Dynamic Optical Blenders™

Part of the Northstar™ Simulation Display Solution

3D perception

Day to Night and Everything in Between

In a multi-projection display system, all projectors will have one or more sides overlapping with another projector. In the overlap zones, the image will be doubly bright. 3D perception's Northstar™ system automatically applies electronic edge blending via the nBox™ display processor. During daytime scenarios, the electronic blend is all that is needed used to achieve a seamless, uniform image. However, during darker scenarios, the overlap zones cannot be completely electronically erased because all digital projectors output some level of light even with completely black content. The result is a grey stripe in the overlap. The only way to remove the stripe is with optical blending.

The Solution

Dynamic Optical Blenders™ remove the visible edges and render the image seamless across the entire display. The blenders optimize the image without sacrificing contrast in favor of black level uniformity.

During transition periods like dusk or dawn, the content becomes even more difficult to optimize, while still completely eliminating the overlap zones. This unique challenge is addressed via hybrid blending — a combination of transitional optical blending AND electronic blending. The servo-controlled optical blenders and electronic blends are gradually applied during transitional periods.

Blenders automatically make adjustments to the scene upon recieving time-of-day signals from the simulator. The Northstar system allows for smooth interpolation between scenarios, enabling a seamless and dynamic transition from day to night without interruption.

Content-Aware Blending

The Northstar system now offers optional Content-Aware Blending, enabling nBox to analyze the visual signals from the simulator's Image Generator (IG), then adjust the Dynamic Optical Blenders in real time. This feature has the added benefit of providing complete IG data security and discrete display system architecture.
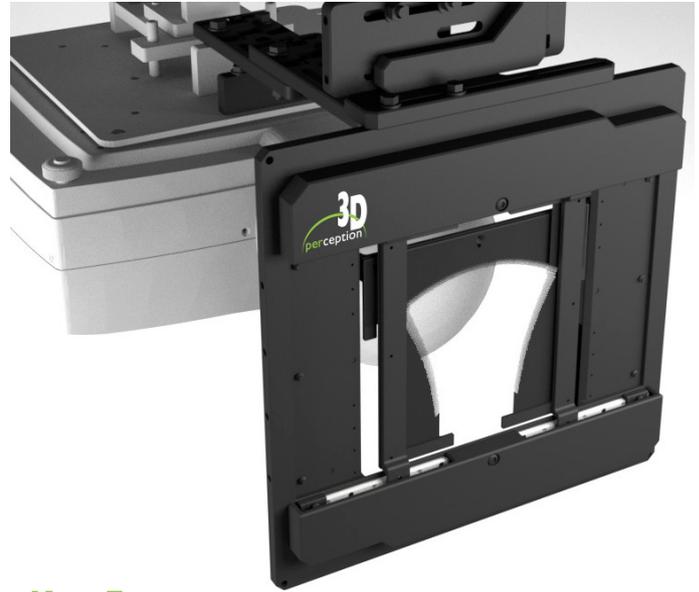
Key Features

- Eliminates extraneous light in overlap areas
- Optimizes image for day, dawn, dusk, night and NVG
- Gradual transitions or immediate change on scenario load

Options

- Hard edge blend blades
- Progressive blend blades with precision-cut gradient edges for the most demanding requirements
- Content-Aware Blending feature

About 3D perception

3D perception provides advanced display components and immersive simulation display systems.

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