling
10. 8-bit, 10-bit, 12-bit Color Depth
11. Automatic display control: Selects active input when sources are connected
12. Automatic input selection using video detection technology
13. EDID management support
14. CEC support
15. HDCP 1.4 support
16. PCM 2CH input audio
17. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
18. Up to 24-bit rate
19. Transmits AV signals up to 230 ft. (70m)
20. CAT5e/6 @ 4K up to 35 meters
21. CAT5e/6 @ 1080p up to 60 meters
22. CAT6a/7 @ 4K up to 40 meters
23. HDMI IN/OUT @ 4K up to 5 meters
24. HDMI IN/OUT @ 1080p up to 10 meters
25. Signal bandwidth of 10.2 Gbps
26. Web GUI setup, management and support
27. Compatible with IP- Management System software
28. Firmware upgradable via mini USB
29. Power consumption up 18.7W (when paired)
30. CE and FCC certified

## HDVS-150-RX Product Specifier

The HD Scaling receiver shall accept HDBaseT audio and video Signal, and outputs HDMI, as well as de-embedded balanced audio output, and RS-232 port. The HD scaling receiver shall be an advanced signal extender system incorporating the following device specifications, and backed up with 10 years manufacture limited warranty.

1. HD video scaler with HDMI output and input resolution control
2. Front Panel Control for Menu setup
3. Front LED indication for PWR and signal status
4. Video resolution support for 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
5. VESA resolution support for 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
6. Power over Ethernet for associated TX
7. YUV and RGB Color Space
8. 4:4:4, 4:2:2, 4:2:0 Chroma Subsampling
9. 8-bit, 10-bit, 12-bit Color Depth
10. CEC support
11. HDCP 1.4 support
12. EDID management support
13. PCM 2Ch, de-embedding analog audio out
14. Master Audio for HDMI OUT and HDBaseT IN
15. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
16. Up to 24-bit rate
17. Transmits IP and AV signals up to 328 ft. (100m)
18. CAT5e/6 @ 1080p up to 70 meters
19. HDMI IN/OUT @ 1080p up to 10 meters
20. Signal bandwidth of 10.2 Gbps
21. Web GUI setup, management and support
22. Compatible with IP- Management System software
23. Firmware upgradable via mini USB
24. 48 Input Power
25. CE and FCC certified

## UHD-EX-100CE-RX-PSE Product Specifier

The 4K /UHD Transport System shall be an advanced signal extender system incorporating the following device specifications, and backed up with 10 years manufacture limited warranty.

1. 4K/UHD capability @ 60 Hz with 4:2:0 Chroma subsampling
2. Full support of 4K/UHD streaming services and playback device
3. Video resolution support for 4096×2160@24/25/30/50/60Hz\*, 3840×2160@24/25/30/50/60Hz, 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
4. VESA resolution support for 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
5. YUV and RGB Color Space
6. 4:4:4, 4:2:2, 4:2:0 Chroma Subsampling
7. 8-bit, 10-bit, 12-bit Color Depth
8. Signal bandwidth of 10.2 Gbps
9. CEC Pass through
10. HDCP 2.2 compliant - Adheres to latest specification for High-bandwidth Digital Content Protection
11. PoE power source – remotely powers a PoE-compatible transmitter – Adheres to IEEE 802.3af PoE Power Sourcing Equipment (PSE)
12. AV, Ethernet, power, and control over HDBaseT - Receives 4K/UHD video, embedded audio, 100Base-T Ethernet, power, and control through a single cable
13. Extended distance HDMI extension - Receives HDMI signals up to 330 feet (100 meters) @ 1080p with CAT5e/6 or 4K/UHD using CAT6a/7 cable
14. Extends RS-232, CEC, and Ethernet control signals
15. Audio format support for PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos, DTS:X
16. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
17. Up to 24-bit rate
18. CAT5e/6 @ 4K up to 70 meters up to 230 feet
19. CAT6a/7 @ 4K up to 100 meters up to 328 feet
20. CAT5e/6 @ 1080p up to 100 meters up to 328 feet
21. HDMI IN/OUT @ 4K up to 5 meters up to 15 feet
22. HDMI IN/OUT @ 1080p up to 10 meters up to 30 feet
23. Field-updatable firmware via Front panel USB port
24. Front panel Power and Link status LEDs
25. 1 inch (25 mm) high quarter rack-width enclosure
26. Power supply certified for CE, FCC, RoHS, cULus, RCM,CCC

## UHD-EX-100CE-TX-PD Product Specifier

The 4K /UHD Transport System shall be an advanced signal extender system incorporating the

following device specifications, and backed up with 10 years manufacture limited warranty.

1. 4K/UHD capability @ 60 Hz with 4:2:0 Chroma subsampling
2. Remotely powered via PoE
3. Video resolution support for 4096×2160@24/25/30/50/60Hz\*, 3840×2160@24/25/30/50/60Hz, 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
4. VESA resolution support for 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
5. YUV and RGB Color Space
6. 4:4:4, 4:2:2, 4:2:0 Chroma Subsampling
7. 8-bit, 10-bit, 12-bit Color Depth
8. Signal bandwidth of 10.2 Gbps
9. CEC Pass through
10. HDCP 2.2 compliant - Adheres to latest specification for High-bandwidth Digital Content Protection
11. PoE power source – remotely powers a PoE-compatible transmitter – Adheres to IEEE 802.3af PoE Power Sourcing Equipment (PSE)
12. AV, Ethernet, power, and control over HDBaseT - Receives 4K/UHD video, embedded audio, 100Base-T Ethernet, power, and control through a single cable
13. Extended distance HDMI extension - Receives HDMI signals up to 330 feet (100 meters) @ 1080p with CAT5e/6 or 4K/UHD using CAT6a/7 cable
14. Extends RS-232, CEC, and Ethernet control signals
15. Multi-channel audio compliant - Supports PCM, Dolby® Digital, Dolby Digital Plus™, Dolby TrueHD, Dolby Atmos®, DTS Digital Surround™, DTS-HD Master Audio™, and DTS:X™
16. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
17. Up to 24-bit rate
18. CAT5e/6 @ 4K up to 70 meters up to 230 feet
19. CAT6a/7 @ 4K up to 100 meters up to 328 feet
20. CAT5e/6 @ 1080p up to 100 meters up to 328 feet
21. HDMI IN/OUT @ 4K up to 5 meters up to 15 feet
22. HDMI IN/OUT @ 1080p up to 10 meters up to 30 feet
23. Field-updatable firmware via Front panel USB port
24. Front panel Power and Link status LEDs
25. 1 inch (25 mm) high quarter rack-width enclosure
26. Power supply certified for CE, FCC, RoHS, cULus, RCM, CC

## AT-HDVS-300-KIT Product Specifier

The Soft Codec Conferencing System shall have ability to provide AV switching, USB and HDMI extension, plus system control using PC-based codecs such as Skype, WebEx, and Go ToMeeting. The system shall have a transmitter and a receiver with five video inputs shared between both devices for HDMI, DisplayPort, and analog video signals. The transmitter and receiver will have three USB type B connectors for host computers, in addition to two USB hubs on each of the transmitter and receiver. The system must be able to support 4k/UHD sources and displays. The following device specifications shall be backed up with 10 years manufacture limited warranty.

1. Video resolution support for 4096×2160@24/25/30/50/60Hz, 3840×2160@24/25/30/50/60Hz, 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
2. VESA resolution support for 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
3. YUV and RGB Color Space
4. 4:4:4, 4:2:2, 4:2:0 Chroma Subsampling
5. 8-bit, 10-bit, 12-bit Color Depth
6. Automatic display control: Selects active input when sources are connected
7. Automatic input selection using video detection technology
8. EDID management support
9. CEC support
10. HDCP 1.4 support
11. PCM 2CH input audio
12. Audio for HDMI IN and HDBaseT OUT: PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos, DTS:X
13. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
14. Up to 24-bit rate
15. TCP/IP and RS-232 control of switcher
16. Ethernet enabled, HDBaseT extension
17. Transmits IP and AV signals up to 328 ft. (100m)
18. CAT5e/6 @ 4K up to 70 meters
19. CAT5e/6 @ 1080p up to 100 meters
20. CAT6a/7 @ 4K up to 100 meters
21. HDMI IN/OUT @ 4K up to 5 meters
22. HDMI IN/OUT @ 1080p up to 10 meters
23. Signal bandwidth of 10.2 Gbps
24. Web GUI setup, management and support
25. Compatible with IP- Management System software
26. Firmware upgradable via mini USB
27. Power consumption up 24W
28. CE and FCC certified
29. Power supply certified for CE, FCC, RoHS, cULus, RCM, CCC

## AT-UHD-SW-5000ED Product Specifier

The 5X1 4K/UHD switcher shall have two HDBaseT inputs, three HDMI inputs, mirrored HDMI and HDBaseT outputs, balanced audio outputs, automatic input selection, and automatic display control capability. It shall transmit AV signals along with Ethernet, power, and control over a single cable to displays up to 330 feet (100 meters). For long term protection investment, the followings product and specification shall support a 10- year manufacture limited warranty.

1. Video resolution support for 4096×2160@24/25/30/50/60Hz, 3840×2160@24/25/30/50/60Hz, 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
2. VESA resolution support for 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
3. YUV and RGB Color Space
4. 4:4:4, 4:2:2, 4:2:0 Chroma Subsampling
5. 8-bit, 10-bit, 12-bit Color Depth
6. Automatic display control using Consumer Electronics Control (CEC)\*, IP and RS-232
7. Automatic input selection using video detection technology
8. EDID management support
9. CEC support
10. HDCP Switchable- Compliant / non-compliant - 1.4 support
11. PCM 2CH input audio
12. Audio for HDMI IN and HDBaseT OUT: PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos, DTS:X
13. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
14. Up to 24-bit rate
15. TCP/IP and RS-232 control of switcher
16. Ethernet enabled, HDBaseT extension
17. Transmits IP and AV signals up to 330 ft. (100m)
18. CAT5e/6 @ 4K up to 70 meters
19. CAT5e/6 @ 1080p up to 100 meters
20. CAT6a/7 @ 4K up to 100 meters
21. HDMI IN/OUT @ 4K up to 5 meters
22. HDMI IN/OUT @ 1080p up to 10 meters
23. Signal bandwidth of 10.2 Gbps
24. Web GUI setup, management and support
25. Compatible with IP- Management System software
26. Firmware upgradable via mini USB
27. Power consumption up 24W
28. CE and FCC certified
29. Power supply certified for CE, FCC, Level VI, RoHS, cULus, RCM, CCC

## AT-UHD-SW-52ED Product Specifier

The 5X1 4K/UHD switcher shall have five HDMI inputs, with mirrored HDBaseT and HDMI outputs, balanced analog audio outputs, automatic input selection, and automatic display control capability. It shall transmit AV signals along with Ethernet, power, and control over a single cable to displays up to 330 feet (100 meters). For long term protection investment, the followings product and specification shall support a 10- year manufacture limited warranty.

1. Video resolution support for 4096×2160@24/25/30/50/60Hz, 3840×2160@24/25/30/50/60Hz, 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
2. VESA resolution support for 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
3. YUV and RGB Color Space
4. 4:4:4, 4:2:2, 4:2:0 Chroma Subsampling
5. 8-bit, 10-bit, 12-bit Color Depth
6. Automatic display control using Consumer Electronics Control (CEC)\*, IP and RS-232
7. Automatic input selection using video detection technology
8. EDID management support
9. CEC support
10. HDCP Switchable- Compliant / non-compliant - 1.4 support
11. PCM 2CH input audio
12. Audio for HDMI IN and HDBaseT OUT: PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos, DTS:X
13. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
14. Up to 24-bit rate
15. TCP/IP and RS-232 control of switcher
16. Ethernet enabled, HDBaseT extension
17. Transmits IP and AV signals up to 330 ft. (100m)
18. CAT5e/6 @ 4K up to 70 meters
19. CAT5e/6 @ 1080p up to 100 meters
20. CAT6a/7 @ 4K up to 100 meters
21. HDMI IN/OUT @ 4K up to 5 meters
22. HDMI IN/OUT @ 1080p up to 10 meters
23. Signal bandwidth of 10.2 Gbps
24. Web GUI setup, management and support
25. Compatible with IP- Management System software
26. Firmware upgradable via mini USB
27. Power consumption up 22W
28. CE and FCC certified
29. Power supply certified for CE, FCC, cULus, RCM

## AT-HD-SC-500 Product Specifier

The 3x1 switcher scaler will have two HDMI inputs, VGA, as well as analog audio inputs for embedding onto HDMI output. The switcher scaler shall have Automatic display control using CEC, IP and RS-232, as well as Automatic input selection using video detection technology. The switcher scaler Shall be controlled via TCP.IP, RS-232. It will have ability to adjust volume control, input selection, and turning display power ON /OFF from the front panel. For long term protection investment, the followings product and specification shall support a 10- year manufacture limited warranty.

1. Video resolution support for up to 1920 x 1200 including 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800, 1280×768, 1152×864, 1024×768, 800×600, 640×480
2. YUV and RGB Color Space
3. 4:4:4, 4:2:2, 4:2:0 Chroma Subsampling
4. 8-bit, 10-bit, 12-bit Color Depth
5. Automatic display control using Consumer Electronics Control (CEC)\*, IP and RS-232
6. Automatic input selection using video detection technology
7. EDID management support
8. HDCP Switchable- Compliant / non-compliant - 1.4 support
9. PCM 2CH input audio
10. Audio for HDMI IN and HDBaseT OUT: PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos, DTS:X
11. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
12. Up to 24-bit rate
13. TCP/IP and RS-232 control of switcher
14. HDMI IN/OUT @ 1080p up to 10 meters / 30 feet
15. Signal bandwidth of 6.75 Gbps
16. Web GUI setup, management and support

## AT-UHD-CLSO-601 Product Specifier

The UHD/ 4K multi-format switcher shall have four HDMI inputs, two multi-function analog inputs, and a mirrored HDMI, and HDBaseT output with a built-in 4K scaler. It will have Automatic display control using CEC, IP and RS-232, as well as Automatic input selection using video detection technology. The switcher Shall be controlled via TCP.IP, RS-232. For long term protection investment, the followings product and specification shall support a 10- year manufacture limited warranty.

1. Video resolution support for 4096×2160@24/25/30/50/60Hz, 3840×2160@24/25/30/50/60Hz, 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
2. VESA resolution support for 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
3. Composite / S-Video formats NTSC, NTSC4, PAL, PAL-M, PAL-N, SECAM
4. Automatic display control using Consumer Electronics Control (CEC)\*, IP and RS-232
5. Automatic input selection using video detection technology
6. EDID management support
7. HDCP Switchable- Compliant / non-compliant - 1.4 support
8. PCM 2CH input audio
9. TCP/IP and RS-232 control of switcher
10. Ethernet enabled, HDBaseT extension
11. CAT5e/6 @ 4K up to 70 meters
12. CAT5e/6 @ 1080p up to 100 meters
13. CAT6a/7 @ 4K up to 100 meters
14. HDMI IN/OUT @ 4K up to 5 meters
15. HDMI IN/OUT @ 1080p up to 10 meters
16. Signal bandwidth of 10.2 Gbps
17. Web GUI setup, management and support

## AT-UHD-CLSO-612ED

The UHD/ 4K multi-format switcher shall have 2HDMI inputs, two HDBaseT inputs, two multi-function analog inputs, a mirrored HDMI, and HDBaseT output with a built-in 4K scaler. It will have Automatic display control using CEC, IP and RS-232, as well as Automatic input selection using video detection technology. The switcher Shall be controlled via TCP.IP, RS-232. For long term protection investment, the followings product and specification shall support a 10- year manufacture limited warranty.

1. Video resolution support for 4096×2160@24/25/30/50/60Hz, 3840×2160@24/25/30/50/60Hz, 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
2. VESA resolution support for 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
3. YUV, RGB Color Space
4. 4:4:4, 4:2:2 Chroma Subsampling
5. 8-bit, 10-bit, 12-bit Color Depth
6. Automatic display control using Consumer Electronics Control (CEC)\*, IP and RS-232
7. Automatic input selection using video detection technology
8. EDID management support
9. HDCP Switchable- Compliant / non-compliant - 1.4 support
10. PCM 2CH input audio
11. Audio for HDMI IN and HDBaseT OUT: PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos, DTS:X
12. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
13. Up to 24-bit rate
14. TCP/IP and RS-232 control of switcher
15. Ethernet enabled, HDBaseT extension
16. CAT5e/6 @ 4K up to 70 meters
17. CAT5e/6 @ 1080p up to 100 meters
18. CAT6a/7 @ 4K up to 100 meters
19. HDMI IN/OUT @ 4K up to 5 meters
20. HDMI IN/OUT @ 1080p up to 10 meters
21. Signal bandwidth of 10.2 Gbps
22. Web GUI setup, management and support

## AT-UHD-CLSO-824

The UHD/ 4K multi-format switcher shall have four HDMI inputs, three HDBaseT inputs, one multi-function analog inputs, two HDBaseT outputs as well as two HDMI mirrored outputs. It will have an audio output mixer, as well as Ethernet and RS-232 and IR HDBaseT insertion. The switcher Shall be controlled via TCP.IP, RS-232. For long term protection investment, the followings product and specification shall support a 10- year manufacture limited warranty.

1. Video resolution support for 4096×2160@24/25/30/50/60Hz, 3840×2160@24/25/30/50/60Hz, 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
2. VESA resolution support for 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
3. YUV, RGB Color Space
4. 4:4:4, 4:2:2 Chroma Subsampling
5. 8-bit, 10-bit, 12-bit Color Depth
6. EDID management support
7. HDCP Switchable- Compliant / non-compliant - 1.4 support
8. PCM 2CH input audio
9. Audio for HDMI IN and HDBaseT OUT: PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos, DTS:X
10. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
11. Up to 24-bit rate
12. TCP/IP and RS-232 control of switcher
13. Ethernet enabled, HDBaseT extension
14. CAT5e/6 @ 4K up to 70 meters
15. CAT5e/6 @ 1080p up to 100 meters
16. CAT6a/7 @ 4K up to 100 meters
17. HDMI IN/OUT @ 4K up to 5 meters
18. HDMI IN/OUT @ 1080p up to 10 meters
19. Signal bandwidth of 10.2 Gbps
20. Web GUI setup, management and support

## AT-UHD-CLSO-840

The UHD/ 4K multi-format switcher shall have five HDMI inputs, three HDBaseT inputs, two HDBaseT outputs, as well as two discrete HDMI outputs. It will have an audio output switcher, as well as audio embedding and de-embedding. The switcher Shall be controlled via TCP.IP, RS-232. For long term protection investment, the followings product and specification shall support a 10- year manufacture limited warranty.

1. Video resolution support for 4096×2160@24/25/30/50/60Hz, 3840×2160@24/25/30/50/60Hz, 2048x1080p, 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
2. VESA resolution support for 2560×2048, 2560×1600, 2048×1536, 1920×1200, 1680×1050, 1600×1200, 1600×900, 1440×900, 1400×1050, 1366×768, 1360×768, 1280×1024, 1280×800 1280×768, 1152×768, 1024×768, 800×600, 640×480
3. YUV, RGB Color Space
4. 4:4:4, 4:2:2 Chroma Subsampling
5. 8-bit, 10-bit, 12-bit Color Depth
6. EDID management support
7. HDCP 1.4 compliant
8. PCM 2CH input audio
9. Audio for HDMI IN and HDBaseT OUT: PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos, DTS:X
10. Audio sample rates of 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
11. Up to 24-bit rate
12. TCP/IP and RS-232 control of switcher
13. Ethernet enabled, HDBaseT extension
14. CAT5e/6 @ 4K up to 70 meters
15. CAT5e/6 @ 1080p up to 100 meters
16. CAT6a/7 @ 4K up to 100 meters
17. HDMI IN/OUT @ 4K up to 5 meters
18. HDMI IN/OUT @ 1080p up to 10 meters
19. Signal bandwidth of 10.2 Gbps
20. Web GUI setup, management and support

## OmniStream VC-2 (AT-OMNI-111, AT-OMNI-112, AT-OMNI-121, AT-OMNI-122)

* The AV over IP system shall enable the high density (up to two channels per box) of UHDp30 video at a latency of less than 0.5 video frames while being powered over either PoE or external power.
* For minor network problems, the AV over IP system shall support FEC (forward error correction).
* For major input problems, the AV over IP system shall support both physical and logical redundancy.
* For sensitive content, the AV over IP system shall support content encryption using AES128 encryption.
* For long term protection investment, the system shall support a 10 -year manufacturer limited warranty.

Note: the numbering of the items below is intended to match the OmniStream VC-2 spec document once you remove the leading 3.7 numbers from each section.

### Video Encoder and Decoder Specification

#### Video inputs/Outputs

##### Interfaces

* Dual HDMI per box (AT-OMNI-112 and AT-OMNI-122)
* Single HDMI per box (AT-OMNI-111 and AT-OMNI-121)

#### Scaling & output resolutions

* Scaling from 800x600p60 to 1080p60 or UHDp30

#### Input resolution detection

* Automatic input resolution detection

##### Encoding/Decoding formats

* VC-2 SMPTE 2042

##### Density

* Up to two video services per box (AT-OMNI-112 and AT-OMNI-122)
* Single video service per box (AT-OMNI-111 and AT-OMNI-121)

#### VC-2 specification

##### Rate control

* CBR (constant bit rate) or cVBR (capped variable bit rate)

##### Bit Rate

* 15 Mbps to 900 Mbps

##### Bit depth

* 8 bit, 10 bit, 12 bit

##### Chroma sub-sampling

* 4:2:0, 4:2:2, 4:4:4

##### Latency

* End to end latency of 0.5 frames or less

### Audio Sub System Specifications

#### Audio input/output

* HDMI audio input
* Ability to output balanced analog audio on the decoder
* Ability to re-embed balanced analog audio input on the decoder
* Ability to decode audio from a source different from video

#### Pass through and re-embedding

##### Audio formats

* LPCM 2.0, 5.1, 7.1
* DTS 5.1, DTS-HD Master Audio
* Dolby Digital AC3 2.0, 5.1
* Dolby Digital+ E-AC3 2.0, 5.1, 7.1
* Dolby TrueHD 2.0, 5.1, 7.1

##### Audio density

* Dual 2.0 balanced analog audio outputs (AT-OMNI-122)
* Single 2.0 balanced analog audio output (AT-OMNI-121)

#### Audio down mix

* Downmix of incoming LPCM to 2.0

#### Audio volume control

* Front panel volume control
* Volume control via management system
* Audio mute

### System

#### Decoder redundancy modes

* Decoder supports redundancy of incoming streams
* Support of only sending IGMP join requests when a redundancy switch occurs
* Support being always joined to both primary and backup multicast streams

##### Redundancy Events

* Physical link redundancy (primary and backup streams on different physical interfaces)
* Logical link redundancy (primary and backup streams may be on the same physical interface)

#### Streaming mode

* Video, audio, and RS232 are streamed on separate multicasts

#### IP protocols

##### IP address assignment

* IP v4
* DHCP, static, or automatic IP configuration

##### Host name

* Ability to configure device host namte

##### Discovery

* Support of mDNS/DNS-SD

##### IGMP

* IGMP v2 and IGMP v3 (SSM)
* IGMP Immediate leave

##### Streaming and multicasting

* RTP output (encoder) and RTP input (decoder)

##### SAP/SDP

* SAP/SDP including session name, description, and originator

##### Packet loss protection

* FEC (forward error correction) per SMPTE 2022-5:2013
* FEC matrix sizes from 1x4 to 20x20

##### QoS

* QoS tagging

#### RS232 protocol

##### RS232 settings

* Baud rates from 2400-115200
* Configurable parity, stop bit, and flow control
* 6 pin RS232 connector (3 pins used per service)

##### Projector/display control

* Display on/off via RS232 using customizable commands

##### RS232 over IP

* RS232 encapsulation into IP for transmission between encoder and decoder
* Ability to receive RS232 from a source different from video
* Ability to perform bidirectional RS232 communication when configured as unicast

#### Display control

##### Aspect ratio

* Support for the following aspect ratios: full screen, 16:9, 16:10, 4:3, same as source

##### Test pattern

* Test pattern generation automatically (due to loss of input) or manually

##### Input HDMI switching

* Switch between HDMI inputs using front panel buttons

##### Video output matrix

* Ability to route any input to any output

##### EDID

* EDID copy of connected displays
* EDID internal source
* Export EDID information via RS232 and management system
* External EDID insertion via management system
* Independent EDID per output

##### HDCP

* HDCP 1.4
* Hardware ready for HDCP 2.2
* HDCP modes: compliant, non-compliant, and automatic
* Automatic scrambling of the IP stream for HDCP sources

##### CEC

* CEC per HDMI 1.3a
* CEC commands: monitor on/off, input select, volume up/down

##### Display mode

* Ability to automatically turn on connected display when source signal is detected
* Ability to automatically turn off connected display when source signal is removed

#### Scrambling

* AES 128 encryption of video and audio
* Scrambling key is controlled by management system

#### Firmware upgrade

##### Field upgradability

* Remote upgrade of firmware via management system

##### Safe upgrade

* If firmware upgrade fails, the system shall revert to previous firmware

#### Configuration Import / Export

* Export of unit configuration
* Import of unit configuration
* Storage of up to 5-unit configuration files with user defined names

#### Data reporting

* The unit shall support configuration and display of description and location

#### Unit location string

* User defined location string may be up to 100 text characters

#### Power up/Reset

* Power up time is less than 20 seconds

#### Alarms and warnings

* The system shall support forwarding of alarms and warning messages to the management system

### Hardware

#### Interfaces

##### HDMI

* Dual HDMI per box (AT-OMNI-112 and AT-OMNI-122)
* Single HDMI per box (AT-OMNI-111 and AT-OMNI-121)
* HDMI 1.4
* Hardware ready for HDMI 2.0

##### Network

* Dual RJ45 per box (AT-OMNI-112 and AT-OMNI-122)
* Single RJ45 per box (AT-OMNI-111 and AT-OMNI-121)

##### Audio

* Dual 2.0 balanced input/output per box (AT-OMNI-112 and AT-OMNI-122)
* Single 2.0 balanced input/output per box (AT-OMNI-111 and AT-OMNI-121)
* Volume control (gain) – 0 dB to 15 db
* Audio mute

#### Serial communication

* 6 pin RS232 connector (3 pins used per service)

#### Front panel buttons

##### Display on/off

* Display on/off front panel buttons for controlling connected display(s)

##### Input select

* Input select front panel buttons for controlling connected display(s)

##### Volume up/down

* Volume up/down front panel buttons for controlling connected display(s)

##### Reset

* Unit reset button recessed on front panel

##### ID

* ID front panel button to indicate unit in management system

##### Push button control

* Management system can disable front panel buttons

#### LED

* HDMI status LEDs
* Network status LEDs
* Power status LED
* Management system can blink LEDs to locate unit

#### Power supply

* Power may be connected via either external PSU or PoE
* Unit can automatically switch between external PSU and PoE depending on what is connected

##### PoE

* <13W power consumption (no analog audio), so unit may be powered with one PoE
* Ability to dynamically switch which RJ45 PoE is sourced from in case of input failures

##### External PSU

* External PSU two pin captive screw phoenix connector

##### MTBF

* Unit MTBF of 90,000 hours

##### Compliance

* FCC part 15 subpart B, ICES-003, Issue 2, Class A
* EN 60950-1 safety specification
* EN 55022 and CISPR22
* EN 55024
* RoHS

#### Dimensions

* H x W x D: 34 x 208 x 112 (mm)

### Environmental

#### Temperature

* 0°C - 50°C degrees Celsius external ambient operating temperature
* -40°C to 70°C degrees’ Celsius external ambient storage (non-operational) temperature

#### Humidity

* 90% relative humidity, non-condensing

#### ESD

* ±12kV (air) and ±8kV (contact)

# Definitions and Abbreviations

1. **100BaseT** -An Ethernet standard for transmitting at 100 Mbps over twisted pair cable
2. **1000Base-T / Gigabit Ethernet** - An Ethernet standard that transmits at 1 Gbps over twisted pair cable
3. **4K** - Digital cinema resolution at 4092x2160 pixels. Frame rates can range from 24 to 120 fps. 4K is often mentioned along with Ultra HD, which has a video resolution of 3840x2160
4. **720p** - Progressive-scan HDTV transmission standard. Refers to an active pixel rate of 1280x720 with a vertical refresh rate of 60 frames per second for NTSC countries or 50 frames per second for PAL/SECAM countries
5. **AES/EBU** - Audio Engineering Society/European Broadcasting Union
6. Aspect ratio - The relationship of the horizontal dimension to the vertical dimension of an Image.
7. **Balanced** – 3-conductor, 110-ohm cabling with an XLR connector, typically referred to as “AES/EBU audio.”
8. **CAT 5** - Category 5 - Describes the network cabling standard that consists of four unshielded twisted pairs of copper wire terminated by RJ-45 connectors. CAT 5 cabling supports data rates up to 100 Mbps and a minimum bandwidth of 100 MHz CAT 5 is based on the EIA/TIA 568 Commercial Building Telecommunications Wiring Standard.
9. **CAT 5e** - Enhanced Category 5- The standard for the next higher grade of unshielded
10. twisted pair - UTP beyond Category 5. The CAT 5e specification was developed to provide more robust support for 1000Base-T, and includes tighter limits than CAT 5 for NEXT, ELFEXT, and return loss. CAT 5e cabling supports a minimum bandwidth of 100 MHz
11. **CAT 6** - Category 6 - The standard for the next higher grade of unshielded twisted pair UTP cabling beyond CAT 5e. The standard defines components (cable and connecting hardware) and cabling (basic link and channel) for Category 6 channels, as well as Level III field tester requirements. CAT 6 cabling supports a minimum bandwidth of 250 MHz
12. **CAT 6a** - Category 6a, or Augmented Category 6 A higher grade of twisted pair cabling beyond standard CAT 6-rated cable, with twice the bandwidth capability. CAT 6a features a shielded twisted pair cable design, with braid and foil shielding around the unshielded twisted pair conductors. This design improves crosstalk performance at high frequencies. CAT 6a cabling supports a minimum bandwidth of 500 MHz
13. **CAT 7** - Category 7 - The cable standard for 10 Gigabit Ethernet using shielded twisted pair - STP cable. CAT 7 features strict guidelines for crosstalk and system noise, requiring shielding for each pair of wires and the cable. CAT 7 cabling supports a minimum bandwidth of 600 MHz
14. **CEC** - Consumer Electronics Control
15. **DDC** - Display Data Channel
16. **DHCP** - Dynamic Host Configuration Protocol.
17. **DPCP**- DisplayPort Content Protection
18. **DRM** - Digital Rights Management
19. **EDID** - Extended Display Identification Data
20. **FCC** - Federal Communications Commission
21. **fps** - Frames per Second
22. **HDBaseT**- A signal extension technology defined by the HDBaseT Alliance for combining and transporting HDMI audio/video, Ethernet, control signals, and DC power using category-type twisted pair cable.
23. **HDCP** - High-bandwidth Digital Content Protection
24. **HDMI** - High-Definition Multimedia Interface
25. **HDTV** - High Definition Television
26. **IP** - Internet Protocol
27. **JPEG** - Joint Photographic Experts Group
28. **LAN** - Local Area Network
29. **MAC** - Media Access Control
30. **Matrix Switcher**- A means of selecting an input source and connecting it to one or more outputs. Like a regular switcher, but with multiple inputs and multiple outputs.
31. **MHz** - Megahertz
32. **Miracast** - A protocol developed by the Wi-Fi Alliance for streaming of audio and video media between devices over a Wi-Fi connection
33. **Multicast** - Multicast addressing is a network technology for the delivery of information to a group of destinations simultaneously using the most efficient strategy to deliver the messages over each link of the network only once, creating copies only when the links to the multiple destinations split. A single stream is sent from the source to a group of recipients
34. **PCM** - Pulse Code Modulation
35. **RS-232** - An Electronic Industries Association - EIA serial digital interface standard. specifying the characteristics of the communication path between two devices using either DB-9 or DB-25 connectors.
36. **S/PDIF** - Sony/Philips Digital Interconnect Format
37. **SMPTE** - Society of Motion Picture and Television
38. **Source** - AV equipment connected to the inputs of the AV switcher or extender
39. **STP** - Shielded Twisted Pair, CATx cable with internal metallic electromagnetic shielding for individual pairs and/or the cable overall.
40. **TCP/IP** - Transmission Control Protocol/Internet Protocol
41. **TMDS** - Transition Minimized Differential Signaling
42. **TOSLINK** - An optical fiber connection standard for digital audio developed by Toshiba
43. **Unbalanced** - 2-conductor, 75-ohm coaxial cable with an RCA connector.
44. **Ultra HD** - Video resolution at 3840x2160 pixels, with frame rates from 24 to 60 fps. Ultra HD is often mentioned along with 4K.
45. **USB** - Universal Serial Bus
46. **UTP** - Unshielded Twisted Pair, CATx cable without internal metallic electromagnetic shielding
47. **VESA** - Video Electronics Standards Association
48. **Y Cr Cb** - Used to describe the color space for interlaced component video.
49. **YUV** - Defines color space in terms of Y - luminance or brightness, and two color-difference components, U - red minus luminance and V - blue minus luminance. YUV is interchangeable with “Y Cr Cb” for digital component video and “Y Pb Pr” for analog component video.