

# Christie Matrix Series

Civil aviation and transportation  
Education and training  
Military and defense



## True-to-life performance you can count on

As solution experts and innovators in simulation technology, Christie® has developed the Matrix Series of DLP® projectors for the most demanding simulation and training applications. Get equipped to deliver on your training goals with scalable system resolution and the highest update rates available to provide superior image fidelity. Tap into the unique capabilities, including true 120Hz operation for maximum dynamic image quality and the ability to project an independent infrared channel to stimulate operational night vision devices.

You have the choice of solid-state and lamp-based, 1-chip and 3-chip DLP technologies

to meet your requirements – for front- or rear-projection; spherical, cylindrical, conic or flat screens; and from small, transportable part-task trainers to large-scale dome configurations for full-mission simulators.

The Christie Matrix Series includes a full suite of integration tools, features and technologies that provide ease of installation, ease of use and ease of maintenance – reducing your total cost of operation. The result is a fully integrated, highly scalable projection system that offers unrivaled performance, stability and reliability.

Christie – changing the way you view simulation.

**CHRISTIE®**

# Christie Matrix Series

With numerous successful application solutions in the simulation industry, Christie® has accumulated a wealth of experience and a clear understanding of the challenges that are unique to creating real-world simulated environments. We've engineered the Christie Matrix Series to offer advanced capabilities that address automatic calibration, geometric accuracy, high-quality image warping and blending, resolution, color and brightness uniformity, update rates, latency and motion-platform compatibility – key criteria when designing integrated simulation display solutions.

When you need to scale displays into large integrated arrays to achieve high-resolution and consistent image quality over wide fields of view, you can count on the Matrix Series.



## Christie Matrix StIM and Christie Matrix SIM

With 1-chip DLP® solid state technology, the WUXGA-resolution Christie Matrix StIM™ and Christie Matrix SIM offer unmatched system stability and reliability. Using Christie ArrayLOC™, these intelligent projection systems automatically balance both color and brightness levels in real-time. Unique to the Matrix StIM and Matrix SIM is the separate electronics module for optional remote mounting. With this modular design, a small footprint and unrestricted orientation mounting, the Matrix StIM and Matrix SIM provide excellent flexibility in system design. No color wheel and no lamps mean that there are no consumables for a virtually maintenance-free system, years of continuous operation and an extremely low sustainment cost.

The Matrix StIM provides independent channels and control over both the visible and infrared spectrum using Christie InfraScene™. This enables realistic night vision training by stimulating Night Vision Goggles (NVGs). For commercial aviation and other training applications that don't require NVG stimulation, the Matrix SIM is an ideal choice. This projector meets FAA Level D requirements for Full Flight Simulators (FFS) and has a proven track record of success on commercial simulators.



### Christie Matrix StIM WQ and Christie Matrix SIM WQ

For higher brightness and resolution display of content in rigorous training environments, you can rely on the Christie Matrix StIM WQ or the Christie Matrix SIM WQ. These are WQXGA-resolution, scalable-environment, 1-chip DLP, solid-state-illuminated projection systems, with Christie AccuFrame™ advanced smear reduction technology and a motion-platform-compatible, ruggedized chassis that can withstand up to a 5g shock load. On the Matrix StIM WQ and Matrix SIM WQ, Christie AccuFrame is fully adjustable in 1% increments, allowing system designers to maximize dynamic image quality over a range of frame rates and training scenarios for the most realistic displays. Both projectors exceed FAA Level D standards for commercial flight simulators.

The Matrix StIM WQ is the first WQXGA projector on the market that displays separate channels for visible light and infrared spectrum using Christie InfraScene, and delivers true 120Hz RGB operation. All of this results in the most true-to-life image quality in the simulation industry.



### Christie Matrix J Series

If you're looking for a 3-chip DLP projector designed specifically for simulation and training, the Christie Matrix J Series offers the highest performance with unsurpassed color accuracy and adjustability. With over 650,000 hours Mean Time Between Failure (MTBF) on each DMD, these Xenon lamp-based, DLP projection systems offer a stable, durable platform. Long lamp life and low replacement lamp costs contribute to less downtime and a low cost of operation. Matrix J Series projectors are available in brightness levels exceeding 6300 ANSI lumens and two resolutions: SXGA+ and WUXGA. As with all Matrix projectors, the Matrix J Series has built-in high-quality warping and edge blending capabilities using Christie Twist™. It also has the ability to integrate with Christie AutoCal™ for full scalability to support large, multi-channel arrays. Powered by dual-image processing, the Matrix J Series displays full resolution at 120Hz for optimum dynamic image quality.

# Advanced features



## Christie MotoBlend

Developed using our extensive experience with dynamic content, Christie® MotoBlend™ provides motorized optical blending to ensure seamless blends, optimized for night training applications.

## Christie AccuFrame

Christie AccuFrame™ enables you to reduce perceptible image smearing due to image retention and eye motion. Fully adjustable to support various frame rates and training environments, all Matrix Series projectors come standard with Christie AccuFrame to accurately display dynamic simulation content for the most true-to-life imagery.

## Christie ArrayLOC

Christie ArrayLOC™ manages the brightness and color levels of all Matrix solid-state projectors within an array to a common level, in real-time and with no additional latency. Synchronized color and brightness level balancing self-adjusts, reducing the time, labor and costs associated with maintaining a simulation display.



▲ With Christie AccuFrame.



▲ Without Christie AccuFrame.





An array of three Christie Matrix StIM's provides a 240° horizontal field of view (FOV) at RAF Valley, United Kingdom. Christie MotoBlend optimizes life-like images of both day and night and Christie Twist generates the warp profile – the net result is a seamless image blend across the array of projectors. The Matrix StIM's have provided the ability to train for day- and night-time, bad weather scenarios and contributed to a greatly enhanced helicopter search and rescue training experience, enabling trainees to see exactly what the pilots see in real-world missions.

### Christie AutoCal

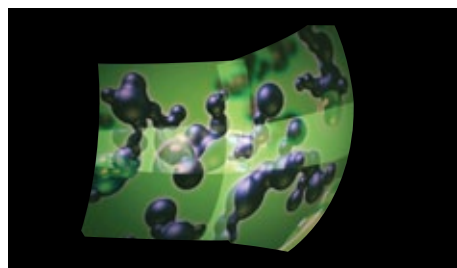
Christie AutoCal™ calibrates any arrayed projection display – from flat to cylindrical to spherical – adjusting it to its optimized viewing configuration. With automated image display adjustment capabilities at your fingertips, a stabilized, consistent display with reduced system maintenance and downtime will help you increase productivity.



▲ Christie Edgeless Graphics Geometry (EGG) – 16 megapixel, 240-degree field of view display featuring Christie AutoCal, Christie Twist and Christie Matrix StIM.

### Christie Twist

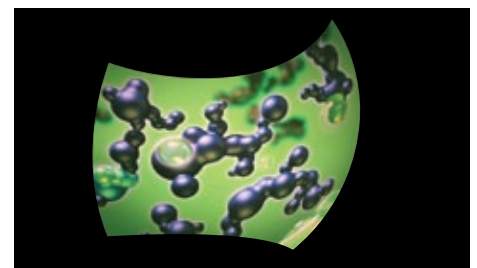
An easy-to-use option to manage arrayed projectors, Christie Twist™ allows pixels to be mapped to any projection surface with proper geometry and accurate pixel-to-pixel alignment. Christie Twist provides the high-quality warping and blending required for arrayed projectors to operate as a single, uniform display with maximum image quality and minimum system latency.

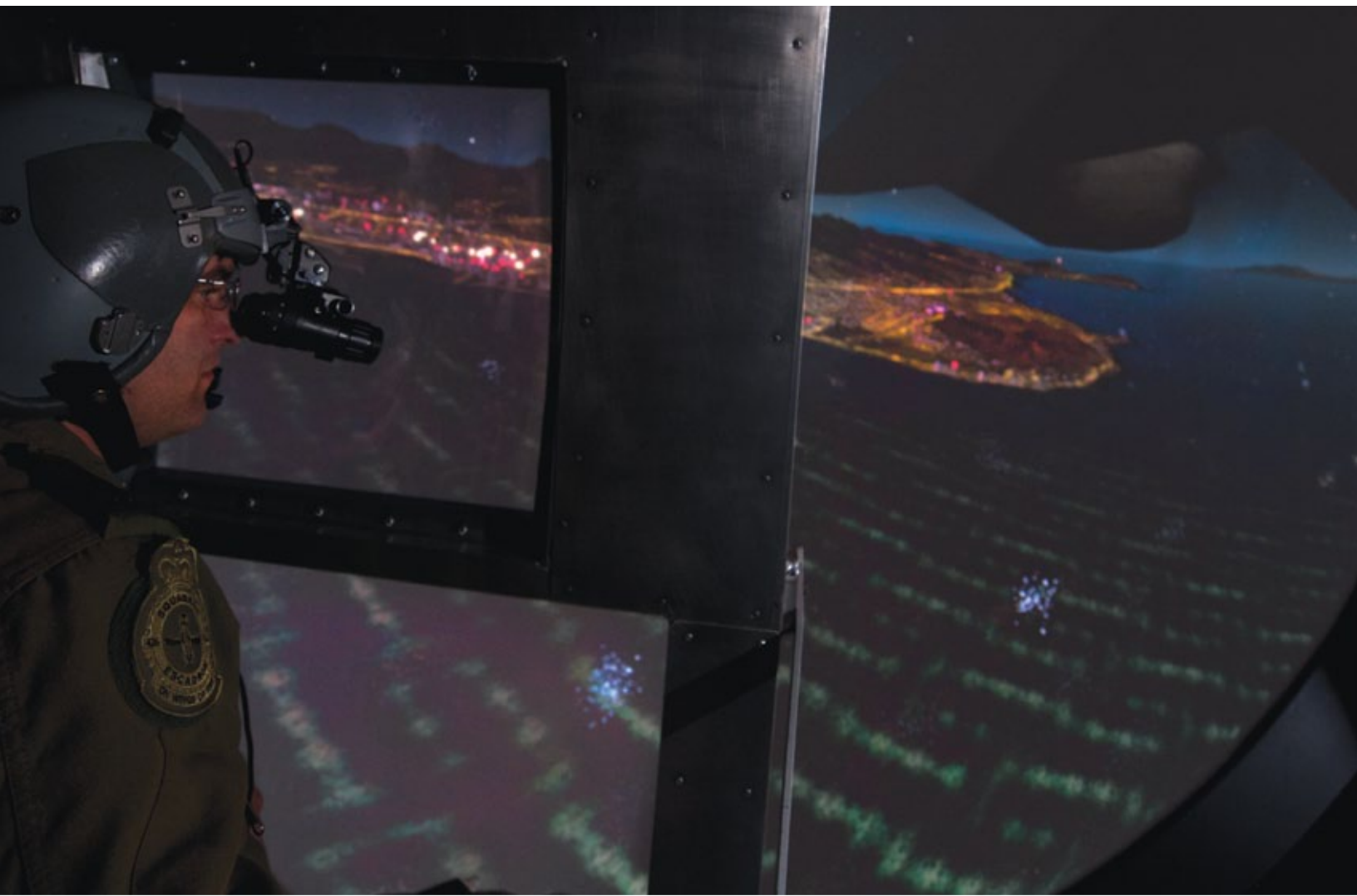


▲ Christie Twist offers high-quality warping and blending for exact geometric mapping regardless of the shape or surface.

### Minimum Processing Latency

With Minimum Processing Latency (MPL™), there is less than a single frame of latency between projector input and display. The result is the realistic, real-time performance needed to simulate highly-dynamic environments.





## Engineered for simulation and training

### Pioneering true-to-life stimulated NVG training

With their unique dual-input architecture, and using Christie® InfraScene™, the Christie Matrix StIM™ and Christie Matrix StIM WQ use separate channels for visible light and near-infrared spectrum for a more realistic Night Vision Goggle (NVG) training experience. In addition to the red, green and blue primaries, Christie InfraScene uses a separate infrared channel to stimulate operational NVGs. With Christie InfraScene, these projectors accurately depict day and night scenes, as well as independent stimulated NVG images, enabling realistic and relevant training for difficult conditions of limited visibility and nighttime operations.

Christie was the first to bring this technology to market with the Christie Matrix StIM. The next evolution is the Christie Matrix StIM WQ which is the world's first projector to provide stimulated NVG images at WQXGA resolution for enhanced training quality. The Christie Matrix StIM WQ also offers a new capability – allowing users additional control to optimize the separate visible and IR scenes, based on specific training requirements.

## Service and support

Christie understands that each customer has unique business challenges and technical requirements. Our proven installation process is based on years of successful installations around the world. We use ISO-certified project management practices – from engineering services such as consulting and design, to installation, integration and complete training and support. We'll take your project from inception to completion – on schedule, on budget, to specification and with proven reliability.

◀ Defence Research and Development Canada and the Canadian Forces Aerospace Warfare Centre have partnered to advance training methods for the Royal Canadian Air Force. Recently they improved their state-of-the-art Hercules Observer Trainer (HOT) and incorporated NVG training capability by adding two Christie Matrix StIM projectors.

▶ The motion platform at Royal Naval Air Station (RNAS) Culdrose, United Kingdom – The ruggedized chassis of all Matrix Series projectors ensures system stability in motion environments.



## Maximizing image quality for real-world simulation content

The Matrix StIM, Matrix StIM WQ and Matrix J Series projectors use their unique, dual-input architecture to provide the ability to composite the two 60Hz RGB inputs to deliver true 120Hz RGB operation. This results in dramatically improved dynamic image quality and resolution without image artifacts or perceived loss of brightness, while maintaining compatibility with current Image Generator technology and without having to change the visual database.

## Designed for simulation motion environments

All Christie Matrix Series projection systems are built to order and can be supplied with a fully ruggedized chassis to withstand the shock loads associated with motion platform use for extreme system stability.

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Printed in Canada on recycled paper. 3701 Nov 13

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