PRODUCT LINE-UP

GeoBox Multi-display Controller

2024

What is GeoBox®

We make video control less of a hassle and the result look amazing

As a pure hardware-based video controller, GeoBox® transforms any video stream into any display format, no content rendering needed.

- ✓ No PC= no software stuck = no downtime
- ✓ Flexible display settings and installations for versatile location conditions of each project

So, what can GeoBox® do

- ✓ Image warping and edge blending
- ✓ Projection mapping
- ✓ Video control
- ✓ 3D format conversion
- ✓ Multi-viewer

GeoBox® advantages

No bounderies, Transform any video stream to any display format!

GeoBox is the only solution in the market that works without software— that allows you to transform any video stream into any display format. Just connect it with input device, and you are ready to easily set your projection or display systems in any format you need, no matter how complex.

No software needed, No downtimes

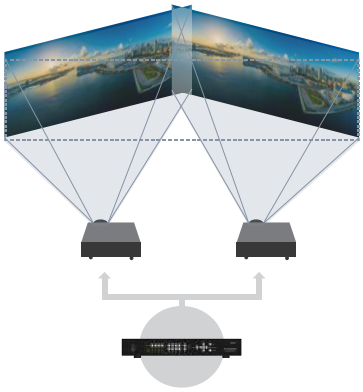
Compatibility issues, systems shutdown, stuck softwares. All of this will be part of the past: GeoBox is a reliable pure hardware solution that allows you to easily create and switch between different settings for multiple using scenarios in one system. And without any PC software your job will be easier than ever.

No content rendering, real plug-n-play!

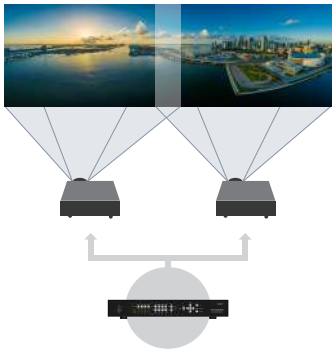
A new concept of solution: no need to render your contents using complicated software, with GeoBox, you can easily control and adjust any video stream in real time. Switching across different contents, sources, even format is a breeze!

Edge blending, Warping and Stacking controller

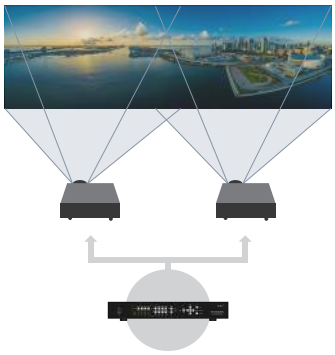
Application



1.Geometry adjustment



2.Image crop overlap pixel creation



3.Edge Blend

How to edge blend multiple projectors?

Functions and features

Input and output resolution

- Support input up to 8K2K@30hz or 4K2K@60hz, RGB4:4:4. Non-VESA standard resolution.
- Output up to 4K2K@60hz.

* Please refer to P.11 for max. resolution support of each model.

Built-in Edge Blending

- Edge blending on flat & curved surface up to H=1920 Px, V=1200 Px.
- Discrete RGB gamma correction.

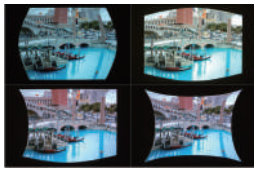
PC-free, pure hardware design

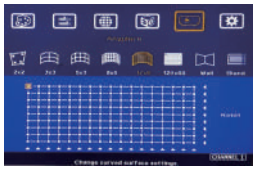
- With complete functions control and setup via IR remote, Ethernet, RS232, USB PC tool.(*)
- Utilizing any digital input from any device.

*Please refer to P.11 for USB PC tool support of each series.

Advanced warp and Geometry alignment technology

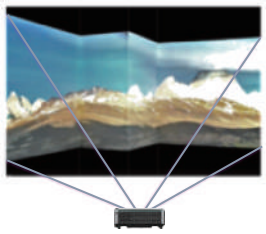
- Sophisticated geometry alignment.
- Real time geometry alignment for up to 120x68 control points,through IR remote, PC tool or Web Gui to get optimized result.
- Flexible grid patterns.





Corner wall Alignment

- Geometry alignment at corner wall in both horizontal and vertical direction at any location.



Individual editing in each channel

- Individual 90/180/270 rotation, flip, mirror, cropping, scaling & color adjustment in each channel.

Selectable Frame-Sync

- User can select Frame Lock, Phase Lock or Free Run based on system requirements.
- 50Hz in / 50Hz out.
- Perfect synchronization can be achieved.

Programmable EDID

- Selectable output resolution and programmable EDID to optimize video quality.

Super low latency

- 2 frames system latency: <33ms (@V=60Hz).

High end 10-bit video processing

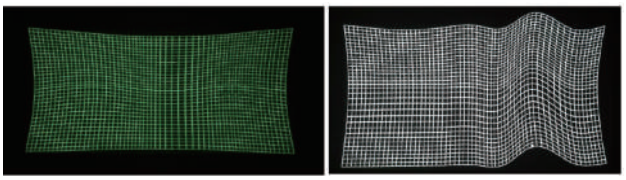
- 3D motion adaptive de-interlace, low angle smooth algorithm and 3:2/2:2 film mode detect and recovery function.

Multi-unit cascade

- HDMI2.0 loop-out port for multiple units cascade

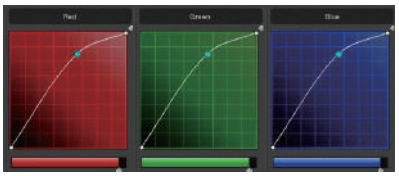
Linear grid line adjustment to get perfect image

- To compensate different scaling factors when projecting on surface wall with edge blending or warping alignment.



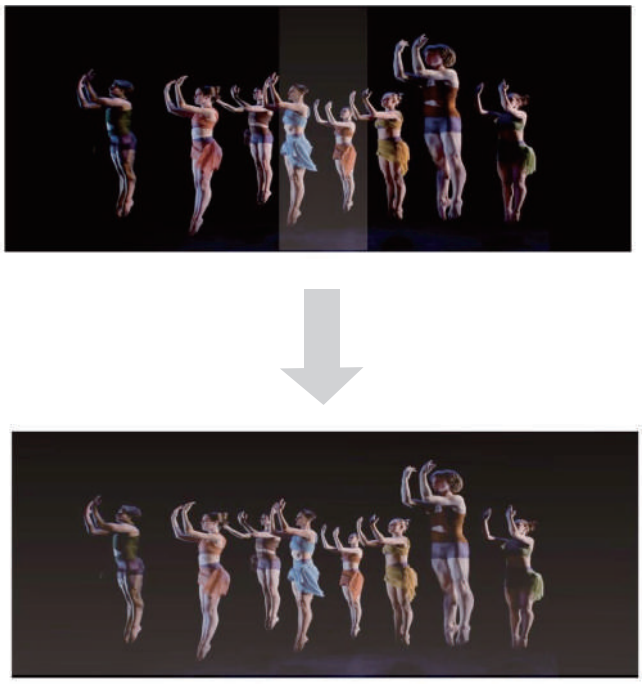
RGB gamma adjustment

- Independent RGB gamma correction to get optimized image quality.



9-region Black level uplift

- Nine region precise Black Level Uplift to compensate light leakage from projectors.

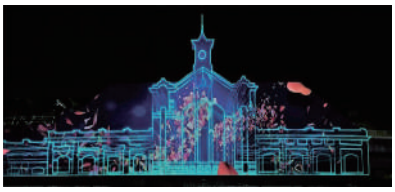
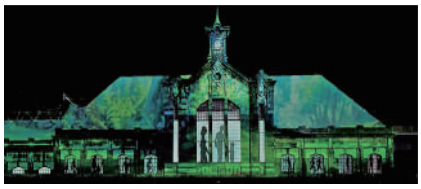


Profile saving

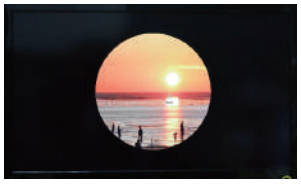
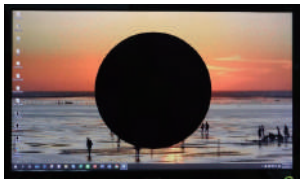
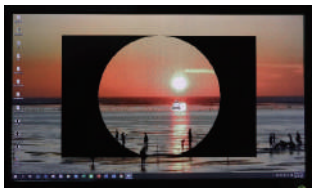
- All customized settings can be saved into profile.
- Up to 5 or 10 profiles can be saved and recalled by remote controller, RS232, PC tool via USB or Ethernet.

Digital mapping (projection mapping)

• 10 patterns (images) can be input into M800Ex in each channel for projection mapping.

• User can use any signal source and select up to 4 display styles in each pattern without pre-mask at input source.

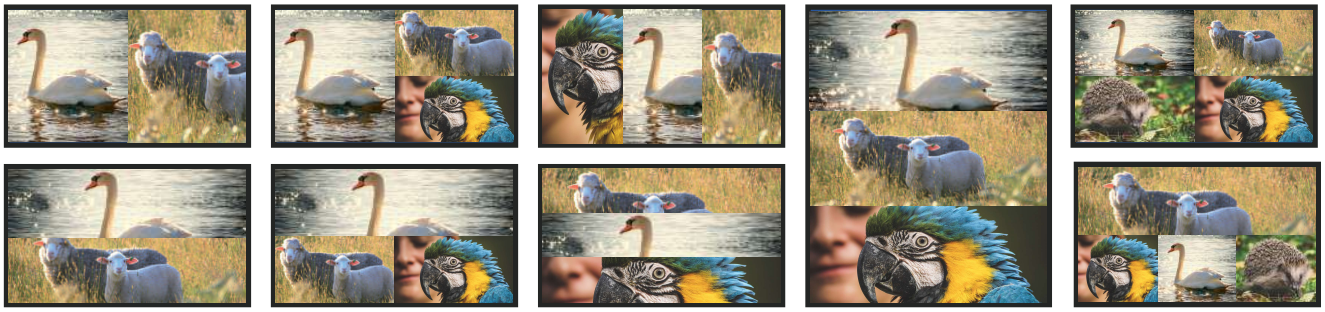

* Only available in some models. Please refer to P.11 for models with projection mapping feature.

PIP/POP, Multi-viewer

• Flexible position and adjustable aspect ratio.

Original PIP | Remove black border | Change size and location | Change shape and maintain all information | Change shape, position and cropping area

• 2/3/4 split view POP is available in each channel.



* Only available in some models. Please refer to P.11 for models with PIP/POP and Multi-viewer feature.

3D system application

• GeoBox allow user to geometrically align images and convert 3D signals to the format supported by the projectors.

• UD102 4K controller:

  • Input format support: Line by line, Side by Side, Frame packed, Top/Bottom, Frame Sequential

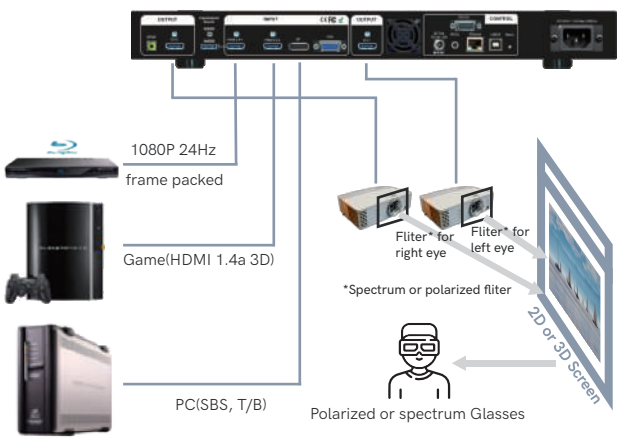
  • Support FHD 120Hz frame sequential output for active 3D.

• G812 FHD controller:

  • Input format support: Side by Side, Frame packed, Top/Bottom, Frame Sequential

  • Support output including 720P /120Hz for active 3D.

Passive 3D system



UHD Video wall, Multi-viewer Controller

Input: max. 8K resolution

- Support input up to 8K2K@30hz or 4K2K@60hz, RGB4:4:4, including non-standard resolution.

*Please refer to P.12 for Max. input resolution support of each model.

HDR support

- Support BT.2020 HDR 10 input.
- True 10-bit deep color output for smooth gradient color.

Output: max. 4K resolution

- Programmable output up to 4096x2400 or 3120x3120 @60Hz.
- Output range: 800-4096 in horizontal (16 pixels/step) and 600-3840 in vertical (1 pixel/step).

Split image with overlap in multi-projector application

- Work with projectors with built-in edge blending and warping functions.
- You can control the image cropping, rotation, scaling and color adjustment for each projector.

Use GeoBox to crop and assign images to projectors

Use GeoBox to set up overlap

Use projector edge blending function to get seamlessly combined image.

Image orientation adjustment

- Image orientation of each channel can be adjusted individually.

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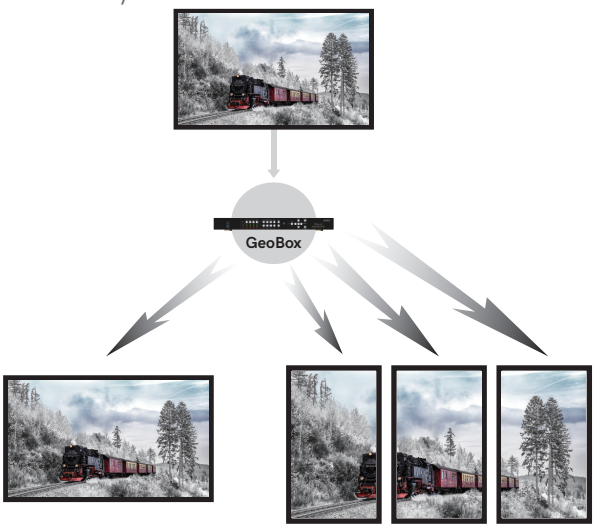
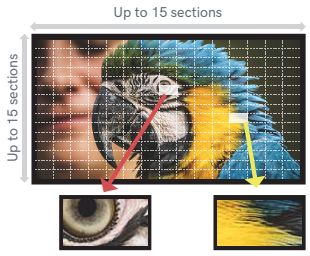


Image Zoom and Pan

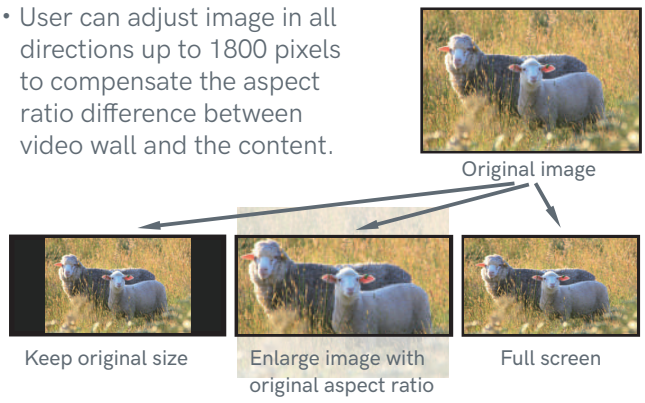
- Split image into max. 15 sections (vertically and horizontally) and assign the sections to the display devices as needed.

Input source



Flexible aspect ratio adjustment

- User can adjust image in all directions up to 1800 pixels to compensate the aspect ratio difference between video wall and the content.



Profile saving

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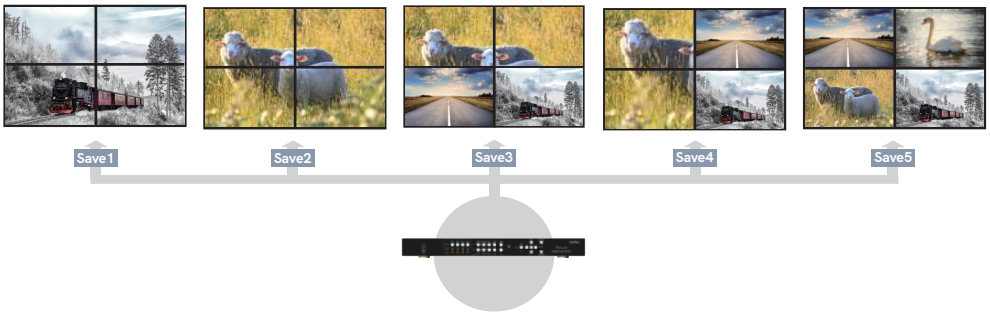
- Up to 5 or 10 profiles can be saved and recalled by remote controller, RS232, USB or Ethernet.



Multi-unit cascade

- HDMI2.0 loop-out port for multiple units cascade

EDID

- Selectable output resolution and programmable EDID to optimize video quality.

Super low latency

- 1 frame system latency: 16ms (@V=60Hz)

10 bits high quality processor

- 3D motion adaptive de-interlace.
- 3:2/2:2 film mode detecting and recovery.
- Low angle smooth algorithm (similar to DCDi).
- Support non-VESA standard input.
- Programmable EDID

Multiple synchronization modes

- Frame Lock/Phase Lock/Free-run sync modes.
- Selectable output frame rate to avoid frame repeat or frame loss.

True 4K/60Hz

- Support up to 4096*2160/60Hz and7680*1080/30Hz with 4:4:4 full color sampling
- Support sRGB, xvYCC 8/10/12 bit deep color.
- HDMI 2.0, HDCP 2.2, HDR ready.

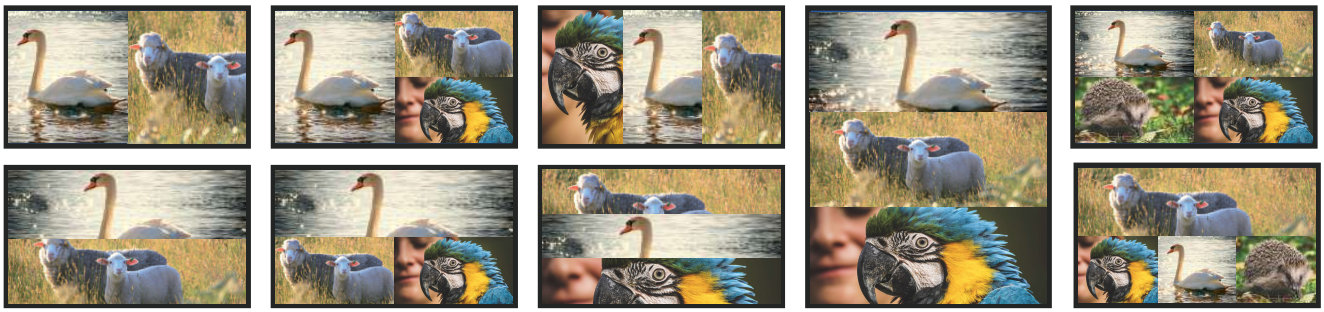
PC-free, pure hardware design

- With complete functions control and setup via IR remote, Ethernet, RS232, USB PC tool.
- Utilizing any digital input from any device.

PIP/POP, Multi-viewer

- Flexible position and adjustable aspect ratio.

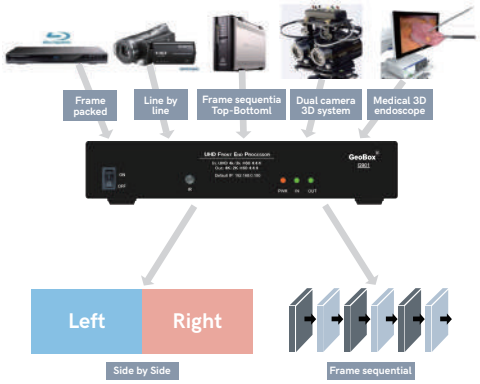
- 2/3/4 split view POP is available in each channel.

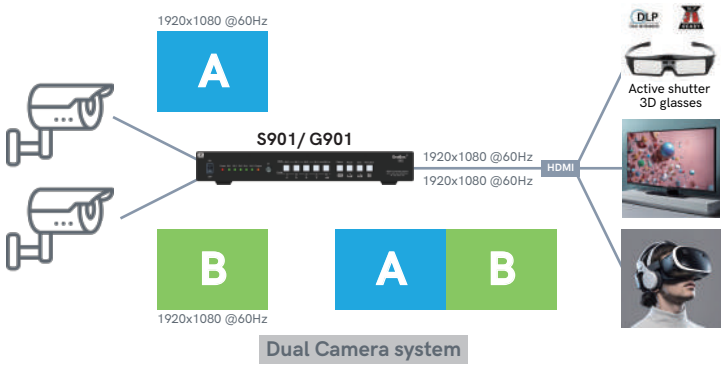


Key applications

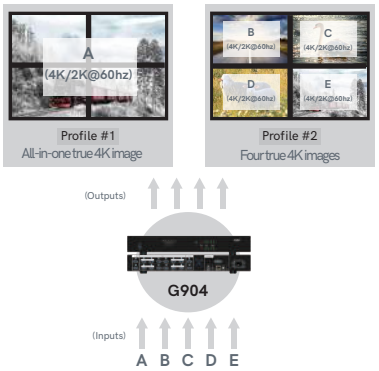
3D format conversion

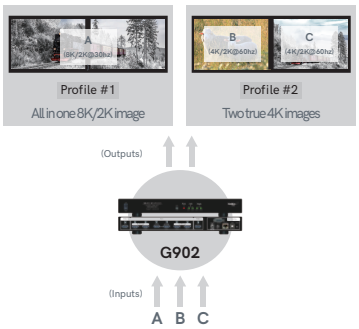
- GeoBox G900 UHD 3D converter allows user to convert special 3D format into the format that's compatible with most 3D devices.





8K/4K video wall controller with ability to show discrete 4K contents on each monitor



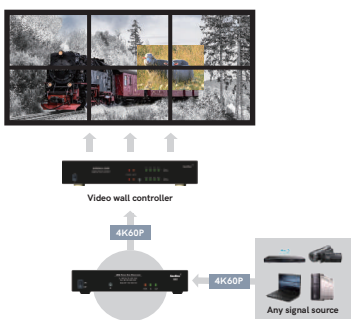


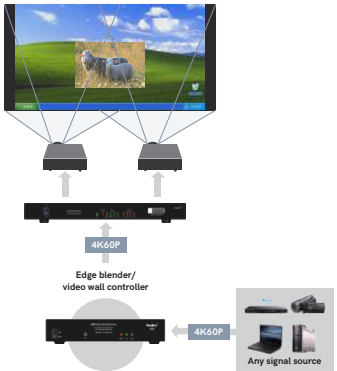
Create multi-view on LED wall/ Large display

- Through the combination of different multi-viewer function via multiple units of G900, 3/4/5/6/9-split views can be created on LED wall or large display.
- Utilize any digital input source in any format (media player, notebook PC, camera....etc.).

Multi-viewer front-end processor

- By combining with other GeoBox controller, youn can create a multi-view on a video wall or an edge blending projection.





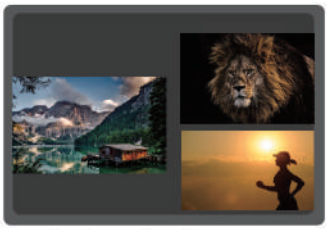
S902 Highlight

System Configuration

- S902 is a 4-to-2 UHD Quad-View processor that can display up to four 4K2K@60hz sources on one or two UHD displays simultaneously. It supports flexible image positioning, sizing, cropping, and overlapping. The processor supports up to 4096*2160 @60Hz with 4:4:4 chroma sampling.

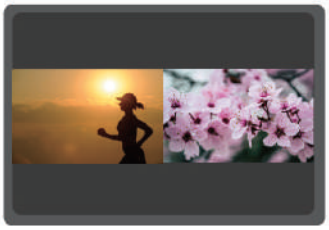
Multi-window display

4 windows showing 4 sources

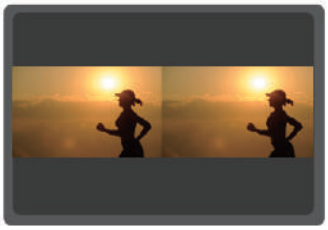


3 windows showing 3 sources

- Each output can display up to 4 windows. Each window can be located at any position with flexible resizing, cropping, aspect ratio adjustment and overlap priority setting.
- Each window can display input from different or the same source.



2 windows showing 2 sources



2 windows showing the same source

Profile saving with seamless switching

- Up to 18 custom and preset layout patters can be saved and recalled seamlessly or with various transition effect, including image fade-in, fade-out, dissolve, wipe.

Identical and individual display

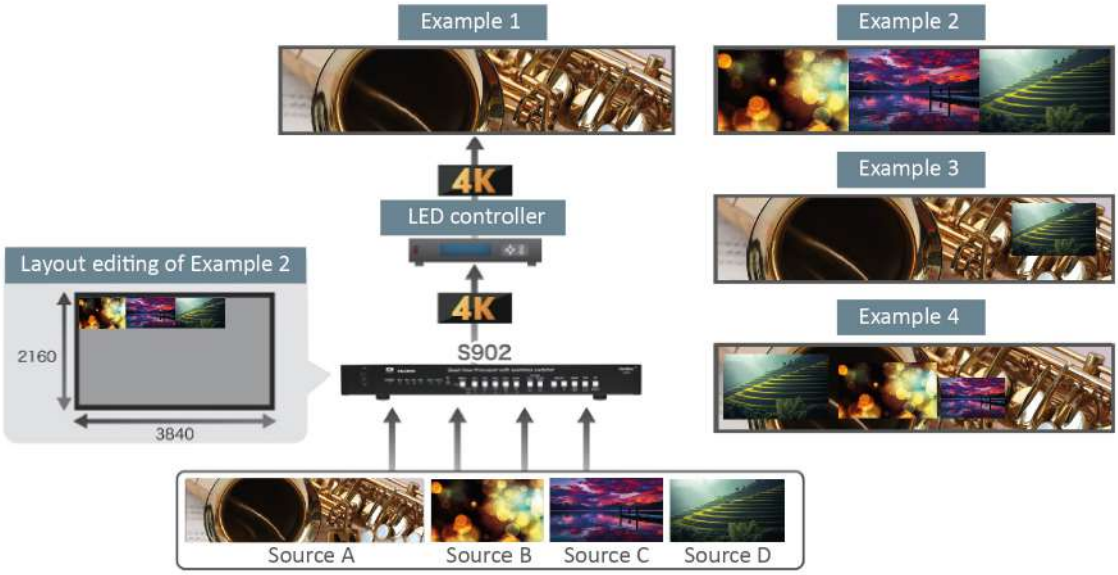
1.The same image can be displayed on two display devices, so one output can be used for monitoring purpose.

2.Different images (including multi-window) from any input source can be displayed on two display devices*

* Note:
- Both outputs need to have the same resolution.
- The format of each window that appears on both outputs needs to be the same.

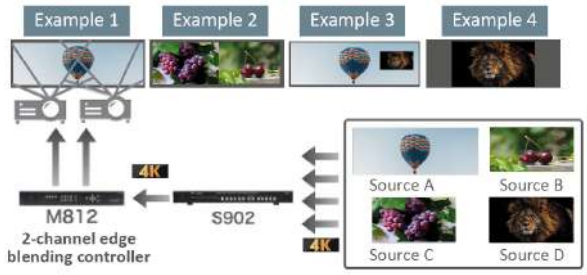
Application in led wall display

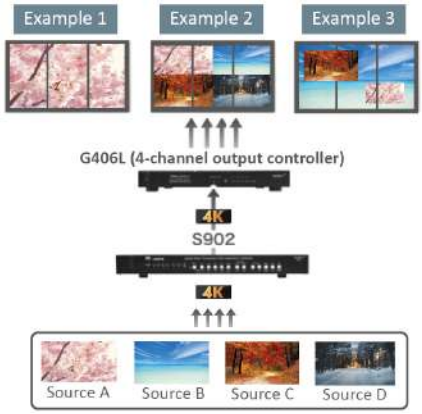
- The S902 allows users to combine multiple sources on one display, and by using the function of layout editing, scaling, clipping, the unique ration of LED vision can be shown, and in customized resolution according to the LED wall's requirements.



Application in multi-projection and video wall

- By combining the S902 with GeoBox edge-blending processor, or our video controller, multiple display layouts can be shown on multi-projector edge blending system and video wall.





Other specifications

- Programmable EDID
- Support High Dynamic Range (HDR): SMPTE ST-2084, SMPTE ST-2086 and BT.2020 HDR 10 input signal processing and pass through.
- One frame latency: 16.7ms (V=60Hz)
- Individual color adjustment in each display window and input source.
- Selectable embedded HDMI audio, SPDIF digital and analog 3.5mm Jack R/L audio output.
- Control: Front panel keypad, IR remote controller, RS232, USB, Ethernet, WebGUI.
- Dimensions (Body only): 440mm*160mm*41mm (without protruding parts).
- Chromakey function to extract video from specific background color and combine with other contents.

G413 features highlight

Predefined display modes

- More than 27 pre-defined creative display modes that can be selected by OSD.
- User can modify from preset mode to get the required configuration with ease.

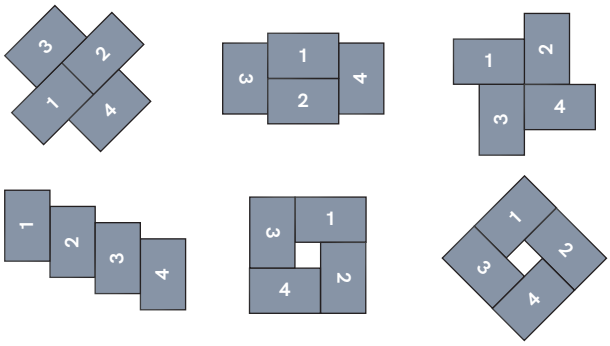
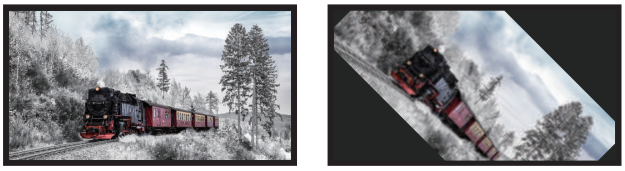


Image rotation at any angle

- 360° image rotation with 1 degree interval.



Crop image at any location

- Cropping image from any location.

- Save up to 10 cropped images.
- Seamless looping playback for cropped image.

Customize your own irregular video wall

- Manually create display modes for irregular shape video wall with monitors in different sizes, resolutions and bezel width at any angle and position.

Auto looping playback

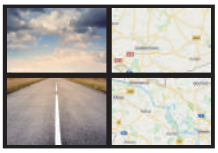
- User can set up to 10 display modes from the same display content and looping playback with selectable time interval.

https://www.youtube.com/watch?v=hEVl3RkL4LM

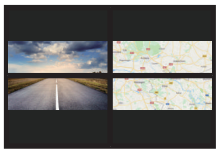
PIP/ POP

- PIP/POP can be implemented across 4 outputs with different PIP size and location.

PIP on entire video wall



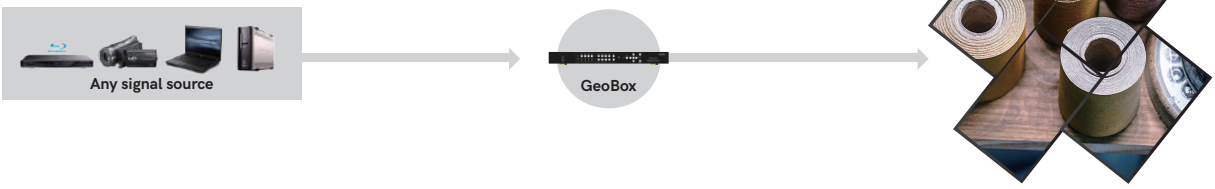
POP full screen display



POP with original aspect ratio

Creative TV wall with PIP

System Configuration



Category		Edge Blending and warping															Warping Box		
		UHD				WUXGA						Projection mapping				Mini	UHD	WUXGA	Mini
Model name		UD101	UD102	UD103	UD104	G812	G814	M811	M812	M813	M814	M801Ex	M802Ex	M803Ex	M804Ex	G112	UD101L	M811L	G111
Video input	HDMI 2.0b	3	6	9	12	2	4	2	4	6	8	2	4	6	8	HDMI 1.4x1	1	1	HDMI 1.4x1
	DisplayPort	DP 1.4 x1	DP 1.4 x2	DP 1.4 x3	DP 1.4 x4	DP 1.2 x1	DP 1.2 x2	DP 1.2 x1	DP 1.2 x2	DP 1.2 x3	DP 1.2 x4	DP 1.2 x1	DP 1.2 x2	DP 1.2 x3	DP 1.2 x4		DP 1.4 x1	DP 1.2 x1	
	VGA					1	2	1	2	3	4	1	2	3	4			1	
Video output	HDMI	1	2	3	4	2	4	1	2	3	4	1	2	3	4	1	1	1	1
	HDMI Loop Out	1	2	3	4	1	2	1	2	3	4	1	2	3	4		1	1	
Max. input resolution RGB 4:4:4		HDMI: 4096x2160@60Hz or 7680x2160@30Hz DP:7680x 4320@30Hz				4096x2160@60Hz or 7680x1200@30Hz		4096x2160@60Hz or 7680x2160@30Hz				4096x2160@60Hz or 7680x2160@30Hz				3840x2160 @30Hz	4096x2160@60Hz or 7680x2160@30Hz		3840x2160 @30Hz
Max. output resolution		4096x2160@60Hz				WUXGA or 2048x1080@60Hz											4096x2160 @60Hz	WUXGA or 2048x1080@60Hz	
Front panel button			●	●	●			●	●	●	●	●	●	●	●	●		●	
Latency		<32ms																	
HDCP 2.2		●	●	●	●	●	●	●	●	●	●	●	●	●	●	HDCP 1.4	●	●	HDCP 1.4
Main function	Image split	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Geometry alignment	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Edge Blending	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	Rotation and flip	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	PIP / POP	●	●	●	●			●	●	●	●	●	●	●	●		●	●	
	Projection mapping											●	●	●	●				
	MultiViewer	●	●	●	●												●		
	3D processing		●			●													
PC Tool	Gwarp3											●	●	●	●				
	GCT	●	●	●	●	●	●	●	●	●	●						●	●	
	Galign																		
	UHD Wall Manager																		
Warranty period		Standard 2 years. Optional up to 5 years																	

GeoBox in action

Scan the code to watch product demo videos

https://matrix-works.eu/geobox-demo-videos/

Category		Video Controller									
		UHD				WUXGA					
Model name		S902	S901	G901	G902	G904	G406S	G406L	G406	G408	G413
Video input	HDMI 2.0	4	3	3	5	10	1	1	2	2	2
	DisplayPort 1.4		2	2					2 (DP 1.2)		1 (DP 1.2a)
	VGA										1
Video output	HDMI	2	1	1	2	4	2	4	4	8	4
	HDMI Loop Out				1	2	1	1	2	2	1
Max. input resolution RGB 4:4:4		4096x2160@60Hz or 7680x2160@30Hz					4096x2160@60Hz or 7680x1200@30Hz				
Max. output resolution		4096x2160@60hz					WUXGA, 2048x1080@60Hz				
Front panel button		●	●						●		
Latency		<16ms									<32ms
HDCP 1.4/2/2		●	●	●	●	●	●	●	●	●	
Main function	Image split	●	●	●	●	●	●	●	●	●	
	Geometry alignment										
	Edge Blending										
	Rotation and flip	●	●	●	●	●	●	●	●	●	●
	PIP / POP	●	●	●	●	●					●
	Projection mapping										
	MultiViewer	●	●	●	●	●					
	3D processing		●	●	●						
	Others	Flexible multi-window Image transition effect Chroma key HDR input and output							Matrix		Image rotation in any angle
PC Tool	Gwarp3										
	GCT	●	●	●	●	●					
	Galign										●
	UHD Wall Manager						●	●	●	●	
Warranty period		Standard 2 years. Optional up to 5 years									

Success stories

Scan the code to watch reference cases

https://matrix-works.eu/geobox-show-case/

VNS Inc. was founded in year 2000, Taipei, Taiwan, engaged in the research, development and manufacturing of video processing products. GeoBox is own brand video processors for professional AV applications.

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