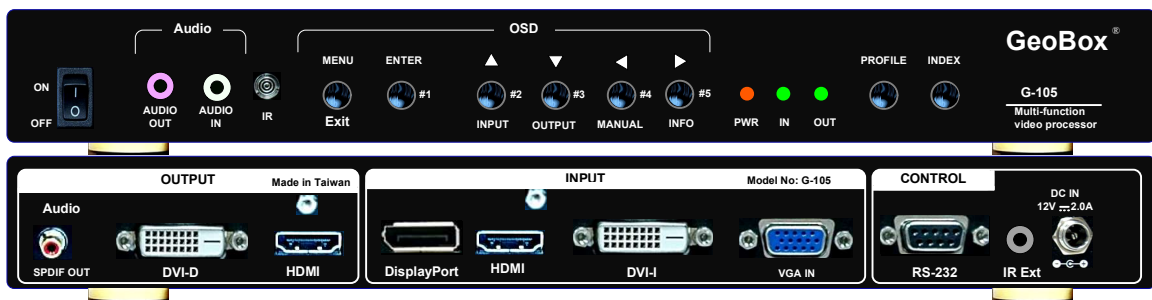


G-105 User Guide

Image Magician GeoBox G-105



Multi-function video processor

 Table of Contents

1	Introduction.....	5
2	Features.....	5
3	Application case studies.....	8
4	Helpful tips for installation and operation.....	14
5	Outlook and key functions.....	15
6	Remote controller operation.....	15
7	OSD menu and functions.....	16
7.1	[Picture] color adjustment.....	16
7.2	[Image Setup] for VGA input.....	16
7.3	[Image Properties].....	17
7.3.1	Color.....	17
7.3.2	Input signal.....	17
7.3.3	Scaling.....	18
7.3.4	Output Mode.....	18
7.3.5	PIP/POP settings.....	18
7.3.6	Image Orientation (Flip & Rotation).....	21
7.4	Video wall setting.....	21
7.4.1	Zoom: Split image into different sections.....	21
7.4.2	Pan: Select cropping area.....	22
8	Passive 3D Display.....	23
8.1	System configuration.....	23
8.2	GeoBox setup for Stereoscopic 3D Display.....	23
8.3	Procedures for passive 3D setting in GeoBox.....	24
8.4	3D signal conversion.....	25
9	[Anyplace]: Warp and geometry correction.....	25
9.1	[Keystone] correction.....	26
9.2	[Image Rotation].....	27
9.3	[4 Corner] adjustment.....	27
9.4	[Warp]: Image curved display.....	28
9.4.1	[Corner] curve adjustment.....	28
9.4.2	[Edge] curve adjustment.....	29
9.4.3	[Center] curve adjustment.....	30
9.4.4	[Shift]: Corner position adjustment.....	30
9.4.5	[Order].....	31
9.5	[Manual Mode]: Crop any location of the image.....	31
9.5.1	Select custom mode storage location.....	32
9.5.2	Crop image for each Index.....	32
9.5.3	[Ratio]: Adjust custom mode aspect ratio and position.....	33
9.5.3.1	Horizontal [Ratio] adjustment.....	33
9.5.3.2	Vertical [Ratio] adjustment.....	34

9.5.3.3	Horizontal [position] adjustment.....	35
9.5.3.4	Vertical [Position] adjustment.....	35
9.5.3.5	[Reset]: Reset [Ratio] and [Position] to default.....	36
9.5.4	[Loop]—Looping playback and project LCD from burn-in mark.....	36
10	Procedures to create custom display.....	38
10.1	Introduction.....	38
10.2	Collect coordinates from physical drawing.....	38
10.3	Collect coordinates from photo.....	40
10.4	Upload coordinates via OSD menu.....	40
10.5	Upload coordinates and position fine-tune via remote controller.....	41
11	[Options]: OSD Miscellaneous Functions.....	41
11.1	[Information]: System Information.....	41
11.2	[Language]: OSD language.....	42
11.3	[Reset].....	42
11.4	[Accessibility].....	42
11.4.1	[Bottom Repeat Rate].....	42
11.4.2	[Menu Time Out].....	43
11.4.3	[Logo Time out].....	43
11.4.4	[Standby Time Out].....	44
11.5	[Setting].....	44
11.5.1	Frame Lock and Free Run mode.....	44
11.5.2	[Box ID].....	45
11.5.3	[Profile] setting.....	45
11.5.4	[Network].....	46
11.5.5	[EDID] setting.....	46
12	GAlign PC tool (Image cropping tool).....	48
12.1	Download and decompress.....	48
12.2	Operation procedures.....	48
13	GPM system setting backup tool.....	50
13.1	Purpose.....	50
13.2	GPM installation.....	50
13.3	System connection.....	50
13.4	Instructions.....	50

Revision History

Revision	Date	Originator	Comments
V 1.01	2016-09-20	Steve Wang	First revision
V1.02	2016-11-22	Steve Wang	Remove internal test pattern, add PC tool and [Shift] shortcut key
V1.03	2016-07-07	Steve Wang	Increase Index modes # and warp adjustment range.

Limited Warranty

This device is designed and tested to the highest standards and backed by two years' parts and labor warranty. Warranties are effective upon the first delivery date to the end customer and are non-transferable. Warranty related repairs include parts and labor, but do not include repair of faults resulting from user negligence, special modifications, abuse (mechanical damage), shipping damage, and/or other unusual damages. The customer shall pay shipping charges when the unit is returned for repair. Manufacturer will pay shipping charges for return shipments to customers.

Manufacturer does not assume responsibility for consequential damages, expenses or loss of revenue, inconvenience or interruption in operation experienced by the customer. Warranty service shall not automatically extend the warranty period.

FCC/CE statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential / commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

1 Introduction

Image magician G-105 is multiple purpose video processor with warp, de-warp, video wall control, format conversion, scaler switcher, PIP/POP, 3D format conversion, image cropping, flip/rotation, dynamical aspect ratio adjustment, continuous position shift and seamless looping playback for different display modes. Two landscape contents can be displayed on one portrait LCD at top/bottom position. It can also provide medical image de-warp, 3D conversion for endoscope (from dual camera format or Line by Line to Side by Side).

G-105 is pure hardware standalone system. It can connect with various video sources and provide a simple and reliable solution for professional creative video.

2 Features:

2.1 Input and output:

- ✧ Video Input: 1xHDMI, 1x VGA, 1x DisplayPort, 1x DVI-I (support HDMI, DVI, VGA)
- ✧ Max. input resolution:
4K/2K @30HZ, 3840x1080 @60Hz in HDMI & DP ports, WUXGA in VGA & DVI-I ports.
- ✧ Video Output:
--1x HDMI, 1x DVI-D (mirrored)
--Selectable output resolutions, Max. output resolution: 1920*1200.
- ✧ Audio input: HDMI embedded audio, PC audio jack.
- ✧ Audio output: 1x SPDIF RCA output, HDMI embedded audio.
- ✧ DisplayPort and HDMI/DVI support WQXGA & 3840x1080 @60Hz 、 4k/2k @30Hz input with 4:4:4 full color sampling without compression.

2.2 Warp and geometry alignment:

- ✧ Quick corner adjustment, H&V keystone correction.
- ✧ Pincushion and barrel adjustment.
- ✧ Geometry alignment through remote controller up to 3x3 grids.
- ✧ 16:9 and 2.35:1 aspect ratio conversion.

2.3 Image stacking

- ✧ Image stacking to increase brightness on flat and curved screen.

2.4 Image flip and rotation

- ✧ Image rotation at 90/180/270 degrees with full screen display.
- ✧ Image rotation with 1 degree interval without changing image aspect ratio.
- ✧ Image flip at Front/Rear, Right/Left, Top/Bottom directions.
- ✧ Mobile image 90/270° rotated and scaled up to full screen at portrait LCD.

2.5 3D application:

- ✧ Connecting with all kinds of 3D signal sources: Blue Ray, Set Top Box, PC...
- ✧ Support 1080p @120Hz Nvidia 3D Vision for full HD passive 3D display.
- ✧ Support HDMI 1.4a 3D formats, including 1080p/24Hz frame packed, Side by Side, Top-Bottom, Line by

Line and frame sequential for passive 3D display.

- ✧ Support 3840x1080 side by side and 1080i/60Hz frame packed 3D from Sony FHD 3D camcorder.
- ✧ Support PIP function in passive 3D display, both main and PIP windows are still with 3D effect.
- ✧ Perfect Synchronization algorithm in RH/LH channels to get the most comfortable passive 3D display.
- ✧ Support passive 3D image geometry alignment, curved screen display and stacking.
- ✧ Convert discrete dual RH/LH 3D signals into one side by side 3D format.
- ✧ Convert line by line 3D format into side by side 3D format.

2.6 High end video processing

- ✧ 10-bit high bandwidth processor with 3D motion adaptive de-interlace, low angle smooth algorithm and 3:2/2:2 film mode detecting and recovery.
- ✧ Support up to 4k/2k @30Hz input with 4:4:4 full color sampling without compression.
- ✧ Intelligent color adjustment, including preset color, hue, saturation, brightness, contrast sharpness adjustments and RGB discrete color adjustment.

2.7 Format conversion

Convert below input signal formats into HDMI or DVI-D (mirrored) outputs:

DisplayPort, HDMI, DVI-D, DVI-A, VGA and YPbPr (through DVI-I or VGA port)

2.8 Video wall function

- ✧ Video wall function to split, crop and location assignment with pixel based cropping range adjustment up to 900 pixels at H&V directions.
- ✧ Pixel by pixel precise bezel compensation.
- ✧ Video wall control up to 15x15 matrix displays.
- ✧ Image PIP/POP, flip and rotation function can be applied to video wall.
- ✧ Input Top Left and Top Right corner coordinates to crop image of irregular video wall.

2.9 Image any location cropping and position shift

There are four ways of image cropping through OSD & remote controller:

- ✧ [Video Wall] menu: ZOOM, PAN and OVERLAP
In combination with image split (ZOOM), location assignment (PAN) and H&V 900 pixels cropping position shift function (OVERLAP), user can crop any location of the image to show on the screen.
- ✧ [WARP] menu
User can use Warp function to do geometry adjustment, including image resizing, accurate position and change the shape of the image.
- ✧ [Manual Mode] menu under [Anyplace]
Menu mode can catch any 16:9 image at any rotation angle through input Top Left and Top Right corners' coordinates.
- ✧ PC Tool: user can capture arbitrary area image with 16:9 aspect ratio through GAlign PC tool.

2.10 Aspect ratio adjustment

User can adjust image aspect ratio through below functions:

- ✧ User can adjust output image aspect ratio in the range of 067%-200% in H&V directions through [Ratio]

hotkey on remote controller or [Ratio] menu under [Manual Mode] from any signal source. If the image is cropped through [Manual Mode], the adjusting range is from 25%-200%.

- ✧ [Overlap] function under [Video Wall] menu can execute Aspect Ratio adjustment by changing image cropping range.
- ✧ [Warp] function can also adjust the image aspect ratio.

2.11 Dynamic image position shift

- ✧ The image captured through [Manual Mode] can do dynamic position shift after the aspect ratio has been changes. The adjustment range is based on the same ratio as aspect ratio change. The maximum range is 0.25~2.0 in both H&V directions.
- ✧ This kind of dynamic position shift can be stored into Index 1-10 and user can execute seamless looping playback for these display modes.

2.12 PIP/POP Multiple windows display

- ✧ PIP function with selectable input port in both main and PIP display windows
- ✧ Flexible image size, aspect ratio and position adjustment through OSD or IR controller
- ✧ Max. PIP size is 1024x768 resolution
- ✧ POP function with selectable full screen or original aspect ratio.
- ✧ POP supports two landscape contents to displays in one portrait LCD at top/bottom position.

2.13 Looping playback with different display mode

- ✧ User can select different display modes created from [Manual Mode] menu for looping playback with selected time interval. Maximum display modes can be selected is 10.
- ✧ The display modes created from Aspect Ratio adjustment and Image Position shift can be selected for looping playback.

2.14 LCD burn-in mark protection

User can set multiple display modes with slight image position shift and execute looping playback. It can eliminate burn-in mark in the LCD while display content is still image.

2.15 Image de-warp for camera or video system

- ✧ Image de-warp can be implemented through Warp function.
- ✧ De-Warp function can be used to correct image distortion. It can be also applied to de-warp for medical endoscope and fish eye lens in surveillance system.

2.16 3D signal conversion

In addition to projector active 3D and passive 3D applications, G-105 can convert below 3D formats into one Side by Side 3D format output:

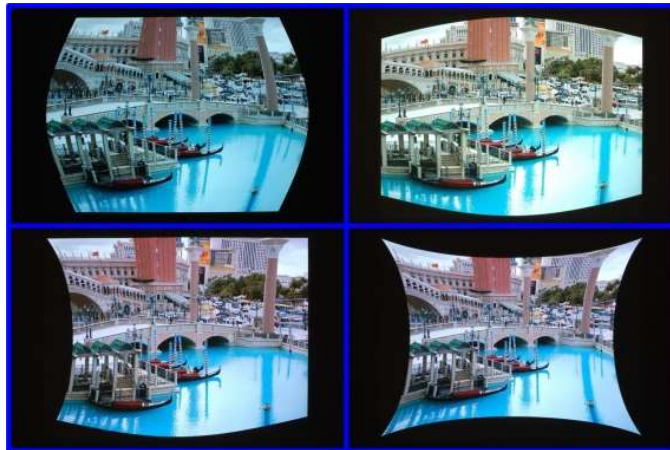
- ✧ RH/LH discrete 3D format
- ✧ Line by line (line interleaved)
- ✧ Frame packing
- ✧ Frame sequential
- ✧ Top-bottom 3D.

2.17 System control & others

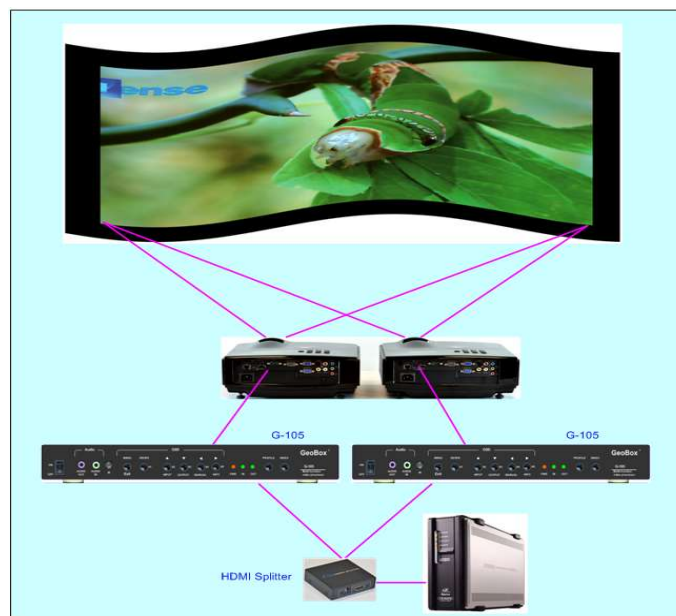
- ✧ Reliable and durable design for long term industrial and commercial applications.
- ✧ Full functional keypads & IR control.
- ✧ ID # for each GeoBox. Convenient for system installation and control.
- ✧ keypad Lock (press menu key for 5 seconds) to avoid setting loss due to negligence..
- ✧ Up to 5 settings can be saved and recalled at any time.
- ✧ Integrated with IR extender (up to 20 meters) & RS-232 control port.
- ✧ Dimension and weight: 303x155x44mm, 2.35k

3 Application case studies

3.1 Image warp and geometry alignment



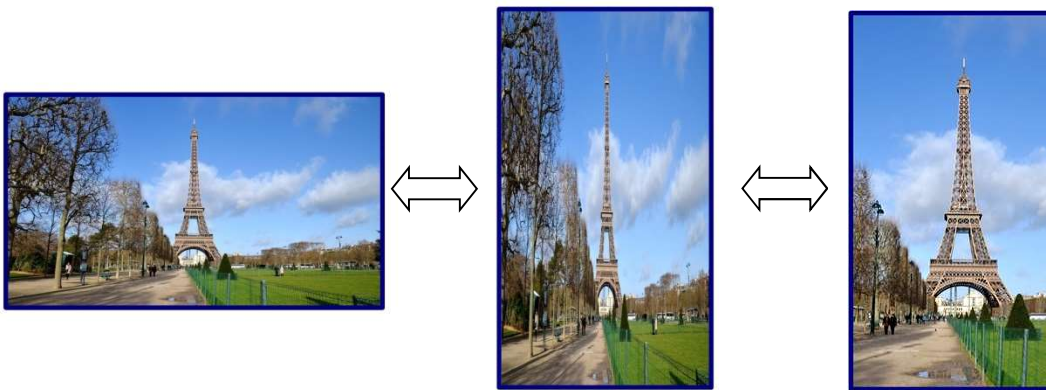
3.2 Image stacking for flat and curved screen



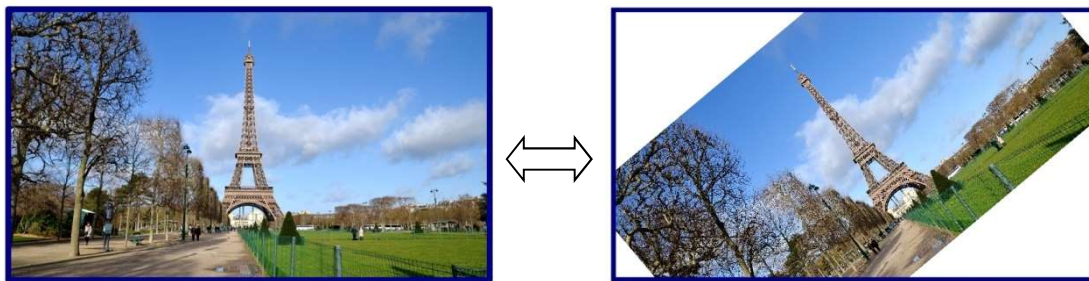
3.3 Image flip and rotation



(Display mobile image on portrait LCD)

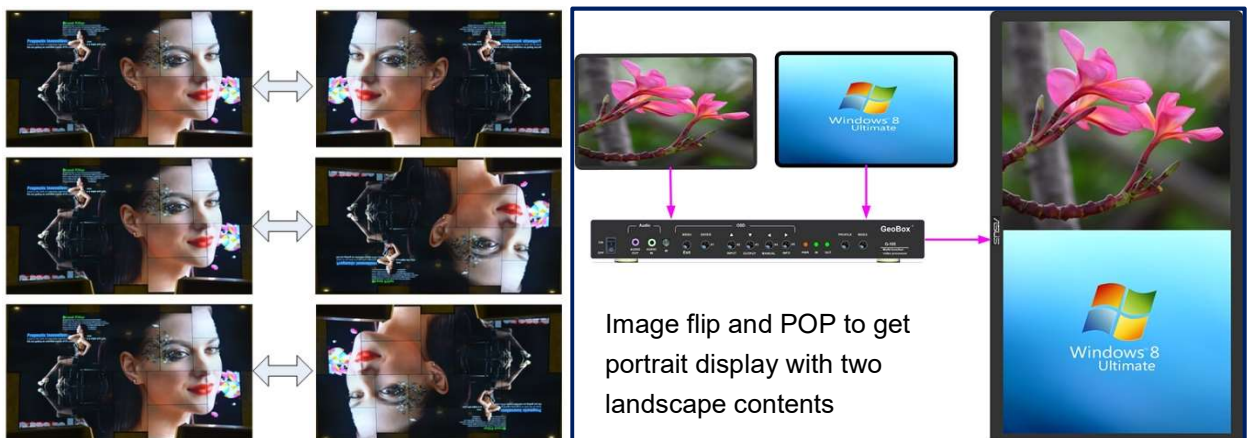


(Rotate image and adjust aspect ratio)

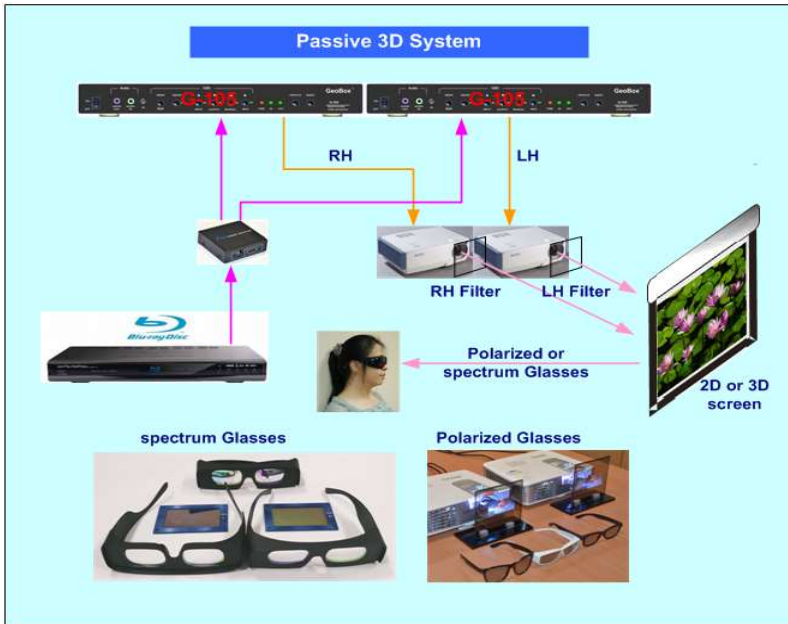


(360 degrees Image rotation with one degree interval and maintain original aspect ratio)

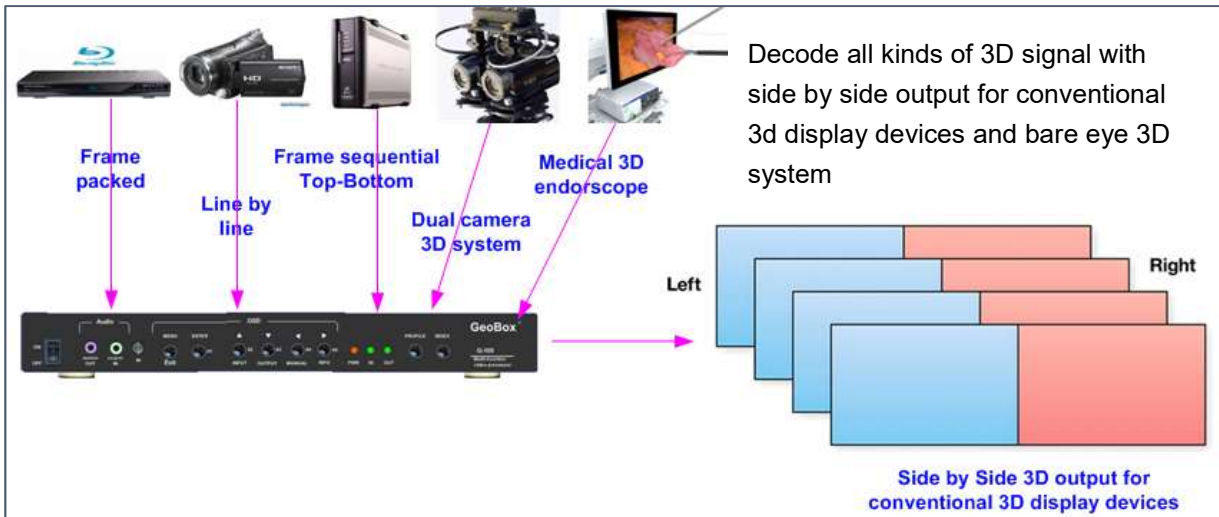
3.4 Image flip



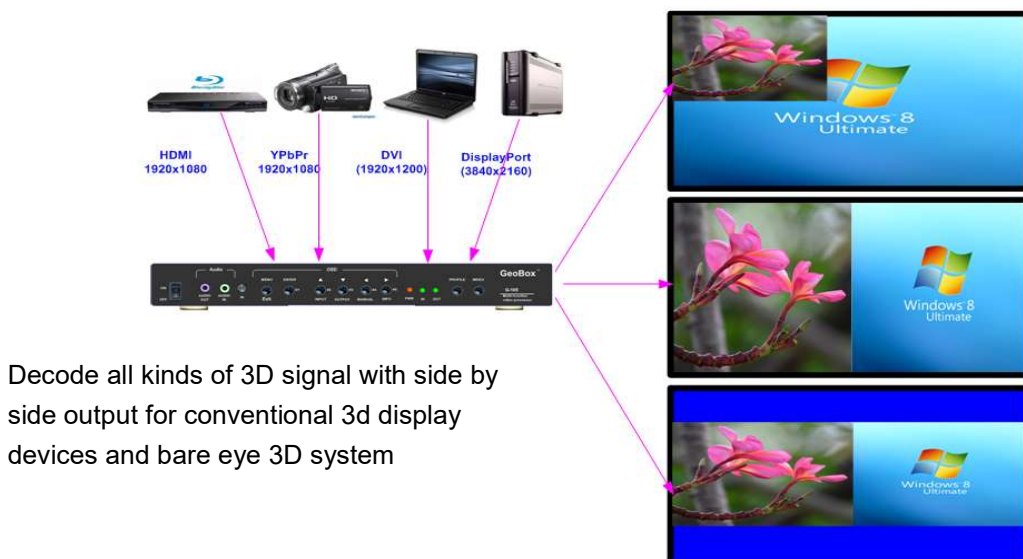
3.5 3D application



Passive 3D display system



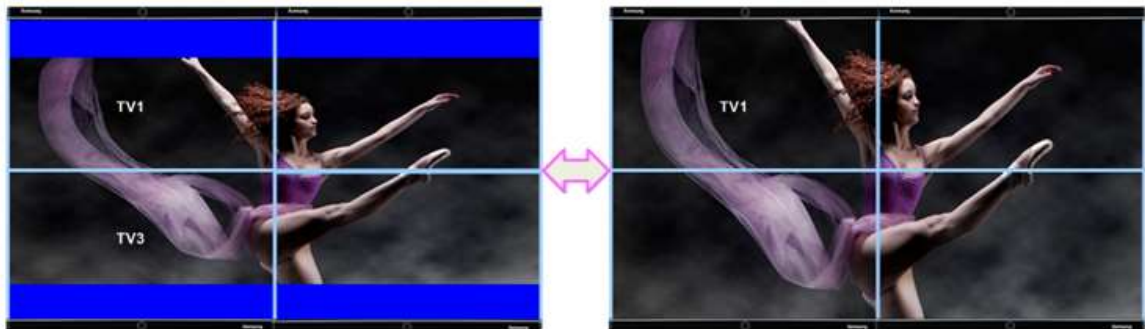
3.6 Image PIP with flexible size, position and aspect ratio



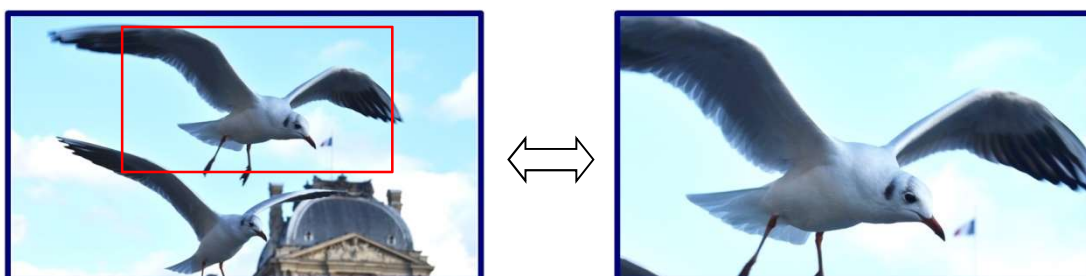
3.7 Image POP (side by side) for landscape and portrait display

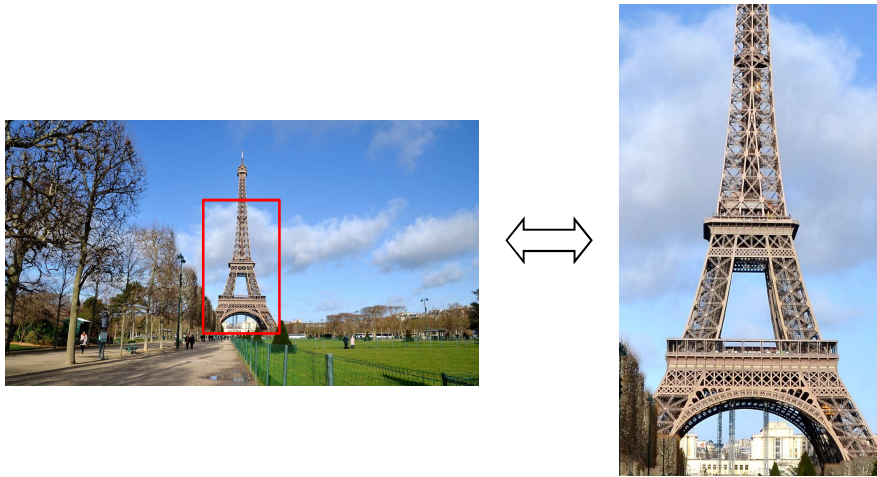
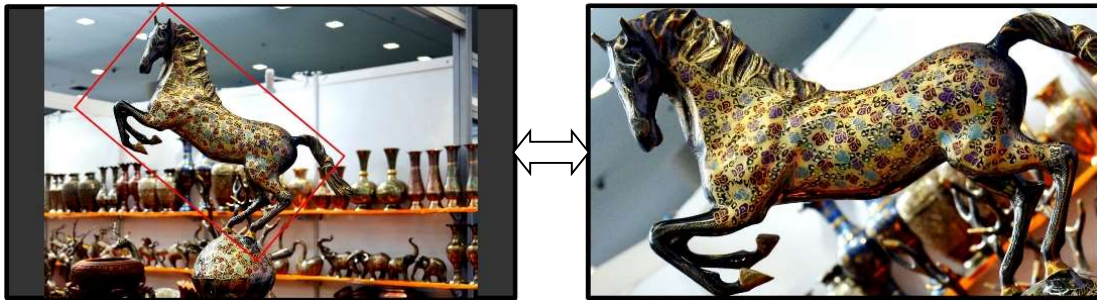


3.8 Dynamic aspect ratio adjustment



3.9 Any location cropping with 16:9 aspect ratio at arbitrary angle





3.10 Dynamic image position shift



3.11 Looping playback with different display mode settings from single content



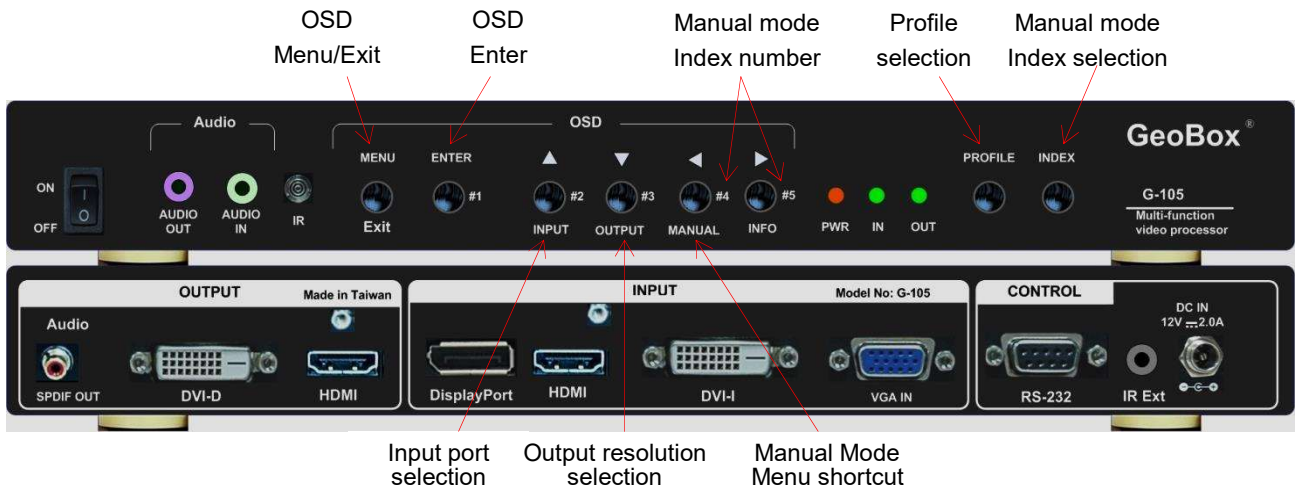
3.12 Irregular video wall with multiple units of G-105



4 Helpful tips for installation and operation

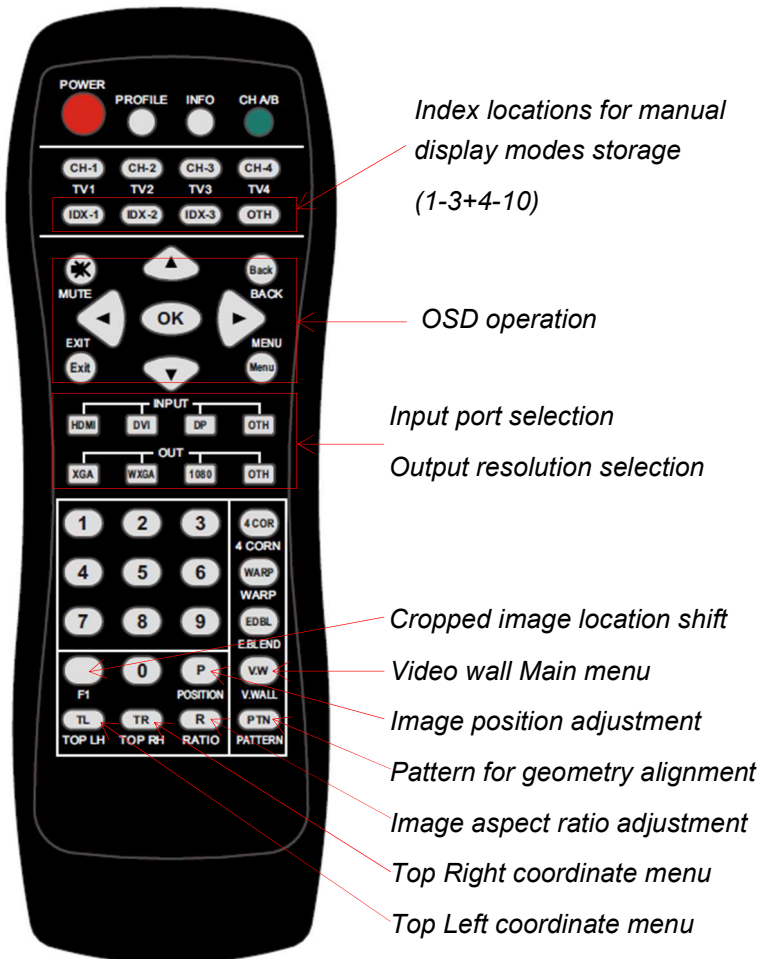
- 4.1 G-105 has no internal grid pattern. If user needs grid pattern, external grid pattern from PC or media player shall be applied.
- 4.2 System reset: In some application, during operating, user may not see OSD menu and can't execute system reset. Below are the methods to do system reset:
- Press any other INDEX key on remote controller or front panel, user will see full OSD to do system reset.
 - Use a small pin and press Tact switch inside the small hole next to Power switch on front panel for 5 second, it will reset the system.
- 4.3 Each G-105 is equipped with IR extenders. User can extend the cable distance up to 20m through audio cable.
- 4.4 RS232 is available for system control. User can use USB to RS232 conversion cable for the connection.
- 4.5 OSD Lock / Unlock: When continuously press [MENU] key in IR Remote Controller for 5 seconds, the OSD function will be locked to prevent from changes of the settings. To press MENU key for 5 seconds again, it will unlock OSD and user can manipulate OSD again.
- 4.6 Box ID allows user to control multiple G-105 at the same time without interference. Press remote controller number keys as below and then function keys to execute OSD control:
- 851: control #1 G-105
 - 852: control #2 G-105
 - 850: control all G-105
- 4.7 Picture menu in the OSD can only be activated while the input signal is not in [Preset Mode] color setting. To select [Image Properties] → [Custom] → [Save], then user can activate [Picture] menu again.
- 4.8 [Image Setup] menu will not be activated if the input source is not from VGA.
- 4.9 User can store the final settings in PC and copy the same settings to other units by GPM PC tool.
- 4.10 Poor signal cable connection or too long cable may cause noise on the display. Re-connect or replace a new cable may solve the problem. High speed HDMI cable with Ethernet function is recommended.

5 Outlook and key functions



(Function keys are only available when the OSD menu is not activated)

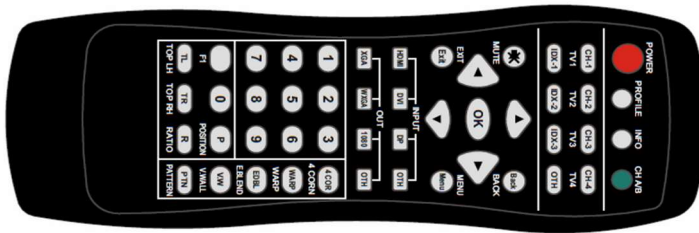
6 Remote controller operation



RC-700 remote controller

7 OSD menu and functions

User can use keypads on front control panel or IR remote controller to activate OSD menu. IR Receiver extender can be extended up to 20 meters with audio cable.



IR remote controller

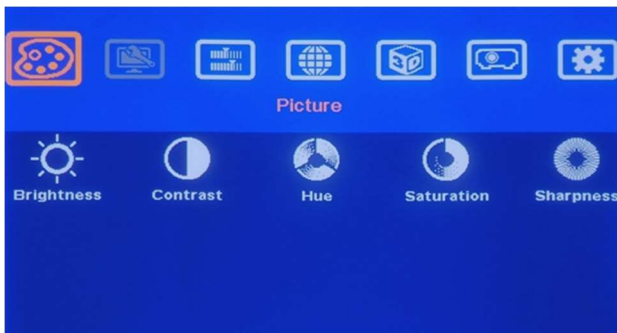


IR Receiver Extender

- ◆ When OSD menu is activated, all other shortcut key functions on front control panel will be disabled. These functions include: Input selection, Output resolution setting, Manual display mode menu and Index key functions.

7.1 [Picture] Color Adjustment

- This menu is only available under below conditions:
 - ✓ [Picture] menu will be grayed out and not functional when the color setting is in [Preset Mode] under [Image Properties] menu. User needs to get into [Custom] menu and press [Save] menu to activate [Picture] menu.
 - ✓ When the input signal is in YUV domain, all the items under menu are free to be accessed.
 - ✓ If the input signal is in RGB domain, only [Brightness] and [Contrast] can be adjusted.
- User can do further separate RGB individual color adjustment under [Image Properties] menu.



Five items under [Picture] menu.

- ✓ Brightness
- ✓ Contrast
- ✓ Hue
- ✓ Saturation
- ✓ Sharpness

7.2 [Image Setup] for VGA input



[Image Setup] menu can only be activated when video input is from analog VGA input signal.

- a. Automatic: It will do automatic image alignment inside the system
- b. Manual: manual setting for signal Phase and Clock to eliminate image noise in analog input
- c. Horizontal Position: to adjust manually the image horizontal position.
- d. Vertical Position: to adjust manually the image vertical position.
- e. When the input is VGA signal, please connect signal to G-105 first, then turn on G-105 for image position auto alignment. After this process, unless user applies other VGA input signal, G-105 will not do auto alignment again to avoid image shift.

7.3 [Image Properties]

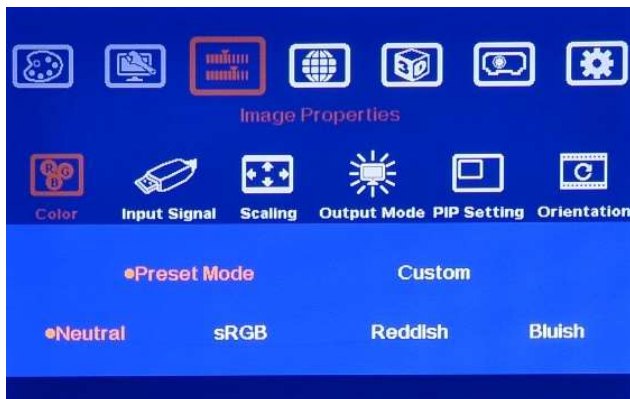
[Image properties] is designed to select image color temperature, adjust independent RGB color, select input port & output resolution, set display aspect ratio, set PIP/POP function and image flip/rotation. There are six sub-menus.



Six sub-menus:

- ♦ [Color]: Color temperature selection and RGB independent adjustment
- ♦ [Input Signal]: to select input port
- ♦ [Scaling]: to set display aspect ratio
- ♦ [Output Mode]: to select output resolution
- ♦ [PIP setting]: to do PIP/POP settings
- ♦ [Orientation]: image flip and rotation setting

7.3.1 Color



- ♦ Under [Color] menu:
 - 4 Preset modes for color temperature selection
- ♦ [Custom]: Independent RGB color adjustment. Under this menu, if user select [Save], then [Picture] menu will be activated for access

7.3.2 Input Signal



- ♦ User can select input port from this menu or shortcut keys on remote controller and front control panel.
- ♦ VGA and DVI-A input are through the same input port in the system. User can't use these two input ports at the same time.

7.3.3 Scaling



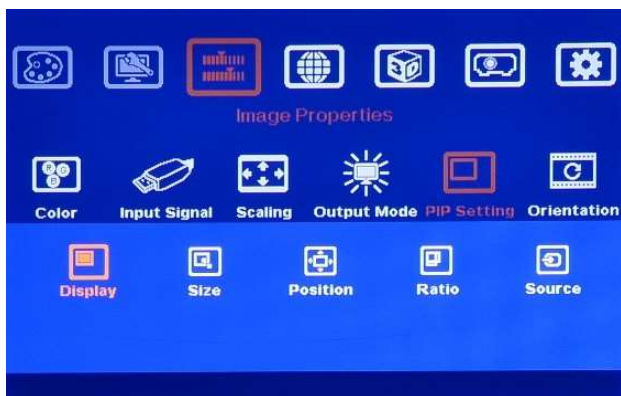
- ♦ [Full Screen]:
To fit source image for full screen display
- ♦ [Original AR]
To display source image with the same aspect ratio as source image
- ♦ The setting will also affect POP image display with full screen or original aspect ratio.

7.3.4 Output Mode



11 preset output resolutions can be selected from this menu.

7.3.5 PIP/POP Setting (Picture in Picture & Side by Side)



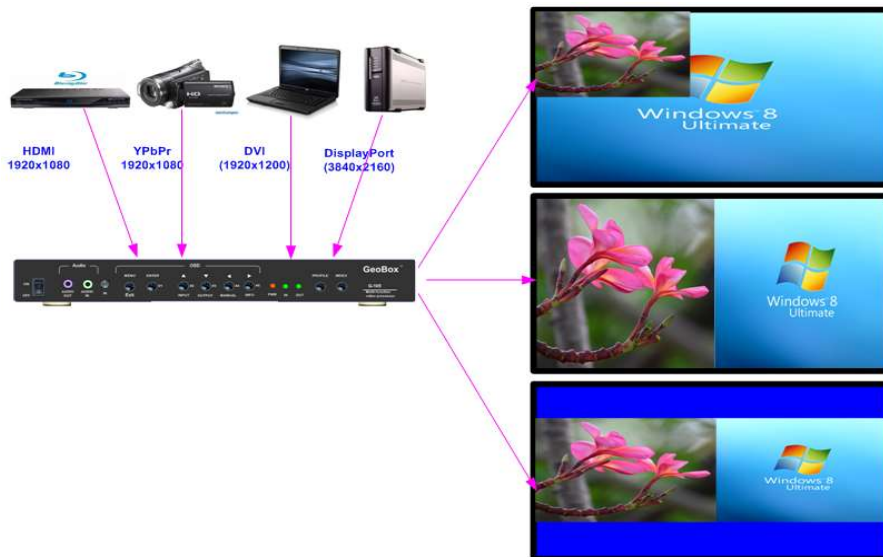
- ♦ User can set PIP/POP function through this menu.
- ♦ POP image aspect ratio shall be determined from [Scaling] menu.
- ♦ User can combine PIP/POP function with other function like [Orientation] or [Video wall] setting to perform different display styles.

Picture in Picture (PIP) function is to display two images from one G-105. The maximum size of the sub-image (PIP) is 1024x768 pixels. The input source for PIP is selectable and can be from any input port of G-105. The input for main and PIP image can be the same or swapped. The location of the PIP image can be controlled by OSD menu at any location inside main image. The size of the PIP image is also flexible and can be controlled by OSD menu as well. Unless the image is rotated at 90/270 degrees, both main and PIP image will go through high end 3D motion de-interlacing. When the image is 90/270 rotated, please apply progressive signal source to get the best video quality.



Five sub-menus under [PIP setting] menu,
 --Display: enable PIP or POP
 --Size: set PIP size
 --Position: set PIP position
 --Ratio: set PIP display aspect ratio
 --Source: select input source for PIP/POP

- **Display:** Under Display menu, there are three items:
 - ◆ Disable: to Disable PIP or POP function
 - ◆ PIP: to select PIP display function
 - ◆ POP: to select POP (side by side) display mode. User can select maintain original image aspect ratio or full screen mode through [Scaling] OSD menu under [Image properties].

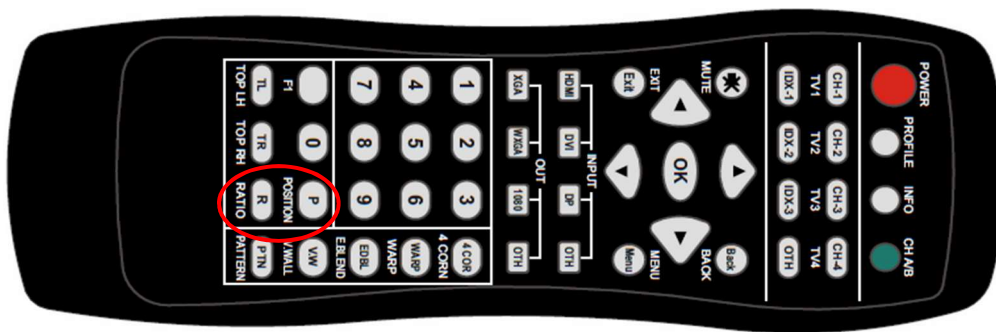


- **Size:** (Only apply to PIP function)
 - ◆ The size of the PIP image can be adjusted though [Size] OSD menu pixel by pixel.
 - ◆ The maximum size of PIP image is 1024x768 pixels. If user sets output resolution at 1024x768 resolution, PIP image can be displayed with full screen in the output.
- **Position:** (only apply to PIP function)
 - ◆ The position of PIP image can be adjusted in H&V directions through Position OSD menu.
 - ◆ The PIP image will be maintained inside main image and can't be outside main image.
 - ◆ Pixel by Pixel PIP image position adjustment.

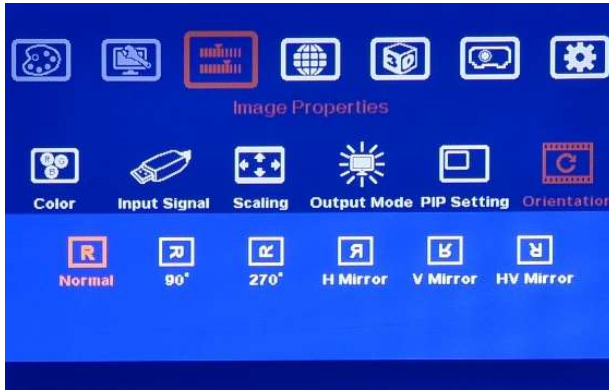
- **Ratio:** Aspect Ratio of the display image. (Only apply to PIP function)
 - ◆ Full Screen: the same aspect ratio as main image or
 - ◆ Original AR: the same aspect ratio as PIP input source.
 - ◆ POP image aspect ratio can be adjusted through [Scaling] under [Image Properties] OSD menu.
- **Source:** User can select the input source for PIP/POP image from all input ports. By selecting different input ports for Main & PIP/POP images, user can have different combination of the display. User can save different settings into [Profile] under [Option] menu and recall at any time. (Please note that VGA and DVI-A input is through the same input port in the system. User can't use these two input ports at the same time.)
- Rotating function combined with PIP/POP
 - ◆ User can apply image flip and rotation function with PIP/POP (please see next section). When apply POP function and rotate the image at 90/270 degrees, user can display two landscape contents on portrait LCD at Top/Bottom location. User can select full screen or maintain original aspect ratio through [Scaling] menu under [Image Properties].



- ◆ User can use [Ratio]/[Position] shortcut keys on remote controller or [Ratio]/[Position] menu under [Manual Mode]→ [Ratio] to change aspect ratio and shift image position.

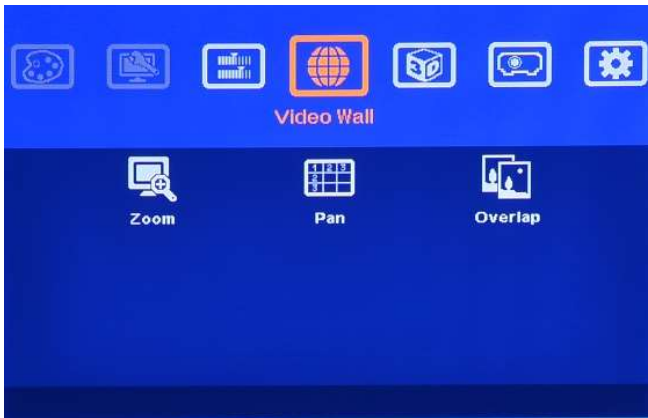


7.3.6 Image Orientation (Flip & Rotation):



- This image orientation function will be applied to entire image, including PIP & POP images.
- User can see the direction of the TEXT to do image flip and rotation.
- OSD Menu will maintain at original direction without change.

7.4 Video Wall Setting



Two major purpose for [Video Wall] menu

- ♦ Image cropping at any region without image rotation.
- ♦ User can use [Orientation] and [Anyplace] menu to do further image flip/rotation.
- ♦ To execute video wall setting while using multiple units to build video wall.

7.4.1 Zoom: split image into different sections



- ♦ Zoom function is to split the source image content into variable sections.
- ♦ User can cut the image for each LCD and build big video wall while in video wall application.

- User can set both Horizontal and Vertical Zoom value to split the image or to build video wall. In below example, each number means one cropped image section or one G-105 in video wall application.

Example A:

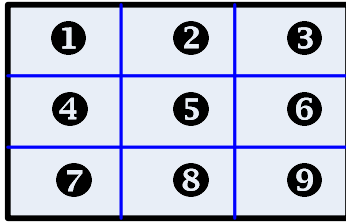


3x1 G-105 horizontal cascade:

--Horizontal Zoom=3

--Vertical zoom=1

Example B:



In 3x3 G-105 cascade:

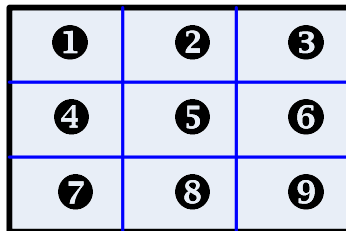
--Horizontal Zoom=3

--Vertical Zoom=3

7.4.2 Pan: Select cropping area or assign image location in video wall application



- [Pan] is to select the split image location.
- Horizontal value is calculated from LH to RH direction and Vertical value is calculated from top to bottom.
- User needs to set H & V [Pan] value to assign the image location for each G-105 to build a large video wall display.



In 3x3 G-105 cascade video wall application:

For No. ⑤ G-105:

For No. ⑥ G-105:

Horizontal Pan = 3

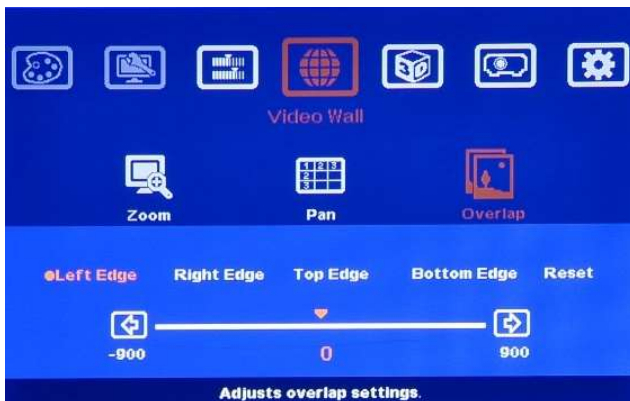
Horizontal Pan = 3

Vertical Pan = 1

Vertical Pan = 2

- After split the image by ZOOM, user can select required section of the image by PAN to achieve cropping function.
- In video wall application, user can split (ZOOM) and assign (PAN) the image for each G-105 to build big video wall display.

7.4.3 Overlap: to shift cropping area or to align image position in video wall application

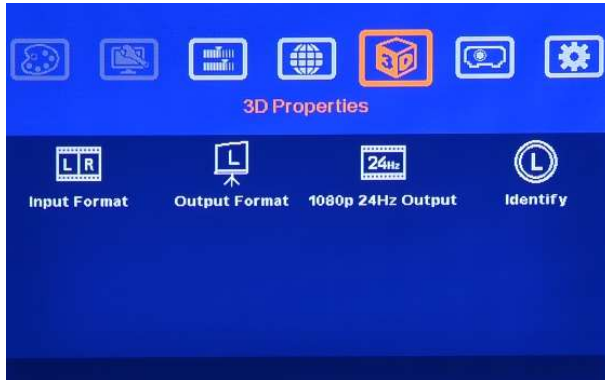


- [Overlap] is to shift the cropping area performed by ZOOM & PAN or to align the location of the image for each G-105.
- User can adjust the image location in H&V position up to +_900 pixels.
- Through [Overlap] adjustment, user can align the image position in video wall.
- Overlap adjustment range should be inside image active display region.

Note:

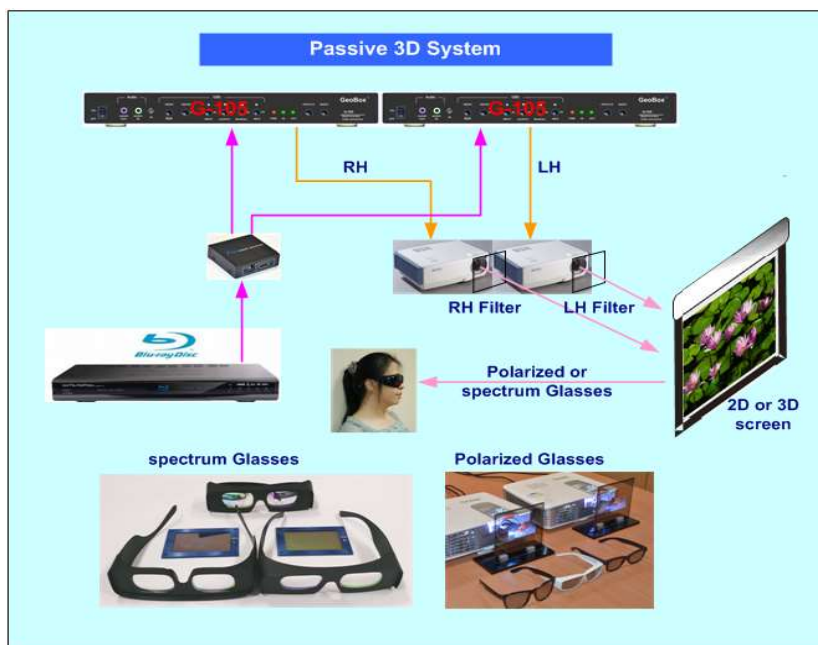
The [Overlap] value will change the image capture area and scaling factor. User can use [Overlap] adjustment to change aspect ratio in video wall.

8 Passive 3D Display



8.1 System Configuration

GeoBox will decode 3D format from many kinds of 3D video sources, including Blue Ray DVD, STB, Media player, Game and PC... 3D signal will be decoded by GeoBox into signal for Right/Left eyes. The signal needs to be displayed through two projectors. Each projector will display signal only for right eye or left eye. User needs to set a polarized filter in front of the projector and also wears polarized glasses. The glasses need to match the polarized filter in front of the projectors so that the right eye can only see the scene for right eye and the left eye can only see the scene for left eye. A 3D screen is also required to preserve the polarization of the light for 3D display. It is possible to use optic spectrum method from Dolby, Infitec or Omega Optical for 3D display without using 3D screen.

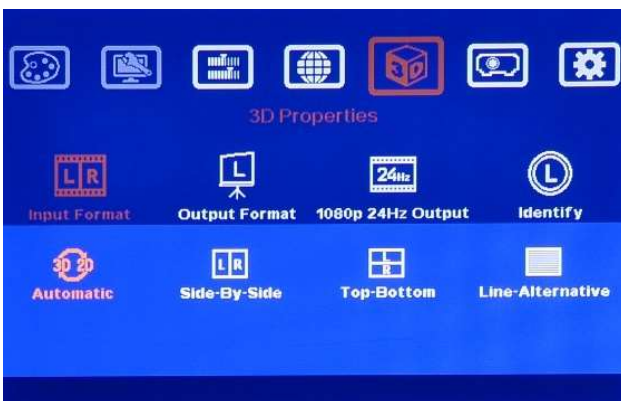


8.2 GeoBox Setup for Stereoscopic 3D Display

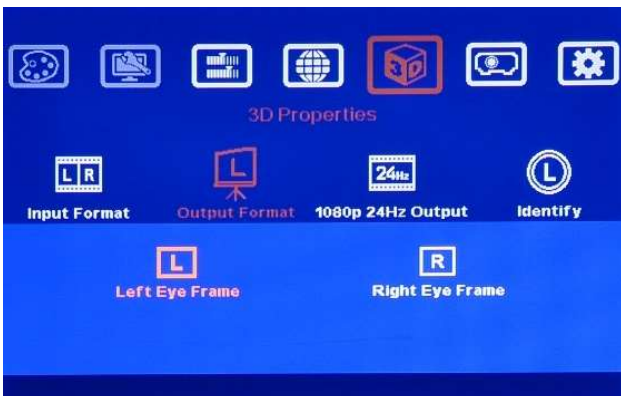
- a. Two projectors can be put side by side or top/bottom. Closer position will reduce the 4 corner adjustment range and reduce the loss of the image resolution and brightness. Please make sure hot ventilation air will not affect the other projectors. A board between the two projectors can be added if necessary.

- b. Set higher output resolutions (such as FHD) from 3D signal source and connect to any input of GeoBox. GeoBox will decode and distribute the signals for two projectors.
- c. Two G-105 are connected to two projectors for right/left eye display.
- d. Setup the polarized film and glasses so that right/left eye can only see the scene for one eye.
- e. Use [4 Corner] or [Warp] adjustment Menu in Remote Controller or Front Panel to align the images from two projectors completely matching together. Please place the polarized film in front of the projector before geometry adjustment because polarized film will affect the direction of light path from projectors. Some deviation is allowed for 3D display but will affect the performance in 2D display. A good alignment will give double brightness for the projection in 2D display. For a good double brightness application, the two projectors should be placed as close as possible and the screen must be flat or smooth curve.
- f. Please note that if HDMI device is not HDMI 1.4 version with HDCP repeater, 3D 1080p/24Hz frame packed 3D signal may be not able to transfer to GeoBox and user can only see 2D signal.

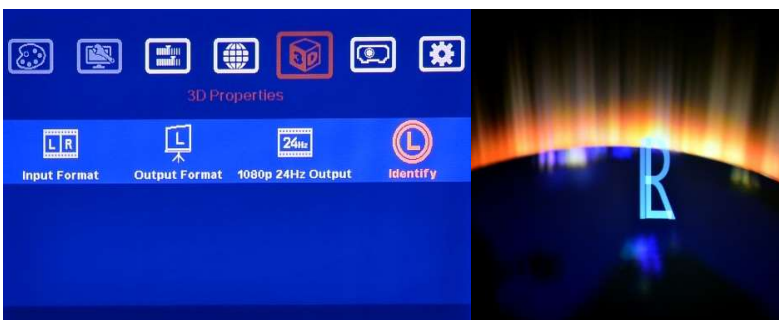
8.3 Procedures for passive 3D Setting in GeoBox



1. After [4 Corner] adjustment, to activate [3D Properties] in OSD to select 3D formats.
2. Select [Automatic] if the 3D signal is standard 3D formats from Blue Ray player or sources with 3D index inside the signal.
3. Select [Side By Side] or [Top-Bottom] based on user's 3D input sources.



1. To set [Output Format] and set RH eye GeoBox with [Right Eye Frame] output format and LH eye GeoBox with [Left Eye Frame]
2. If the input is 1080p 24Hz and the projectors can also support this signal, please select [Enable] in [1080p 24Hz Output] menu in both RH/LH GeoBox to get the best 3D performance



1. Activate [Identify] menu to show "R & L" characters on the screen simultaneously to verify the final 3D settings in the system.
2. RH eye should see only "R" and LH eye should see only "L".

If still can't verify "R" & "L" characters in both eyes, please check below again:

- Is the screen for 3D display?
- Are the Glasses and polarizers the same types and paired for the RH & LH eyes?
- GeoBox for RH eye should connect to RH eye projector (with RH filter) and LH GeoBox should connect to LH eye projector (with LH filter). Please check from [Output Format] menu and make sure [Right Eye Frame] is set in RH eye projector and [Left Eye Frame] is set to LH eye projector.
- Is the Blue Ray player set to [Auto 3D] or [1080p frame packing] mode to deliver 3D signal out?
- If Side by Side or Top-Bottom 3D formats are used, please check the aspect ratio in video source output to make sure GeoBox will receive full screen image.
- Is there any HDMI or signal source compatibility issue and only one projector shows image?
- Are the HDMI cables qualified and the length not too long?

8.4 3D signal converted to side by side format

- In additional projector active 3D and passive 3D application, G-105 can convert below 3D formats into one Side by Side 3D format output to meet the requirement in most of 3D display:

--RH/LH discrete 3D format --Frame sequential
 --Line by line (line interleaved) --Top-bottom 3D.
 --Frame packing

- G-105 setting for 3D signal conversion:

--Aspect ratio setting: [Image Properties]→ [Scaling]→ [Full Screen]

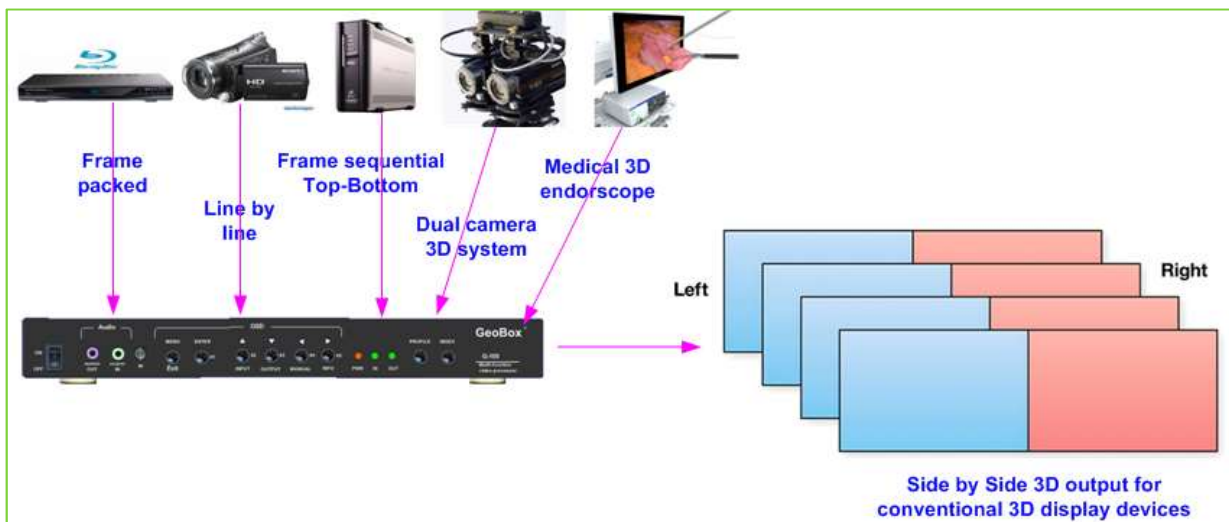
--POP mode setting: [Image Properties]→ [PIP Setting]→ [Display]→ [POP]

[Source]—select the same input source as main input

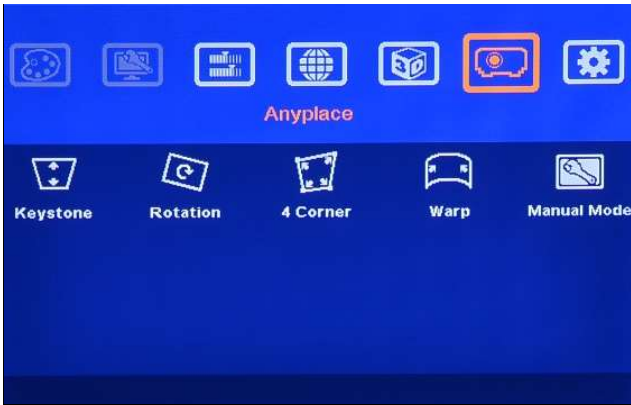
--3D setting: [3D Properties]→ [Input Format]—select 3D input format

[Output Format]→ select [Left Eye Frame]

--After the setting, if the input source is 3D format, it will convert into side by side 3D format output.



9 [Anyplace]: Warp and Geometry Correction of the Image



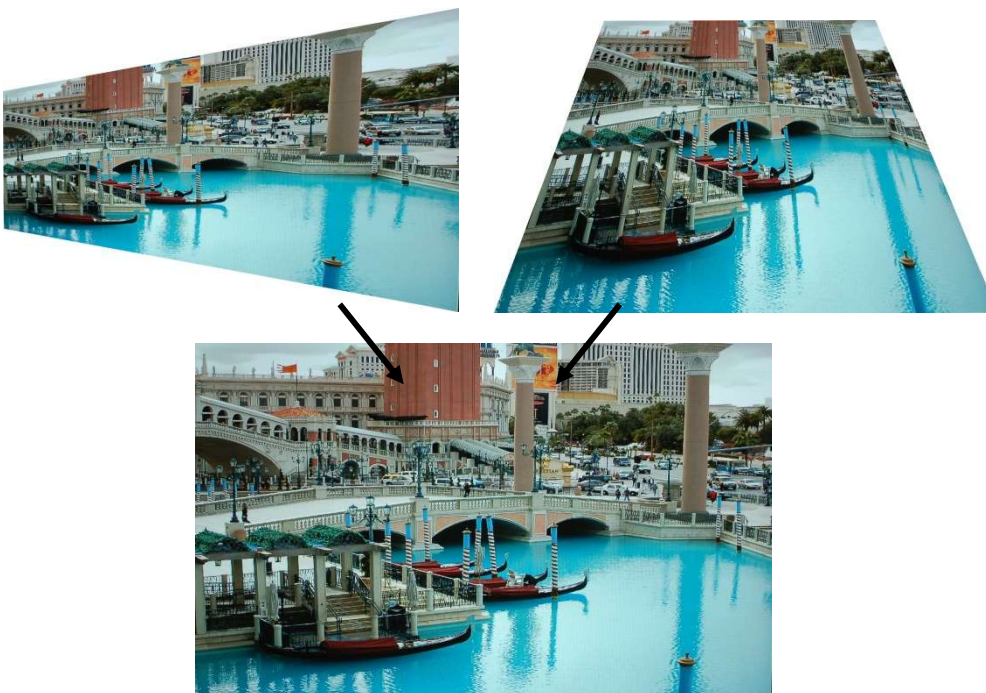
Under [Anyplace] menu, it provides the functions for image geometry alignment, warp, de-warp and manual mode setting to crop any image region with dynamic aspect ratio and position shift function.

The purposes for warp and geometry correction are as follows:

- a. Horizontal and Vertical Keystone correction.
- b. Image rotation, pincushion & Barrel adjustment.
- c. Image 4 corner position adjustment to match the screen or position alignment in multiple projector application.
- d. [Warp] is for image warp or curved screen display for projection system.
- e. [Manual Mode] is to do special image cropping, aspect ratio adjustment, image position shift and looping playback with different display mode settings.
- f. Each function in OSD menu can't be functional simultaneously. User can only select one function at one time.

9.1 [Keystone] Correction

- a. If the projection direction of the light path from projector is not the desired angle to the screen, the image on the screen will have keystone shape as below. In order to compensate this kind of distortion, [Keystone] Correction is required.
- b. User can use [4 Corner] menu to adjust the image and let it become the shapes that user needs. It can replace the function of [Keystone] correction.





- Activate [Keystone] Menu by Front Panel keypad or Remote Controller
- It consists of Menu keystone correction, Pincushion & barrel adjustment, Throw ratio and lens shift selection.

When Keystone function is activated, other functions under [Anyplace] will be disabled.

9.2 [Image Rotation]

Image Rotation is to compensate the misalignment between projector and screen.



When [Rotation] menu is activated, [Pin-Barrel] function will remain functional and other functions in [Anyplace] will be disabled.

- a. Image Rotation direction can be clockwise or anti-clockwise. The rotation angle is up to ± 180 degrees in full HD.
- b. The image rotation will maintain original image aspect ratio and may cause some image outside display borders. In order to compensate the disappearance of the image, user can use [Video Wall] \rightarrow [Overlap] function to improve this issue.
- c. If user wants to rotate the image at $+_90^\circ$ or 180° with full screen image without pixel loss, please use [Orientation] function under [Image Properties].
- d. Pin-Barrel function will still remain functional and co-exist with Rotation function. Bigger geometry adjustment range can be implemented in [Warp] Menu.

9.3 [4 Corner] Adjustment

[4 Corner] menu can adjust each corner position of the image independently and is the simplest way for the alignment in multiple projector applications, such as Edge Blending, image stacking & 3D display. User can use OSD MENU on Front Panel or Press [4 CORN] shortcut in Remote Controller to activate this menu.



- a. The maximum adjustment range in each corner is ± 300 pixels and ± 200 pixels vertically
- b. User needs to apply external grid pattern if needed.

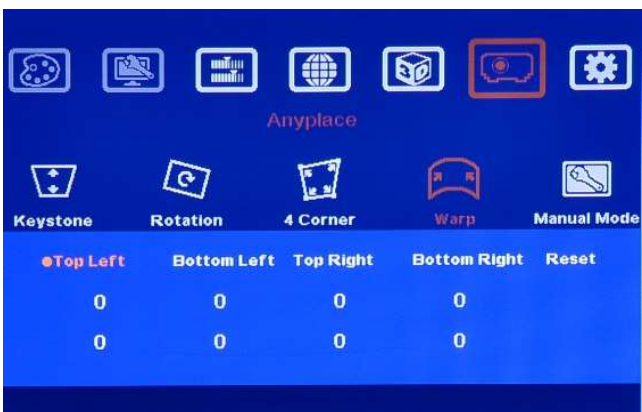
9.4 [Warp]: Image Curved Display

- a. The purpose for Warp adjustment is to warp the image to meet non-flat screen display requirement. User can activate Curved Menu via [Warp] hot key in Remote Control or on Front Panel. While applying [Warp] function, other functions will be disabled.
- b. Under [Warp] menu, it consists of the menu for the control of the image in nine points through 5 control items: [Corner] curve, [Edge] curve, [Center] curve and [Shift].

9.4.1 [Corner] Curve Adjustment



Under [Corner] curve menu, user can adjust the curve in each corner. While adjusting one corner, the other corresponding corner will be adjusted simultaneously.



The maximum adjustment range in each corner is ± 300 pixels and ± 200 pixels vertically. The combination of the 4 corner adjustment and Curve Corner adjustment can be up to $+_600$ pixels in each corners.

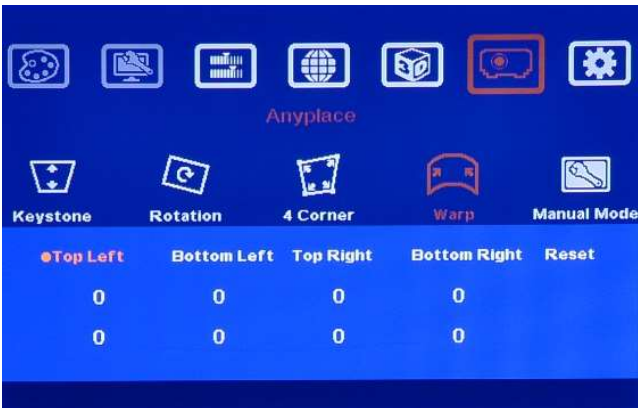


Example:
Curve adjustment in all Corners

9.4.2 [Edge] Curve Adjustment



User can adjust the curve in each edge of the image independently.



- ◆ OSD Menu under [Edge] Curve includes [Left Edge], [Right Edge], [Top Edge], [Bottom Edge] and [Reset]
- ◆ The range is ± 300 pixels in horizontal position and ± 200 pixels in vertical position.



Example:
After adjustment at [Top] and [Bottom] Edges (This can be applied to concave screen projection).



Example:
After applying 4 Edges curve adjustment

9.4.3 [Center] Curve Adjustment



Under [Center] Menu, user can adjust the positions of center axis of the image to get non-symmetrical curved image.



The center axis can be adjusted horizontally and vertically with the range of ± 300 pixels in horizontal position and ± 200 pixels in vertical position.

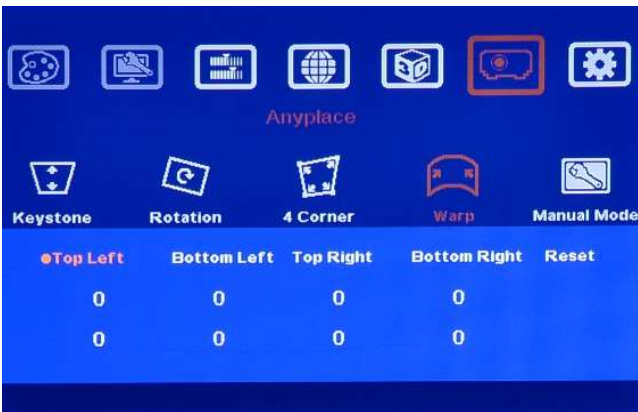


- ♦ [Corner] Curve and [Edge] Curve adjustment can co-exist with [Center] Curve adjustment
- ♦ Example: 4 [Edge] adjustment + [Center] to right side.

9.4.4 [Shift] Adjustment (Corner Position Adjustment)



[Shift] function is to adjust the corners of the image before or after Curved adjustment. It can co-exist with other functions under [Warp] Menu. This function is the same as [4 Corner] adjustment.



The menu under [Shift] has the same function as [4 Corner] adjustment to allow the adjustment of the position in each corner independently in curve image. However, the response speed will be a little slower.

9.4.5 [Order]



[Order] function is to decide the order for [Shift] and [Curved] adjustments.

- ◆ For the correction of image distortion from source side, user can apply [Curved First].
- ◆ For normal curved screen projection, [Shift First] is defaulted.

9.5 [Manual Mode]—Crop any location of the image and create custom display modes

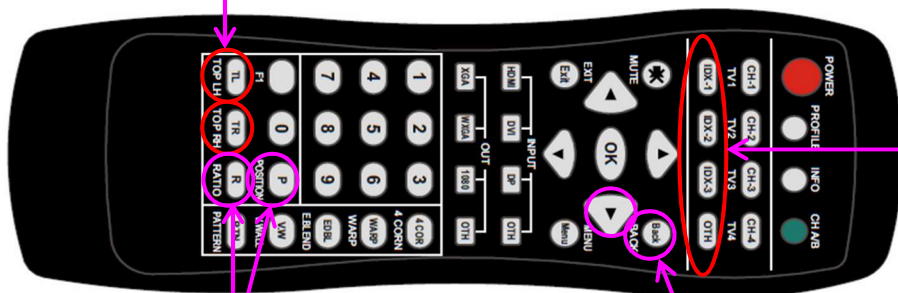
The purpose for [Manual Mode] is to let user create any type of display mode as he wants. Here is the structure and concept. User can execute below functions:

- Create 5 different display modes and save in Index 1-10.
- Crop any image portion of the image with 16:9 aspect ratio and store in any Index.
- Input two parameters (Top Left and Top Right corners coordinates) to get the cropping location of the image for each Index.
- Execute looping playback of display modes (Index) by selecting the Index and time interval through [Loop] menu.

- Adjust Horizontal and Vertical aspect ratio randomly through [Ratio] menu up to 0.25x~2.0x.
- Shift the image location inside the video wall horizontally and vertically through [Shift] menu.

The easiest way to implement this function is through RC-700 remote controller.

[Top LH] & [Top RH] are the shortcut keys for coordinates input.



User can select Index directly from remote controller.

[Ratio]: shortcut for aspect ratio adjustment
[Position]: shortcut for image position shift

After [Top Right] adjustment, user can press [BACK] key and press [Right] direction key to access [Position] menu for H&V position shift.

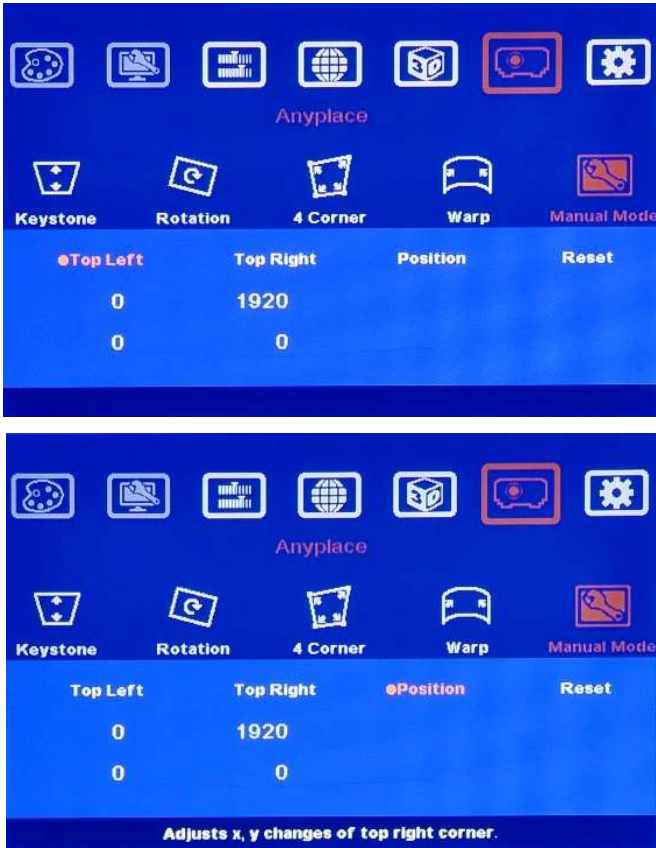
9.5.1 Select custom mode storage location



- ◆ Under [Manual Mode], there are 10 [Index] modes and [Loop] menu.
- ◆ Each [Index] represents one display mode created by user.
- ◆ User can apply different input source and resolution without affecting display mode settings.

9.5.2 Crop image for each Index





- ◆ [TV1] is the location for user to store cropping image for each Index.
- ◆ [Ratio] is to do further adjustment in aspect ratio and position.
- ◆ Inside [TV1], user needs to input coordinates of [Top Left] and [Top Right] corners to crop a 16:9 image for each Index.
- ◆ [Position] allows user to do further adjustment in H&V position of the image without affecting image size and display angle settings.
- ◆ [Reset] will reset the coordinates to default settings.

9.5.3 [Ratio]: Adjust custom mode aspect ratio and position



- Under [Ratio] menu, user can adjust entire image display aspect ratio and shift the image position at the same time.
- The display aspect ratio adjust range is from 25% to 200%. The result is similar to image [Zoom In] & [Zoom Out].

Note: User can also adjust image aspect ratio through Video Wall [Overlap] OSD menu. User can Zoom In (enlarge) the image by reducing image capture range. User can also increase the capture range to Zoom Out (shrink) the image.



1. Three sub-menu under [Ratio] menu: [Ratio], [Position] & [Reset]
2. Four menu can work at the same time.

9.5.3.1 Horizontal [Ratio] adjustment



1. This function can execute Image Zoom In & Zoom Out to change the aspect ratio in Horizontal direction by R/L direction keys.
2. The aspect ratio adjusting range is from 25% to 200%.
3. If the image is not created by Manual Mode, the Ratio adjustment range is from 67%-200%.



(100% Horizontal Ratio)



(50% Horizontal Ratio)



(200% Horizontal Ratio)

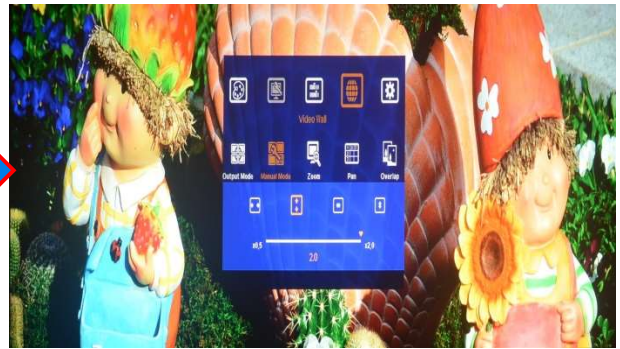
9.5.3.2 Vertical [Ratio] adjustment



1. This function can execute Image Zoom In & Zoom Out to change the aspect ratio in vertical direction by Up/Down keys.
2. The aspect ratio adjusting range is from 25% to 200%.
3. If the image is not created by Manual Mode, the Ratio adjustment range is from 67%-200%.

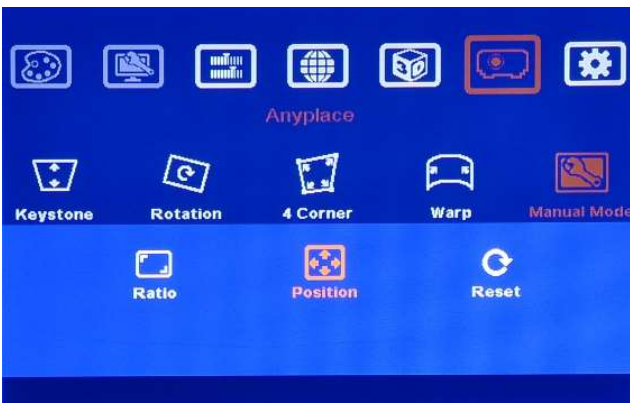


(50% Vertical Ratio)



(200% Vertical Ratio)

9.5.3.3 Horizontal [Position] adjustment



1. Image horizontal position shift can be executed by R/L direction keys.
2. Horizontal adjusting range will depend on the change in Horizontal [Ratio]
3. No image shift is possible if Horizontal [Ratio] doesn't change.

Note:

The position shifting ranges are as followings:

- a. Maximum shift range is inside input video content.
- b. If image is ZOOM IN to 200%, image can be shifted up to video wall center line—half image is missing. (see below)
- c. If image is ZOOM OUT to 50%, the image can be shifted up to video wall center line—half image is blank. (see below)



(200% Horizontal Ratio)



(Max. shift to right)



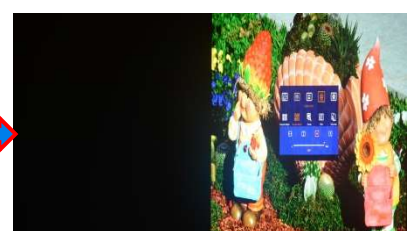
(Max. shift to left)



(50% Horizontal Ratio)



(Max. shift to left)

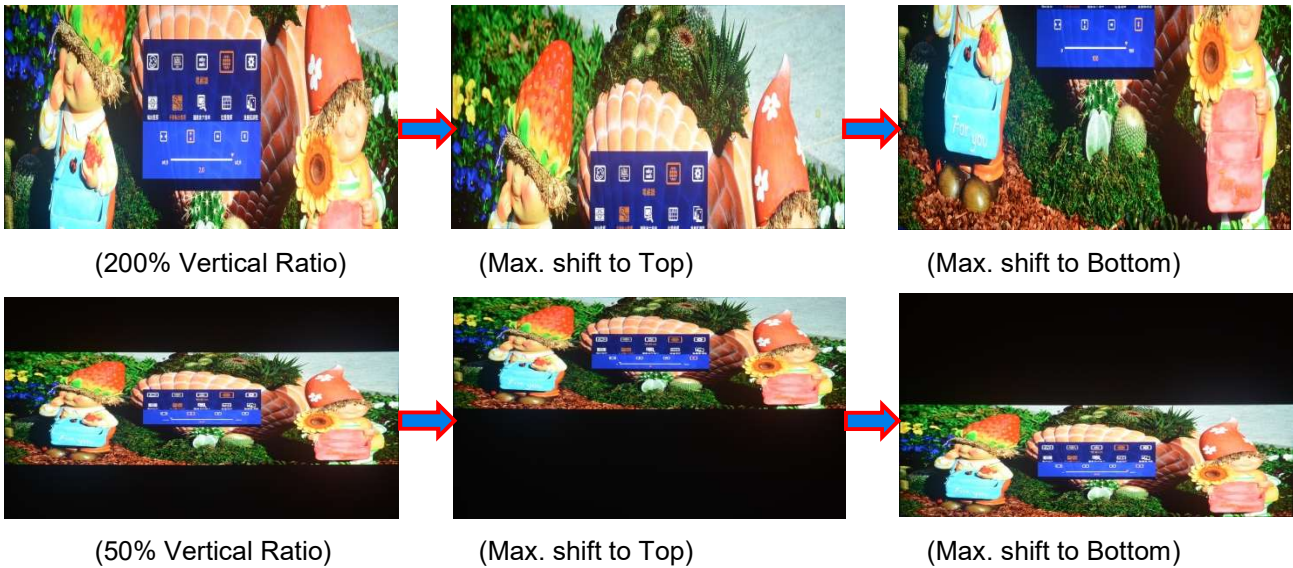


(Max. shift to right)

9.5.3.4 Vertical [Position] adjustment



1. Image vertical position shift can be executed by Up/Down direction keys.
2. Vertical range will depend on the change in Vertical [Ratio]
3. No image shift is possible if Vertical [Ratio] doesn't change.



Note: By the combination of aspect ratio change and position shift, user can remove image black border or select special region of the image to highlight (pop up) specific content to attract audience.

9.5.3.5 [Reset]

To Reset [Ratio] and [Position] to default settings.

9.5.4 [Loop]—Looping playback and protect LCD from burn-in mark

- a. User can create up to five different playback modes (Index) and looping playback under preset time interval. This function can be used to highlight different products from the same image content without PC system.
 - ✓ For instance, if one content consists of 3 products at side by side position. User can display 3 products in Index one, then pop-up product A in Index 2, product B in Index 3 and product C in Index 4. After set looping playback, user will see advertisement for complete image, then highlight each product in sequential order.
 - ✓ Another example is for the stage on wedding house. User can use high resolution camera to capture complete image on the stage, and pop up special areas in different Indexes. User can press Index hot key to do seamless image switching among different pop-up areas.
- b. User can select the playback modes (Index) and time interval from OSD.
- c. Please locate the looping display modes starting from Index 1. User can only select total number of looping playback mode starting from #1. If select “3”, then only Index 1-3 can be looped in.

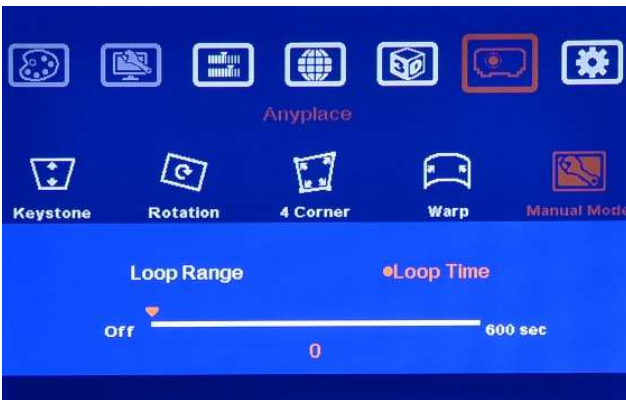
- d. This function can be applied to create different playback mode (Index) at slightly position shift and apply looping playback function to prevent from burn-in mark on the LCD to extend the life time. This is important for the display with still image on the content.



Looping playback is only functional for [Index 1-Index 10] under [Manual Mode]. It is nothing to do with Index under [Profile] menu.

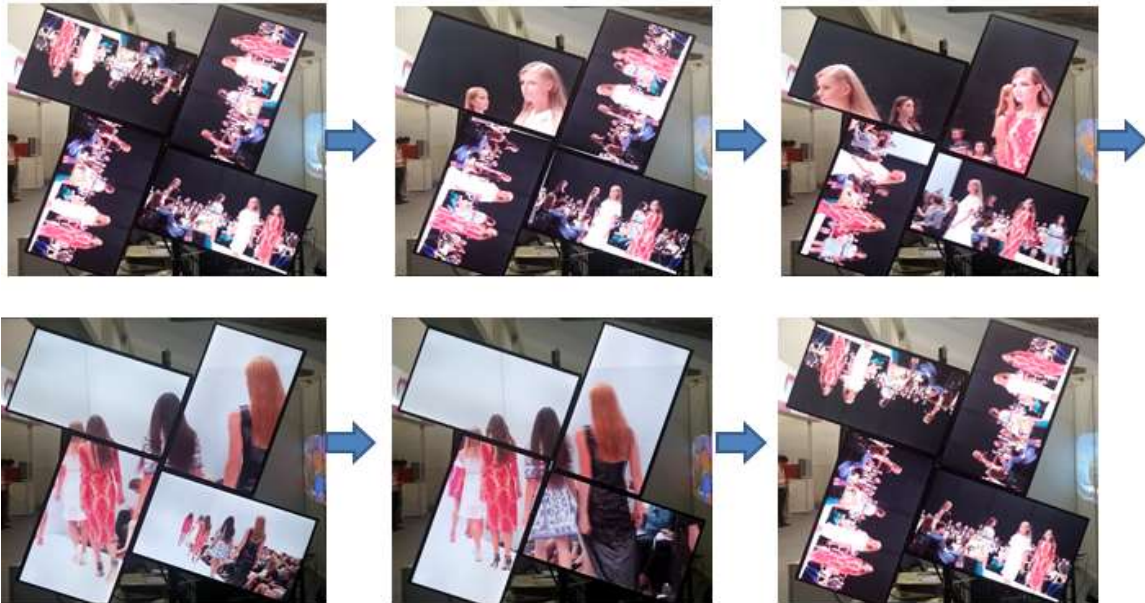


1. User can select the Index for looping playback in [Loop Range].
2. If select "3", then only Index 1, Index 2 and Index 3 can be selected for looping playback.



1. The time interval to switch among different Index can be set by [Loop Time].
2. The max looping time interval is 10 minutes (600 seconds)
3. User can create different [Index] to highlight different products from the same input source.

Below is example for 4 LCD looping playback. The first photo is 4 original images on all LCD, then combine them into one big image gradually.



10 Procedures to create custom display

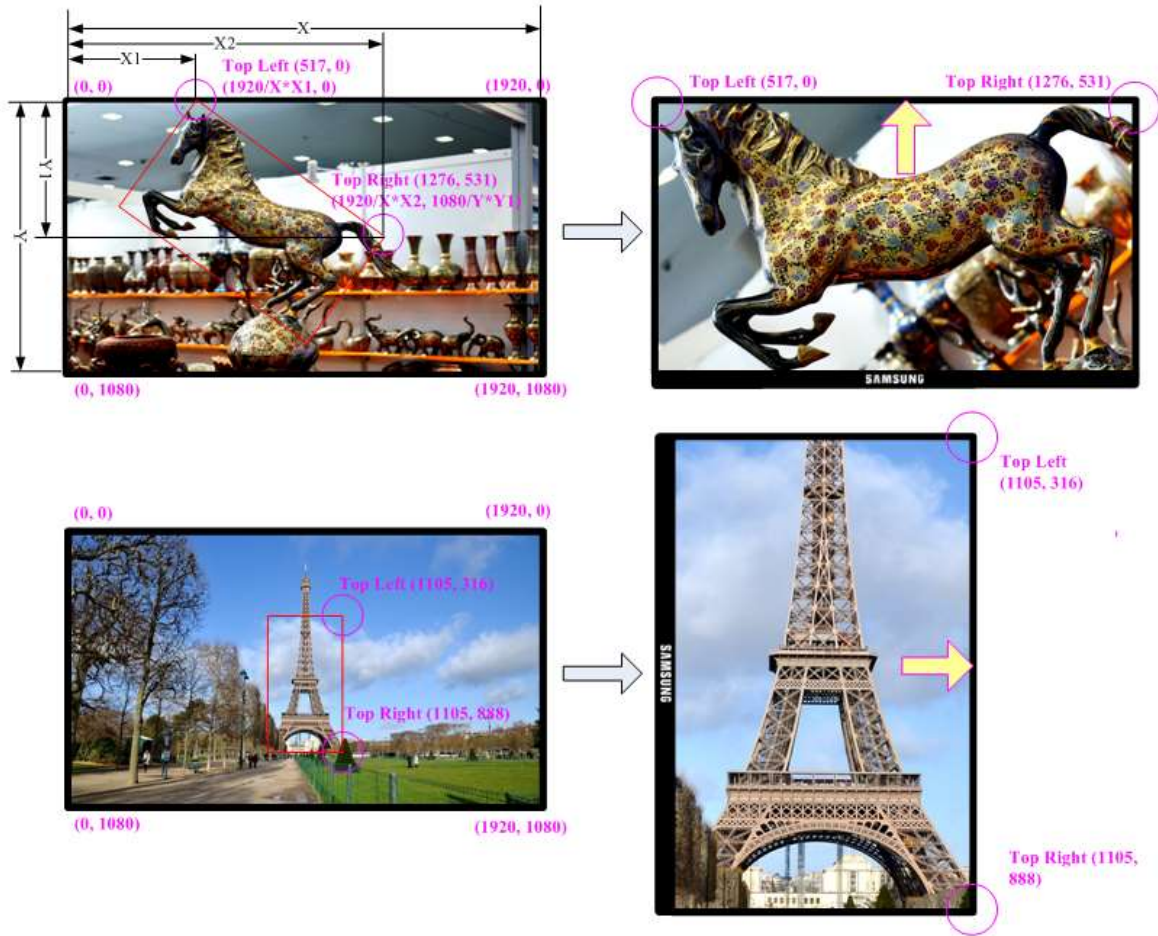
10.1 Introduction

- a · User can crop the image from any position with 16:9 aspect ratio by input two coordinates of the image under (1920,1080) coordinate system.
- b · User can measure the dimensions of Top Left and Top Right corner positions of the cropping image and convert them into coordinates, then input the coordinates into G-105 to get cropping image.
- c · If the distance between Top Left and Top Right corner has been enlarged, the cropping image will cover bigger area and the image will be shrunk (ZOOM OUT).
- d · If one of the vertical (Y) coordinates has been changed, the image will be rotated.
- e · User can use [Position] menu next to [Top Right] menu to move the cropping area without change image size and rotation angle at Horizontal and Vertical positions till the cropping image touches original borders.
- f · User can create all kinds video wall with multiple units of G-105, including regular, portrait and irregular video wall with different size, resolution and bezel LCDs at any angle and position through input the coordinates of two corners in each LCD--Top left and Top Right.
- g · PIP/POP function is still available in the custom modes created by user.

10.2 Collect coordinates from physical drawing

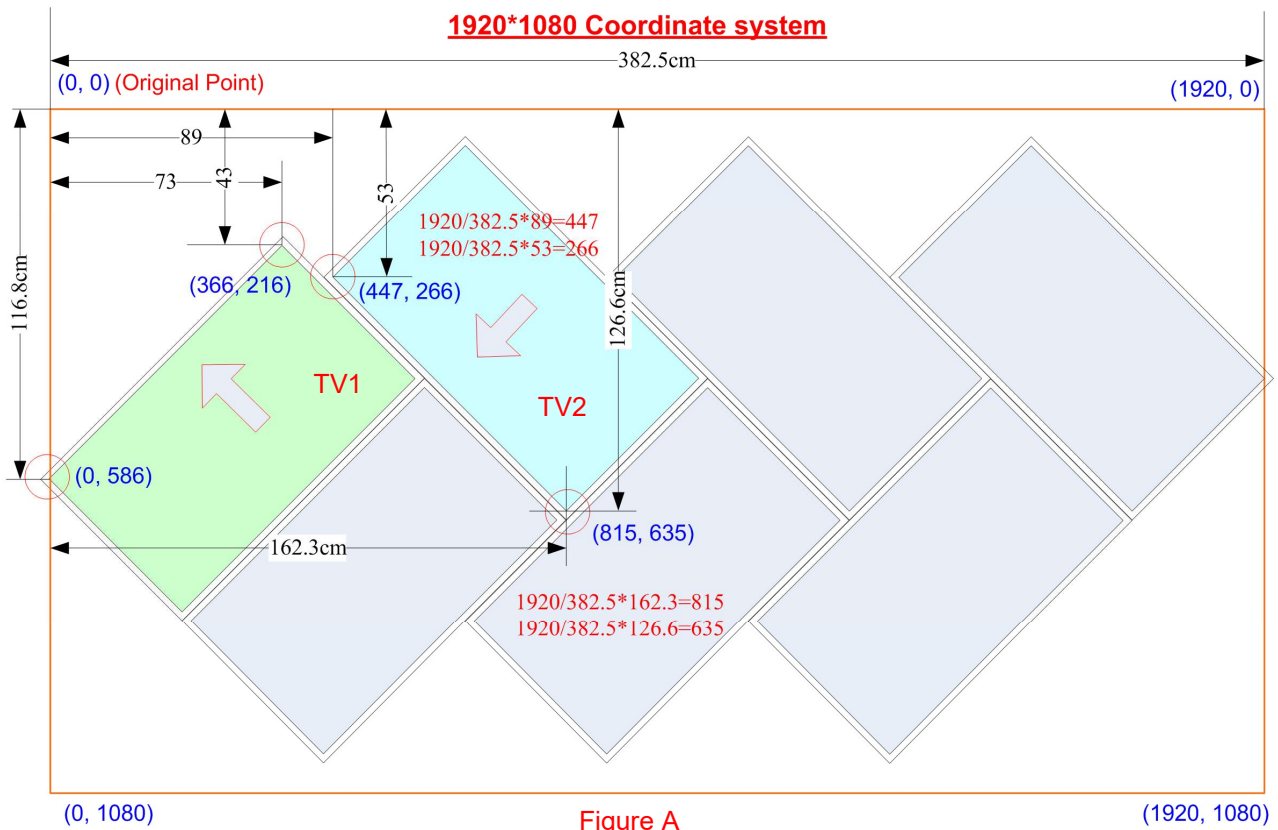
- a · User can convert physical drawings into 1920x1080 coordinates and pick up the coordinates at Top Left and Top Right corners, then input to G-105 through OSD or remote controller to get the result. The original point for the coordinate system is set at Top Left corner as (0, 0).
- b · Example in below:
 - ✧ To select Top Left and Top Right corners based on the display direction of the LCD.
 - ✧ To measure the image width (X) and horizontal position of two corners (X1 & X2).
 - ✧ To convert the dimensions into coordinates:

- Top Left: X coordinate: $1920/X*X1$, Y coordinate: $1080/Y*0$, Result: (517,0)
- Top Right: X coordinate: $1920/X*X2$, Y coordinate: $1080/Y*Y1$, Result: (1276,531)



c、 Multiple units cascade:

- ◇ Through multiple units cascade, user can build irregular video wall.
- ◇ Each G-105 should connect to one LCD.
- ◇ User needs to crop an area for each G-105 (LCD) to combine all G-105 (LCD) into one big screen.



- d、 In above drawing, the coordinates for TV1 and TV2 are as follows:
- ✧ TV1 coordinate for Top Left corner=(0, 586) · Top Right corner=(366, 216)
 - ✧ TV2 coordinate for Top Left corner=(815, 635) · Top Right corner=(447, 286)
 - ✧ Please pay attention to the display direction of the TV
- e、 After the video wall is created, user can use [Ratio] and [Position] function to adjust aspect ratio and final image position freely.

10.3 Collect coordinates from photo

User can also take picture of the LCD array and put this photo into a 1920x1080 coordinates system and collect 8 points of the coordinates for 4x LCD, then input these numbers into G-105. Below are the processes:

- ✧ The photo shall be corrected without distortion. If distortion happens, user can use [RealWorld Paint] freeware to correction image distortion in advance.
- ✧ Use Microsoft Picture Manager to trim the edge of the display area or directly use [Paint] software to trim the image.
- ✧ Resize to 1920x1080 image resolution in JPG or PNG format.
- ✧ To view this photo file in Microsoft "Paint" and user can click mouse to capture the coordinates.
- ✧ Adobe PhotoShop is also convenient software to capture the coordinates for cropping area.

10.4 Upload coordinates via OSD menu

- ✧ After collect coordinates for all LCD, user can upload the coordinated into G-105 though OSD.

- ✧ Example to store custom mode in Index 2:
 [Video wall]→ [Manual Mode]→ [Index 2]
 → Select [TV1]→ Select [Top Left/Top Right]→ Slide bar to input Coordinate→ Done
- ✧ User may have some difficulty to see the OSD to set Coordinates. The best way is to use remote controller to upload coordinates.

10.5 Upload coordinates and image position fine-tune via remote controller

- ✧ RC-700 remote controller is integrated some special hotkeys for G-105 operation. User can upload image coordinates or do position fine-tune even without seeing OSD.
- ✧ We recommend to use remote controller for upload coordinated and image position fine-tune.

<p>[Top LH] & [Top RH] are the shortcut keys for coordinates input.</p>	<p>[Shift] shortcut key for cropped image location adjustment</p>
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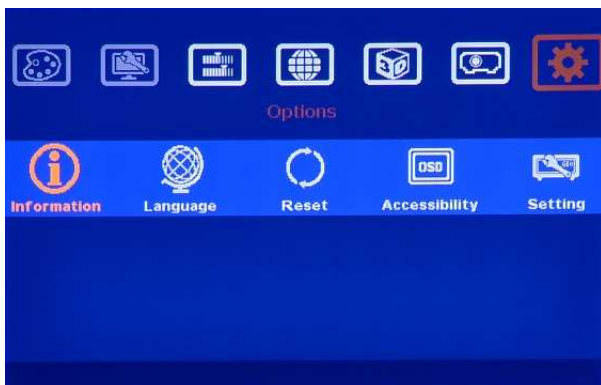
[Ratio]: shortcut for aspect ratio adjustment
 [Position]: shortcut for image position shift

User can select Index directly from remote controller.

After [Top Right] adjustment, user can press [BACK] key and press [Right] direction key to access [Position] menu for H&V position shift.

GAlign PC tool is available in the website for download. It will be more convenient to do cropping and alignment image position.

11 [Options]: OSD Miscellaneous Functions



- Five sub-menu under [Options]:
- [Information]
 - [Language]
 - [Reset]
 - [Accessibility]
 - [Setting]

11.1 [Information]: System Information



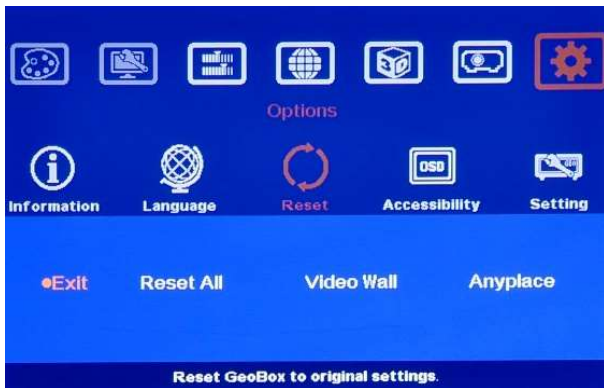
[Information] menu shows the following information in GeoBox, such as Input mode, output mode, Network status, Model name and Firmware version.

11.2 [Language]: OSD Language



Three OSD menu languages can be selected: English, Simplified Chinese and Traditional Chinese

11.3 [Reset]



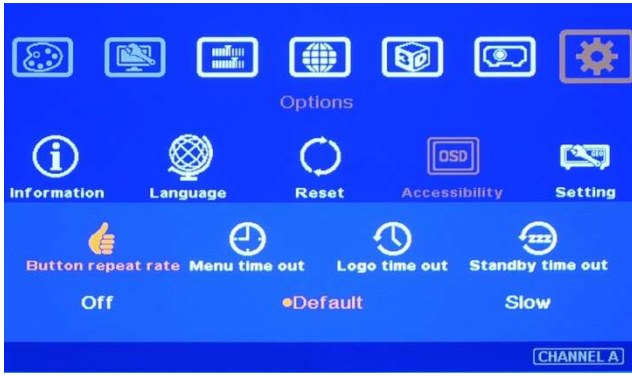
- [Reset All] will reset all settings only the settings stored [Profile] will not be deleted.
- Reset [Video Wall] will reset the settings in Video Wall function to factory default.
- Reset [Anyplace] will reset geometry to original position.
- If user can't see OSD menu for reset, please press Index to see full OSD, then execute [Reset].

11.4 [Accessibility]



- Four sub-menu under [Accessibility]:
- OSD [Button Repeat Rate]
 - OSD [Menu Time out]
 - Splash screen [Logo Time Out]
 - No signal input [Standby time out]

14.4.1 [Button Repeat Rate]



OSD [Button Repeat Rate]:
It controls the speed of the response of the OSD button while user presses OSD button continuously.

OSD [Button Repeat Rate]:

- ✓ [Off]: OSD only responds once when every time OSD key is pressed.
- ✓ [Default]: OSD will respond slowly at the beginning but will increase the speed of the response when OSD key is pressed continuously.
- ✓ [Slow]: OSD behavior is similar to [Default] but the response speed will be slower than Default.

14.4.2 [Menu Time Out]



OSD [Menu Time Out]
 ♦ OSD menu will disappear from the screen based on time setting.
 ♦ The default time is 30 seconds.

- ✓ When [Off] is selected, the OSD menu will remain in the screen until user activates other OSD function.
- ✓ Internal Grid Pattern will be also controlled by the time setting in [Menu Time Out] menu. For [Anyplace] geometry adjustment, we recommend user to set OSD [Menu Time Out] to [Off] to maintain continuously display of the pattern and OSD on the screen.

14.4.3 [Logo Time Out]



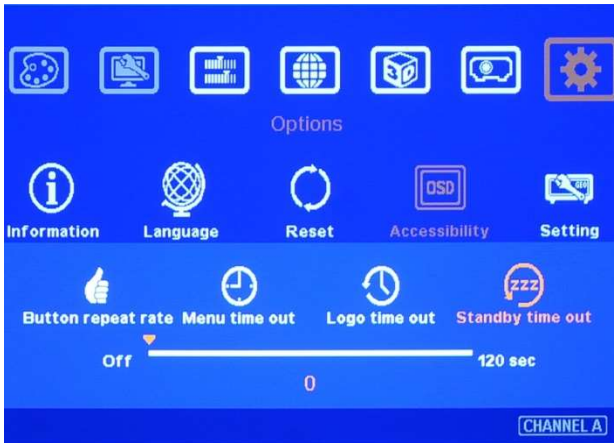
♦ To set the time to show Splash screen.
 ♦ If zero is selected, then the splash screen will not be showed during system booting up period.

Before the time out of the Splash screen, GeoBox will not execute other commands in the system. When the input is VGA, if any geometry adjustment occurred, the image position may change due to

projector auto adjustment function. In this case, user can disable projector auto alignment or to set longer Logo Time Out so that GeoBox will not execute geometry adjustment before projector finishes auto alignment. A good match in the system power ON procedure and Logo time out will maintain the image position while user powers ON/OFF the complete system.

14.4.4 [Standby Time Out]

This function is to Power ON/OFF complete system through signal source.



- ♦ If it is set to “60”, GeoBox will automatically cut off output signal when no input signal is detected for 60 seconds.
- ♦ If the display device can also automatically shut down when no input signal is detected.
- ♦ User can control signal source to turn ON/OFF the system.

11.5 [Setting]



Five sub-menu under [Setting] menu:

- ♦ [Mute] Audio mute or enable
- ♦ [Frame Lock]: system synchronization
- ♦ [Box ID]: Set control ID
- ♦ [Profile]: Save profile settings
- ♦ [Network]: set RS232 and network control

11.5.1 Frame Lock and Free Run Mode



[Frame Lock] will ensure the input and output frame rate synchronize together. This is mainly for multiple G-105 applications. If [Frame Lock] is disabled, the system will be in [Free Run] mode and keeps continuous output timing. This will provide quicker input source or input timing change under below conditions:

- Input signal shall have the same refresh rate (i.e. 60Hz)
- No HDCP compliant signal.

It is possible to see frame tear artifact if [Frame lock] is turned off.

11.5.2 [Box ID]



[Box ID] is identification # in each G-105 for individual RS232 or IR remote control.

- GeoBox ID No is from 1-99
- After set Box ID, user can control GeoBox individually via IR Remote controller, RS232 & Ethernet
- IR control ID # is from 0-9 only.

11.5.3 [Profile] Setting



- [Profile] is to save and load user settings
- If the settings saved in [Profile] are conflicted with Dip SW setting, Dip SW setting will be executed. If user wants to show [Profile] setting when turn on the system, please set [Main Input] at off (down) position.

Five Indexes can be chosen to save G-105 settings and recalled by IR remote controller or RS232 through [Load] menu under [Profile]

Application example: when cascade with two G-105, user can set below display patterns:

1. To show cascade image with single content across whole video wall.
2. To show two side by side contents across whole video wall.
3. To show one PIP content in cascaded image.
4. To show two PIP contents in cascaded image.

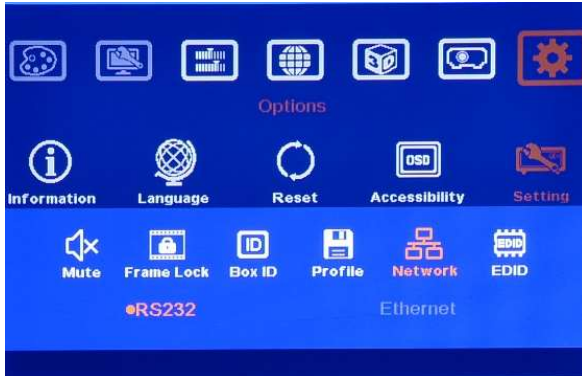
User can save these different display patterns in G-105 and recall them by RS232 or remote controller.

Please note:

- When execute system reset, Profile settings will remain the same without change.
- If the settings in Dip SW on the front panel are different from the settings in [Profile], Dip SW setting will have the 1st priority. For example, if your Dip SW selects Display mode # 02 and you select mode #05 via

OSD. Once you power OFF/ON the system again, it will show mode #02 but not mode #05. The same issue will happen in PIP/POP settings, if you select a position and size of PIP image by OSD menu, once you power OFF/ON the system, it will follow the setting in Dip SW but not OSD. You need to load the profile to get new OSD settings.

11.5.4 [Network]



- ◆ Only RS232 under this Menu.
- ◆ User can use external UART to Ethernet converter to control G-105 through Ethernet control system.
- ◆ User can use simple button type RS232 controller to switch among different Profile settings.

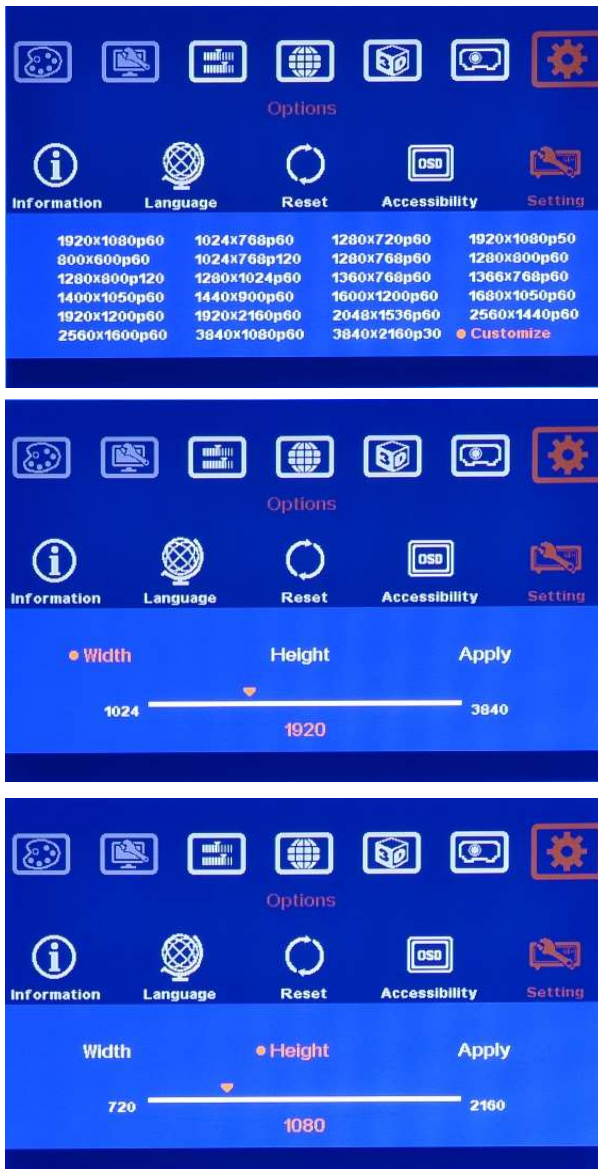
11.5.5 [EDID] setting

Selective EDID setting is added into G-105. The purpose are as follows:

- a. G-105 can support big range of input signal timing—from SVGA up to 4k/2k. In order to get the best video performance, user needs to select different input signal resolution.
- b. Different PC display cards have different setting and behavior. Many users may not be able to do the right settings
- c. High end media player or server can support big range of outputs—from 720p to 4k/2k. If no EDID selection function, only one default EDID can be selected by media player. The system may not show the best video wall output quality.
- d. Different display modes may show different final image aspect ratio. User can utilize different EDID setting to change input signal timing and get different output aspect ratio.



- Activate EDID setting menu:
[Options]→ [Setting]→ [EDID]
- Use IR remote controller to select desired EDID.
- After select EDID, the PC or medial will automatically change the output timing setting.
- Press [INFO] key to check if the input and output timing are set correctly.



User can also select EDID manually. The range will be from 1024x768 to 3840x2160. Based on VESA standard Horizontal resolution is in a step of 8 pixels and vertical resolution is in 2 pixels. After creating the EDID, PC or laptop may still can't output required timings due to hardware limitation or driver issue. In some case, user also needs to do manual selection of the output resolution in signal source.

- ✧ In very rare cases, some PC may not follow the EDID settings from G-105 and show different result. If it happens, please open PC resolution setting window and select desired output resolution from PC.
- ✧ If user selects GeoBox as display device, user can choose PC output resolution up to the maximum resolution set by EDID in G-105.
- ✧ If user wants to create custom output resolution in PC, user needs to select GeoBox as display device for further settings. Please select Reduced Blanking timing in high resolution output to reduce the output clock for easy high speed data connection.
- ✧ After user creates custom output resolution in PC, use needs to go back to Resolution Selection Window in PC to select the desired output timing.

Note:

- a. Please open GeoBox 2-3 seconds before open signal source so that signal source can detect the EDID setting in GeoBox and sends out the right timing.
- b. After finish FW update, please select a different EDID resolution in EDID selection menu, then turn back to the EDID resolution you need. This action will update EDID from new FW into GeoBox.

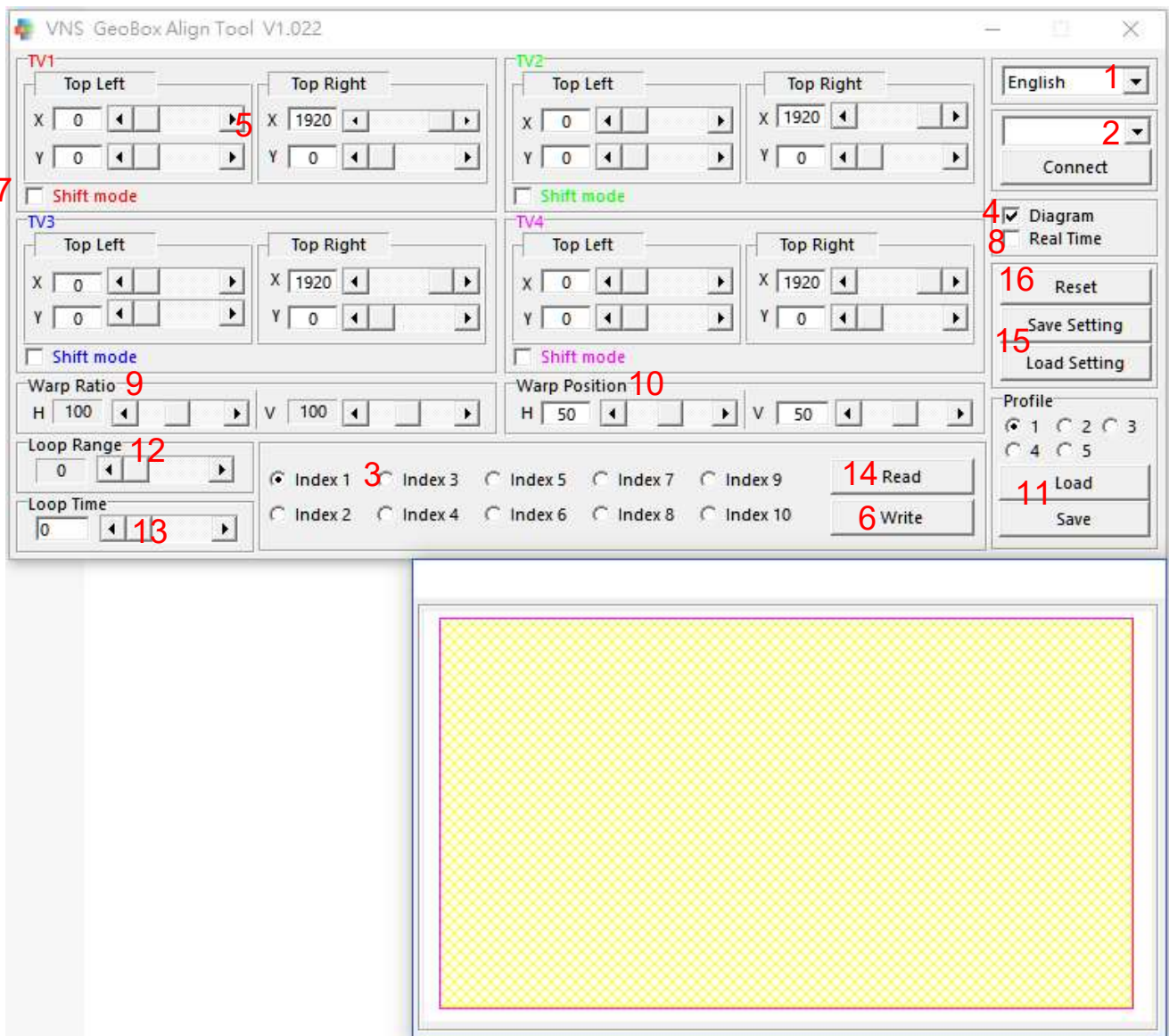
12 GAlign PC Tool (Image cropping tool)

GAlign PC tool is to crop any image region with 16:9 aspect ratio at any display angle. It is for specific image area cropping and for multiple units irregular video wall application.

12.1 Download and decompress

1. Please download G-105 PC tool from our website at www.vnstw.com.
2. [GAlign] directory should consist three files:
 - ✓ GAlign PC tool user guide
 - ✓ GAlign.exe
 - ✓ UI.INI
3. User can create Language based on his requirement. Please open UI.INI and add new string set into UI.INI and save this modification inside the same [GAlign] directory to get new language.
4. Open [GAlign.exe] file and user will see operation window.
5. **This PC tool is .exe file and may be blocked by Anti-virus software. Please remove this barrier.**

12.2 Operation procedures



-
- (1) : Open [GAlign.exe] file. Select Language.
 - (2) : User should see G-105 output [Resolution] at the top right corner. If not, RS232 is not connected with PC. Please check [Device Manager] in PC and make sure RS232 USB driver is correctly installed. Click [Connect], user will see [Close] in the block.
 - (3) : Select [Index 1-10]. Index is the location to store your settings.
 - (4) : Click [Diagram] will enable a diagram of the draft drawing of the image for each TV.
 - (5) : Key-in the coordinates of Top Left corner and Top Right corner for TV1 which user captures from picture or layout plan file.
 - (6) : [Write]: Click [Write] button. User should see the result in TV1. If [Real Time] is activated, [Write] function will be disabled. If the coordinates value are beyond the limits of the system, user may see some unstable image or grid lines on the screen. Once user correct the value, it will become normal.
 - (7) : [Shift Mode]: If the position of the image is still not accurate, user can use [Shift Mode] to adjust H&V location without change image size and angle. User can also use [F1] key in remote controller to execute the same [Shift] function.
 - (8) : [Real Time]: User can also click [Real Time] button to enable real time image position adjustment. When user click the slide bar in each coordinate, user will see the image change in real time. After finish position fine-tune, please disable [Real Time] and click [Write] button again to save your final result. Please note if the PC processing power is not enough, user will see some lag image during real time adjustment.
 - (9) : [Warp Ratio] is to adjust aspect ratio (image width and height) for the complete image in horizontal and vertical directions.
 - (10) : [Warp Position] is to adjust complete image position in the video wall in horizontal and vertical directions. No position can be shifted before user adjusts the [Warp Ratio].
 - (11) : [Profile] is to save all settings inside G-105 including input source, PIP/POP, video wall settings, ratio, looping playback, color... Please select Profile # and click [Save] to store the setting and click [Load] to recall it at any time. Maximum up to 5 Profiles can be saved. Don't forget to press [Write] before save the settings to [Profile].
 - (12) : [Loop Range] is to select the Index quantity for looping playback. Please put the Index for playback at the front. User can only set the quantity for playback starting from the 1st Index.
 - (13) : [Loop Time] is to set the time interval for looping playback for each Index. If user includes two same Index #, it means the content in this Index # will be displayed with double time interval. It will increase the flexibility for the display time settings in different Index.
 - (14) : [Read] is to read back current setting inside G-105 and do further modification or [Write] to another Index. It is convenient to create different loop playback index for LCD protection or flexible display
If user wants to copy one setting from Index #1 to Index #2, here is the procedure:
 - a ∙ Click [Index #1]
 - b ∙ [Read] the index. User will see the change of the video wall based on this index.
 - c ∙ Select [Index #2], click [Write] to save this settings into [Index #2].
 - (15) : [Save Setting]: User can save the settings into PC through [Save Setting] and load the setting from PC or copy to other units through [Load Setting]
 - (16) : [Reset] is to reset the setting in current Index to default value.

13 GPM (GeoBox Parameter Manager) system setting backup Tool

13.1 Purpose:

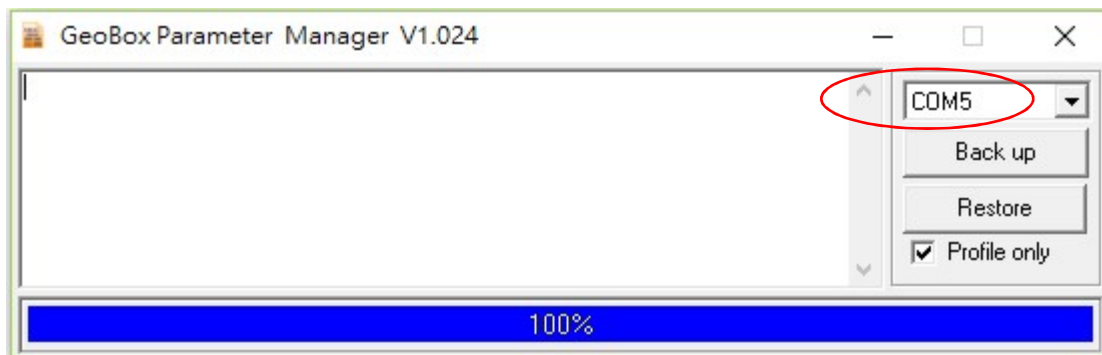
This GPM (GeoBox parameter Manager) tool is for user to save GeoBox settings in PC as backup. The data can be restored or copied to other unit with the same model. Once a new unit replacement is required, user can restore the settings to new unit and get the same result. The parameter can also be copied to other unit for similar project to reduce the time for the setup. Please download GPM backup tool from our website.

13.2 GPM installation:

1. Decompressed the attached [GPM.7Z] file with RAR, 7Z or WinZip.
2. The password for the decompression is "VNS" if required.



3. Execute [GPM.exe] and user will see below operation window and show up COM#.



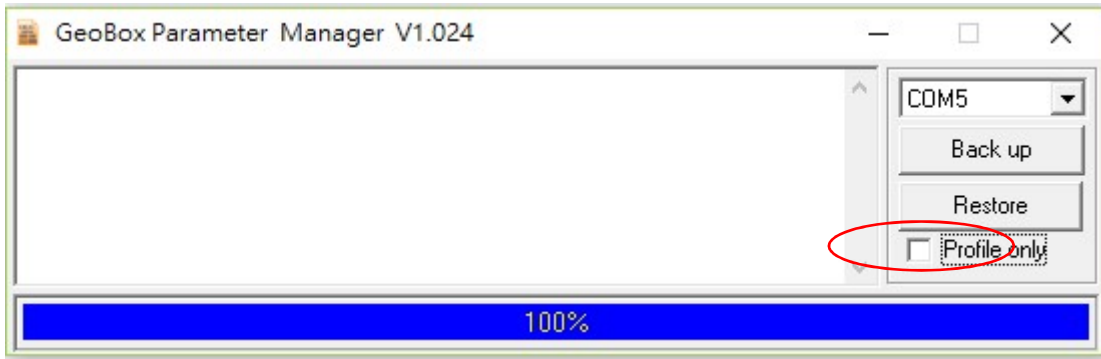
4. GPM.exe program may be locked by Windows or anti-virus software. Please select [Accept] to continuously run this software.

13.3 System connection:

Please connect GeoBox and PC with RS232 cable. User needs to install driver for USB to RS232 cable. Once the system is connected, user will see [COM #] in the window and GPM is ready to be used.

13.4 Instruction:

1. Data types to be stored.



- i. Data inside [Profile] settings, including all settings from Index-1 to Index 5. (Default)
 - ii. All data inside EEPROM (including Profile setting data).
2. If user didn't CHECK [Profile only] and click [Backup], GPM will save all the data inside EEPROM with xxx.GED file name. The saved data include [Profile] settings and all other data inside EEPROM.
 3. When user [Restore] the data to GeoBox, the Firmware CODE VERSION in GeoBox should be the same and with the same CHECK SUM. Otherwise, it can't be restored and the unit will be reset all the data to default value.
 4. Please click [Restore] and browser xxx.GED file to load back to GeoBox.
 5. When user select [Profile Only] as shown above and click [Backup], GPM will only store the data inside [Profile] with xxx.GPD file name. It means user needs to save all the settings into [Options]→ [Settings]→ [Profile]→ [Save]→ [Index 1-5]. GPM will only save all the data inside [Profile] from Index 1-Index 5.
 6. When user wants to restore xxx.GPD data back to GeoBox, please CHECK [Profile only] and click [Restore] button, browse xxx.GPD file and load it into GeoBox.
 7. GPM can't identify GeoBox model now. To restore different model parameter will cause system reset all data to default.
 8. GeoBox will auto reset after restore the parameter.
 9. The time to save the data will take about 60-120 seconds.
 10. We propose user to save all the settings data into [Profile], then to use [Profile only] function to backup all the settings. [Profile Only] allows user to restore the data in different code version.

Important Notice:

- a. If the FW version with structure change in OSD, then even [Profile Only] backup data is not able to be Restored.
- b. Please save file into GeoBox Profile menu with signal connected to GeoBox. In old version firmware, when no input source is connected to GeoBox, the backup data will not include color setting data and user may only see black image with RGB color value set to "0" after data Restore.