NEC

Projector installation, adjustment assist software

ProAssist™

User manual

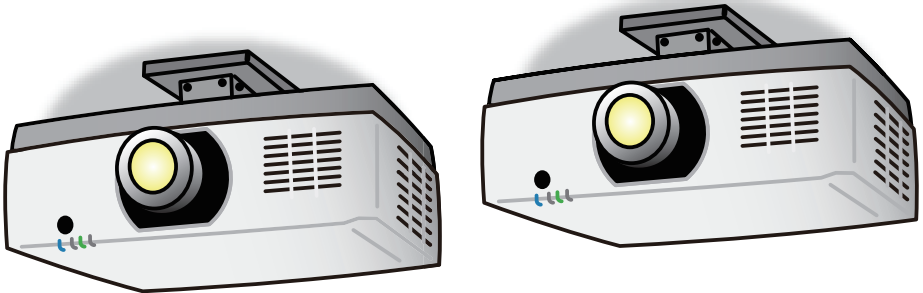Compatible with ProAssist Ver. 1.2

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NOTE

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1. Overview of ProAssist

1-1. Features

ProAssist is software for controlling the projector and adjusting the projection screen from a computer via a network.

It allows necessary adjustments to be carried out smoothly when combining several projectors together to project a large screen in a classroom, meeting room, hall etc.

- Switching the input signal
- Adjusting the quality and brightness etc. of the picture
- Lens control

  Lens Shift and focusing etc. can be carried out and the adjustment values thereof can be saved.

- Correction of screen geometric distortion (Geometric Correction)

  Performs distortion correction when projecting onto a screen with a special shape such as a cylindrical or spherical surface etc.

- Adjusting the boundary of the screen (Edge Blending)

  It makes the screen boundary less distinct by adjusting the brightness, color density etc. of the area where the screens overlap.

  Example of four projectors in a 2 × 2 layout:

- **Adjusting the color uniformity of the screen (Uniformity)**

  It corrects the color non-uniformity that may occur locally on the projection screen. The color non-uniformity is reduced by gradually changing the colors in the selected range.

- **Adjusting the intermediate tone colors between projectors**

  Adjust the RGB level for each gradation and set the gamma tone (gradation reproducibility) to make the screen uniform.

- **Auto adjustment using a webcam**

  When a webcam is connected to the computer on which ProAssist is installed, the images projected by two projectors can be filmed with the camera and the image quality can be adjusted automatically.
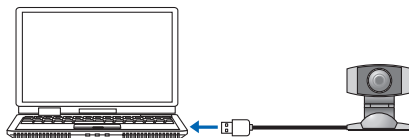
1-2. Operating requirements

The projector is operated in the following OS environment.

- Windows 10 (32-bit version/64-bit version) Home / Pro / Enterprise / Education

Minimum resolution of screen
1280x800 (WXGA)

Compatible projectors
Check the download page of our company.
URL: https://www.nec-display.com/dl/en/pj_soft/proassist.html

1-3. Install / Uninstall

1. **Download ProAssist.**

   Access the download page of our company.

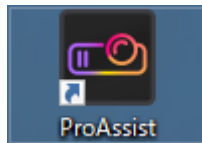   URL: https://www.nec-display.com/dl/en/pj_soft/proassist.html

   Store ProAssist_Installer_X.X.X.X.exe on the computer. (X refers to its version.)

2. **Doubleclick ProAssist_Installer_X.X.X.X.exe.**

   The installer will start.

   Proceed to the next step according to the message on the screen.

   When installation is complete, a shortcut icon for ProAssist is created on the desktop.

To uninstall

1. **Open the "Windows Settings" window.**
2. **Click "App".**

   The "App and Function" window will appear.
3. **Click "ProAssist" in the list of applications.**
4. **Click "Uninstall".**

Proceed to the next step according to the message on the screen.

# 2. Operating ProAssist (basic operations)

Preparations:

- Install the projector and connect it to a network.
  See the user's manual of the projector for details on how to install and connect the projector.
- Connect the computer where ProAssist has been installed to a network.

2-1. Starting / ending ProAssist

■ Starting from the shortcut icon

Double-click the ProAssist shortcut icon on the desktop.
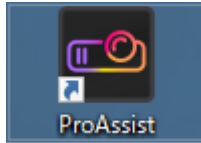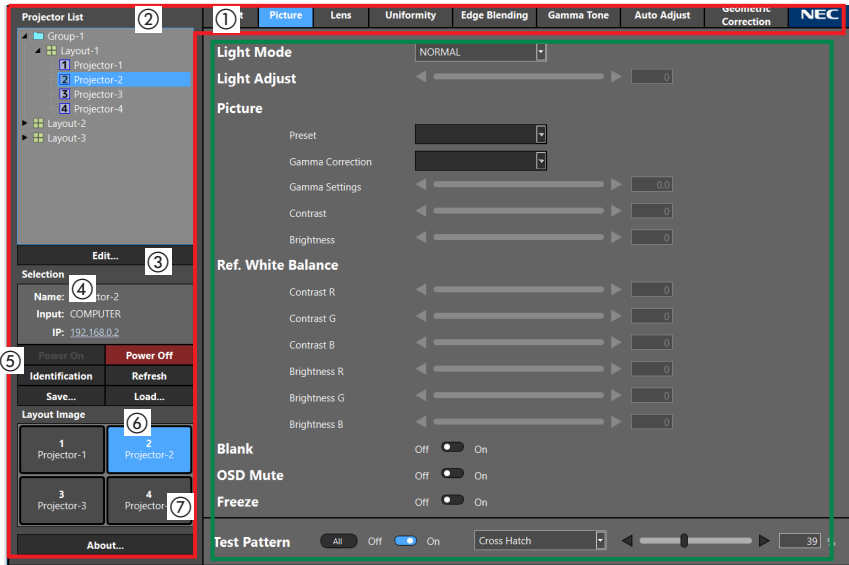

■ Starting from the start menu

Click "Start" → " NEC Projector User Supportware" → "ProAssist".

The ProAssist screen will appear.

To end

Click the Close button at the top right of the window (✕).

2-2. Screen and operating method

↑ Common screen   ↑ Display area

A description on how to operate the common screens and menu is given here.

Menu selection and a variety of settings and adjustments are carried out using a mouse or keyboard.

The selected item will be displayed in light blue.

[Common screen]

① Menu selector tab

　Switches the setting and adjustment menu and displays it in the display area.

　Click the NEC logo to open the browser and display the website of our company.

② Projector List

　Displays the registered Group, Layout or Projector in a tree format.

　Select the Projector to adjust from this list.

　Displays the status of the projector using icons.

▣	Communicating
🔴1	Communication error
🔵1	Network standby
🔲1	Layout number (except the status above)

③ Edit button

　Displays the Projector List Editor screen (→ Page 11)

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④ Selection

Displays the status of the projector selected in the Projector List.

"-" appears when multiple projectors are selected.

Name	Displays the Group, Layout, Projector Name.
Input	Displays the input terminal.
IP	Displays the IP address. Click the IP address to open the browser and display the HTTP server screen of the projector.

⑤ Projector control button

Power On	Turns on the power supply of the projector.
Power Off	Turns off the power supply of the projector.
Identification	Displays the identification message (IP address) on the screen of the projector.
Refresh	Updates the status display of the projector.
Save	The ProAssist setting and adjustment values for the projector selected on the projector list are saved in the desired folder on the computer as a data file (*.dat). The default file name is "(projector list name).dat".
Load	The data file (*.dat) stored on the computer for the projector selected on the projector list is loaded into ProAssist.

NOTE
- Note that when the data file (*.dat) is loaded into ProAssist, the setting and adjustment values previously loaded in ProAssist are overwritten.

Items stored in the data file (*.dat)

Tab	Stored setting and adjustment values
Input	Not stored.
Picture	Light Mode, Light Adjust, Preset, Gamma Correction, Gamma Settings, Contrast, Brightness and Ref. White Balance
Lens	Not stored. Save and load lens adjustment values at Lens Memory on the "Lens" screen.
Uniformity	Mode, Adjustment R/G/B
Edge Blending	Mode, Marker, Control Top, Control Left, Control Right, Control Bottom, Black Level and Blend Curve **NOTE** - When the mode is Off, 0 is stored for the controls and the black level.
Gamma Tone	Mode and Adjustment
Auto Adjust	Not stored.

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Geometric Correction	Not stored.
	Save and load correction data using the file save ![save] and file load ![load] buttons on the "Geometric Correction" screen.

⑥ Layout Image
  Displays the projector layout of the selected Layout.
 Click to select the projector to be adjusted.

⑦ About button
  Displays the version information screen of ProAssist.

[Display area]
Click the menu selector tab to display the setting and adjustment menu in the display area.
Use the mouse or keyboard to configure each setting or adjustment item as shown below.
For keyboard use, the Tab key is used to move the focus among menus.

Display example	🖱 Mouse operation	⌨ Keyboard operation
Dropdown list NORMAL ▼	1) Click ▽ to display a dropdown list. 2) Click the item you want to select and confirm the selection.	1) Press the space key to display a dropdown list. 2) Press the ↑↓ keys to select an item. 3) Press the Enter key to confirm.
Adjustment bar ◀ ━━━●━━▶ 20 Handle	• Click ◀ to lower the value by 1. • Click ▶ to raise the value by 1. • Drag the handle to change to the value that you want. • Click the adjustment bar to increase the value. • You can enter the value directly by clicking the numerical input field.	• Focus on the handle and press the ← key to lower the value by 1. • Focus on the handle and press the → key to increase the value by 1. • You can enter the value directly by focusing on the numerical input field.
Off/On button Off ●━ On	The button turns On/Off each time it is clicked.	• Press the ← key to turn it Off. • Press the → key to turn it On.
△ button ◀	Click this button to move the lens in the direction of the arrow and change the Zoom/Focus.	Press the Enter key to move the lens in the direction of the arrow and change the Zoom/Focus.
Radio button 0° 90° 270°	Click the item you want to select and confirm the selection.	1) Focus on the button and press the Enter key. 2) Press the ↑↓ keys to select an item. 3) Press the Enter key to confirm.

Display example	🖱 Mouse operation	⌨ Keyboard operation
-/+ button `- + 100`	• Click - to lower the value by 1. • Click + to raise the value by 1. • You can enter the value directly by clicking the numerical input field.	[When the focus is on the - button] • Click the ← key to lower the value by 1. • Press the → key to move the focus to the + button and raise the value by 1. [When the focus is on the + button] • Press the ← key to move the focus to the - button and lower the value by 1. Click the → key to raise the value by 1.

References
• Multiple projectors can be selected on the projector list and their Power On/Power Off can be turned on and off simultaneously.
  When the power is turned on, a screen for setting the power on the delay time is displayed. The time can be set in increments of 30 seconds between 0 and 300 seconds. The default value is 0 seconds.
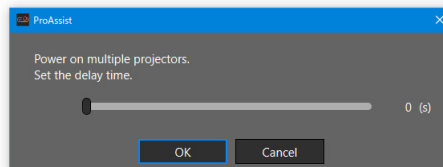
## 2-3. Registering a projector and creating a Projector List

Register the projector to be controlled as a control unit in Layout and Group and create a Projector List.
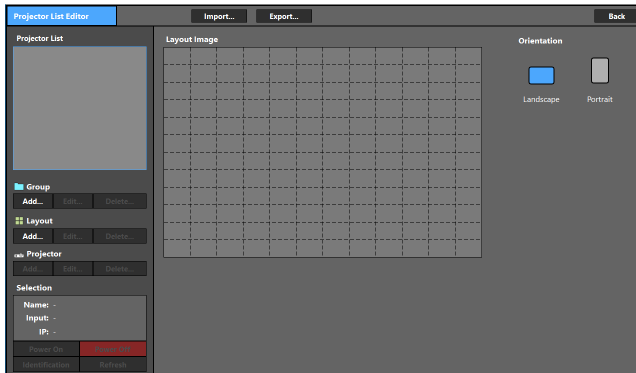

References
- A maximum of 6 projectors can be registered in a single Layout.
- The maximum number of levels in a Group is 4.
- A total of up to 100 Group and Layout can be created.

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1. Display the Projector registration screen

When you start ProAssist for the first time and nothing has been registered in the Projector List, the Projector List is displayed in the common screen as shown in the diagram below.
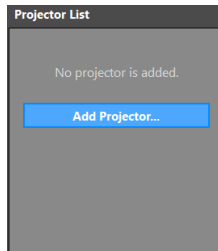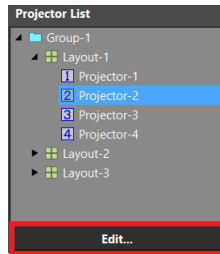

Click the Add Projector button to display the Projector List Editor screen.
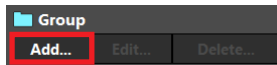
References
If the Projector List is already registered, click the Edit button in the common screen to display
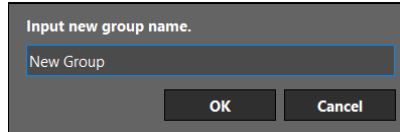the Projector List Editor screen.

2. Register the Group

(1) Click the Add button of the Group.

The Add Group screen will appear.
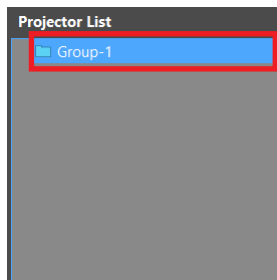
(2) Enter the name of the Group.

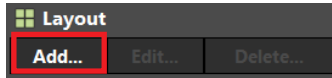Enter the name of the Group in 64 or less characters.

(3) Click the OK button.

The Group will be registered and the Add Group screen closes.

3. Register the Layout

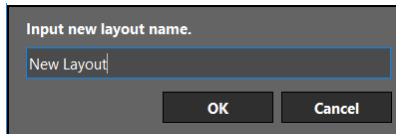(1) Select the Group to register the Layout from the Projector List.

(2) Click the Add button of the Layout.
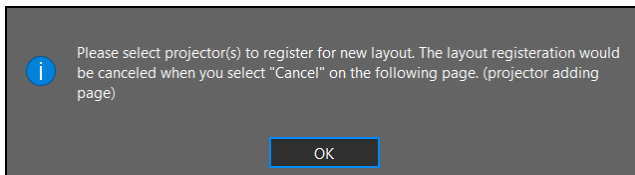

The Add Layout screen will appear.

(3) Enter the name of the Layout.

Enter the name of the Layout in 64 or less characters.

(4) Click the OK button.

The following message will appear.


(5) Click the OK button again.

The display will change to the Projector registration screen.

4. Select the projector to register

Select automatically or manually the projector to register.
Click the tab at the top of the screen to switch between the automatic selection screen and the manual selection screen.
*Only manual may be available for selection depending on the projector.
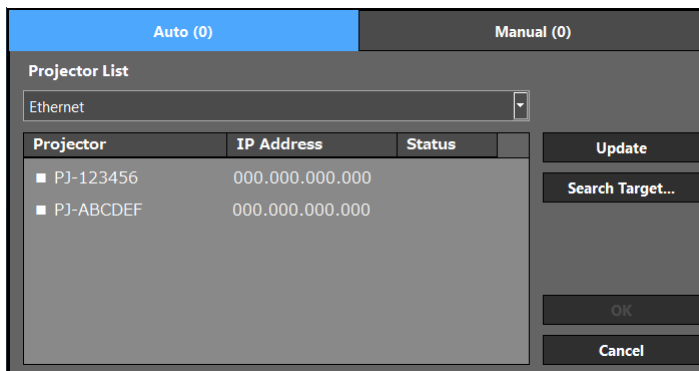
■ To select automatically

Search for projectors connected to the network.

(1) Select the area to search from the dropdown list.

Ethernet	▼
Ethernet	

(2) Tick the checkbox of the Projector to register.

Projector	IP Address	Status
☑ PJ-123456	000.000.000.000	
■ PJ-ABCDEF	000.000.000.000	

The number of selected projectors will be indicated within parentheses on the Auto tab.

- Click the Update button to update the screen.
- When you click the Cancel button, a confirmation screen will be displayed. Click "Yes" to cancel the projector selection and close the screen.

References

Follow the procedure below to search for a Projector by specifying the IP address.

(1) Click the Search Target button.

The IP address input screen will appear.

○ Specify IP address to search	**Add**
● Search specifying range	**Cancel**
Start Address:	. . .
End Address:	. . .

If "Specify IP address to search" is selected

Search for the Projector with the IP address entered in Start Address.

If "Search Specifying range" is selected

Search for the Projector with the IP addresses entered in the Start Address and End Address.

(2) Enter the IP address and click the Add button.

The display will return to the Projector List registration screen and the Projector found will appear.

■ To select manually

Enter the IP address of the projector connected to the network.

(1) Tick the checkbox in the IP address input field and enter the IP address.

The number of selected projectors will be indicated within parentheses on the Manual tab.

- When you click the Cancel button, a confirmation screen will be displayed. Click "Yes" to cancel the projector selection and close the screen.

5. Registering the projector

(1) Click the OK button on the automatic selection screen or manual selection screen.
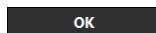
A confirmation screen is displayed.

(2) Click the OK button on the confirmation screen.

Register all the projectors selected on the automatic selection screen and the manual selection screen in the layout and return to the projector list edit screen.
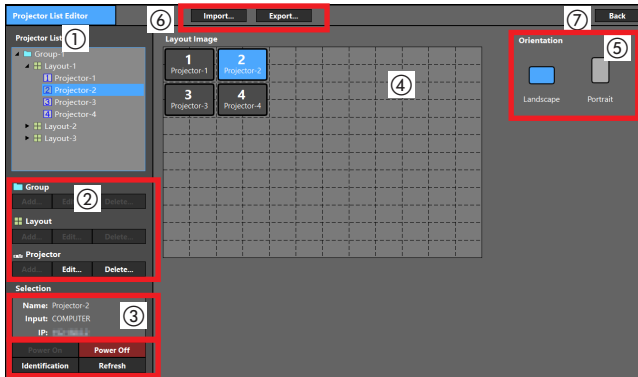
- Click the Cancel button to cancel the addition of projectors and close the confirmation screen.

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2-4. Editing the Projector List

You can edit the Projector List that you have created in the Projector List Editor.

Besides this, the following functions are also available.

- Checking and changing the Layout Image
- Projector control
- Import and Export of Layout

① **Projector List**

Displays the registered Group, Layout or Projector in a tree format.

Select a target to edit from this list.

You can perform a drag and drop in the Projector List area to move a Group, Layout or Projector.
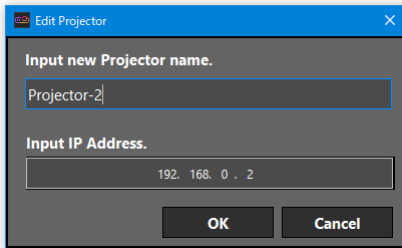
② **Projector List Edit button**

Group

Add	Displays the Add Group screen (→ Page 12). This button is enabled when no projector in the Projector List is selected or when Group is selected. You can set the Group name in 64 or less characters.
Edit	Displays the edit screen of the Group. This button is enabled when Group is selected in Projector List. The edit screen is the same as the add screen.
Delete	Deletes the Group selected in the Projector List. The Layout belonging to the Group will be deleted too.

Layout

Add	Displays the Add Layout screen (→ Page 13). This button is enabled when no projector in the Projector List is selected or when Group is selected. You can set the Layout name in 64 or less characters.
Edit	Displays the edit screen of the Layout. This button is enabled when Layout is selected in Projector List. The edit screen is the same as the add screen.
Delete	Deletes the Layout selected in the Projector List.

Projector

Add	Displays the Projector registration screen (→ Page 13). This button is enabled when Layout is selected in Projector List.
Edit	This displays the edit screen for editing the projector name and IP address. This button is enabled when Projector is selected in Projector List. You can enter the Projector name in 16 half-width characters or less. **NOTE** • IP addresses that have already been registered cannot be changed. • The projector name and IP address cannot be changed simultaneously. The change of the IP address has priority. • Even if the projector name has been changed, the projector name will not be changed if connection with the projector fails.
Delete	Deletes the Projector selected in the Projector List.

③ **Selection / projector control button**
Refer to common screen (→ Page 8).

References
When the focus is on a Layout Image, the selected projector can be controlled with the keyboard.
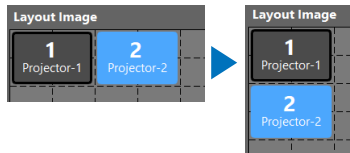Alt+I key : Displays the identification message (IP address) on the screen of the projector.
Alt+N key : Turns on the projector.
Alt+F key : Turns off the projector.

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④ **Layout Image**

Displays a projector layout plan showing the Layout selected in Projector List as an edit target. You can change the layout plan according to the installation condition of the projector.

Operations are carried out with the mouse or keyboard.

🖱 Mouse operation	⌨ Keyboard operation
Drag the mouse to move the position of the projector.	Tab key: Move the focus in the order of the projector number. Ctr+↑↓←→ keys: Move the selected projector vertically and horizontally. If another projector exists at the location to which you move a projector, the projector will switch the location with another projector.

⑤ **Orientation**

Switch the display of the Layout Image according to the installation direction (horizontal/vertical) of the projector.

⑥ **Import / Export button**

Import	Imports the Layout from the LIST file (*.lst) specified in the file selection screen.
	NOTE All registered information will be overwritten by the contents of the selected file.
Export	Exports the Layout to the LIST file (*.lst). The export target differs depending on the selection status of the Projector List.

	Selecting Projector	Layout which the selected Projector belongs to only
	Selecting Layout	Selected Layout only
	Selecting Group	Configuration under the selected Group
	No selection	All

⑦ **Back button**

Closes the Projector List Editor screen.

3. Adjusting the projector

3-1. Switching the input terminal [Input]
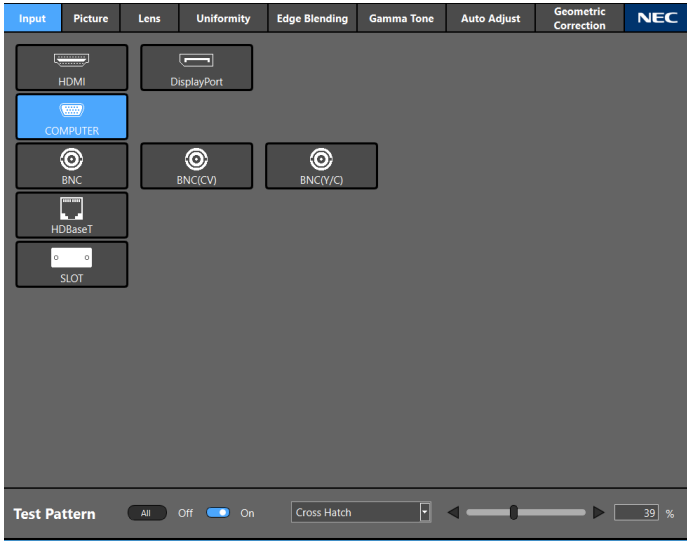
Switch the input terminal of the projector selected in the Projector List.

The input terminal of the selected projector will be displayed in the display area.

When multiple projectors are selected, the input terminal of each projector is merged and displayed, and you can also switch the inputs of them at the same time.

Operations are carried out with the mouse or keyboard.

Mouse operation	Keyboard operation
Click the icon of the terminal you want to select to switch the input.	Tab key: Moves the focus of the icon. Enter key: Switches the input to the terminal focused.

3-2. Adjusting the picture [Picture]
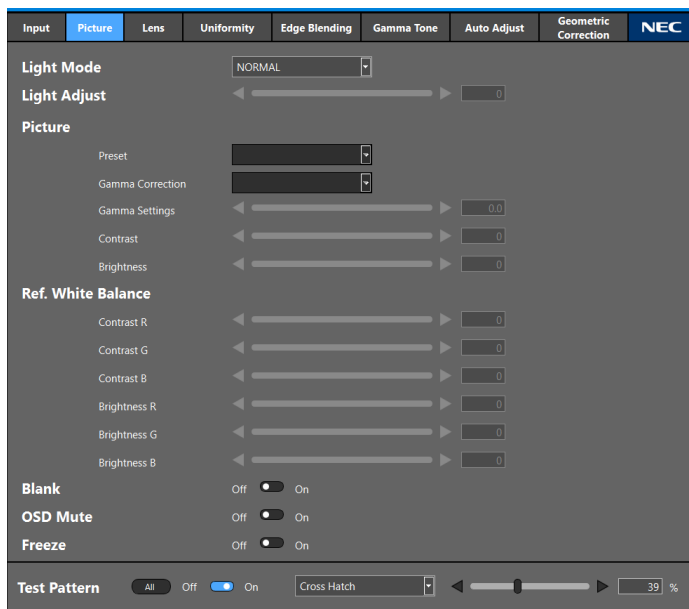
Adjust the picture quality of the projector selected in the Projector List and configure the settings of the Light Mode etc.

When multiple projectors are selected, the same adjustment values and settings are applied to all projectors.

[Light Mode]
Select the brightness.

[Light Adjust]
Adjust the output of the light source.

[Picture]

Preset	Select the optimal settings for the projected picture. Apply the same settings to all projectors for tiling projection by combining the pictures of multiple projectors. Refer to the user's manual of the projector for details of the selection items.
Gamma Correction	Select the gradation of the picture. Apply the same settings to all projectors for tiling projection by combining the pictures of multiple projectors. Refer to the user's manual of the projector for details of the selection items.
Contrast	Adjust the contrast of the picture.
Brightness	Adjust the brightness of the picture.

[Ref. White Balance]
Adjust the White Level and Black Level with the same signal to achieve the best color reproduction.

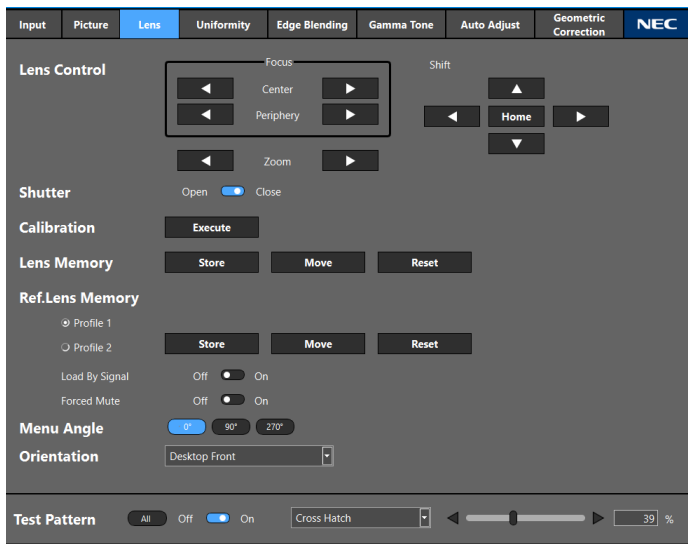| Contrast R, G, B	Adjust the white color of the screen.
Brightness R, G, B	Adjust the black color of the screen.

[Blank]
Turns off the picture for a while.

[OSD Mute]
Hides the on-screen display (menu, input terminal, message) temporarily.

[Freeze]
Captures a still image of the picture displayed.

3-3. Controlling the lens [Lens]

Adjust and configure the settings related to lens of the projector selected in the Projector List.
When multiple projectors are selected, the same adjustments and settings will be applied to all the projectors.

[Lens Control]

Focus	Center	Adjust the focus near the optical axis.
	Periphery	Adjust the focus around the screen periphery.
		*Depending on the projector, the only adjustment item may be "Focus".
Zoom		Adjust the size of the projection screen.
Shift ◀▶▲▼		Adjust the position of the projected image.
Home		Returns the lens to its home position

[Shutter]
Turns off the light source to turn off the projection light temporarily.

[Calibration]
Calibrates the adjustment range of the lens.

[Lens Memory]
Saves the adjustment value of the lens for each input signal.

Store	Saves the adjustment values of Lens Shift, Zoom and Focus in the projected input signal.
Move	Moves the lens to the saved adjustment position of the lens according to the input signal.
Reset	Deletes the adjustment value of the lens registered in the projected input signal.

[Ref. Lens Memory]
Saves the adjustment value of the lens as a common signal of all the projectors.

| Profile1, Profile2	Select the Profile number to register the adjustment value.
Store	Saves the adjustment values of Lens Shift, Zoom and Focus in the selected Profile number.
Move	Moves the lens to the adjustment position of the lens saved in the Profile number.
Reset	Returns the adjustment value saved in the selected Profile number to the default factory shipping condition.
Load By Signal	Moves the lens to the adjustment value of the lens saved in the selected Profile number when the signal is switched.
Forced Mute	Select whether to mute (delete) the picture or not when moving the lens.

[Menu Angle]
Select the orientation of the on-screen display (menu, input terminal, message).
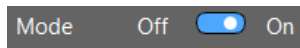
[Orientation]
Select the projector's projection mode (Auto, Desktop Front, Ceiling Rear, Desktop Rear or Ceiling Front).

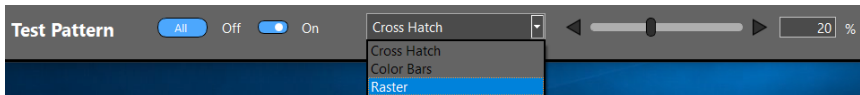## 3-4. Adjusting the Uniformity of the picture [Uniformity]
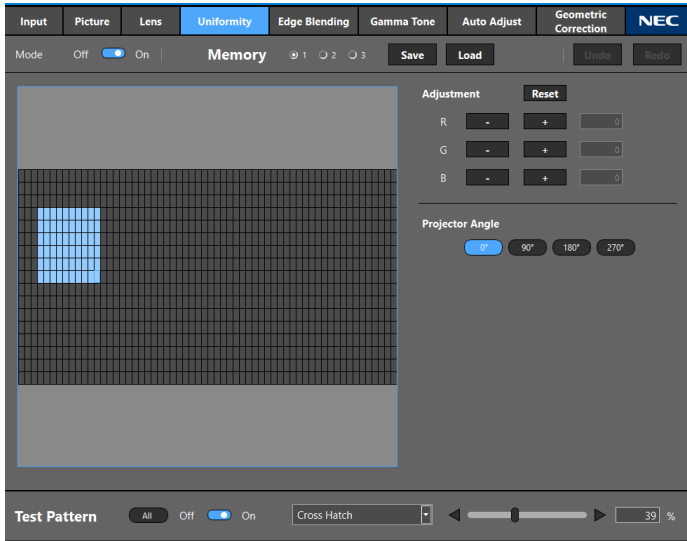
Adjust the color uniformity in some parts of the projection screen.
Select the target projector to adjust from the Projector List.

(1) Turn the mode to On.

The Uniformity function will be enabled.

(2) Turn the Test Pattern to On.

Select a raster from the dropdown list to display the Raster test pattern on the projection screen.

Adjust the gradation of the test pattern with the adjustment bar so that the non-uniformity appears more distinct.

When you turn Test Pattern to On after enabling All, the same gradation Test Pattern is displayed in all the projectors belonging to the same Layout.

(3) Select the adjustment range.

Select the range to adjust the color uniformity in the adjustment range selection area.
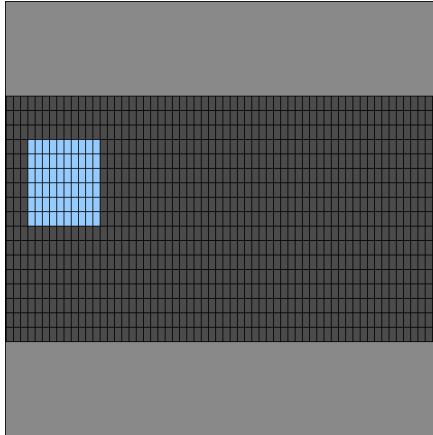
Operations are carried out with the mouse or keyboard.

🖱 Mouse operation	⌨ Keyboard operation
Select the range by dragging.	Tab key: Moves the focus to another control. ↑↓←→ keys: Cancel the previous selection and moves the focus to the selected position. Shift+↑↓←→ keys: Maintain the previous selection status and select the range starting from the position where Shift was first pressed.

The selected adjustment range will be displayed in blue.

(4) Adjust each of the R, G, B color component.

Change the R, G, B values to change the color gradation towards the outside starting from the center of the adjustment range* so that the non-uniformity is less distinct.
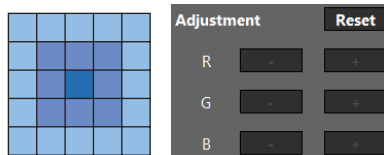
* If 2 corners are included on the upper side of the adjustment range, apply gradation from the top to the bottom as shown in the diagram below.
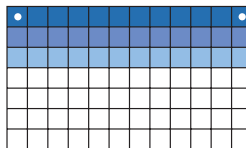
Also, if a bottom left corner is included in the adjustment range, apply the gradation from the bottom left to the top right as shown in the diagram below.
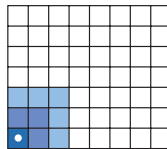
- Click the Reset button to reset the RGB adjustment values of the selected range. Undo records will also be reset.
- Click the Undo button to return to the previous adjustment value. A maximum of up to 50 values can be recorded.
- Click Redo button to adjust the value again. Redo can be carried out a maximum of 50 times.

References

When the focus is in the adjustment range selection area, you can adjust the RGB values with the shortcut keys.

Ctrl+R key   : Raises the red value by 1.
Ctrl+Shift+R key   : Lowers the red value by 1.
Ctrl+G key   : Raises the green value by 1.
Ctrl+Shift+G key   : Lowers the green value by 1.
Ctrl+B key   : Raises the blue value by 1.
Ctrl+Shift+B key   : Lowers the blue value by 1.
Ctrl+Z key   : Returns the adjustment value to the previous value
Ctrl+Y key   : Redoes the adjustment 1 time.

Adjustment ends with this.

References
● Adjustment values can be saved in 3 ways.
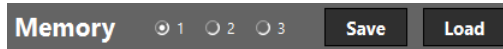
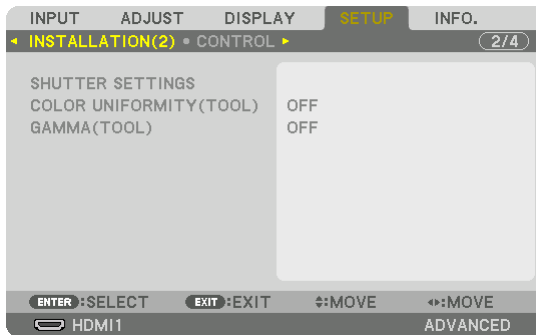Memory   ● 1   ○ 2   ○ 3   Save   Load

Select the storage destination from 1, 2 or 3 and click the Save button.

To invoke the adjustment value, select the storage location from 1, 2 or 3 and click the Load button. The Undo records will be reset then.

You can also invoke the adjustment value for 1, 2, and 3 by using "COLOR UNIFORMITY (TOOL)" from the on-screen menu of the projector.

Example of NP-PA703UL:

INPUT	ADJUST	DISPLAY	SETUP	INFO.

◄ INSTALLATION(2) ● CONTROL ►   (2/4)

SHUTTER SETTINGS
COLOR UNIFORMITY(TOOL)   OFF
GAMMA(TOOL)   OFF

ENTER :SELECT   EXIT :EXIT   ↕:MOVE   ◄►:MOVE
⊂⊃ HDMI1   ADVANCED

● You can rotate the display inside the adjustment range selection area to match the actual installation orientation of the projector.

Projector Angle
0°	90°	180°	270°
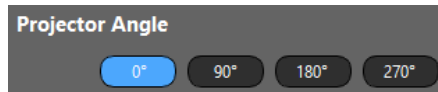
The coordinates (0, 0) will be the following position according to the angle of rotation.

0°: Top left / 90°: Top right / 180°: Bottom right / 270°: Bottom left

3-5. Adjusting the multi-screen boundary [Edge Blending]
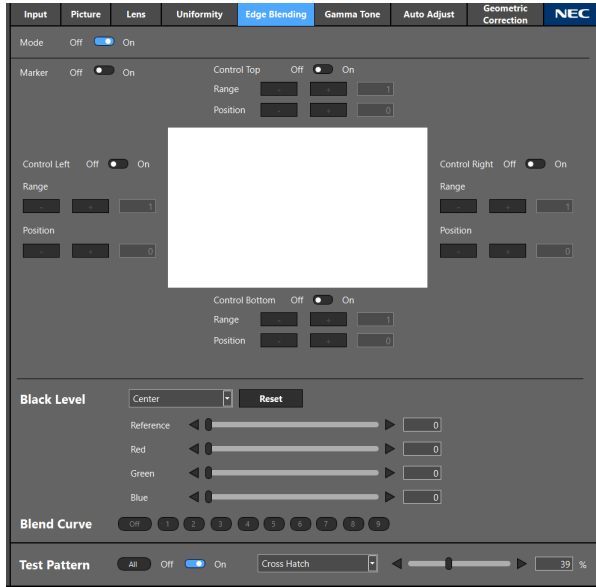
Adjust the boundary of the picture for tiling projection by combining the pictures of multiple projectors.

Select the projector to be adjusted from the Projector List and carry out the adjustment one unit at a time.

Example of four projectors in a 2 × 2 layout:

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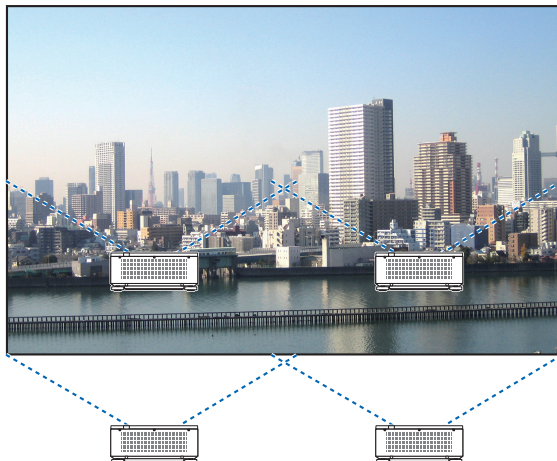
Preparations:

Configure the same Preset and Gamma Correction settings for all projectors that perform Edge Blending.

1. **Select a projector in the Projector List.**

2. **Select an input terminal on the "Input" screen and project the image.**

3. **Set the Preset and Gamma Correction on the "Picture" screen.**

   The recommended settings for NP-PA703UL are as follows.

Preset	Graphic
Gamma Correction	Natural

4. **Turn on the Test Pattern in the "Edge Blending" screen to display the test pattern.**

5. **Configure the Preset and Gamma Correction to the same settings as those set in Step 3 on the "Picture" screen.**

Repeat Step 1 to 5 to adjust the settings for all the projectors.

(1) Turn the mode to On.
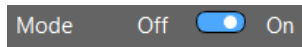
The Edge Blending function will be enabled.

(2) Select the area to adjust.

When adjusting the top left projector out of the 4 projectors that have been installed as shown in the diagram below, turn the right and bottom controls to On.
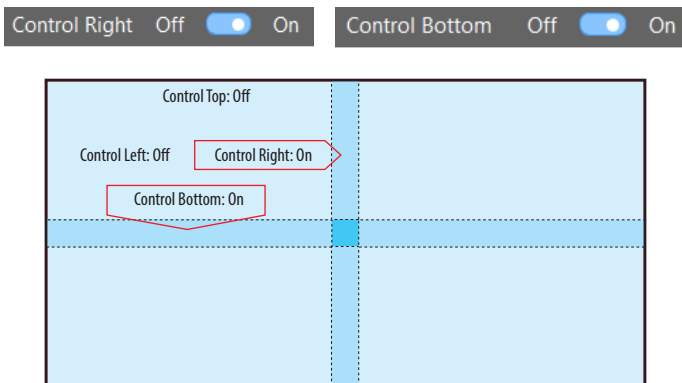
(3) Turn on the Marker.

| Marker | Off | ◯● | On |
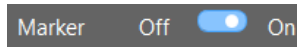
Displays the lines of the 4 colors (Marker) in the adjustment image.
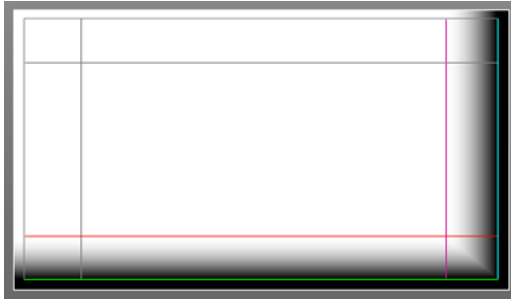
The cyan and green Marker indicates the edge of the area where the picture overlaps while the magenta and red Marker indicates the Range (area/width).

(4) Adjust the Position and Range and set the overlapping area.

Range
| - | + | 1 |
Position
| - | + | 0 |
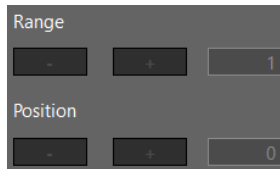
Besides adjusting the position with the -/+ buttons, you can also drag the Marker inside the adjustment image with the mouse to adjust its position.

(5) Adjust the Black Level.

If the difference in brightness of the section where the picture overlaps is a concern, adjust the Black Level for each area.

The Black Level adjustment of the top left projector is as shown in the diagram.
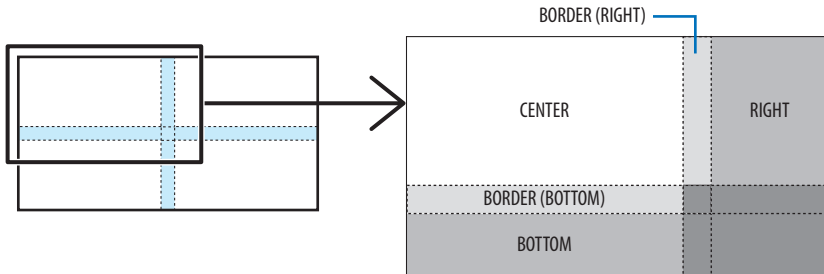
Select the location to adjust from the dropdown list and adjust the Black Level with the Reference, Red, Green and Blue adjustment bars. Select Reset to delete the adjustment value.

(6) Select the Blend Curve.

Adjust the change in gradation of the section where the picture overlaps to make the boundary of the projection image less distinct.

Select the optimal curve setting from the 9 types available.

Once you have finished adjusting the first projector, select the second projector in the Projector List and repeat Steps (1) to (6). Adjust the rest of projectors in the same way.

3-6. Adjusting the gamma tone of the picture [Gamma Tone]
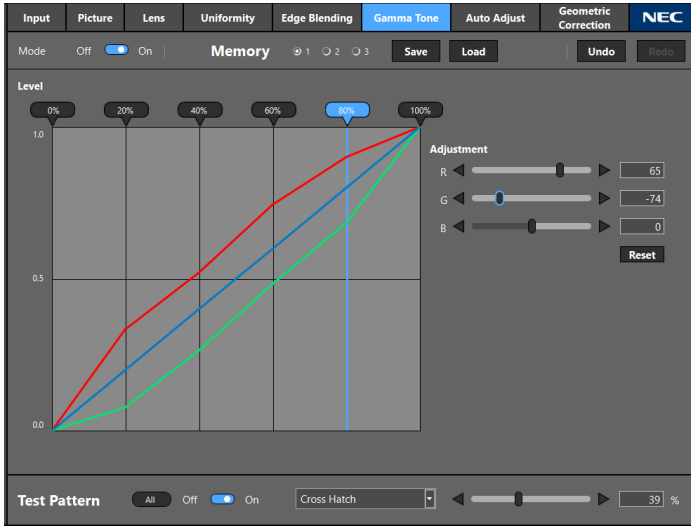
Adjust the intermediate tone colors between projectors.
Select the target projector to adjust from the Projector List.

(1) Turn the mode to On.

The Gamma Tone function will be enabled.

(2) Select the adjustment point.

Refer to the RGB adjustment value flag displayed in the gamma curve display area and select the gradation to adjust from 0%, 20%, 40%, 60%, 80% or 100%.
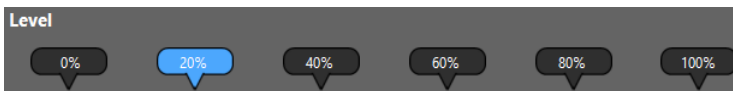
(3) Turn the Test Pattern to On.

Select a raster from the drop-down list to display the Raster test pattern on the projection screen.

Apply the gradation level selected in the step (2) to the test pattern.

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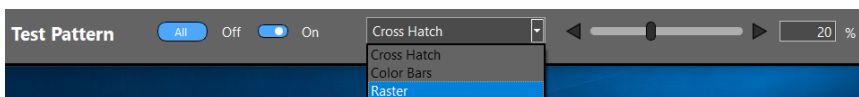
(4) Adjust the R, G, B levels.
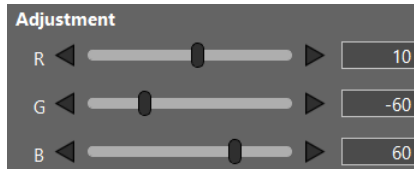
Change the R, G, B values while observing the projection screen and adjust them so that they are optimal.

- Click the Reset button to reset the RGB adjustment values of the selected level. Undo records will also be reset.

- Click the Undo button to return to the previous adjustment value. A maximum of up to 50 values can be recorded.

- Click Redo button to adjust the value again. Redo can be carried out a maximum of 50 times.

Similarly, adjust the other gradations and other projectors where necessary so that the colors are uniform among all the projectors.

_____

References

● Adjustment values can be saved in 3 ways.

Select the storage destination from 1, 2 or 3 and click the Save button.

To invoke the adjustment value, select the storage location from 1, 2 or 3 and click the Load button. The Undo records will be reset then.

You can also invoke the saved adjustment value for 1, 2, and 3 by using "GAMMA (TOOL)" from the on-screen menu of the projector.

Example of NP-PA703UL:

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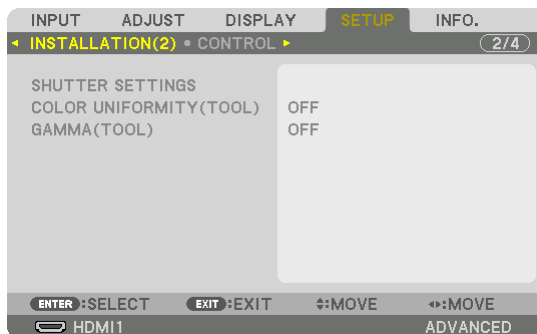
3-7. Adjusting the screen automatically using a webcam [Auto Adjust]
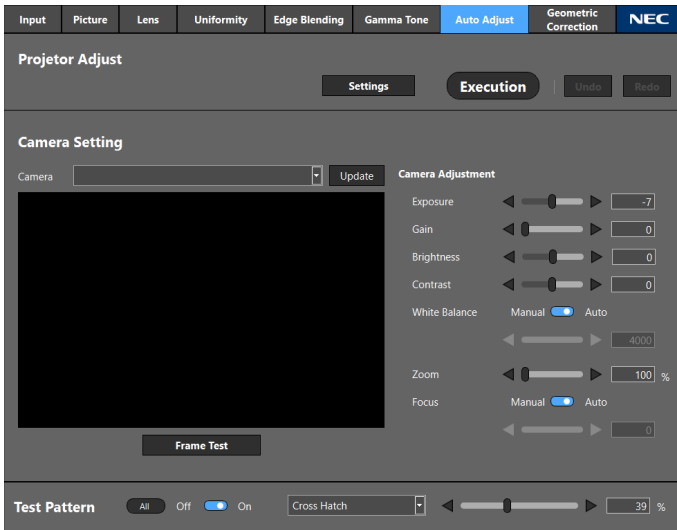
When a webcam is connected to the computer, the images projected by the projectors can be filmed with the camera and the image quality can be adjusted automatically.

The Auto Adjust operation is performed for the pictures projected from two projectors.

The items adjusted automatically are the White Balance, Black Level, Gamma Tone and Uniformity.

Always perform Edge Blending to adjust the edges of the two projected pictures before performing the Auto Adjust procedure.

NOTE:
- For the projectors supporting the Auto Adjust function, see the NEC website.
- Some webcams are not supported.
- It is not possible to automatically adjust the image for three or more projectors.
- The Auto Adjust function may not provide the proper adjustments, depending on the installation environment and the projectors' conditions. If the adjustments have not been performed properly, click the "Undo" button to the right of the "Execution" button to restore the previous settings.
- When the Auto Adjust operation is performed, the Uniformity and Gamma Tone adjustment values are stored in projector memory 1.

(1) Project images from two projectors so that the left and right edges overlap.

When doing this, adjust the Lens Shift, Focus and Zoom.

Here, as an example, all white images are projected from the two projectors.
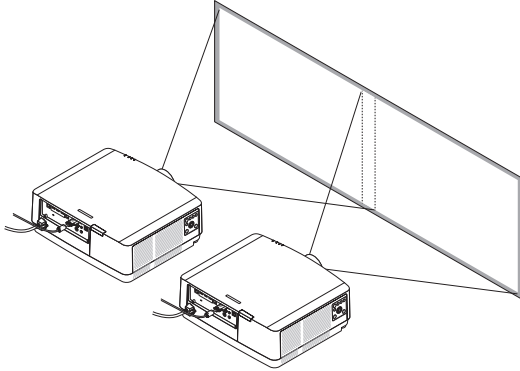
TIP:
・ The images projected from two projectors can also be lined up vertically.

(2) Connect the webcam to the computer.

For instructions on operating the webcam, refer to the webcam's User's Manual.
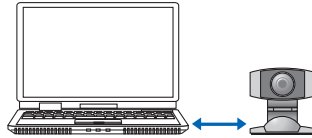
(3) Start up ProAssist, then select the two projectors from the projector list.

(4) Click the "Edge Blending" tab and adjust the edges of the two projected images. (→ page 35)

(5) Click the "Auto Adjust" tab.

(6) Click the pull-down list in the camera section and select the connected webcam.

Once the webcam is recognized, the camera's image is displayed in the camera image area at the center of the ProAssist screen.

Camera Setting

Camera | xxxxxx Webcam | Update
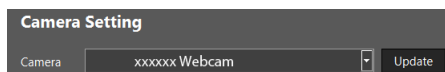
(7) Record the projected images with the webcam.

- Adjust the position of the webcam so that the four corners of the projected images fit within the camera image area on the ProAssist screen.

- If necessary, adjust the camera's image. Adjust the Exposure, Gain, Brightness, Contrast, White Balance, Zoom and Focus at the right of the camera image area. It may not be possible to adjust some of the items, depending on the camera.
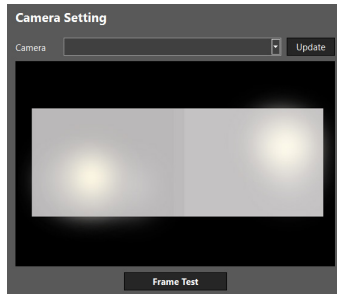
(8) Click the "Frame Test" button under the camera image area.

ProAssist identifies the contours of the projected images.

(9) Click the "Settings" buttons.

Adjust the White Balance, Black Level, etc. of the two projectors, and set the items to be adjusted automatically so that there are no differences (color spotting, etc.) between the two. (→)

Once the settings are completed, click the OK button.

(10) Click the "Execution" button.

A confirmation message is displayed.

(11) Click the OK button.

The Auto Adjust procedure starts. The progress is shown on the display.

The Auto Adjust procedure can be canceled by clicking ☒.
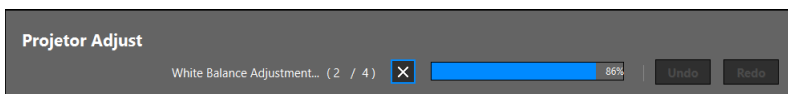
A message is displayed to indicate that the Auto Adjust procedure is completed.

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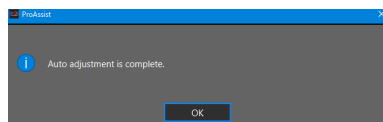
(12) Click OK.

This completes the Auto Adjust procedure.

About the [Settings] items
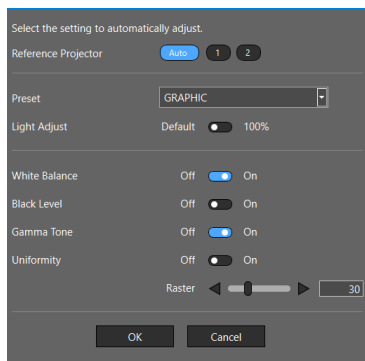
Reference Projector	Automatic adjustment is performed in reference to the projector whose number is selected from the projector list or the layout image.	
	Auto	The projector to be adjusted is identified automatically. The value is adjusted to the lower current adjustment value.
	X	Adjustment is performed in reference to projector number "X".
	Y	Adjustment is performed in reference to projector number "Y".
Preset	The adjusted value is stored at the Preset position selected on this menu.	
Light Adjust	Default	The current settings are used as such.
	100%	The light is adjusted to 100%. When this is set, the light mode switches to normal.
White Balance	When "On" is selected, this item will be adjusted.	
Black Level	When "On" is selected, this item will be adjusted.	
Gamma Tone	When "On" is selected, this item will be adjusted.	
Uniformity	When "On" is selected, this item will be adjusted.	
	Raster	Uniformity is adjusted at the set tone.

NOTE:
- The Reference Projector may be adjusted even if Reference Projector is specified, depending on the installation environment and the projectors' conditions.
  If the Reference Projector adjustments have been changed, this change is displayed after the adjustment is completed.
- We recommend the "Graphic" presetting.
- The Black Level and Uniformity adjustments can only be made properly in a dark installation environment.
- The uniformity is adjusted individually when the reference projector is set to "X" or "Y".

3-8. Correcting the distortion of the projection screen [Geometric Correction]

Adjustment icon　　　　Transformation image
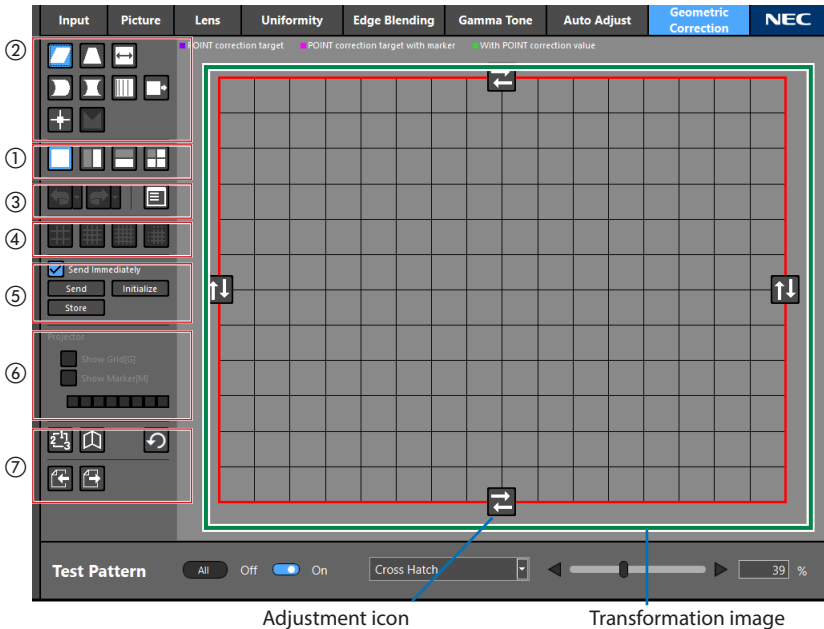
Corrects the distortion of the screen when projecting onto a screen with a special shape such as a cylindrical or spherical surface etc.

(1) Use the "Split buttons" (①) to select the area of correction.

When the screen is split, blue-violet correction points are displayed in the correction area.

(2) Use the "Correction type buttons" (②) to select the type of correction.

The display and position of the adjustment icon vary depending on the correction method.

(3) Drag the Adjustment icon to change the Transformation image and adjust the screen distortion.

You can also adjust with the shortcut key (Ctrl + arrow key).

① Split buttons : Split the correction area.

|	
	No split
	Split the screen into 2 halves on the left and right
	Split the screen into 2 halves at the top and bottom

	Split the screen into 4

NOTE:
• Splitting the image limits the direction of correction, and there are some correction types that cannot be used.

② Correction type buttons : Select the type of correction.

		Left/right direction	Up/down direction
	This performs slant correction.		
	This performs keystone correction.		
	This performs amplitude correction.		
	This performs bowing correction.		
	This performs pincushion correction.		
	This performs correction of linearity.		
	This performs position correction.		

	This performs point correction. Move the selected correction point to correct.
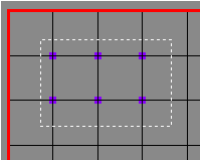
⊓ Mouse operation	Action
Click and drag a point other than the intersection point (background) on the grid	Select correction range
Click intersection point on grid	Select a correction point
Click a point other than the intersection point (background) on the grid	Clear all correction points
Click and drag a correction point	Correction
Ctrl + click and drag a point other than the intersection point (background) on the grid	Add a correction point within the specified range
Ctrl + click the intersection point on the grid	Add a correction point
Ctrl + Shift + click and drag a point other than the intersection point (background) on the grid	Clear a correction point within the specified range
Ctrl + Shift + click a correction point	Clear correction point

⌨ Keyboard operation	Action
Shift + arrow key	Select correction range
Ctrl + arrow key	Correction
Arrow key	Move correction point

NOTE:
- Point correction also affects other points besides the selected correction point. Perform correction for multiple points instead of just one point.
- This operation cannot be performed when the correction area is selected with the split button.

Correct for Corner Wall Screen.

NOTE:
- Click the Corner Wall Screen button 🔲 and select whether to split the screen into 2 halves on the Left and Right Walls or at the Upper and Lower Walls.
- This operation cannot be performed when the correction area is selected with the Split button.

③ Undo/Redo button, Parameter button

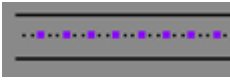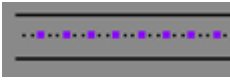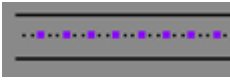|	
	Return to the previous adjustment value. A maximum of up to 50 values can be recorded.
	Adjust the value again.
	Display the correction values list screen.

④ Grid button : Change the display grid number of the deformed image.

	The number of grids is reduced, resulting in a coarse display.
	The standard number of grids.
	The number of grids is increased, resulting in a fine display.
	Configure the user settings of the grid. **NOTE:** • Depending on the projector, the user setting function of the grid is not available. <table><tr><td></td><td>Select the grid display to refer to.</td></tr><tr><td></td><td>Select / clear all grids.</td></tr><tr><td></td><td>Select / clear the horizontal and vertical grids. "■" will be displayed in the selected grid. Click the Save button to save the user settings.</td></tr></table>

⑤ Send/Save button

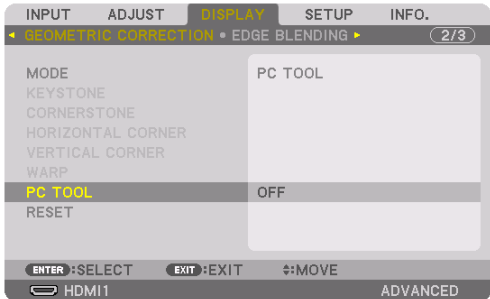|	
Send	Send the correction value to the projector. If you tick the "Send Immediately" checkbox, the correction value will be sent each time you perform the correction operation without you having to press the send button.
Initialize	Initialize all correction values and send them to the projector. **NOTE:** • The corrections that have been saved in the projector will not be deleted.
Store	Store the correction value in the projector. Select the storage destination from 1, 2 or 3. The saved correction values can be called with the mode setting button .

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⑥ Select projector display

Show Grid	Tick the checkbox to display a grid on the projection screen of the connected projector.
Show Marker	Tick the checkbox to display a marker on the projection screen of the connected projector. You can change the color of the marker with the color palette.

NOTE:
• Depending on the projector, Show Grid and Show Marker are not available.

⑦ Menu button

🔢	**Mode setting button** Select 1, 2 or 3 to recall the correction value saved in the projector using "Store". The 1, 2 or 3 correction value can also be recalled from the "PC TOOL" in the on-screen menu of the projector. Example of NP-PA703UL:
📖	**Corner Wall Screen button** Select the split mode of the Corner Wall Screen (Left and Right Walls/Upper and Lower Walls). **NOTE:** • Splitting the image limits the direction of correction, and there are some correction types that cannot be used. • When the Corner Wall Screen has been changed, the information of the "Undo" and "Redo" function will be cleared.
↺	**Reset button** Return the correction values to the factory default condition.
📁	**File save button** Save the correction data file in your computer.
📂	**File read button** Load the correction data saved in your computer using the file save button and send the data to the projector.

4. Troubleshooting

When a problem occurs	Carry out the following checks
Projector is not recognized	• Is the projector that you are using compatible with ProAssist? (→ Page 5) • Are the computer and projector connected correctly to the network? • Have you turned on the projector?
Picture is distorted	• Are the projectors installed correctly? • To correct a distorted image, perform Geometric Correction. (→ Page 38)
The brightness of the screen differs for each of the projectors in tiling projection	• Adjust the brightness with the Light Mode and Light Adjust. (→ Page 20) • Adjust Ref. White Balance. (→ Page 21)
The screens of the projectors differ in color in tiling projection	• Adjust Gamma Tone. (→ Page 31)
The color is not uniform locally on the projection screen	• Adjust Uniformity. (→ Page 23) • If the projector is a LCD-type projector, the non-uniformity of the brightness of the LCD panel may appear as a non-uniform color on the projection screen. This is a characteristic of the LCD panel and is not a malfunction. The non-uniformity in color can be reduced by adjusting the Uniformity.
I want to copy the registration details of the Projector List to another computer	• You can export the registration details of the Projector List to the LIST file or import them into another computer. (→ Page 18)
The projector will not respond when you perform menu selection or a variety of settings and adjustments successively.	• Much communications at a time may result in your waiting for a response from the projector. If this happens, wait until the process is finished.
Communication error is displayed	• Use the projector that has ProAssist installed to check for the network connected to the projector. • Refer to the projector's user's manual to check if your projector supports the function causing a communication error.
I want to save the adjustment values on my computer.	• Click "Save" on the common screen to save the adjustment values as a data file (*.dat) in the desired folder on the computer. (→ page 8)

When a problem occurs	Carry out the following checks
I performed the Auto Adjust procedure, but the colors of the two projected images are different.	• The Auto Adjust function may not provide the proper adjustments, depending on the installation environment and the projectors' conditions. If the adjustments have not been performed properly, click the "Undo" button to the right of the "Execution" button on the Auto Adjust screen to restore the previous settings. • Is the environment bright or is there ambient light (fluorescent light or external light) shining on the projected image? We recommend performing the Auto Adjust procedure in a dark environment. • Is the webcam tilted? The adjustment cannot be made properly if the webcam is strongly tilted, even if the projected image recorded by the webcam fits within the camera image area of the ProAssist screen. Adjust the webcam so that the projected image is not tilted. • Perform the Auto Adjust procedure with images being projected from two projectors. If there is no signal from the projector, the adjustment values cannot be changed automatically even if the Auto Adjust procedure is performed. • If the colors of the two projectors are still different when the Auto Adjust procedure is performed despite taking these measures, adjust manually.

5. Others

Trademarks

- ProAssist is a trademark of NEC Display Solutions, Ltd.
- Windows is a registered trademark or trademark of Microsoft Corporation in the US and other countries.
- Other manufacturer names and products names described in the user manual are registered trademarks or trademarks of the respective companies.