



Corporate

OPTOMA Multi-Purpose Meeting Room

The Optoma logo is displayed on a large white projection screen at the end of the conference room. It features a stylized purple and pink swoosh above the word "Optoma" in a black, sans-serif font.

## Optoma Multi-Purpose Meeting Room



### About Optoma

Optoma is known worldwide as a premium designer, manufacturer, and retailer of audio-visual products for home theater, office, and personal use. In view of the gap between user experience and up-to-date technology, Optoma corporate headquarters decided to renovate its meeting room with a high-performance presentation and conferencing system, it turned to its technology partner ATEN for assistance. Because of the complexity of the system, Optoma's most important requirements were ease of use and minimal user distraction. These key value points demanded intuitive, automated controls that could quickly shift among various lighting environments, source feeds from computers, and a wide variety of mix-and-match audio-video outputs.



“  
ATEN's switched solution and control software have really impressed us. Simple, elegant, and effective: we are fortunate to have ATEN as a partner, and grateful for its technical support.  
”

Vincent Huang  
Senior Manager at Optoma

# Key Customer Requirements

- ✓ Upgrading their HQ's conference room with the best connectivity solution that can showcase their high definition audio-visual equipment and house a single, long meeting table that can comfortably seat 18 people.
- ✓ Optoma was looking for a system that could provide seamless, lag-free A/V switching that would also highlight their equipment's most advanced features.



Beyond a few lines of personal audio-visual products, the Optoma Corporation mainly produces high quality, high value home theater and audio systems, so when they decided to upgrade their headquarters' conference room they wanted to showcase their own high definition audio-visual equipment in the best possible light. Consequently, Optoma turned to its technology partner, ATEN, for help providing an audio and video connectivity solution that would support their products.

Optoma's conference room houses a single, long meeting table that can comfortably seat 18 people. In the past, the conference room was often neglected and avoided due in large part to a poorly designed A/V system that was needlessly complex and hard to use. Optoma was determined to rectify this problem, and wanted to create a room so comfortably convenient that employees would seek it out not only for official company business, but also for recreational activities, as well.

Optoma finally decided to go with ATEN's easily customizable ATEN Control System. The ATEN Control System provides the customer with a concise set of intuitive choices that allow quick and easy automation and configuration of all hardware nodes on a switched network.

Two sides of the rectangular room are dominated by video screens: an interactive PCT E-board fills one side of the room, and an extra-wide 145 inch (368 cm) retractable screen occupies the back wall. Both of these screens are served images by Optoma's own premier line of high definition video projectors—with the interactive E-board projector also supported by an integrated PC controller. Finally, the conference room also enjoys one of Optoma's full-featured high definition surround sound systems. All audio-video feeds—including the Avaya video conferencing system—are linked over HDMI, and may be controlled via a wireless tablet computer.



When Optoma approached ATEN they were looking for a system that could provide seamless, lag-free A/V switching that would also highlight their equipment's most advanced features. Notably, Optoma wanted to integrate lighting, the Avaya conferencing system, the projectors, audio system, wireless presentation system, and local HDMI and VGA inputs so that each attendee within the conference room could quickly take full control over the meeting room, as needed. These controls allow not only on-the-fly shifting of the meeting room's lighting and audio outputs to video conferencing or presentation modes, but they also allow a user to integrate multiple feeds of information into side-by-side displays on any screen, allowing—for instance—an employee making a presentation to share not only the slides or charts he or she is presenting to the meeting room, but also to share any information others might wish to contribute on the same screen, whether it originates on a remote video-conferencing feed, a local computer, or on the Internet.





Figure 1

ATEN Seamless Switch™ technology

adjust HDMI/VGA feeds, two video screens, a video conferencing system, 5 different lighting loops, and a 6-channel Surround Sound (See figure 2) audio system—Optoma worried that the resulting control panel would be so complex and confusing that it would disrupt the flow of meetings, or worse: that the conference room would continue to be avoided.

Optoma finally decided to go with ATEN's easily customizable ATEN Control System. The ATEN Control System provides the customer with a concise set of intuitive choices that allow quick and easy automation and configuration of all hardware nodes on a switched network. For Optoma, these preset configurations included A/V settings, switching between video feeds, and adjustments to local environmental factors like lighting and volume levels, thus minimizing potential disruptions during conference room meetings while giving attendees a simple and easy-to-master set of control choices for managing their presentations and meetings.





Figure 2

- ✓ Their greatest concern was that its demand for such a high-performance presentation system would result in an overly complex control network.
- ✓ The ability to immediately switch to any combination of source feeds over to the interactive whiteboard, the passive screen, or the video conferencing system while giving the attendees a simple and easy-to-master set of control choices.

Optoma's greatest concern was that its demand for such a high performance presentation system would result in an overly complex control network. The customer envisaged a control panel that would allow for simple, intuitive, instantaneous switching of local HDMI/VGA feeds to any one of the displays, including outgoing video conferencing feeds. Side-by-side display of multiple feeds on the same screen was another key expectation, so there was also some concern over possible network latency. ATEN Seamless Switch™ technology thus presented an attractive alternative to Ethernet-based or low-end switched networks. While performance here was clearly key, budget limitations demanded a “just right” solution, even as ample capacity for later upgrades and future scalability were still expected.

The ability to immediately switch any combination of source feeds over to the interactive white board, the passive screen, or the video conferencing system (See figure 1) introduced a further cause for concern: especially when engaged in a video conference, audio volume and lighting levels may easily distort feeds and disrupt discussions. To guard against A/V distortions, the integration of audio and lighting controls was considered a necessity. Yet with so many feeds to choose from, or

## The ATEN Solution

- 
 ATEN provided a solution built around a VK2100 control system paired with the VM5404H video matrix
- 
 The Full HD VM5404H video matrix manages the inputs to the two projectors

To fulfill Optoma's requirements ATEN provided a solution built around a VK2100 control system paired with the VM5404H video matrix. The VK2100 controller is an Ethernet-based central control system that integrates basic and infrared-enabled serial ports with four relays and four programmable digital I/O channels. This means that the VK2100 is fully capable of easily integrating lighting, audio and video feeds (both incoming and outgoing), and on-off switches as well as HVAC systems, alarms, motion sensors, and much more. The VK2100 thus provides an ideal way to build wireless control systems that allow for centralized monitoring and adjustment of any digital or real-world environment, whether remote or local. At the same time, the Full HD VM5404H video matrix manages the inputs to the two projectors. As two parts of the integrated VanCryst solution line, these two devices thus bring the five lighting loops, two Optoma projectors (interactive and passive), a surround sound audio system, Avaya Video Conferencing System, Optoma wireless presentation system, and the remainder of the network's peripherals all under centralized wireless control.





Intuitive operation



On-the-fly control



Automated meeting

- 
 VK6000 software configurator. The ATEN Control System provides a simple, four-step setup of control that can be quickly deployed on any Apple iPad, iPhone, Android and Windows, creating an easy-to-use wireless control system
- 
 ATEN's peripheral signal converters and extenders shore up the system with strong support roles

To aid in the configuration of the control system, the VK2100 controller is bundled with the fully integrated VK6000 software configurator. The ATEN Control System provides a simple, four-step setup of control that can be quickly deployed on any Apple iPad, iPhone, Android and Windows, creating an easy-to-use wireless control system. For legacy

support, the VM5404H video matrix integrated with converters also provides VGA interfaces, allowing conference attendees to simply and reliably switch any VGA, wireless, or HDMI input to their desired display, and to do so with fully automated scaling conversion for all source inputs, regardless of the originating source. Thanks to the easily customizable ATEN Control System, with one small swipe users may automatically adjust projection intensity, lighting levels, or switch out AV feeds to any desired display, without any need to pause for the adjustment of incompatible resolutions.

Finally, while the core system already provides impressive features, ATEN's peripheral signal converters and extenders shore up the system with strong support roles, thus guaranteeing full reliability and responsiveness. A VC880 HDMI Repeater plus Audio De-embedder is used to separate the audio signal from the video, thus allowing for independent control of either audio or video signals, regardless of the originating source. Meanwhile, the UEH4002 USB signal extender was used to push the computers and controls further back, allowing for more discreet camouflage of the system machinery.



Customized ATEN Control System App UI

# ATEN's Value

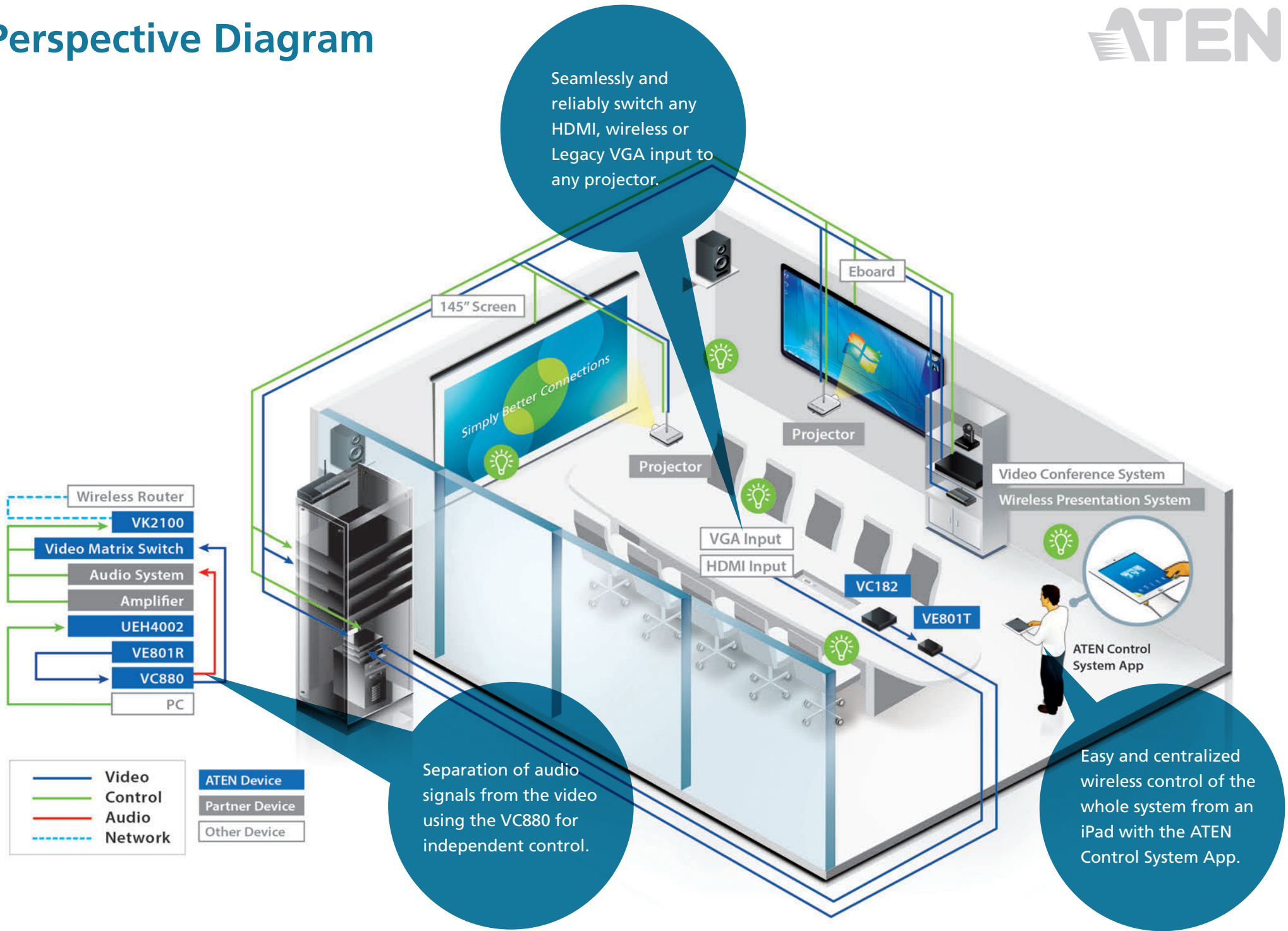
As the Optoma case demonstrates, ATEN technology was a perfect fit for the corporate needs of this internationally respected A/V solutions company. ATEN's economical solution delivered elegant simplicity that easily met the full range of requirements in this advanced corporate conferencing system, providing a complete, solidly reliable, and highly automated solution that gives abundant room for later software or hardware upgrades.

ATEN's solution allows for convenient side-by-side sharing of information from multiple sources, across either wired or wireless connections (with a choice of either analog or digital interfaces), and delivers instantaneous, seamless switching of A/V feeds to the video conferencing system, passive projector, interactive projector, or any combination of the three. Nevertheless, from the user's perspective, mastering these alternatives never poses a problem, nor interrupts the discussion: with ATEN's technology, connecting your device—or anyone else's—to the right feed, on the right display, at the right time is only as troublesome as swiping a thumb across a tablet.

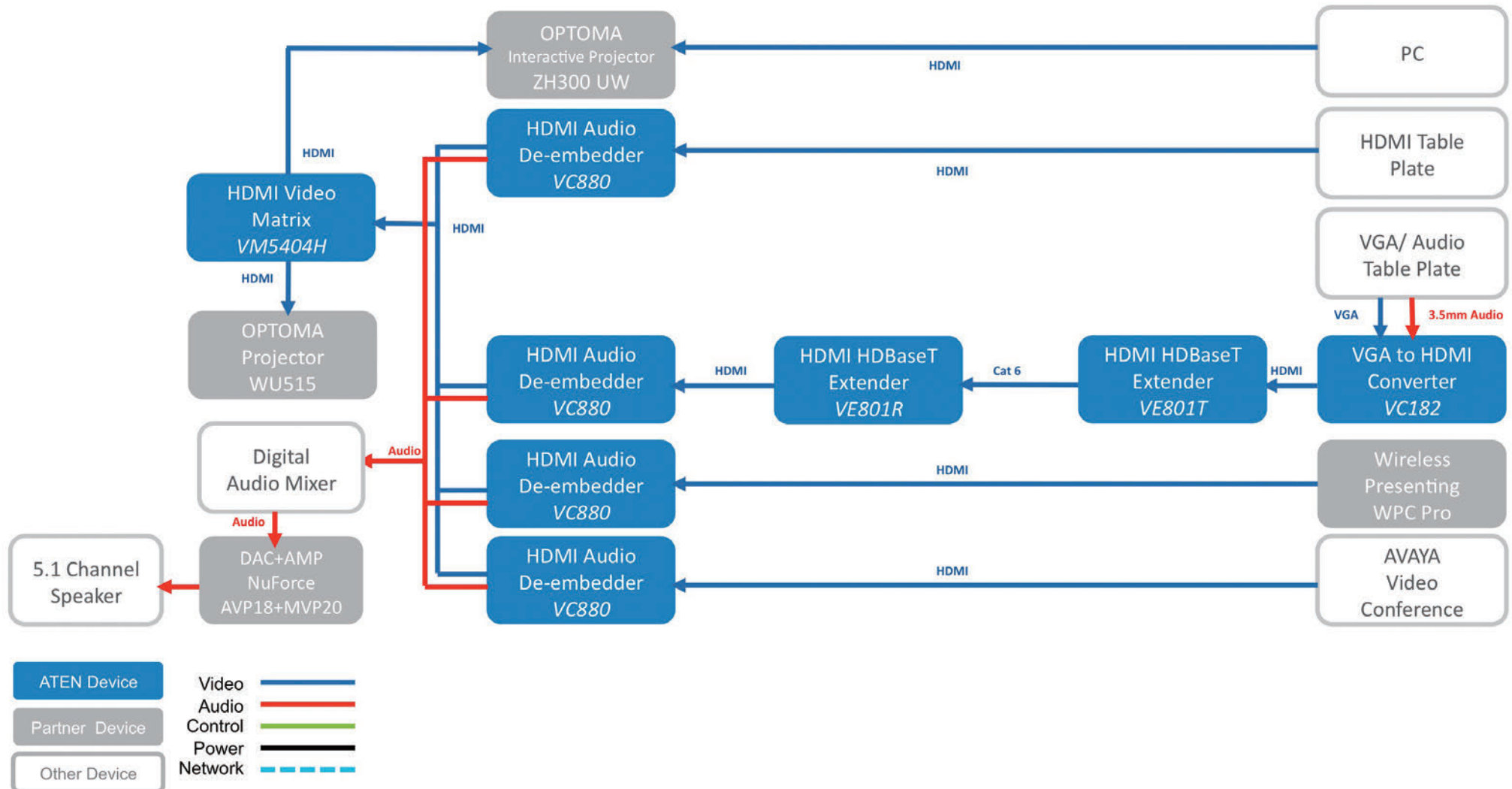




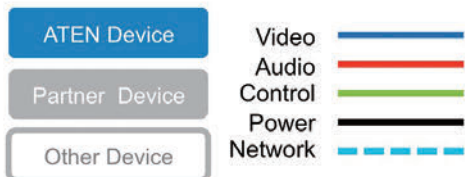
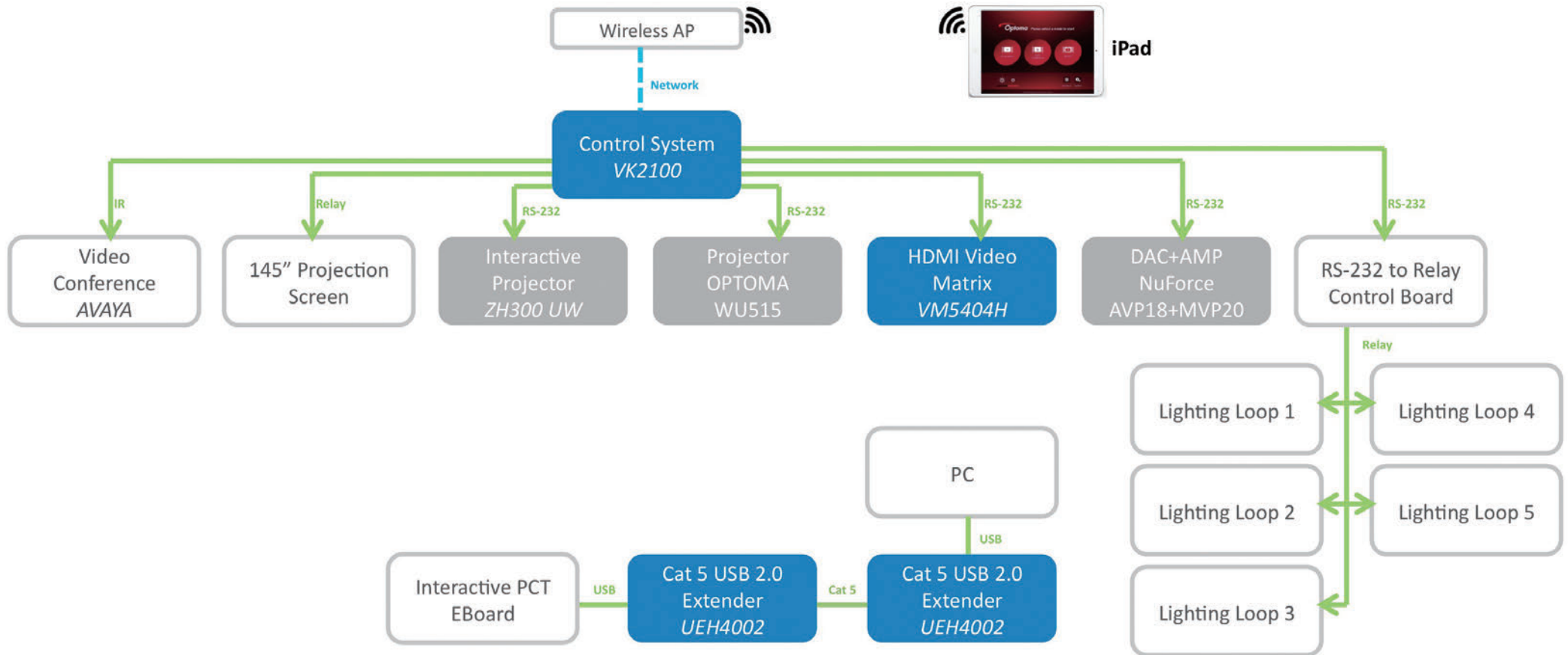
# Perspective Diagram



# Solution Architecture Diagram (Video & Audio Connection)



# Solution Architecture Diagram (Control Connection)



# Product

VM5404H

## Video Matrix Switches

- Seamless Switch™
- EDID Expert™
- Video Wall
- ESD protection for HDMI



VC880

## HDMI Repeater Plus Audio De-embedder



UEH4002

## 4-Port USB 2.0 Cat 5 Extender



# Product

VK2100

## ATEN Control System - Control Box

- Serial 232
- Digital I/O
- IR
- Internet Protocol



VK6000

## ATEN Control System - ATEN Configurator Software

- Simple profile configuration in 4 easy steps via intuitive GUI
- Development tool



## Third Party's and Partner products



OPTOMA WPS Pro  
Wireless presenting system



OPTOMA DAC+AMP NuForce AVP18+MVp20  
Surround sound audio system x2



OPTOMA WV515 / 2H300UW  
projectors (Interactive and passive) x2



Avaya video  
conference system



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