

Monster Mapper Pro

User Manual (v1.3f1)

2020.5



<http://www.interactivekorea.co.kr/>

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I. Product Features

Monster Mapper Is An Editing Tool That Can Easily Map And Blend Multiple Screens Even For Ordinary People Who Do Not Have Expert Knowledge About Projection. It Is Developed With Patent-based Pure Domestic Technology To Support Stability And Customization For Each Project.

In addition, at a low price, you can connect up to 8 videos to a 1p PC without extra charge with a single license for blending and mapping.

Compared To The Existing Competitive Products, It Has The Following Characteristics.

항목	Monster Mapper	Immersive pro	Watchout
Mapping Support	Support	Support	Support
Blending Method	Software Way	Window Capture Method	Window Capture Method
Pc Specification	Low-end pc and low-cost graphics card	High performance pc and expensive graphics card	High performance pc and expensive graphics card
Screen Quality	No Image Quality Damage	Because It Is A Capture Method Picture Quality Damage	Because It Is A Capture Method Picture Quality Damage
Difficulty Using	Easy	Difficulty	Difficulty
Price	\$150 Per Pc, No Extra Cost	More Than \$350 Per Pc Adds Only 3 Days Or More	More Than \$500 Per Pc
Customizing Support	Customizing Support For Each Project	Foreign Companies No Support	Foreign Companies No Support
Multiple pc synchronization support	Monster Mapper server Support	None	지원

II. Multi-faceted Mapping And Edge Blending In 10 Minutes

Step 1 Display Settings

The Same Method As The Monitor Divider Is Not Used, And In Windows 10, The Connected Displays Are Arranged In Order From The Left As Shown In The Figure Below. Set The Far Left As The Main Monitor.

<When Three Projectors Or Monitors Are Connected >



Using Multiple Display Extensions

Existing Third-party Products Require An Expensive Graphic Card To Make The Window A Single Screen, But Monster Mapper Is A General Graphic Card With Low Specifications And Works Only With A Display.

It Can Be Used As Long As It Has An External Output Port On The Graphics Card.

Step 2 Lay Out The Projector

In General, It Is Recommended That The Overlap Of Projectors Be Around 20%. You Can Decide The Overlap Ratio According To The Situation Of Projecting The Image.

<2 Sides Overlap>



<3 Sides Overlap>



When Overlapping, The Projector Should Be Leveled As Much As Possible, And The Screen Size Between Projectors Should Be The Same To Obtain Better Results.

**** Notes**

When Using Multiple Projectors, The Overlap Must Be Made So That The Aspect Ratios Between The Projectors Match. Do Not Forcibly Increase Or Decrease The Width And Height Of Any Projector Through Corner Adjustment.

Step 3 Prepare A Video File For Use

3.1 Video Preparation

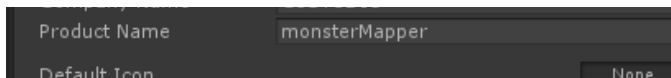
Prepare commonly used avi or mp4 video to fit the projection plane and resolution. It is recommended to run with Win10 and no separate codec installation is required. When using 4K or higher video, you can produce video in H.265.'

Resolution	2-Sided Projection Example	20% Overlap Ratio	Production Screen Size
When using a resolution of 1920 x 1200	(3640) x 1200	It's Two Sides, So 20% Is Lost On One Side. 1920 (20%) => 384 pixel	3256 x 1080

3.2 Preparing The Executable File (When Capturing A Windows Executable File)

Prepare Windows executable file. The executable file sets the resolution to fit the screen size and builds it in the form of a title window. Monster Mapper Pro searches for the capture target by title name.

Ex) In the case of Unity, search by title window name of the window, so set the product name that can be recognized.



[Setting Program Name When Building Windows]

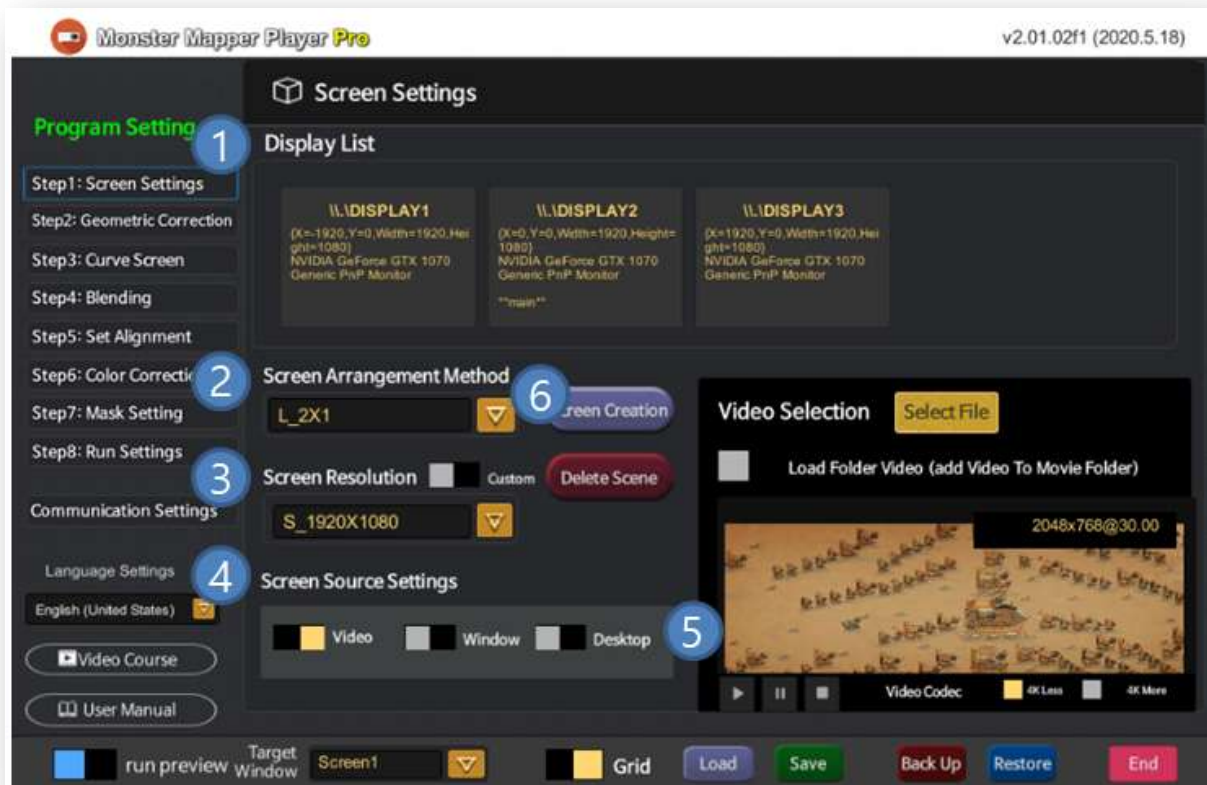
When running a program written in Unity, create a shortcut and give the parameter -popup window to run without title in window mode.



Step 4 Set The Monster Mapper Screen

Monster Mapper Maps And Blends Through A Total Of 8 Steps.

The Process Of Creating A Scene By Setting The Desired Layout And Resolution In The Program According To The Settings In The Previous Step. The Process Of Creating The Desired Layout Scene Is As Follows.

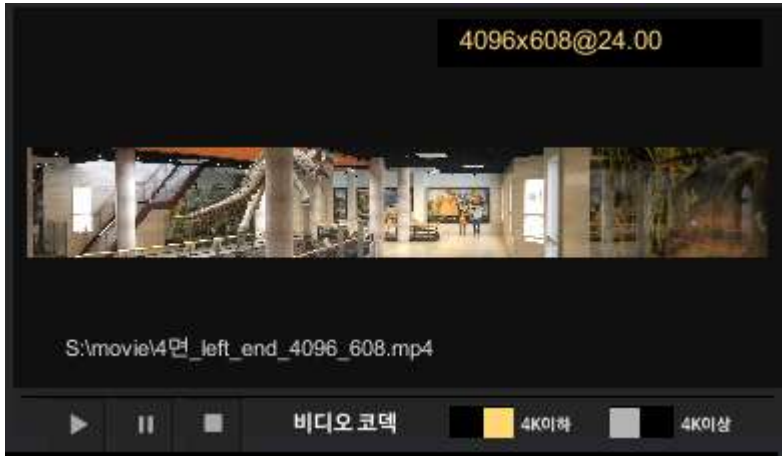


Work Steps	Work	Contents
1) Display List	Displays A List Of Connected Displays.	The Coordinates Of X In Each List Should Be Shown Sequentially.
2) Screen Layout	Determines How The Screen Is Laid Out. example) 2x1 For 2 Sides, 3x1 For 3 Sides	*Placement Supports Horizontal, Vertical And Grid Placement.
3) Resolution Setting	Common Resolution Setting Of Connected Screen	*Must Be Set To One Resolution On The Screen. If The Resolution Is Different, It Can Be Corrected Through Enlargement And Reduction In Geometric Correction.
4) Select Screen Source	Select The Source You Want To Show On The Screen. The Pro Case Supports 3 Methods.	

	1) Video: Play Video File 2) Window: Capture The Executable File 3) Desktop: Copy Background Test Tower	
5) Video Settings	If You Select A Video As The Screen Source, A Preview Of The Selected Video Is Displayed. You Can Play The Video. [Select Video Codec Video Size] Depending On The Size Of The Video To Be Used, Specify Below 4K Or More.	
6) Scene Creation And Removal	After The Operation In Step 5, Click The Create Button. If You Want To Remove The Scene And Re-create It, Click Delete Scene.	* Configures The Screen Based On The Set Layout.

*** Screen Source Setting Method**

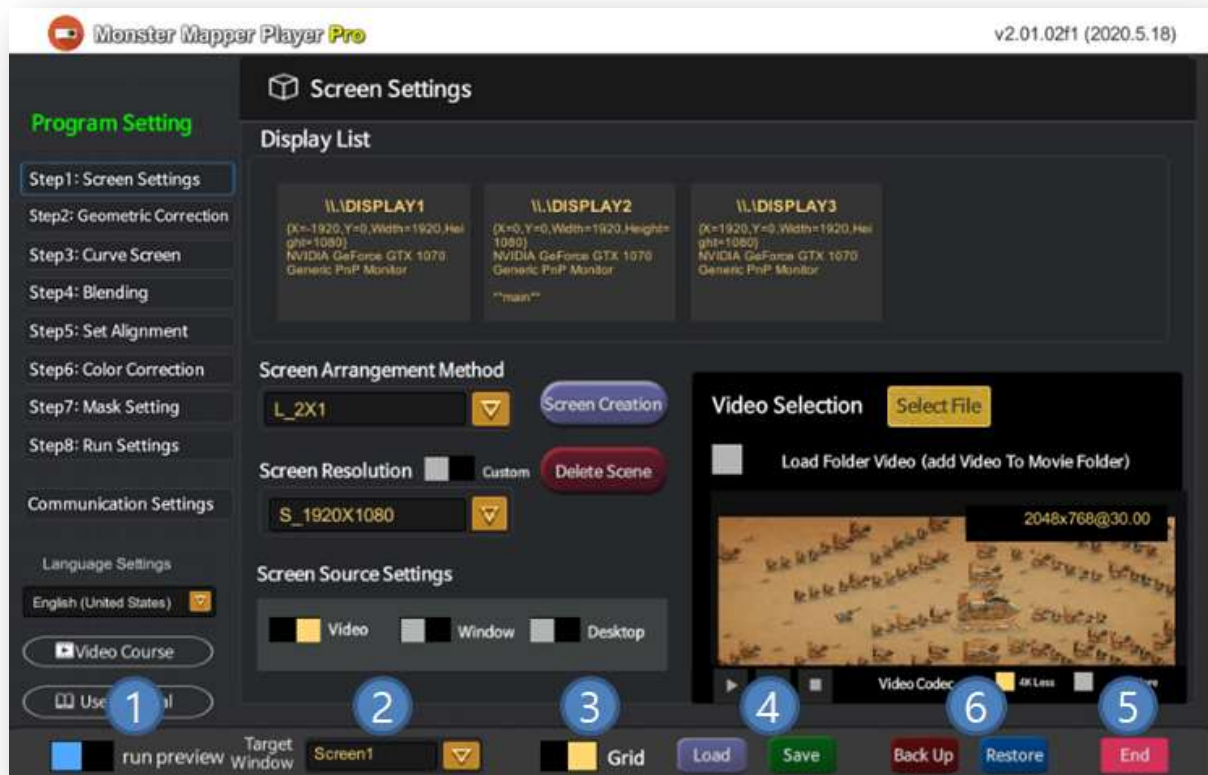
In The Case Of Video And Window, You Can Set The Position And Size In The Alignment Settings (Resize)

Division	Setting Method
영상	 1. Play Video, Pause, Stop Control 2. Video Codec Type Setting According To Video Size

Window	Select A Program From The List Of Programs To Be Captured. Select And Click Apply To Start Capturing The Target Program.  When The Capture Is Set, The Target Program Is Found And Captured At The Start Of The Program, So Before Executing The Monster Mapper, The Program To Be Captured Must Be Executed In Advance.
Desktop	This Function Copies Two Screens To The Target Window. For Example, If A Total Of 4 Screens Are Connected, You Can Copy 1 And 2 Screens To 3 And 4 Screens Respectively. Specify The Copy Destination And Press The Apply Button To Operate. It Is Used When The Worker Works Using Screens 1 And 2 And Shows The Contents Of These Tasks On Screens 3 And 4. 

* Shortcut Note

In Addition To The Function Buttons For Each Screen, For Frequently Used Functions, You Can Use Shortcut Keys To Make Your Work Easier.

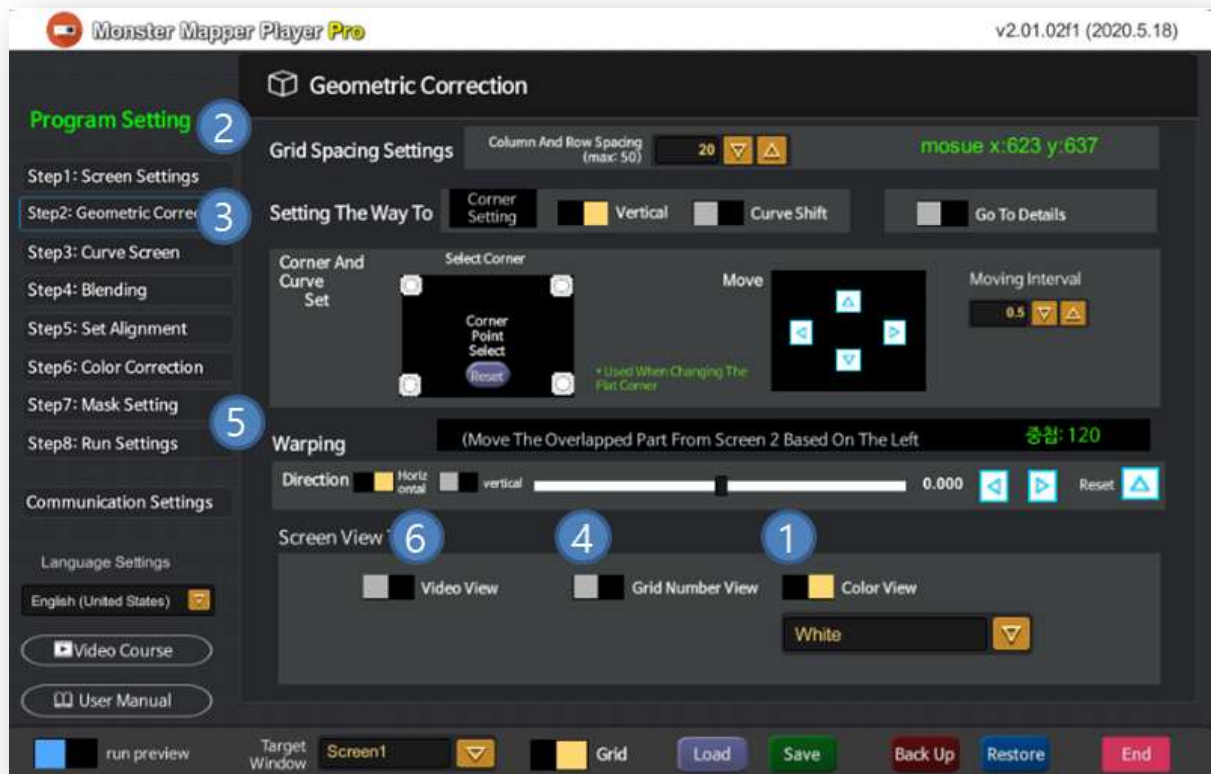


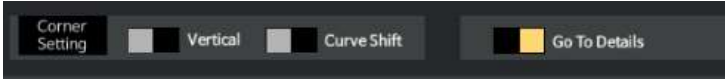
Function	Hotkey	Contents
1) Preview Execution	Switch To Run Mode, Not Edit Mode	
2) Switch Between Screens	Tab Key	
3) Grid show/hide	G Key	
4) Data Storage And Loading	None	Click The Menu Button
5) End	escape Key	
6) Backup And Recovery	When The Final Work Is Completed, Click Backup To Save The Data. If The Data Is Damaged, You Can Restore It By Clicking Restore.	* It Is Recommended To Make A Backup After The Final Setting Work. (The Backup Path Is: Program Folder / Data / Backup.data)
* Editor Mode Change Among Execution Modes	escape Key	
*Other Function Keys	Ui Size Adjustment (page up , page down Key) Arrow Keys (Move The Selected Point In Geometric Correction)	

Step 5 Monster Mapper Geometry Correction

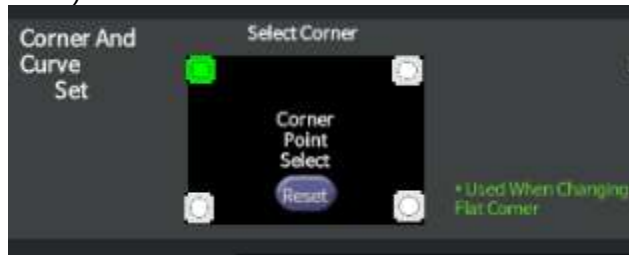
The Most Important Step Is To Adjust The Shape By Adjusting The Corners And Adjusting The Position Of The Selected Surface So That The Overlapping Parts Of The Projection Surface Naturally Overlap Through The Projection Shape Adjustment. It Is Usually Mapped Through Corner Adjustment, But If The Wall Is A Bit Complicated, You May Fine-tune It By Selecting And Controlling One Projection Point.

*** Around: If You Move The Corner And Curve In The Movement Method, The Detailed Movement Will Be Reset.**



Work Steps	Work	Contents
1) Color View Setting	Sets The Color Of The Projection Screen. White, Blue. Set The Color Of The Screen By Changing The Reds.'	
2) Grid Spacing	Specify An Appropriate Row And Column To Resize The Overlapping Area Of The Projector. The Overlapping Parts Between The Projection Planes Are Arranged To Fit Within The Area. Example) For 1920 x1080, if there are 30 columns, the width per grid is 64 pixels.	*일반적으로 열:30 행:20 정도가 좋습니다.
3)Grid Movement Method	It Uses 3 Types Of Control Movement.  The Movement Method Sets The Corners First And Then The Detailed Steps.	

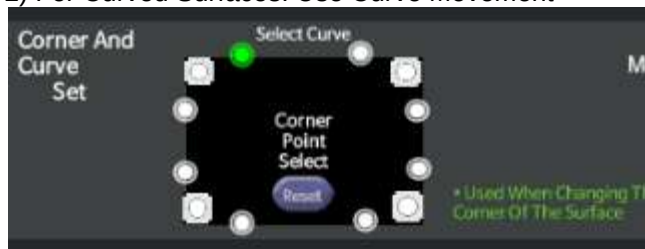
- 1) In The Case Of A Plane: Use Corner Movement
- 2)



Select The Four Corners By Clicking With The Mouse And Move Them Using The Keyboard Arrow Keys To Correct The Corner.

Pressing Reset Will Reset The Corresponding Face.

- 2) For Curved Surfaces: Use Curve Movement



You Can Select Two Curves On Each Side Based On The Four Corners And Move The Arrow Keys On The Keyboard To Project The Curved Surface.

Pressing Reset Will Reset The Corresponding Face.



- 2) Moving Details

Depending On The Movement Method, The Vertex Units, Horizontal And Vertical Units, And Point Units Are Smoothly Moved.

Select The Point To Move With The Mouse On The Screen And Move It Using The Keyboard Arrow Keys.



***Move The Selected Point Using The Arrow Keys**

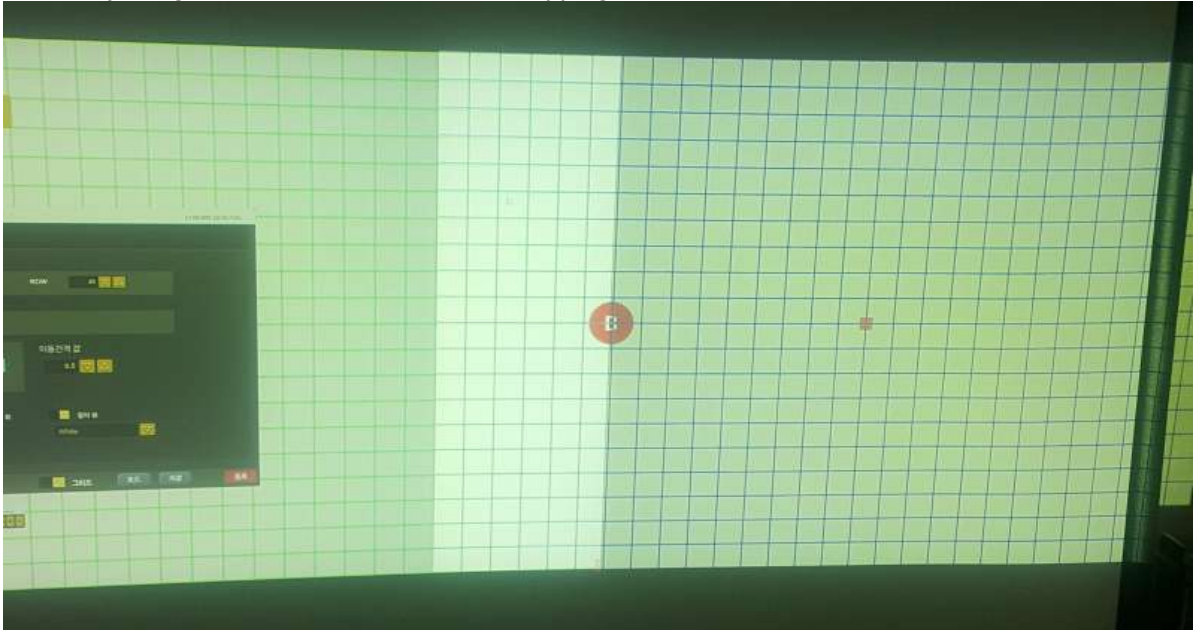
***Caution:When The Corner Is Adjusted, The Detailed Adjustment Is Reset.**

- Example Of Adjusting The Movement Of Overlapping Faces (6 Grids Set To Overlap)

<Before Adjusting The Overlapping Surface Movement>



<After Adjusting The Movement Of The Overlapping Surface>



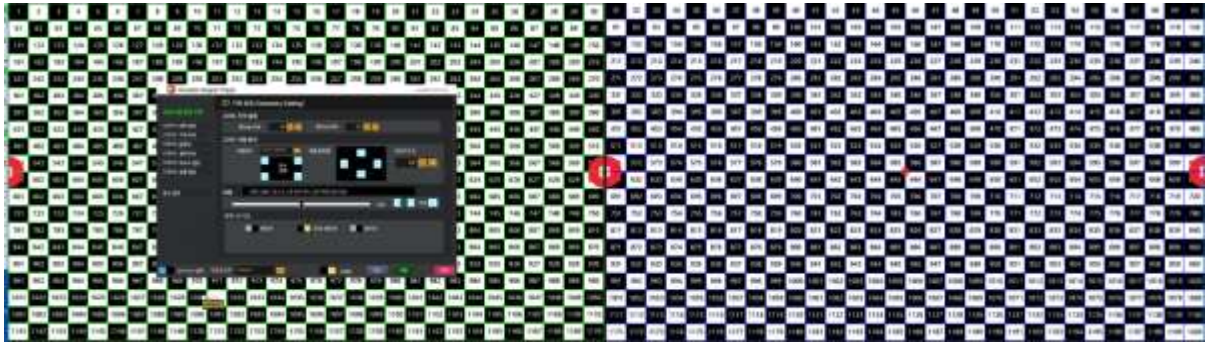
4) Grid
Number View
Switching

When Two Projectors Are Overlapped, The Overlapped Parts Overlap From Screen To Screen.

Ex) In The Case Of 2 Sides, The Image Is Projected On The Left Side, So The Screen Overlaps As Much As The 2Nd Image Overlaps The 1St Image.

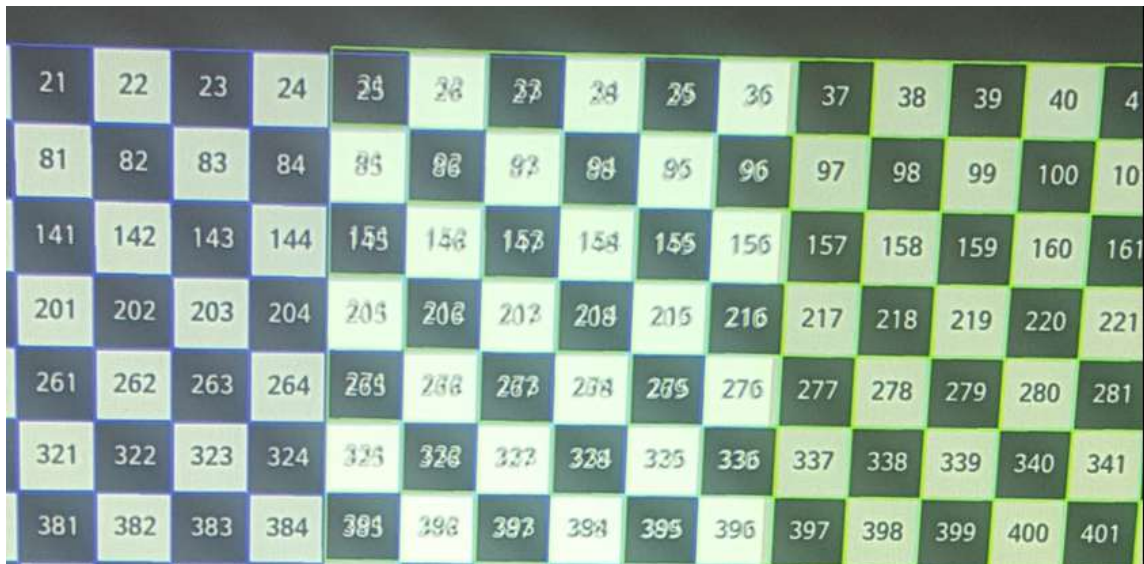
In Order To Correct This, The Screen Is Switched To The Five Number View, And The Screen 2 Is Moved To The Right Through Warping.

If You Look At The Grid Number View, If The Grid Interval Is 30:30 Rows: 20, The Screen 1 From The Left Becomes 1 To 30 And The Screen 2 Is Arranged In The Order Of 31-60.



<2 Screen Duplication Occurs>

Because Screens 1 And 2 Are Overlapped For Blending, The Grid Spacing Is 30:30 Rows: 20, 1-30 Is The Left Screen, But Screen 2 Is Overlapping With Screen 1.



5) Warping

This Is A Work That Moves The Coordinates Of The Screen By Clicking The Left And Right Buttons. The Coordinates Of The Screen Are Changed Horizontally Or Vertically Depending On The Screen Layout.

[Set Moving Direction]



Ex) In Case Of 2 Side, Screen 2 Is Superimposed On Screen 1, So In The Screen 2, The Number Moves To The Right To Show The Number As Much As The Overlapping Part Through The Warping Slider.



* In The Case Of The 2Nd Side, Since The Screen Is Left, There Is No Movement On Screen 1, But Only Screen 2 Needs To Be Moved To The Right. In The Case Of 3 Sides, Screen 1 Does Not Move, But Moves 2 And 3 Respectively.

<The Grid Number Is 25 And The Right 30 Is Overlapping>

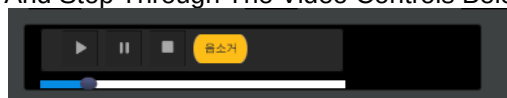
21	22	23	24	25	26	27	28	29	30	37	38	39	40	41
81	82	83	84	85	86	87	88	89	90	97	98	99	100	101
141	142	143	144	145	146	147	148	149	150	157	158	159	160	161
201	202	203	204	205	206	207	208	209	210	217	218	219	220	221
261	262	263	264	265	266	267	268	269	270	277	278	279	280	281
321	322	323	324	325	326	327	328	329	330	337	338	339	340	341
381	382	383	384	385	386	387	388	389	390	397	398	399	400	401

<Numbers 25 Through 30 Are Interlocked Sequentially Through The Warping Movement>

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216
261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276
321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336
381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396
441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456

6) Video View Switch

You Can Check The Video You Want To Play By Switching To The Video View With The Warping Completed. You Can Play And Stop Through The Video Controls Below.

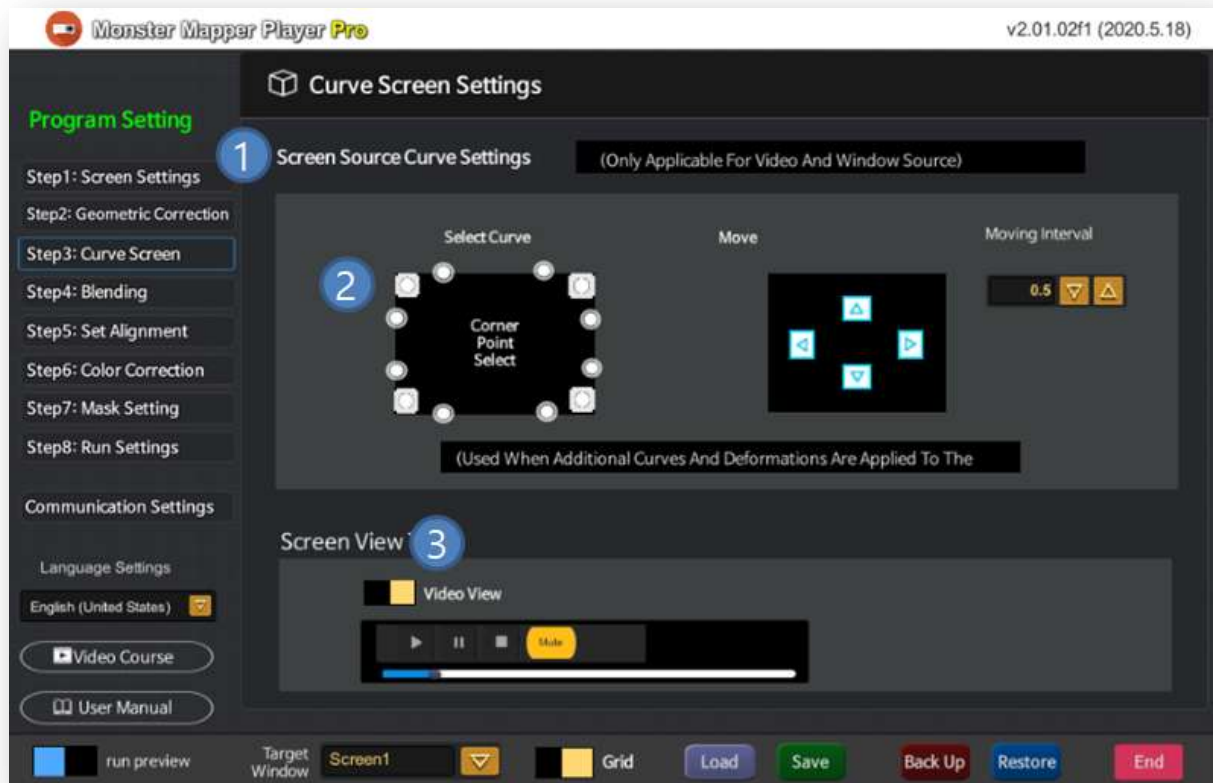


* Checking The Video With The Video View



Step 6 Monster Mapper Curve Screen

This Is The Screen To Adjust The Original Source Screen Geometrically. In Addition To Adjusting The Corner Position, You Can Also Adjust The Original Source To Be Displayed In Three Dimensions Using Geometrically Corrected Surface Movement.



Work Steps	Work	Contents
1) Screen Source Curve Target	Applicable Only For Video And Window Sources	
2) Curve Movement Position Setting And Movement Control	Control In The Same Way As The Curve Control Of The Geometric Correction In The Previous Step	
3) Control By View Type	In Case Of Video Source, It Controls Play, Stop, Stop, Etc.	



[Source Screen Curve Setting]

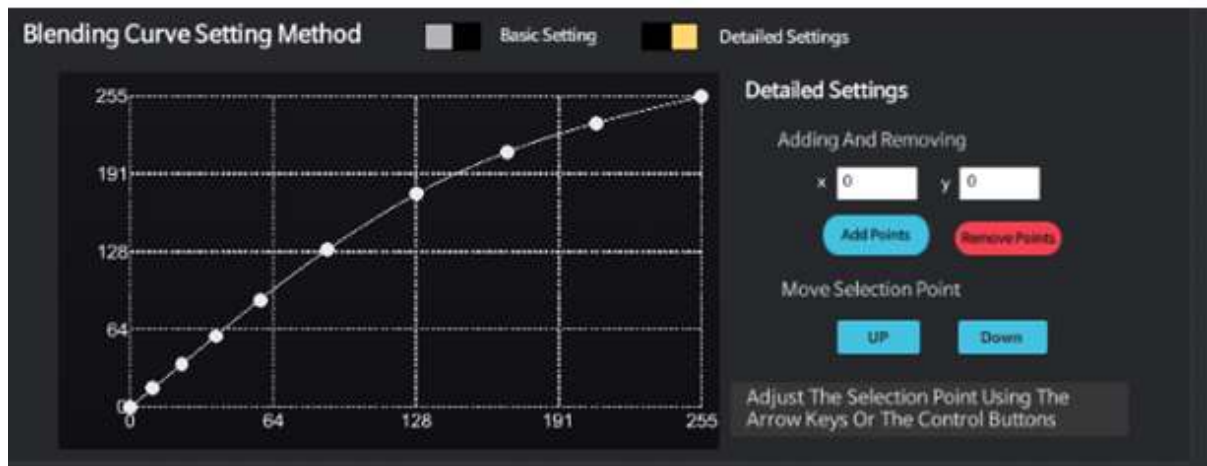
Step 7 Monster Mapper Blending

This Step Naturally Corrects The Overlapped Area Of The Projection Surface. In The Case Of An Overlapped Screen, The Two Colors Overlap, Resulting In Twice The Brightness. This Is A Step To Correct The Brightness Naturally By Adjusting The Blending Curve Of The Overlapping Part And Adjusting The Brightness Of The Overlapping Part.



Work Steps	Work	Contents
1) Select Blending Direction	Specifies The Direction Of Blending Based On The Screen. Blending Is Possible In Four Directions: Left And Right And Up And Down. For Example, In Case Of 2 Side, Set The Right Side Of Screen 1 And The Left Side Of Screen 2. <u>(If You Set The Right Side On The 1St Screen, The Left Side Is Automatically Specified On The 2Nd Screen)</u>	* Even If Left Is Selected On Screen 2, The Right Side Of Screen 1 Is Set.
2) Setting The Blending Interval	Set The Number Of Overlapping Grids In The Geometric Correction In The Previous Step And Click Apply To Specify The Blending Interval.	
3) Blending Curve Method	You Can Select Basic Settings And Detailed Settings. First, Work With The Basic Settings, And If You Need More Detailed Settings, Select Detailed Settings.	

<Detail Settings>



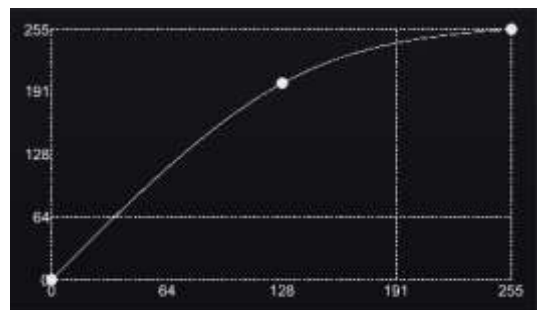
[Main Function]

- 높이 Adjust the height by selecting 10 individual points (up / down button or click the up and down arrow keys)
- 추가 Add a new point through the values of X and y (e.g., add a new point at y: 200 at x: 130)
- ☒ Remove selected points

4) Curve Adjustment

Value

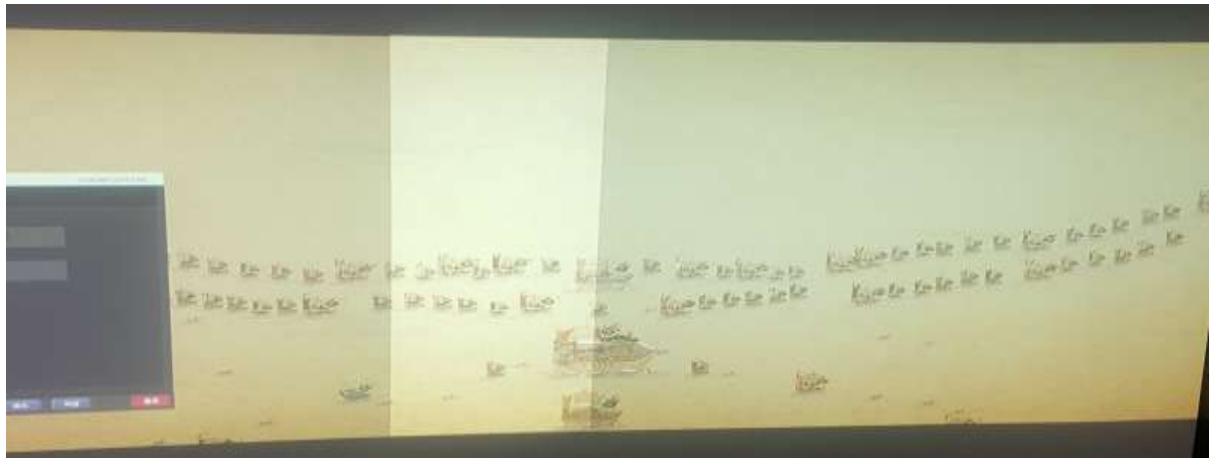
Adjust The Curve To Adjust The Brightness Of The Overlapping Part In The Form Of A Graph.



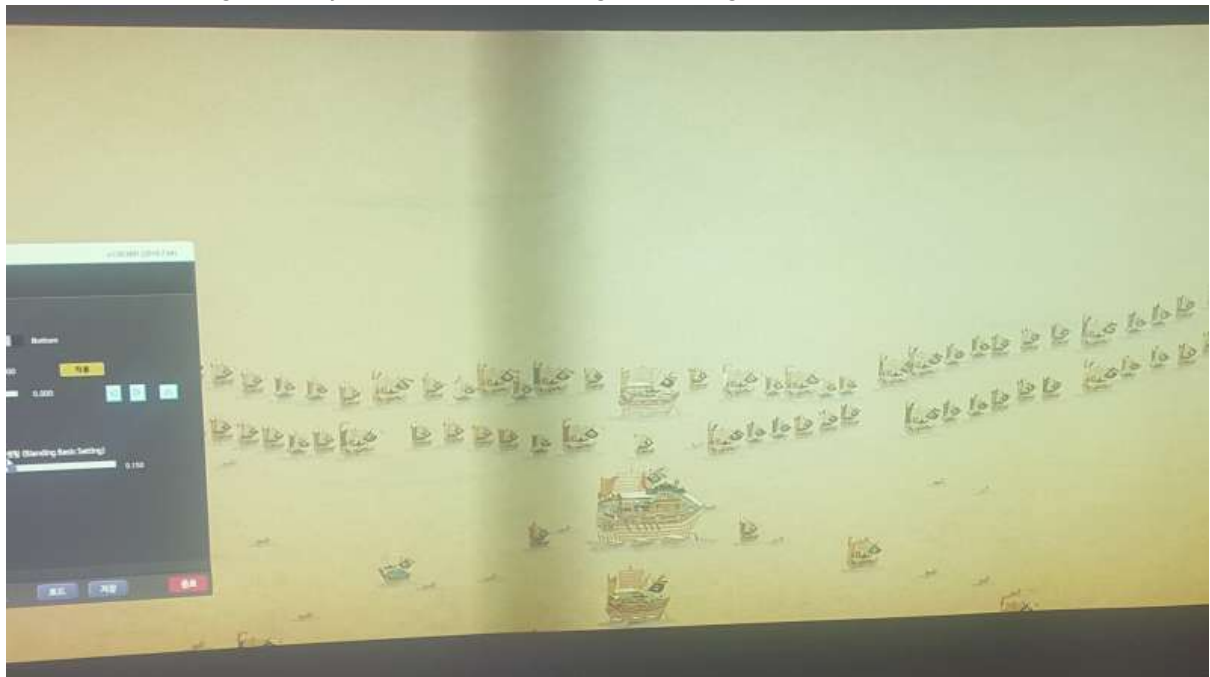
- Use By Graph Axis
(y-Axis Is Color, 0 Is White 255: Black)
(the X-Axis Is The Spacing Of Blending.)
- Meaning Of Graph Setting Based On Screen 1 (Value: 0.6)
Decrease The Brightness Gradually From Left To Right In The Overlapping Area Of Screen 2.

* In The Case Of Projector Projection, Black Will Not Be Visible From The Projector.

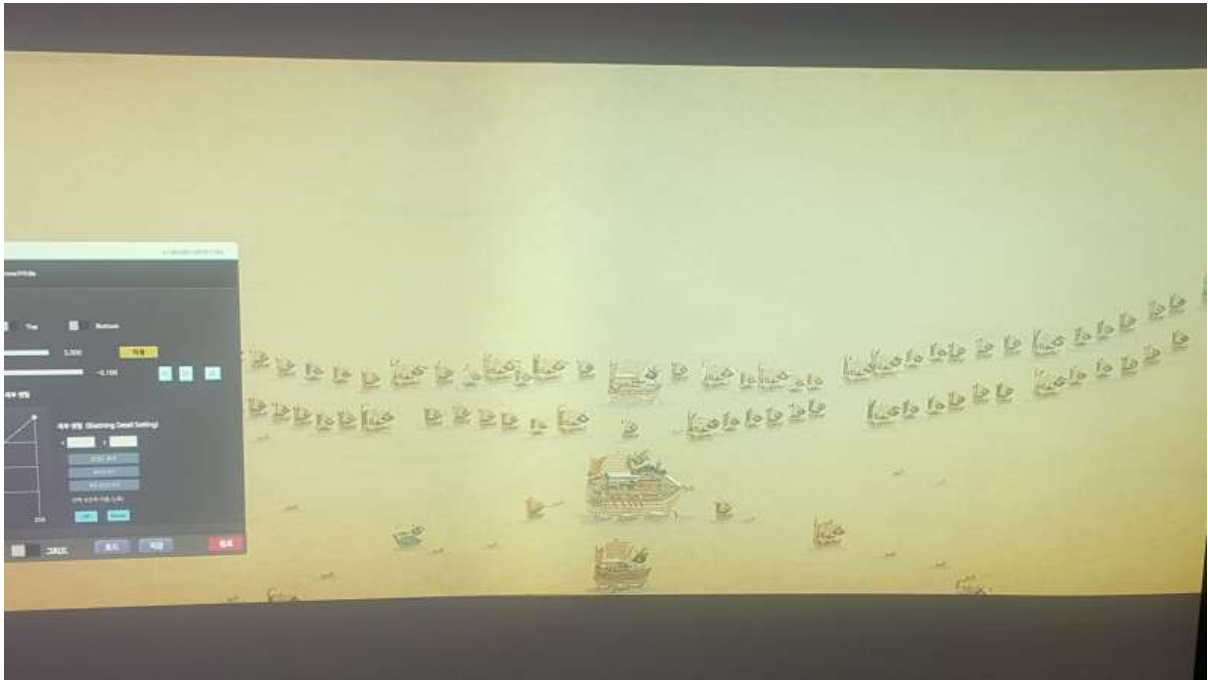
<Overlapping Color Before Blending>



<Intermediate Stage Of Adjustment Work Through Blending Curve>



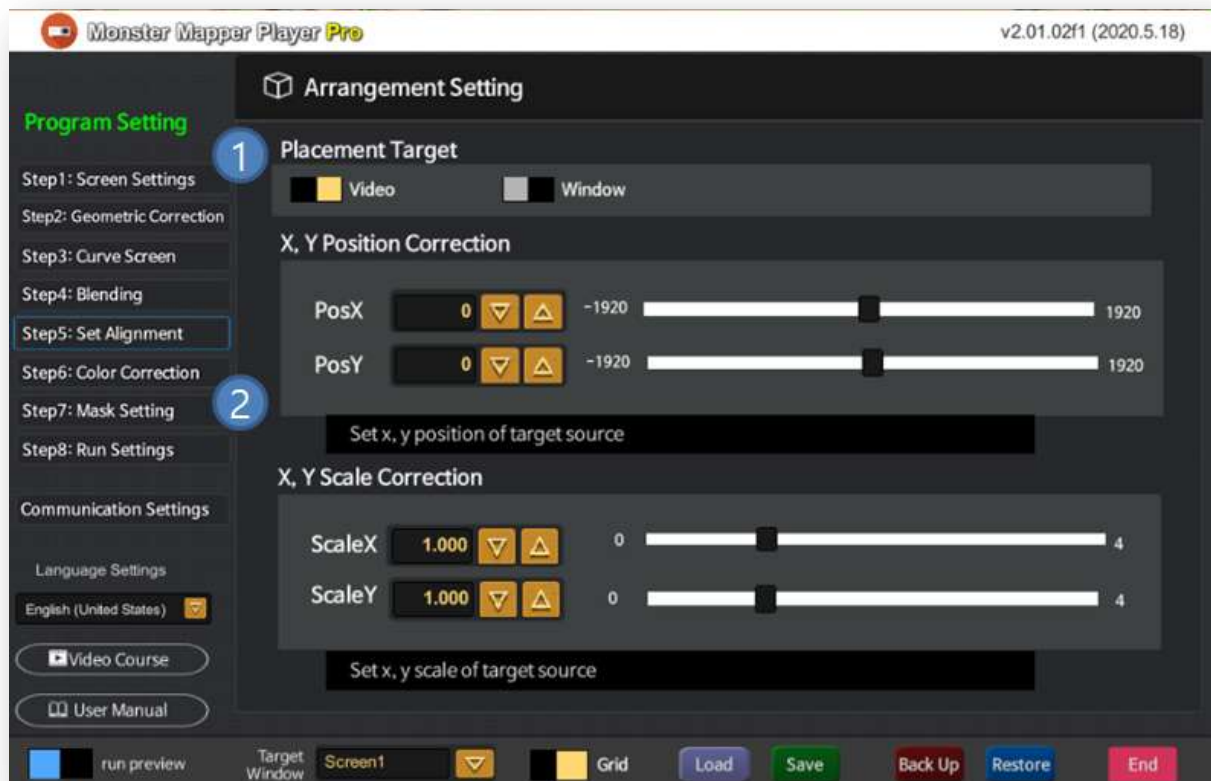
<After Completing The Blending Curve Adjustment Work>



5) Show Blending	Hide	You Can Show Or Hide The Set Blending.	
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Step 8 Monster Mapper Alignment Settings

Since The Proportion Of Overlapping Parts Between Projectors In Multi-projection Can Be Different, It Is Difficult To Accurately Size The Image Source, So It Is Possible To Adjust The Position And Scale Based On The Produced Image. This is the process of adjusting the x, y position of the resource and the x, y scale to place the resource on the projection plane.



Work Steps	Work	Contents
1) X, Y Position Shift	You can move the projected image within the range of -1920 to 1920 on the x, y axis by aligning the center of the left.	
2) X, Y Scale Correction	You can scale up to 4x from the reduction of the original resource in the x, y axis..	* If Many Images Are Excluded Due To The Large Number Of Overlapping Faces, The Scale Can Fill The Projection Face.

<Video With Insufficient Top And Bottom Size On The Screen>

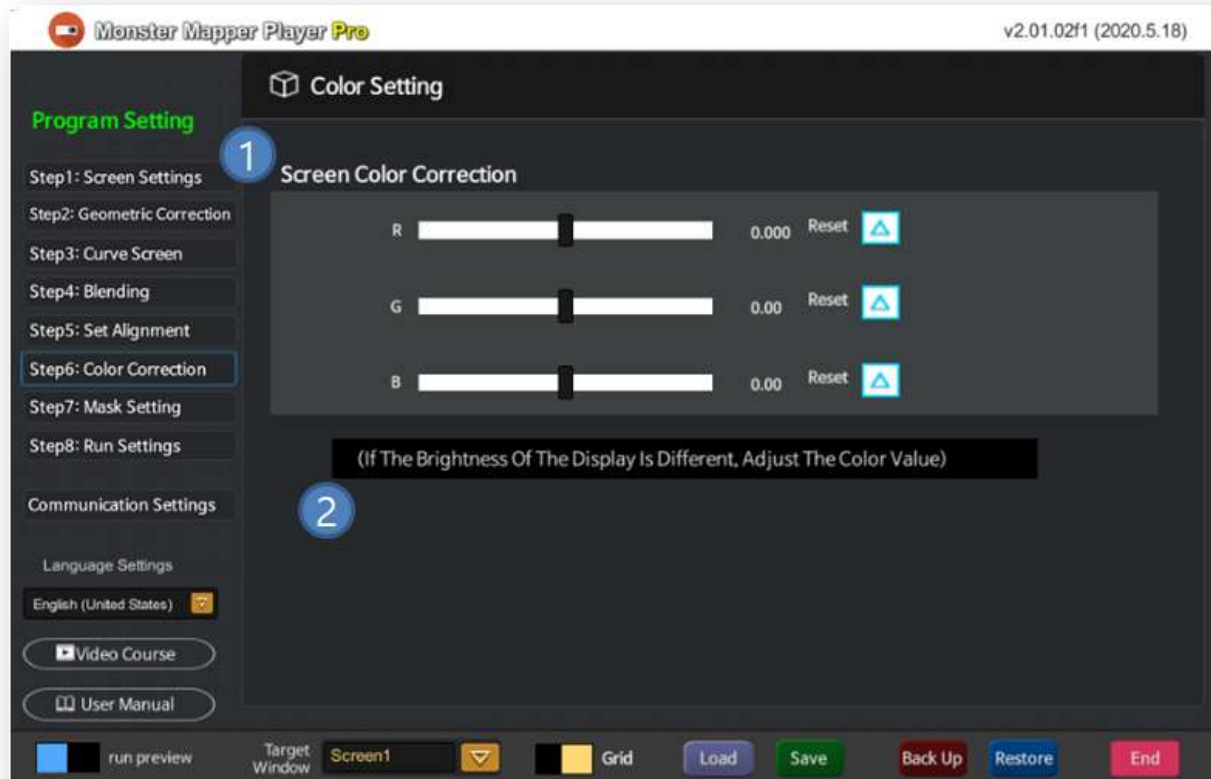


<Size Adjustment Through Alignment Adjustment>



9 Levels Of Monster Mapper Color Correction

When Using A Projector, The Brightness Of The Projector May Be Different When Printing, Or The Brightness May Be Different Due To The Difference In Lighting In The Exhibition Space. At This Time, Detailed Adjustment Is Possible Through Color Correction For Each Screen.



Work Steps	Work	Contents
1) Screen Color Correction	Set the color of the screen by changing the R, G, B r values according to the working environment.	
2) Color Tools	You Can Check The Color Color Value For Each Screen By Installing The Color Tool App For Android. * Download Link http://www.interactivekorea.co.kr/download/colortool_v0.1.apk 	* Click The Mobile Screen To Show The Pixel Rgb Value At The Click Position.

Step 10 Set The Monster Mapper Mask

This Step Is To Make A Specific Part Of The Transparent Face Invisible. You Can Set The Mask To Make The Screen Invisible Through The Mask Settings For The Left, Right, Up And Down Directions.

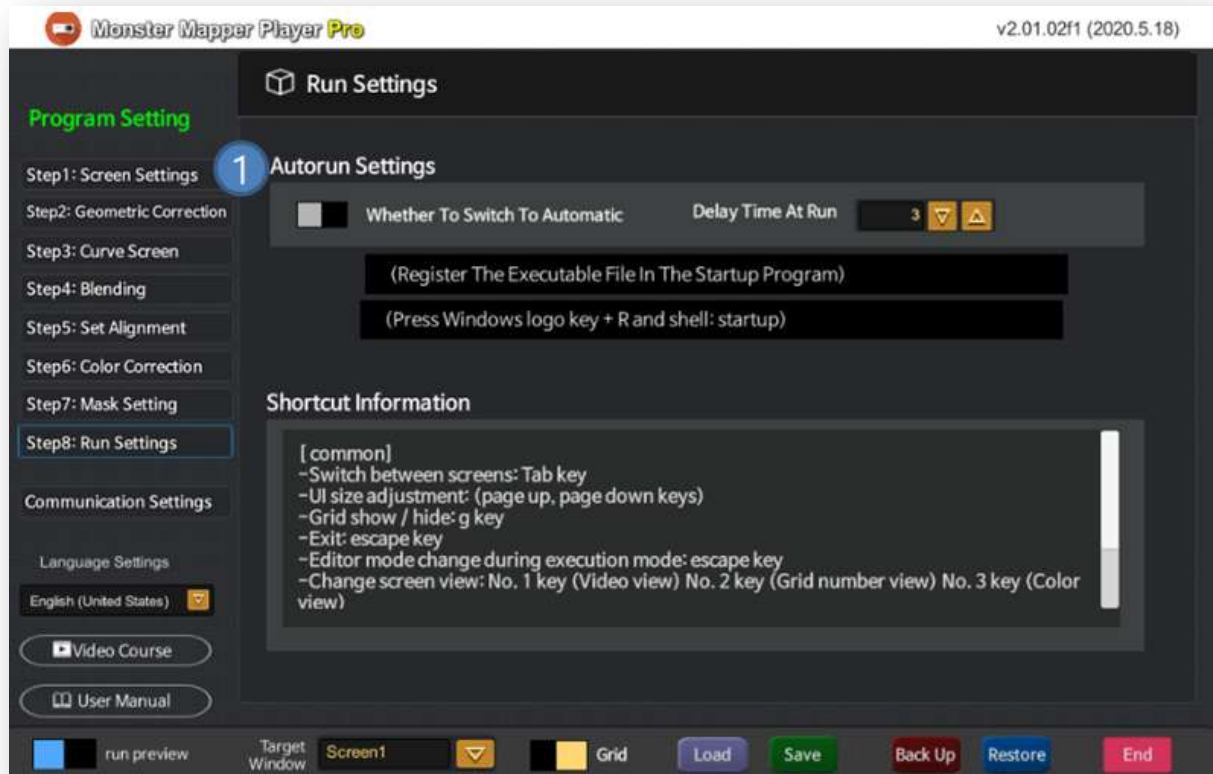


Work Steps	Work	Contents
1) Mask Direction Setting	Specify The Mask Direction For Each Screen.	4 Directions Can Be Specified At The Same Time
2) Mask Length Setting	Set The Mask Length.	
〈Right Mask Setting On Screen 2〉		
3) Show Hide	You Can Show And Hide The Set Mask.	

11 Step Monster Mapper Execution Settings

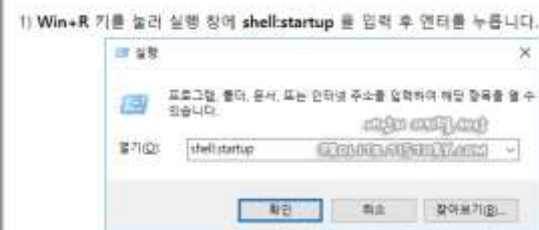
Finally, the program is automatically executed when Windows boots, and the video is automatically played based on the set data. Register the executable file in the startup program in win10.

Turn on the auto run setting, and set the delay time to play after a certain time when running. If you set the autorun, it will automatically register in the startup program. If not, register directly as below.

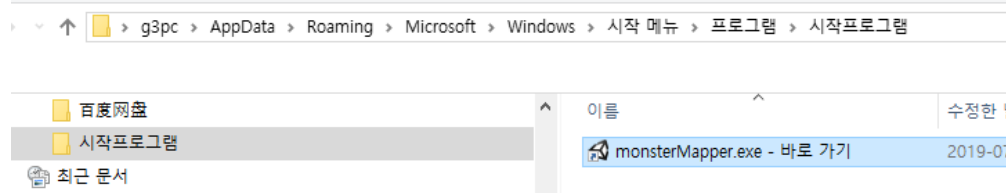


• Autorun Program Registration Method

1. Start program registration in Win10: Press Win logo + R and enter shell: startup



2. Add A Shortcut To The Executable File Of The Program To The Startup Program Folder



12 Step External Video Play Sensor Linkage

It Is Necessary Not Only To Play A Video, But Also To Play A Sensor When A Person Comes In Or To Send A Signal To Control The Play Of The Video By Installing An External Switch.

If You Need Such A Function, Please Contact Us To Add A Separate Sensor And Sensor Interlocking Module To Provide Customizing.

Work Steps	Work	Contents
Support Sensor	Object Recognition Sensor, Touch Sensor, Laser Sensor, Ir Sensor Camera Sensor	
Communication	Serial Communication, Tcp / Ip Server Communication	

Appendix 1: Q & A

Item	Contents																
Can I Back Up The Final Settings Data?	If You Press The Backup Button On The Bottom Menu Of The Main Screen, The Entire Setting Data Is Saved. If You Move This Data To Another Project, Or Keep It In Case Of Data Loss, And Restore (Program Folder / Data / Backup.dat), Then Click Restore At The Bottom To Restore The Setting Data.																
How Many Channels Are Connected To PC?	Up To 8 Outputs Are Possible And 4 Channels Are Recommended For A Typical PC. If You Have A Graphics Card That Supports 4 Channels, You Can Display It. If You Want More Than 4, Connect Two Graphics Cards Using A Computer That Supports Nvidia's SLi.																
What Is The Difference Between A Licensed Version And A Non-licensed Version?	There Is No Functional Difference. If The License Is Not Registered, The Program Is Automatically Terminated Every Hour, So You Can Play Again.																
Monster Player What Is The Difference Between Basic, Pro And Quadro?	The Three Products Can Be Classified According To The Functions Used.. <table><tr><th>Product</th><th>Purpose</th><th>Target Screen Form</th><th>Hardware</th></tr><tr><td>Basic</td><td>Video Applications</td><td>Vertical Plane Only</td><td>No Hardware Restrictions</td></tr><tr><td>Pro</td><td>Video And Window Program Capture</td><td>Vertical, No Surface Restriction</td><td>No Hardware Restrictions</td></tr><tr><td>Quadro</td><td>Use The Screen As If You Were Using Windows Without Restrictions</td><td>Vertical Only, Blending The Window Itself</td><td>Dedicated Graphics Card Need (nvidia quadro)</td></tr></table>	Product	Purpose	Target Screen Form	Hardware	Basic	Video Applications	Vertical Plane Only	No Hardware Restrictions	Pro	Video And Window Program Capture	Vertical, No Surface Restriction	No Hardware Restrictions	Quadro	Use The Screen As If You Were Using Windows Without Restrictions	Vertical Only, Blending The Window Itself	Dedicated Graphics Card Need (nvidia quadro)
Product	Purpose	Target Screen Form	Hardware														
Basic	Video Applications	Vertical Plane Only	No Hardware Restrictions														
Pro	Video And Window Program Capture	Vertical, No Surface Restriction	No Hardware Restrictions														
Quadro	Use The Screen As If You Were Using Windows Without Restrictions	Vertical Only, Blending The Window Itself	Dedicated Graphics Card Need (nvidia quadro)														
How To Learn How To Use Monster Player?	You Can Download The Trial Version Of The Link Below To Test The Functionality With The Demo Version. There Are No Functional Restrictions. [Download Trial Version] http://www.interactivekorea.co.kr/bbs/board.php?bo_table=interactive_mapper&wr_id=5 Instructions On How To Use Are Available At The Link Below. https://www.youtube.com/watch?v=Cv9b7EsJ1gA&list=PLb7IW1qZ5JPiRylaLuP40xGdEZiMs1Y8qICv9b7EsJ1gA																

Appendix 2: Natural Blending Setup

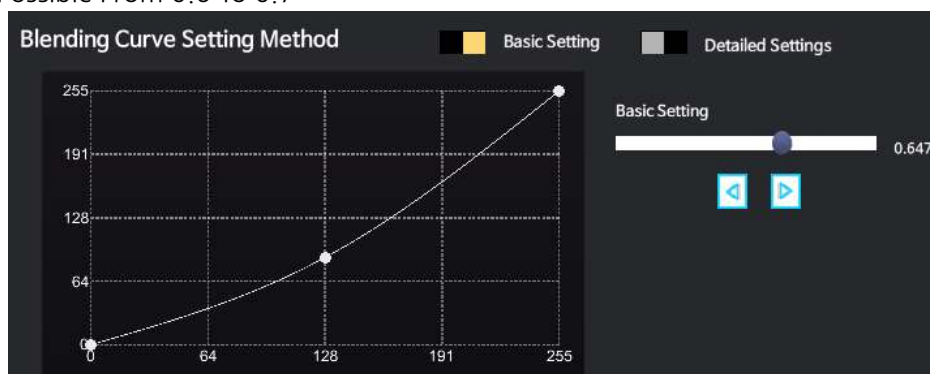
When Bleeding The Contact Surface Between Projectors, If The Brightness Between Projectors Is Different Or The Lighting Is Different, The Natural Setting Cannot Be Obtained By Only The Default Setting. The Following Black Shades Will Be Produced.



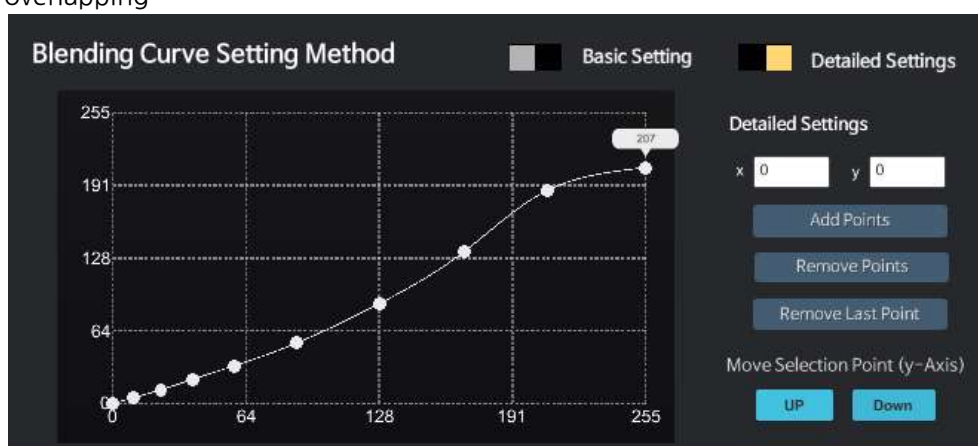
[Natural Blending Process]

Basically, The Overlap Between Projectors Is Maintained At Around 20%.

Step 1: In The Default Setting, Set The Blending Value Of Each Screen To Look As Natural As Possible From 0.6 To 0.7

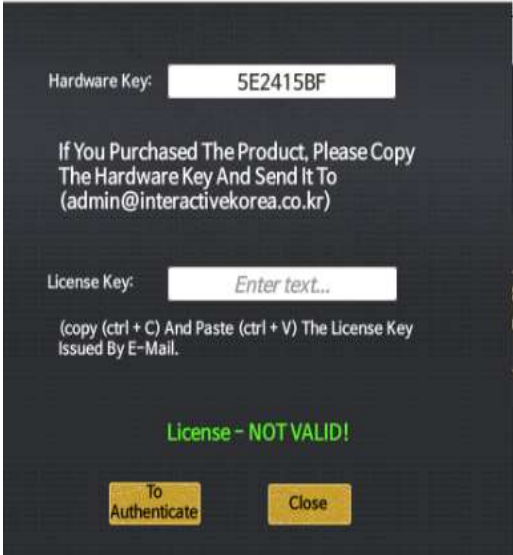


Step 2: On the two screens that overlap each other, 1 is fixed and the remaining screens are selected in detail. Adjust the detail by reducing the y value of the shaded area based on the overlapping area. .



Appendix 3: License Registration Procedure

If You Do Not Register The Linesense, There Are Restrictions On The Use Of The Product. Full License Registration Is Performed According To The Following Procedure.

Step	Contents
Click The Linesense Registration Button	
After Purchasing The Product, Send The Hardware Key By E-mail	
Authentication Key Registration	Enter The Authentication Key You Received In The License Key And Click The Authenticate Button.

End.