Simplify Seamless Multi-Projector Installations

Use Matrox Products with Edge Overlap to Build Stable, Cost-Effective Multi-Projector Setups

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Use Edge Overlap with Matrox Products to Build Stable, Cost-Effective Multi-Projector Setups

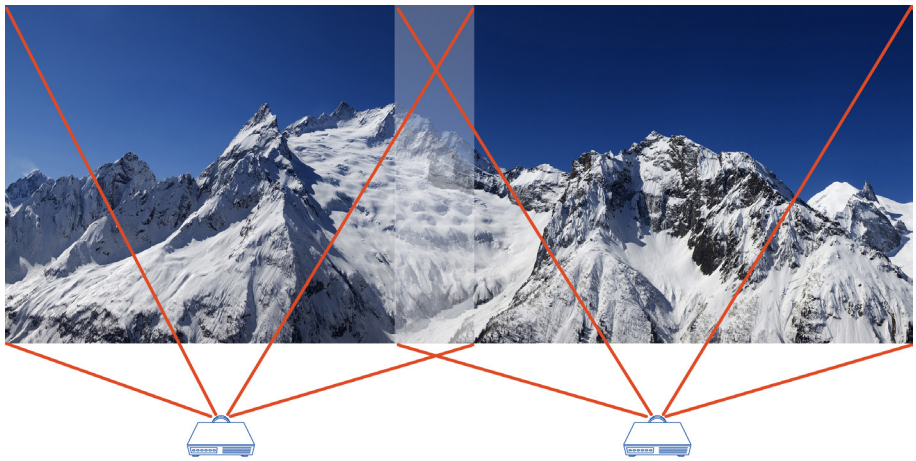
Executive Summary

The Matrox PowerDesk Edge Overlap feature allows Matrox customers to easily and intuitively adjust the number of overlapping pixels between edge-blending projectors to create a seamless, unified image. With Edge Overlap natively supported at the GPU level and no scaling required, Matrox products with the Edge Overlap feature provide outstanding image quality for all standard applications—across the entire desktop—for a very effective, collaborative work environment. The Matrox Edge Overlap feature is available on all M-Series graphics cards*, Extio F2208 and F2408 KVM extenders, and Mura MPX display wall controller boards. These products can be combined with affordable edge-blending projectors to provide unique, cost-effective solutions for boardrooms, classrooms, digital signage applications, and worship and presentation environments seeking seamless digital content on up to eight projectors per graphics card in a wide range of configurations.

Non-Overlap/Blend Solutions Are Not Necessarily Picture Perfect

Whenever multiple projectors are used together to create a larger unified display, it requires precise projector mounting to ensure each projector edge is placed beside the next. When standard, non-blended, and non-overlapped projectors are used, it is difficult and perhaps impossible to accomplish without a visible seam where the projectors meet, because the standard projector's edge luminance doesn't support such a level of precision.

The result is an obvious "stitching of images" effect with visible seams and poor image quality that leaves the viewer seeing multiple images instead of a single, large, continuous image from all projectors.



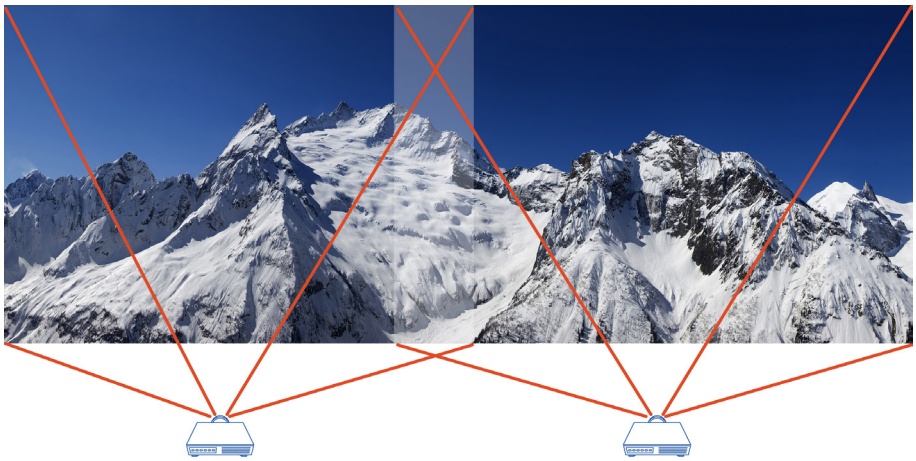
Without Edge Overlap the projected image displays vertical seams along the projected image edges.

Edge Overlap and Edge-Blending Technologies Improve Image Quality Across Multiple Projectors

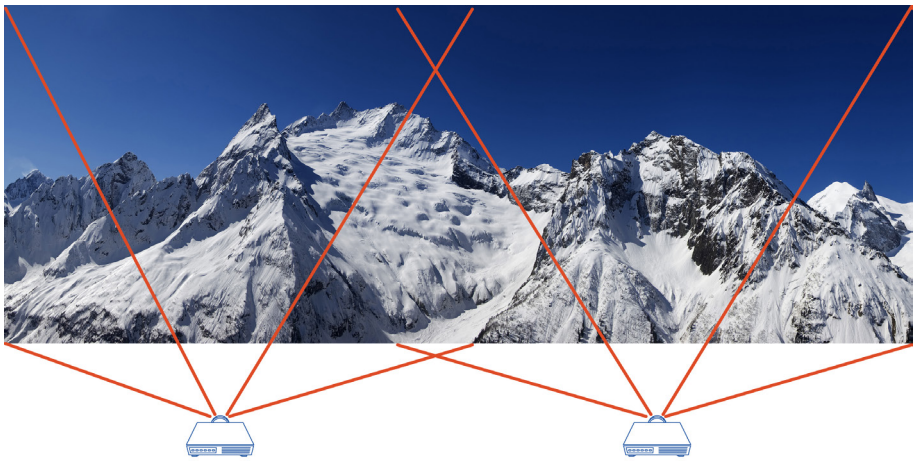
To show content across multiple projectors seamlessly, Matrox Edge Overlap duplicates the GPU's output edges. This allows each projector's output edge to be physically overlapped with that of the adjacent projector. The fine details of manipulating the number of overlapped vertical and/ or horizontal pixels is managed through Matrox PowerDesk, a multi-display desktop management software available with the display driver. Its simple and easy-to-use controls allow the percentage of each overlapped edge to be adjusted the appropriate amount for each edge and installation.

While Matrox Edge Overlap provides easy control over how the images are lined up and overlapped, the projection appears naturally brighter where they meet. Projector-enabled edge blending resolves the brightness, both horizontally and vertically by adjusting the light intensity for the image's overlapped areas to match the non-overlapped portion of the projected content.

* supported by Matrox Windows 7 WDDM drivers (version 4.x)



Overlapped image with no edge-blending support makes the projected image blurry and appear brighter along the cross-hatched area.



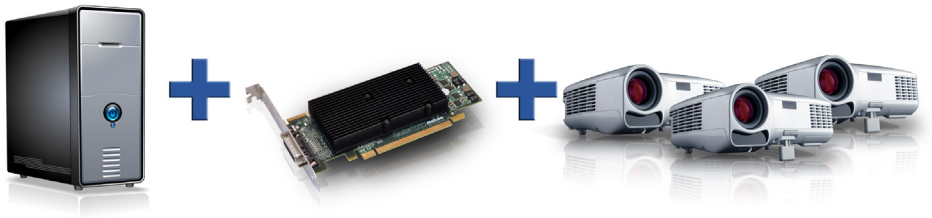
Edge Overlap creates a precisely aligned, unified image across multiple edge-blending projectors. The result is a perfectly blended and seamless image.

Use Simple and Cost-Effective Equipment

The Matrox PowerDesk Edge Overlap feature creates affordable multi-projector solutions free of the higher costs and complexity of ultra-high-end projectors and custom-projection hardware and software.

Use three basic system components to power up to eight edge-blending projectors—a Matrox product with Edge Overlap support (M-Series graphics card, Extio F2208 or F22408 KVM extender, or Mura MPX Series display wall controller board), a standard computer or video wall controller, and multiple edge-blending projectors. There is no need for additional, expensive software or hardware such as software-based blending applications or external hardware-blending components, which complicate the installation process and increase costs and support issues.

Using a single standard Matrox M-Series graphics card and cost-effective edge-blending projectors allows the Matrox Edge Overlap feature to be used in tandem with projector-enabled edge-blending technology to create a perfectly aligned, seamless, pristine image with even light intensity throughout, across two to eight projectors.



Create multi-projector setups with one M-Series card, one PC, and edge-blending projectors.

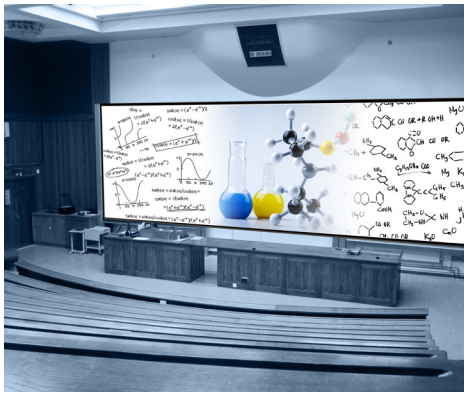
Meanwhile, for projects where extension technology is required to increase the distance between projectors and the computer by up to one kilometer, Extio F2208 and F2408 KVM extenders along with the Extio F2408E Expander provide support for up to 16 unified projectors.

Simplifying multi-projector video wall setups is also an option with Edge Overlap. Matrox Mura MPX Series display wall controller boards can not only drive up to four projectors each, but also offer universal capture capability for up to four inputs that can be positioned independently and scaled anywhere on the unified projector desktop. Essentially building blocks that can be added onto one another in a single system, Mura MPX Series boards allow for large-scale video walls made all the more impressive while using edge-blending projectors in conjunction with Edge Overlap.

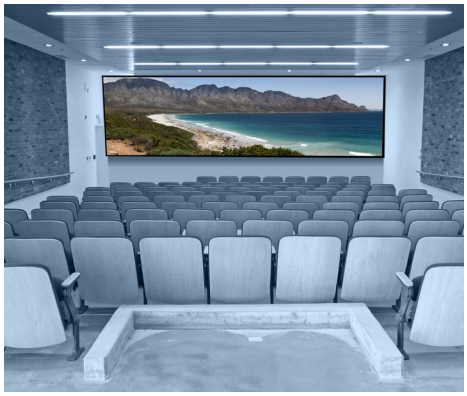
Works with Affordable and Effective Edge-Blending Projectors

Edge-blending projectors are smaller and less expensive than high-end, stadium-level, professional AV projectors and hardware-blending devices. The Mitsubishi 8000 Series and Panasonic D6000 Series are examples of good, affordably priced edge-blending projectors. The high image quality and brightness capabilities of these projectors coupled with Edge Overlap lifts professional, blended projection to new levels of affordability and accessibility for presentations in large spaces such as classrooms, conference rooms, theaters, and worship environments.

Conference rooms



Classrooms



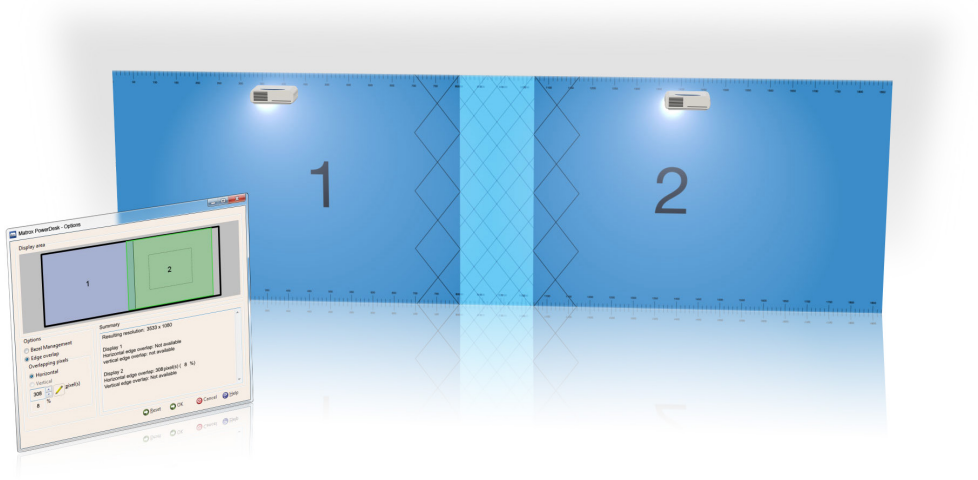
Theaters

Worship centers

Supports Standard Applications for Content Creation and Real-Time Collaboration

Matrox products with Edge Overlap provide the ability to create cost-effective solutions for multi-projector setups that enable projection of an entire desktop, using standard applications to show all content immediately and without any unwanted scaling.

In contrast, some other hardware-based overlap solutions such as hardware-blending devices or specialized projectors are not flexible enough to display all content via standard applications and may require custom tools to enable content-like video playback and display PowerPoint™ files. In such cases that a custom application is not used, some content may be dropped and cut out of view due to the overlap process. This means presentations may be cut off along each of the edges if a specialty application is not used or simply unavailable.



Some projector installations require custom applications to show complete content, which increases cost and time. In contrast, Matrox M-Series cards support standard desktop applications for quick, easy, and complete display onto your projection screens.

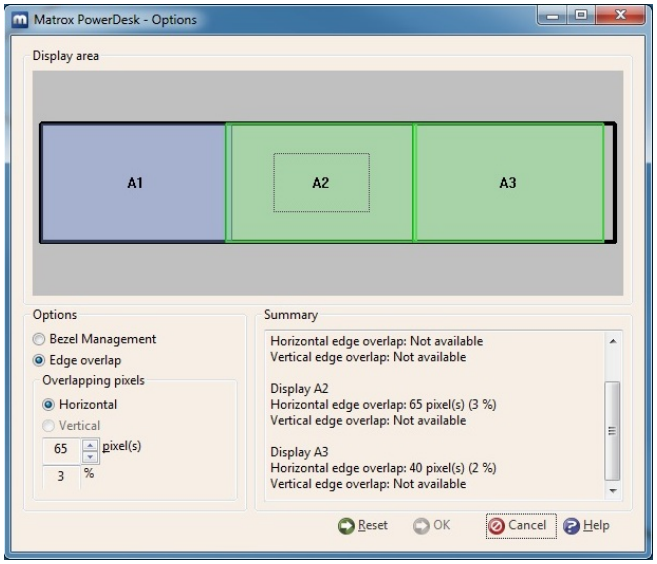
In other cases, the full desktop or content may be fully displayed on the overlapped surface, but the quality may suffer due to image scaling. Some hardware-based overlap solutions or specialized projectors use scaling to manage the overlap effectively and ensure no content is lost. However, when the image is scaled up, down, or in both directions during the overlap and blending operations, image quality may decrease.

Edge Overlap is one of many PowerDesk features that come with the display driver for all M-Series, Extio F2208 & F2408, and Mura MPX Series product lines. It adjusts the overlap area by manipulating the output of the GPU directly and displays the native desktop and content without scaling. This enables the entire desktop to be viewed on the projected surface and allows content to be viewed via standard software applications without the need to scale content. There is no need for customized solutions that need to be planned for and managed in advance. Instead, collaborate in real time by using your multiple projector screens, as you would your desktop, to display your content quickly and effortlessly.

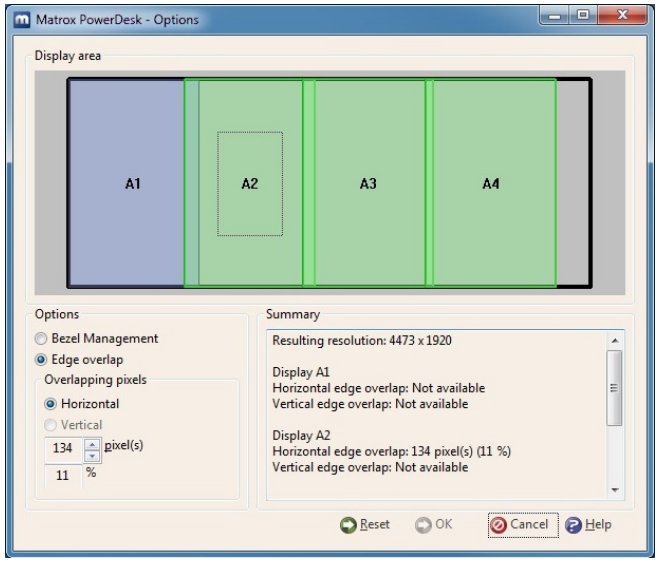
Flexible Multi-Projector Options

Edge Overlap can support multi-projector setups across various outputs in landscape or portrait mode as well as horizontal or vertical-stacked configurations. PowerDesk can be used to handle horizontal and vertical overlaps and create an extensive array of multi-projector configurations.

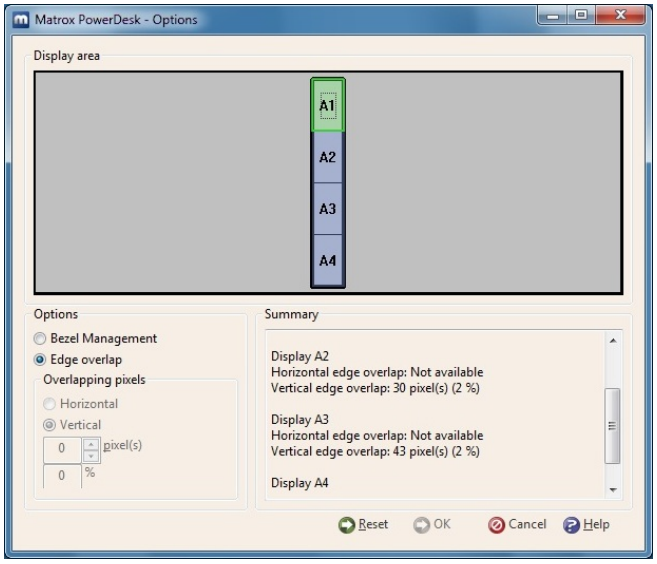
Create unique and interesting multiple-overlap setups or build multiple-projector setups that match typical widescreen aspect ratios of 16:9 and 16:10. For example: Use three 1280x768 pivoted projectors with an overlap of 19 pixels to create a 2266x1280 projected surface with a 16:9 aspect ratio. This makes it easy to create and review content on a single, separate 16:9 screen (e.g. 1920x1080).



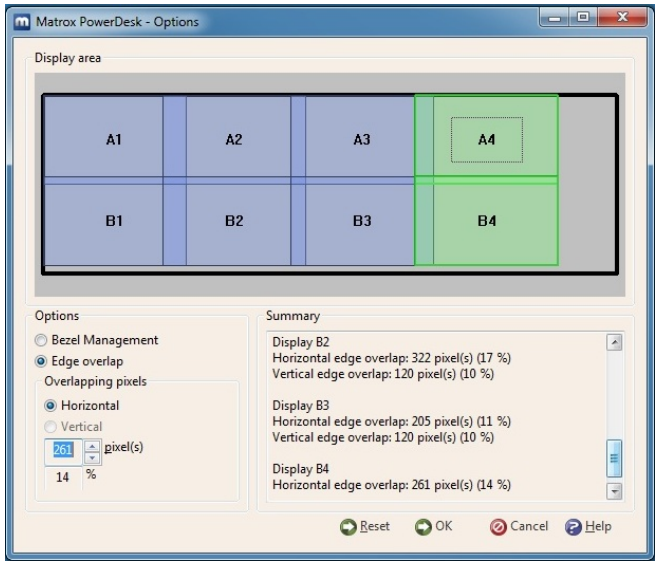
Example 1.
Three landscape projectors are positioned in a 3x1 horizontal configuration.



Example 2.
M-Series quad cards including M9148 can connect up to four projectors in multiple configurations, including 4X1 (horizontal), 1X4 (vertical), and 2X2 (square), with projectors in landscape or portrait/pivot modes.



Example 3.
Stack projectors vertically to display content, even in pivot mode.

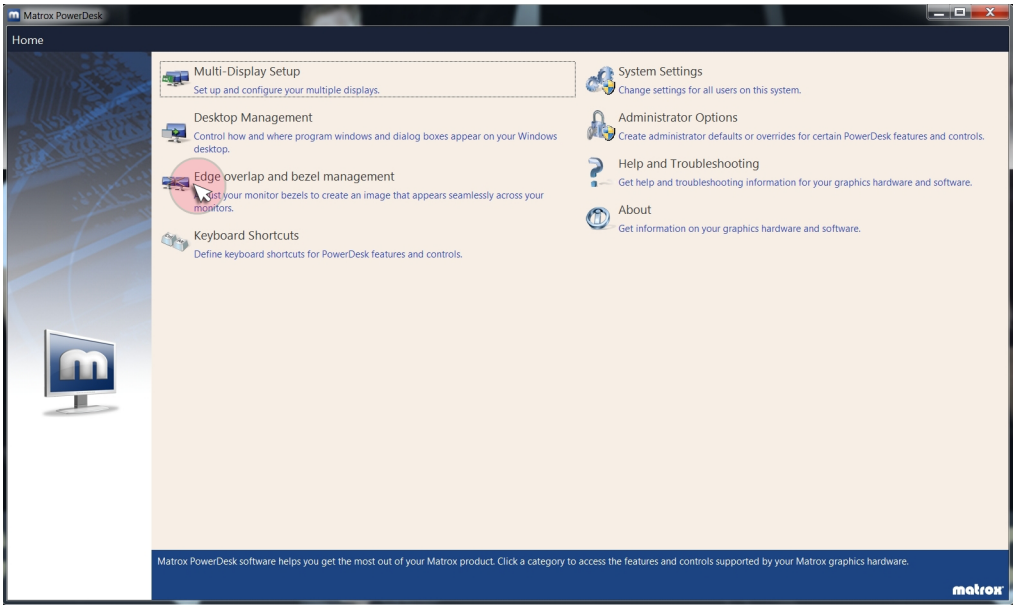


Example 4.
Use an M9188 Octal card for large projection applications, including a 4x2 configuration.

Easy and Intuitive Setup

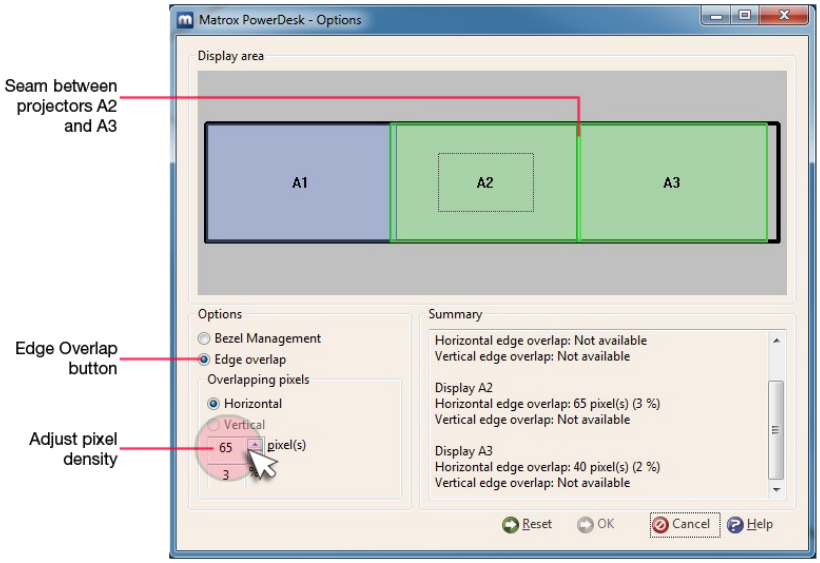
If you already have a Matrox product with Edge Overlap support, setting up the Matrox PowerDesk Edge Overlap feature is a fast and easy process.

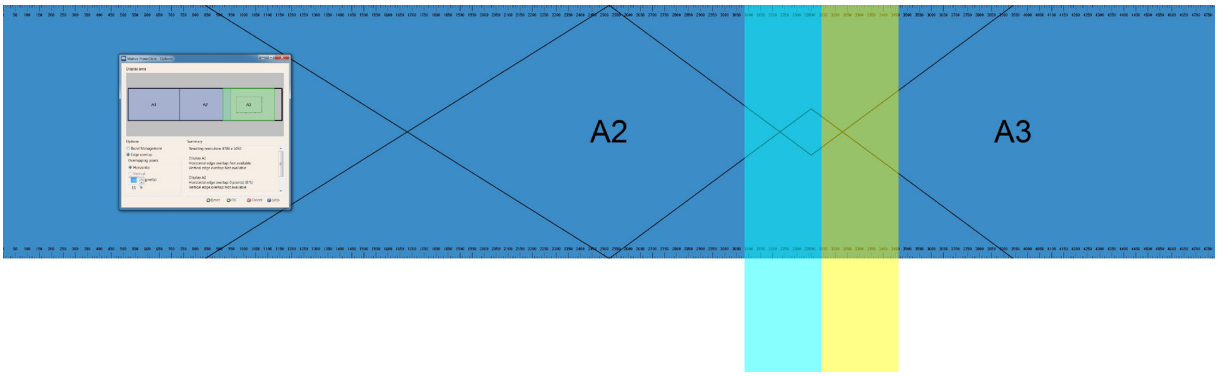
1. Access Matrox PowerDesk desktop management software from your desktop
2. Choose “Edge overlap and bezel management” from the menu choices.



3. Select “Edge Overlap” and adjust each projector horizontal and/or vertical seams by choosing the overlap pixel density.

For example: In the illustration below, the seam between projectors A2 and A3 is chosen and the overlap-pixel density is set at 65 pixels, or 3% of the projector’s resolution. This user interface (UI) appears, as well as a grid across the entire desktop to allow you to adjust each projector’s overlap area precisely, within a pixel’s degree of accuracy.





In the illustration above, the area under the light blue and green rectangular bands represents the overlapped area in the UI grid. Using these tools, the user can simply and effectively manage the overlap area to adjust the number of overlapping pixels between the projectors to flawlessly display a single seamless image across three edge-blending projectors.

Conclusion

Create a flexible array of easy-to-install, cost-effective multi-projector setups for conference and classrooms, theaters, and worship environments by using an Edge Overlap-supporting Matrox product, a computer, and multiple edge-blending projectors.

Matrox offers Edge Overlap support on M-Series graphics cards to drive seamless content across two to eight projectors. Meanwhile, Extio KVM extenders and Mura MPX Series-driven display walls can support up to 16 and 24 projectors at once respectively. For more information, select a Matrox product below:

Matrox M-Series Graphics Cards
Matrox Extio Series KVM Extenders
Mura MPX Series Display Wall Controller Boards

Other Useful Resources:

- Edge Overlap Press Release
- Matrox PowerDesk Advanced Desktop Software Features
- Contact Us

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