

What is the Christie® Entero™ LED?

The future of video wall display solutions technology! This revolutionary rear screen projection system will likely change the way that display walls are specified for command and control center applications.

By combining the reliable, high quality projection performance of DLP® technology with the efficiency and long life expectancy of LED illumination, the Christie Entero LED Series has been designed for extraordinarily long life, reliable operation and performance quality that is ideally suited for video wall displays.

For Control Room, Command Center and Operation Centers that are used to provide interactive and collaborative monitoring (including 24/7 environments), the Christie Entero LED Series is a perfect fit because of the Zero Maintenance design.

How does Christie define Zero Maintenance design?

Christie was the first to offer a Zero Maintenance design solution for control room display walls. Our LED illumination design contains no consumable components that would require scheduled replacement or maintenance within the first six years of operating life. And with the management features that continuously monitor and manage the brightness and color control of the display wall, this system will operate with virtually zero maintenance.

Why was Christie the first to launch this new LED technology?

Christie has extensive expertise in projection and product innovation and design. We are a global leader in the digital visual communications field. We have led the industry for research and development innovations and have set new standards in product reliability.

Many years ago our team of product developers recognized the immense benefits of rear projection LED illumination. Christie has designated complete teams of engineers to develop this technology, working very closely with both Texas Instruments (TI), the manufacturer of DLP® chips and Luminus, the manufacturer of the most versatile solid state light sources available. Christie has invested in this technology in both time and financial resources to prove our leadership position in this market.

Is this product based on Christie technology or just a modification of existing LED technology used in the consumer marketplace?

Our design for the Entero LED is based 100% upon Christie projection intelligence. We have started the design and development of this technology from scratch, reworking the optical design and electronic engineering specifically for the purpose of rear projection capability. The product is manufactured in our ISO 9001 Canadian manufacturing facility.

What unique features does the Christie system offer that our competitors do not?

To begin with, Christie is the first manufacturer in the industry to demonstrate and ship full LED illuminated DLP® video wall systems for Control Rooms. We announced and publically demonstrated the new Christie Entero LED product in full video wall format April of 2009. Our first shipments began in July and our first installation was completed on September 7th, 2009. Since then Christie Entero LED has been installed and proven in many installations worldwide.

Christie is one of the very few manufacturers to design a system from the ground-up and be specifically engineered for industrial video wall applications. Our designs and products do not utilize other 3rd party designs such as 720p and 1080p HD systems which were originally developed for consumer applications such as home television systems.

Christie offers extremely bright LED video wall control room cubes. We utilize a type of screen that allows for wide view-ability and ensures a range of brightness from 470 cd/m² for our 50" cubes to 240 cd/m² for our 72" cubes. For most applications, we consider 150 cd/m² the bare minimum for the appropriate needs of Control Room operators. Our competitors are promoting systems as low as 170 cd/m² for their 70" cubes.

Christie Entero is available in both SXGA+ (1400 x 1050) and WUXGA (1920 x 1200) resolutions. As the new industry standard, a WUXGA projection engine, which is HD compatible, offers a 2.3 million pixel count. For applications where high resolution and image detail is important we offer the highest pixel count in the industry.

The Christie ArrayLOC™ feature is a superior, intelligent technology that automatically monitors and adjusts brightness and color throughout the display wall. ArrayLOC automatically synchronizes the color and brightness of each projector to ensure complete content uniformity across the entire display wall. This means that in an array such as a video wall, Christie Entero projectors are continuously communicating with each other to ensure each are displaying uniform colors, at the same level of brightness. ArrayLOC makes installations quick and easy, and then minimizes the need for future human intervention for color or brightness adjustments.

The innovative cooling system of the Christie Entero includes superior heat pipe technology that reliably draws heat away from the LEDs. This ensures continuous, stable, long term performance of the illumination system. This unique design offers an environmental advantage over liquid cooling systems that use toxic glycol; it also protects the internal system from the potential of a leak into the projection system. All large video wall projection systems require cooling fans to ensure adequate operational temperatures. As part of Entero Zero Maintenance design, there are three sets of cooling fans (each has one redundant fan) to reduce any potential downtime.

How easy is it to install Christie Entero™ LED?

With the modular design of Christie's display cubes and enclosures and the zero maintenance design of Entero, installation is fast and easy. We do not take a cookie-cutter approach to control rooms, recognizing that each installation is unique. We work closely with our dealers and with their customers to ensure that our solutions will be their best on-site solution.

Each projector is factory calibrated to ensure uniformity of color and brightness after installation at the site. Our feature of ArrayLOC ensures that installations are quick and easy by automatically monitoring and adjusting brightness and color of each projector throughout the display wall.

What are the primary customer requirements for display wall systems within a Control Room setting?

Aside from requiring excellent display performance, historically the market has continued to ask for lower cost of operation of the equipment used for display walls. Over the last 10 years, the lamp life for the projection based systems used in 24/7 applications has improved. Competitive solutions began by offering a 4,000 hour lamp life, then increased to 6,000 hours, then to 8,000 hours, and finally to 10,000 hours with mercury based lamps (UHP type). 10,000 hours seems to be the maximum lamp life rating that current mercury based lamp technologies can offer. LED technology pushes that threshold to over 60,000 hours.

How is Entero different to the recently launched Christie MicroTiles™?

Both products offer display wall solutions to meet the demands of 24/7 Control Rooms environments. Entero and MicroTiles use an LED illumination system with reliable, solid-state components for low operating cost and offer high resolution and superior color performance. There are unique applications where MicroTile's easy front access can be a tremendous advantage. To service a MicroTile you can simply remove the front screen with a suction cup to obtain access to the light engine. Also the shallow depth of Microtiles, 10" deep plus 2" of rear ventilation clearance, means you have more flexibility as to where you can place the system within a room.

The Entero cube can range in screen size from 50" to 72" for a more seamless presentation. This allows for fewer units within a large display. At this time, the Microtiles screen size is only available in 16 inches (408mm) wide x 12 inches (306mm) high format.

What are the main technology breakthroughs with Christie Entero LED?

There are two main industry-firsts with Christie Entero LED:

LED illuminated 1-chip DLP® based projection in both SXGA+ (1400 x 1050) and WUXGA (1920 x 1200) resolution.

Virtually zero maintenance required for high resolution DLP® video wall display via the elimination of regular consumable components combined with continuous automatic color and brightness monitoring.

What are the main benefits of LED?

Solid state - LEDs are solid state. There is no lamp arc to ignite, degrade and maintain over time.

Instant on - Unlike arc lamps which may take up to a minute to turn on and reach full brightness, LEDs turn on instantly.

Extremely long life - The rated lifetime of the LEDs is 60,000 hours (more than 6 years). Actual lifetime may extend beyond 80,000 hours.

No color wheel required - The high speed on/off capability of LEDs mean that for 1-chip DLP® systems there is no need for a motorized color wheel. Red, green and blue LEDs can be sequenced at rates many times higher than color wheels, thus reducing likelihood of visible sequencing artifacts.

Wider color gamut for more vivid color - The color spectral characteristics and range surpass that provided by traditional color wheel based systems. EBU standards are far exceeded with LEDs and the system allows color performance to be easily manipulated to best match the application.

Better brightness control - LEDs offer a wide range of brightness control, unlike mercury lamps which offer only about 10-25% brightness adjustment. And there is no need for mechanical apertures to adjust brightness.

Environmentally responsible - LEDs are an environmentally responsible “green” light source, free of hazardous substances found in conventional lamp technologies.

What are the main benefits for using this technology?

Cost Savings – the “Zero Maintenance design” of the Christie Entero LED Series offers considerable cost savings for the life time operation of the video wall system. This revolutionary aspect of the product eliminates all consumable components, such as lamps, dust filters and color wheels. There is no mechanical color wheel within the projection engine that may fail and require replacing. And the sealed optical design means there are no dust filters to be replaced.

Minimized Wall Disruption – With no consumable components to replace there is substantially less disruption to the display wall over its life. ArrayLOC, an intelligent automatic brightness and color management system, enables inter-projector management across the entire display wall. This means that projectors continuously communicate with each other to ensure all projectors are displaying the same color and brightness, thus minimizing need for human intervention.

What is the life expectancy of LED illumination

LEDs have a rated life of 60,000 hours or more than 6 years. However, over 80,000 hours is predicted. Christie uses red, green and blue PhlatLight® LEDs from Luminus for superior long-life performance and reliability.

Will Christie Entero LED Series replace Christie’s existing Mercury and Xenon based video wall projection products?

Not immediately but we believe that LED is the future for CR applications based on the extensive benefits derived from the technology that well suit the requirements of the control room market. As LEDs get even brighter, more options will be available to support very large screen sizes.

If the LEDs eventually fail, can they be replaced?

Yes. The LEDs in the Christie Entero LED system are housed in the LED light module. The module can easily be replaced within 15 minutes. The LEDs within the LED light module can be replaced for a very low cost, not much more than the cost of a single mercury lamp.

Is this technology available now?

Yes, we have installed Christie Entero in a number of locations around the globe with great success. Many Christie customers are currently enjoying the benefits of LED technology.